

## Notes on the Bembidiinae (Carabidae) of Japan

### VI. A New Species of the Subgenus *Neoemphanes*

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**Abstract** A new bembidiine carabid beetle, *Bembidion* (*Neoemphanes*) *satoi* sp. nov., is described from the Island of Iriomote-jima, Southwest Japan. It is related to *B. (N.) shimoyamai* HABU, but differs from it mainly in the body form, coloration and shape of aedeagus.

Recently, four specimens of the subgenus *Neoemphanes* were collected in the Island of Iriomote-jima, Southwest Japan, by Dr. Masataka SATÔ and submitted to me for study. Though all his specimens are females, they are different mainly in the body form and coloration from *B. shimoyamai*, the only described species of this subgenus (HABU, 1978, pp. 1–4). In this year, he revisited the same collecting site and was able to obtain some additional materials of the same species including six males. After a careful examination of the male genital organ, it has become evident that males are also considerably different in the shape of aedeagus, especially of the apical lobe. Thus, it must be a new species and will be described in this paper. The abbreviations used herein are the same as those explained in my previous papers.

Before going further, I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his kindness in reading the manuscript. My thanks are also due to Dr. Masataka SATÔ of Nagoya Women's University for kindly supplying me with important materials.

#### *Bembidion* (*Neoemphanes*) *satoi* MORITA, sp. nov.

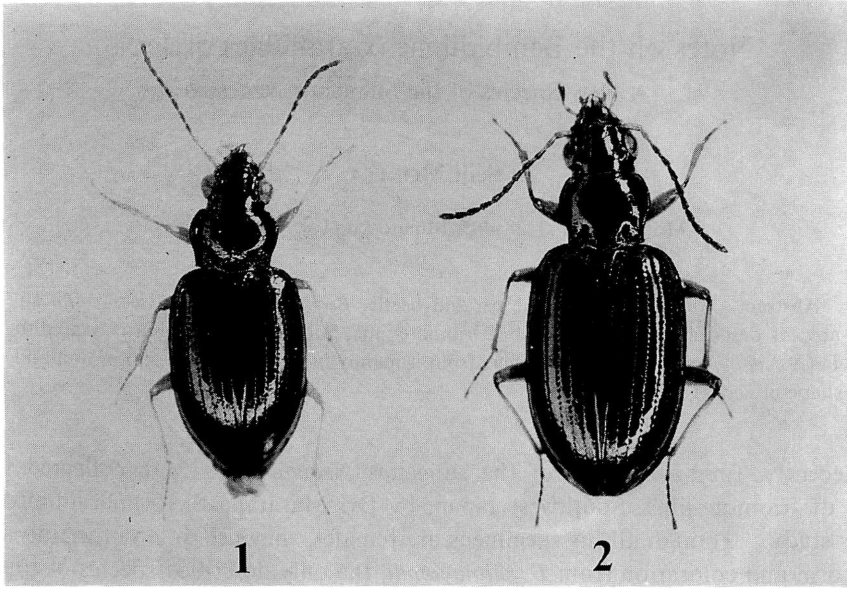
[Japanese name: Iriomote-mizugiwa-gomimushi]

(Figs. 1, 3–5)

Length: 3.41–3.77 mm (from apical margin of clypeus to apices of elytra).

Body rather convex and broad, with relatively slender antennae and legs. Black with greenish lustre, rarely bluish lustre especially on the fore body; ventral surface dark brown; palpi, segments 1–3 and basal parts of segment 4 of antennae, and legs pale yellowish brown to yellowish brown; labrum, mandibles and rest of antennal segments brown to dark brown.

