

The Patrobine Carabids (Coleoptera) from the Kii Peninsula, Central Japan

Seiji MORITA

Motoazabu 1–3–28–405, Minato-ku, Tokyo, 106 Japan

Abstract Three patrobine carabids, including a new geographical race of *Patrobus ohdaisanus* (NAKANE), are recorded or described from the Kii Peninsula, Central Japan.

The first record of patrobine carabid beetle from the Kii Peninsula was made by ISHIDA (1958, p. 18) on the basis of two medium-sized species collected on Mt. Ohdaigahara-zan, which is situated on the borders between Mie and Nara Prefectures. They are *Penetretoides* [nom. nud.] sp. nov. and *Diplous depressus* (GEBLER). Later in 1963, the former was described by NAKANE (1963, p. 23) under the name of *Patrobus* (*Patrobus*) *ohdaisanus*. Since its discovery, nothing has been added to our knowledge concerning the patrobine carabid fauna of the peninsula. However, recent investigations made by Messrs. Shotarô TANAKA and Hiroshi IWASAKI have revealed that another interesting form occurs on Mt. Gomanodan-zan (=Mt. Gomanodan-yama) lying to the west-southwest of Mt. Ohdaigahara-zan.

A careful comparative study of their male genitalia has shown that the aedeagus of this form is almost identical with that of *P. ohdaisanus*, with the exception of slight differentiation of inner armature. Thus, I will describe it as a new subspecies of the latter in this paper. At the same time, all the patrobine carabids hitherto found in the peninsula will be enumerated.

The abbreviations used herein are the same as those explained in my previous papers.

Diplous depressus (GEBLER)

Patrobus depressus GEBLER, 1829, in C. F. LEDEBOUR, *Reise*, 2, p. 49.

Diplous depressus: HABU, 1951, *Kontyû*, Tokyo, **19**, p. 70. — ISHIDA, 1958, *Akitu*, Kyoto, **7**, p. 18. — MORITA, 1985, *Coleopt. Japan Col.*, Osaka, **2**, p. 102, pl. 19, fig. 29.

Other references are omitted.

Specimens examined. 6 ♂♂, 4 ♀♀, Dorogawa, Nara Pref., 2–VII–1988, S. MORITA leg.

Notes. Though widespread in both lowlands and mountainous areas in Hokkaido, Honshu and Shikoku, I was unable to find any of its records from western Honshu and Kyushu.

Patrobis flavipes MOTSCHULSKY

Patrobis flavipes MOTSCHULSKY, 1864, Bull. Soc. imp. Natur. Mosc., **37** (3), p. 191. — HABU, Akitu, Kyoto, **9**, p. 5. — MORITA, 1985, Coleopt. Japan Col., Osaka, **2**, p. 101, pl. 19, fig. 19.

Other references are omitted.

Specimens examined. 4 ♂♂, 1 ♀, Taira, Shirahama-chô, Wakayama Pref., 9-V-1985, S. TANAKA leg.; 3 ♂♂, Shagawa, Shirahama-chô, Wakayama Pref., 10-V-1986, S. MORITA leg.

Notes. This species is widely distributed in China, Korea and Japan. In Japan, the beetle is common at least on plains.

Apatrobis ohdaisanus ohdaisanus (NAKANE)

(Figs. 1-5)

Penetretoides [nom. nud.] sp. nov.: ISHIDA, 1958, Akitu, Kyoto, **7**, p. 18.

Patrobis (Patrobis) ohdaisanus NAKANE, 1963, Fragm. coleopt., Kyoto, (6), p. 23.

Patrobis (Apatrobis) sp.: HABU, 1976, Trans. Shikoku. ent. Soc., **13**, p. 16.