Head convex above; frontal furrows deep, wide, and almost parallel or somewhat divergent posteriad, with coarse punctures near posterior supraorbital pores; eyes prominent; anterior supraorbital pore situated at the mid-eye level, the posterior one

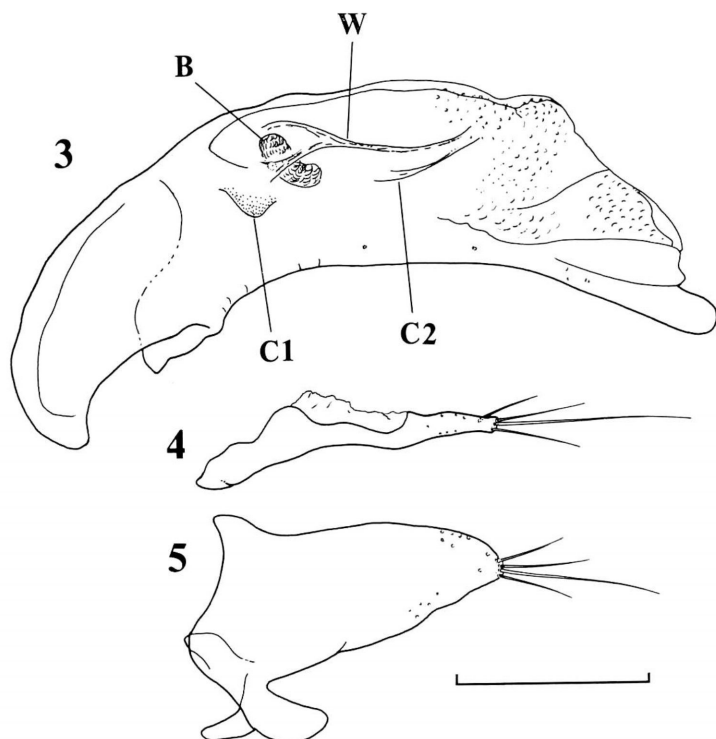


Figs. 1-2. — 1. *Bembidion (Neoemphanes) satoi* MORITA, sp. nov., from Iriomote-jima. — 2. *B. (N.) shimoyamai* HABU, from Gunma Prefecture.

situated a little before the post-eye level; neck wide; apex of labrum almost straight; antennae filiform but rather short, reaching basal fifth of elytra; relative lengths of antennal segments as follows:— I: II: III: IV: V: VI: XI=1: 0.75: 1.13: 1.08: 1.05: 1.02: 1.35; microsculpture indistinct though consisting of wide meshes on the neck.

Pronotum transverse, convex and widest at about 3/5 from base; PW/HW 1.20–1.22 (M 1.21) in 3 ♂♂, 1.19–1.22 (M 1.21) in 5 ♀♀, PW/PL 1.41–1.46 (M 1.43) in 3 ♂♂, 1.40–1.54 (M 1.50) in 5 ♀♀, PW/PA 1.41–1.47 (M 1.43) in 3 ♂♂, 1.34–1.45 (M 1.40) in 5 ♀♀, PW/PB 1.18–1.19 (M 1.18) in 3 ♂♂, 1.18–1.24 (M 1.22) in 5 ♀♀; apex almost straight, rarely very slightly emarginate, narrower than base, PA/PB 0.80–0.85 (M 0.83) in 3 ♂♂, 0.81–0.90 (M 0.86) in 5 ♀♀; sides strongly arcuate in front, shallowly sinuate just before hind angles; reflexed lateral borders very narrow, usually becoming wider just before apical angles; median line clearly impressed on the disc, though reaching neither apex nor base; anterior transverse impression obliterated at middle, but slightly impressed, joining marginal gutter; apical angles widely rounded and hardly advanced; hind angles obtuse or nearly rectangular, and without carinae; base nearly straight at middle, very slightly oblique on each side; anterior marginal setae inserted at about a third from apex, posterior one inserted just inside each hind angle; basal foveae deep, usually with several coarse punctures and wrinkles; microsculpture composed of wide meshes partially forming transverse meshes.

Elytra elongate-ovate, widest at about middle; EW/PW 1.56–1.62 (M 1.59) in 3 ♂♂, 1.56–1.58 (M 1.57) in 5 ♀♀, EL/EW 1.50–1.55 (M 1.52) in 3 ♂♂, 1.46–1.55



Figs. 3–5. Male genital organ of *Bembidion (Neoemphanes) satoi* MORITA, sp. nov., from Iri-omote-jima in left lateral view; 3, aedeagus; 4, right style; 5, left style. (Scale: 0.2 mm.)