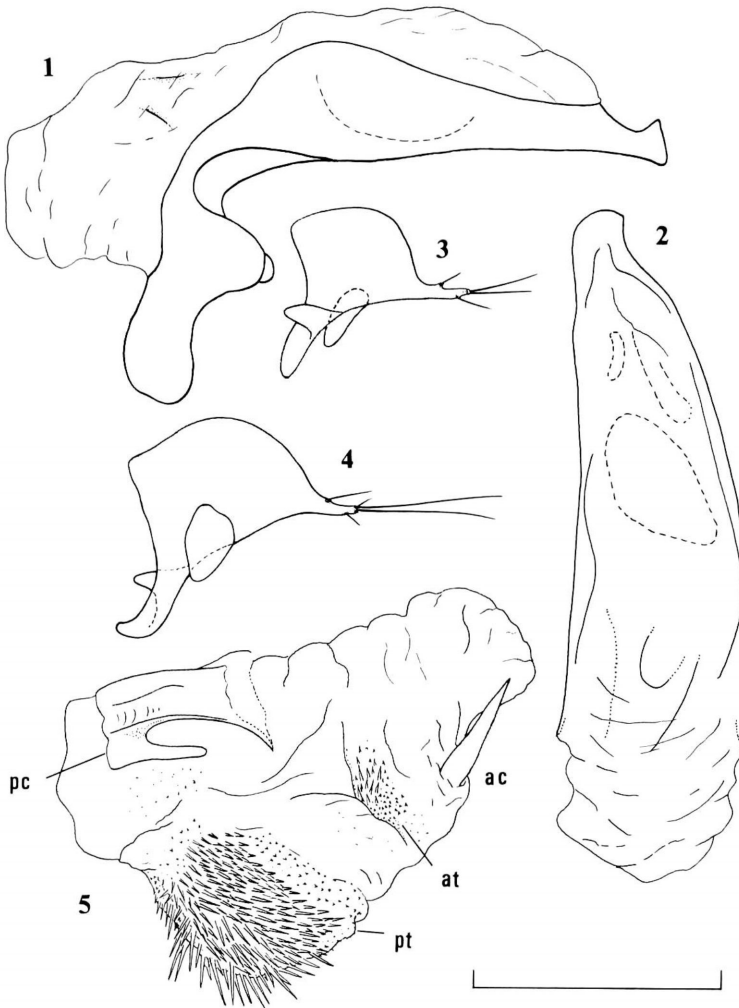
Apatrobis ohdaisanus: MORITA, 1985, Coleopt. Japan Col., Osaka, **2**, p. 102.

Other references are omitted.

Additional description. Relative lengths of antennal segments as follows: I: II: III: IV: V: VI: XI \cong 1: 0.44: 1.64: 1.04: 0.94: 0.99: 1.10; standard ratios of body parts as follows: PW/HW 1.29–1.36 (M 1.31) in 7 ♂♂, 1.31–1.38 (M 1.33) in 3 ♀♀, PW/PL 1.24–1.32 (M 1.28) in 7 ♂♂, 1.27–1.36 (M 1.31) in 3 ♀♀, PW/PA 1.43–1.50 (M 1.46) in 7 ♂♂, 1.41–1.50 (M 1.45) in 3 ♀♀, PW/PB 1.35–1.38 (M 1.37) in 7 ♂♂, 1.34–1.38 (M 1.36) in 3 ♀♀, PA/PB 0.91–0.96 (M 0.94) in 7 ♂♂, 0.92–0.96 (M 0.94) in 3 ♀♀, EW/PW 1.30–1.39 (M 1.34) in 7 ♂♂, 1.33–1.40 (M 1.37) in 3 ♀♀, EL/EW 1.48–1.56 (M 1.52) in 7 ♂♂, 1.52–1.56 (M 1.54) in 3 ♀♀.

Aedeagus rather stout with an elongate basal part; apical lobe flat and twisted, with obtusely rounded and ventro-apically produced right corner, and angulate and dorsally produced left corner; inner sac armed with two copulatory pieces and two teeth-patches; proximal copulatory piece (pc) moderately sclerotized, saddle-like, and with an elongate lobe which is heavily sclerotized and apically produced; apical copulatory piece (ac) heavily sclerotized, spine-like and lying obliquely at apical fourth; proximal teeth-patch (pt) very large, lying at the left side at about middle of aedeagus, and a little distant from proximal copulatory piece; apical teeth-patch (at) small, lying on the right side of apical copulatory piece; styles very poorly sclerotized, broad, right style being shorter than the left, and with four or five setae at apical part.

Specimens examined. 12 ♂♂, 3 ♀♀, Mt. Ohdaigahara-zan, Nara Pref., 26-VIII-1973, S. MORITA leg.



Figs. 1-5. Male genitalia of *Apatrobis ohdaisanus ohdaisanus* (NAKANE). — 1, Aedeagus, left lateral view; 2, same, dorsal view; 3, separated right style, left lateral view; 4, separated left style, left lateral view; 5, separated and everted inner sac, showing sclerotized armature (ac: apical copulatory piece, at: apical teeth-patch, pc: proximal copulatory piece, pt: proximal teeth-patch). (Scale: 1.00 mm.)

Apatrobis ohdaisanus spinosus MORITA, subsp. nov.

(Figs. 6-12)

Distinguished from the nominotypical subspecies by the following points: Genae more tumid; pronotum with widely rounded apical angles; basal foveae more strongly punctured, and larger but shallower; elytral striae deeper. Relative lengths of an-

tennal segments as follows: I: II: III: IV: V: VI: XI \cong 1: 0.44: 1.62: 1.02: 0.95: 0.98: 1.11.