(M 1.49) in 5 ♀♀; shoulders widely rounded; preapical sinuation shallow; stria 1 entire and very shallow, with fine punctures; stria 2 as in stria 1, but disappearing at the apex; striae 3–7 usually marked by rows of rather coarse punctures at basal parts, and disappearing at apical fourth; scutellar striole very shallow, with fine punctures; apical striole shallow, usually short, rarely vanished, without punctures; intervals almost flat; two dorsal pores on interval 3 and close to stria 3, situated at 3/10 and 3/5 from base, respectively; microsculpture composed of transverse meshes, but usually obliterated at apex or rarely partially disordered.

Ventral surface without punctures; metasternal process widely bordered at the median part; relative lengths of hind tarsal segments as follows:— I: II: III: IV: V  $\doteq$  1: 0.43: 0.40: 0.33: 1.00.

Aedeagus rather elongate and poorly sclerotized; viewed laterally, apical lobe strongly produced and simply rounded at the extremity; apical part inclined to the right. Inner sac armed with four components of sclerites (W, B, C1 & C2); viewed dorsally, a whip-shaped piece (W) twisted, but rather short; bundle of fibres (B) situated at the right side of the proximal part of whip-shaped piece; a lamellar copulatory piece (C1) poorly sclerotized; a linear piece (C2) situated at the ventral side of apical part of

whip-shaped piece. Left style provided with a long seta and three short setae, right one provided with one long seta and two short setae at apex and with a short seta at subapical part.

*Type series.* Holotype: ♂, allotype: ♀, 13-III-1993, M. SATÔ leg. Paratypes: 4 ♀♀, 27-VIII-1989, M. SATÔ leg.; 5 ♂♂, 10 ♀♀, 13-III-1993, M. SATÔ leg.

The holo- and allotypes are preserved in the National Science Museum (Nat. Hist.), Tokyo. The paratypes are distributed to the private collections of the author and Dr. SATÔ.

*Locality.* Ohtomi-rindô, Iriomote-jima, Okinawa Prefecture, Japan.

*Notes.* This new bembidiine carabid can be distinguished from *B. shimoyamai* by the following key.

- 1 (2) Larger on an average (4.4–4.6 mm); colour black with dark bluish lustre or strongly bluish lustre on dorsal side; PW/HW ca. 1.18; PW/PL ca. 1.24; fore-body narrow, EW/PW ca. 1.75; aedeagus slender; viewed laterally, apical part of aedeagus produced into a very narrow beak. . . . .  
 . . . . . *B. (N.) shimoyamai* HABU.
- 2 (1) Smaller on an average (3.41–3.77 mm); colour black with greenish lustre, rarely bluish lustre on dorsal side; PW/HW ca. 1.21; PW/PL ca. 1.47; fore-body wide, EW/PW ca. 1.58; aedeagus relatively short; viewed laterally, apical part of aedeagus simply rounded at the extremity. . . . . *B. (N.) satoi* sp. nov.

As *B. shimoyamai* is distributed in Central and North Japan, this species may also be a member of northern origin. It is, therefore, interesting that this new bembidiine was discovered from the subtropical island.

This new species is dedicated to Dr. SATÔ, the only collector of the beetle.

## 要 約

森田誠司：日本産ミズギワゴミムシ類の知見。VI. 西表島で発見されたシモヤマミズギワゴミムシ亜属の1新種。——西表島で採集されたシモヤマミズギワゴミムシ亜属の1新種，イリオモテミズギワゴミムシ *Bembidion (Neoemphanes) satoi* を記載した。本種は，シモヤマミズギワゴミムシ *B. (N.) shimoyamai* HABU とは，外観のみならず，陰茎先端部の形が明らかに異なるので，識別はやさしい。シモヤマミズギワゴミムシが北日本に分布するため，北方系の一員とみなされてきたが，2番目の種が亜熱帯の島から発見されたことは，ひじょうに興味深い。

## References

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