Standard ratios of body parts as follows: PW/HW 1.32–1.36 (M 1.34) in 5 ♂♂, 1.31 in ♀, PW/PL 1.23–1.33 (M 1.30) in 5 ♂♂, 1.36 in ♀, PW/PA 1.38–1.50 (M 1.45) in 5 ♂♂, 1.45 in ♀, PW/PB 1.36–1.44 (M 1.40) in 5 ♂♂, 1.42 in ♀, PA/PB 0.93–1.00 (M 0.96) in 5 ♂♂, 0.98 in ♀, EW/PW 1.31–1.36 (M 1.33) in 5 ♂♂, 1.44 in ♀, EL/EW 1.50–1.59 (M 1.53) in 5 ♂♂, 1.53 in ♀.

Aedeagus robust with large basal part; apical lobe of aedeagus a little longer than in the nominotypical subspecies in lateral view; an elongate lobe of proximal copulatory piece much wider, and with widely rounded left proximal corner; both teeth-patches (pt & at) much larger than in the nominotypical subspecies; proximal teeth-patch lying near proximal copulatory piece; each style provided with four or five setae.

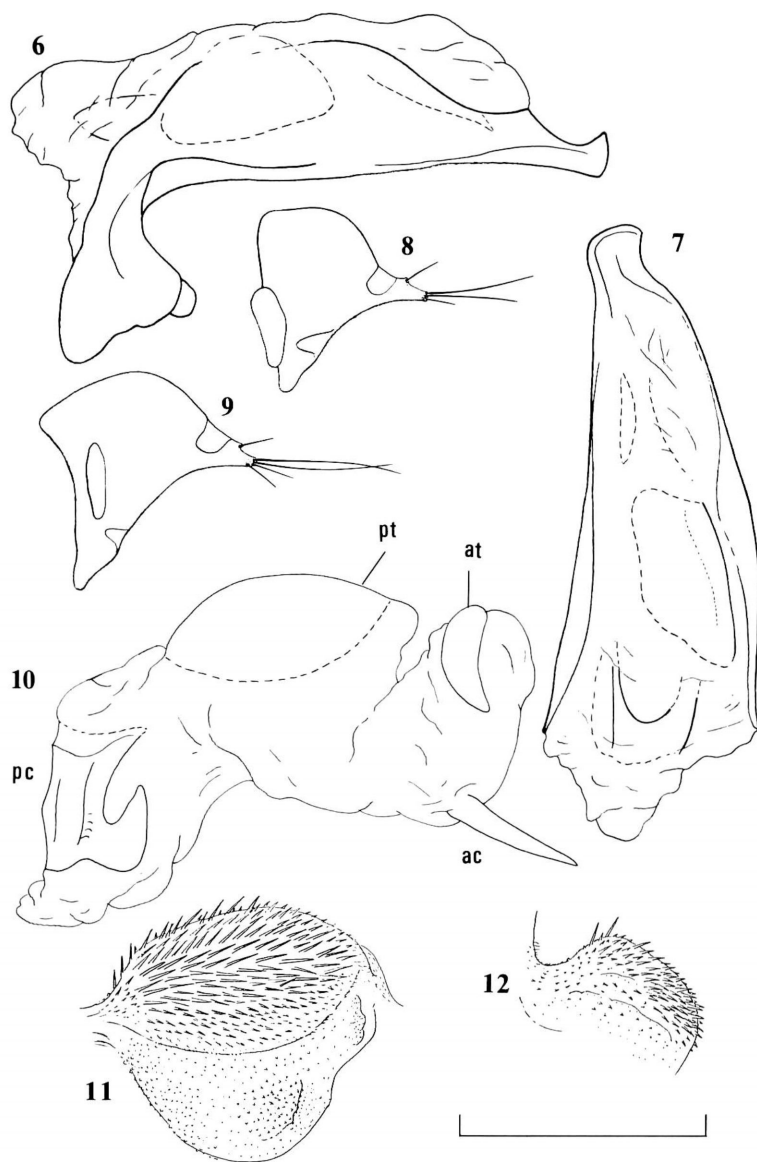
Type series. Holotype: ♂, 22~25-VIII-1988, S. TANAKA leg. Allotype: ♀, 23-VII-1989, S. TANAKA leg. Paratypes: 1 ♂, 14~15-IX-1983, S. TANAKA leg.; 1 ♂, 24-IX-1983, H. IWASAKI leg.; 2 ♂♂, 5-VIII-1989, S. TANAKA leg.; 2 ♂♂, 13-VIII-1989, S. TANAKA leg.

The holo- and allotypes are preserved in the collection of the National Science Museum (Nat. Hist.), Tokyo.

Type locality. Mt. Gomanodan-zan, Wakayama Prefecture in Central Honshu, Japan.

Notes. The type locality of this new subspecies is about 53 km distant to the west-southwest from that of the nominotypical one over the deep valley of the Totsugawa River. It has become evident that the carabid fauna of Mt. Gomanodan-zan is considerably different from that of Mt. Ohdaigahara-zan. Two flightless carabids were described from the same mountain, that is, *Pterostichus shibatai* ISHIDA (1961, pp. 7–8) and *Epaphiopsis elongata* S. UÉNO (1962, pp. 63–67), both of which have very interesting distributional ranges. According to recent investigations, the distributional range of the former covers the northern part of the Kinki District and probably extends to the western part of the Chûbu District. It has never been found on Mt. Ohdaigahara-zan, though it is one of the best known collecting sites for Japanese carabid specialists, and is almost certainly not extant on the mountain. The latter is probably endemic to Mt. Gomanodan-zan.

In concluding, I wish to thank Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his kindness in reading the original manuscript of this paper. My thanks are also due to Dr. Alexander DOSTAL for his kind help, and to Messrs. Shotarô TANAKA and Hiroshi IWASAKI for offering invaluable material for this study.



Figs. 6–12. Male genitalia of *Apatrobis ohdaisanus spinosus* MORITA, subsp. nov. — 6, Aedeagus, left lateral view; 7, same, dorsal view; 8, separated right style, left lateral view; 9, separated left style, left lateral view; 10, separated inner sac, showing sclerotized armature (ac: apical copulatory piece, at: apical teeth-patch, pc: proximal copulatory piece, pt: proximal teeth-patch); 11, everted proximal teeth-patch; 12, everted apical teeth-patch. (Scale: 1.00 mm.)

要 約

森田誠司：紀伊半島のヌレチゴミムシ類。——紀伊半島からは、これまでに2種のヌレチゴミムシ類が知られているにすぎない。いずれも大台ヶ原山より記録されたもので、そのうちのひとつは、固有種のオオダイヌレチゴミムシ *Apatrobus ohdaisanus* (NAKANE)、他のひとつは、北海道から四国までの各地に普通ヒメカワチゴミムシ *Diplous depressus* (GEBLER) である。ここでは両種を再記録し、前者の雄交尾器を記載した。さらに護摩壇山で採集されたヒメヌレチゴミムシ属 *Apatrobus* の1種を、おもに雄交尾器の内部構造から判断して、オオダイヌレチゴミムシの亜種と認め、*A. o. spinosus* という新亜種名を与えて記載した。また、各地に普通のキアシヌレチゴミムシ *Patrobus flavipes* MOTSCHULSKY を記録した。

References

- GEBLER, F. A., 1829. Bemerkungen über die Insekten Sibiriens, vorzüglich des Altai. In LEDEBOUR, C. F. (ed.), *Reise durch das Altai-Gebirge und die soongorische Kirgisen-Steppe*, Berlin, 2(2): 1-228.
- HABU, A., 1951. On two Japanese species of the genus *Diplous*. *Kontyû, Tokyo*, 19: 69-71. (In Japanese.)
- 1976. Three new species of *Apatrobus*, a subgenus of *Patrobus*, from Shikoku, Japan (Coleoptera, Carabidae). *Trans. Shikoku ent. Soc.*, 13: 9-17.
- & K. BABA, 1960. A new species of *Patrobus* from Mts. Iide, with the key to the *Patrobus*-species of Japan (Coleoptera, Carabidae). *Akitu, Kyoto*, 9: 1-10.
- ISHIDA, H., 1958. Garaboidea [sic] (Coleoptera) of Ohsugi Valley and Mt. Ohdaigahara (I). *Akitu, Kyoto*, 7: 15-20. (In Japanese.)
- 1961. Two new species of *Nialoe* TANAKA from western Japan (Coleoptera: Harpalidae). *Ent. Rev. Japan, Osaka*, 13: 7-10.
- MORITA, S., 1985. Carabidae (Bembidiinae, Patrobinae). In UÉNO, S.-I., Y. KUROSAWA & M. SATÔ (eds.), *The Coleoptera of Japan in Color*, 2: 89-103. Hoikusha, Osaka. (In Japanese.)
- MOTSCHULSKY, V. DE, 1864. Énumération des nouvelles espèces de Coléoptères rapportés de ses voyages. *Bull. Soc. imp. Natur. Mosc.*, 37 (3): 171-240.
- NAKANE, T., 1963. New or little-known Coleoptera from Japan and its adjacent regions, XVIII. *Fragm. coleopt.*, Kyoto, (6): 23-26.
- 1978. The Beetles of Japan (new series). 52. Harpalidae 6. *Nat. & Ins.*, Tokyo, 13(9): 9-12. (In Japanese.)
- UÉNO, S.-I., 1962. Primitive trechids of the subgenus *Epaphiopsis*. *Mem. Coll. Sci. Univ. Kyoto*, (B), 29: 41-74.