

**Notes on the Bembidiinae (Carabidae) of Japan**  
**XV. Two New Species of the Group of**  
*Bembidion cnemidotum*

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**Abstract** Two new species belonging to the group of *Bembidion cnemidotum* are described from Southwest Japan. They are *B. shibatai* MORITA, sp. nov., and *B. amamiense* MORITA, sp. nov.

In this paper, I will describe two new species of the group of *Bembidion cnemidotum* BATES (KRYZHANOVSKIJ *et al.*, 1995, p. 87) from Southwest Japan.

I was deeply grieved on hearing the death of Mr. Taichi SHIBATA, an ardent coleopterist in Japan, and am going to dedicate the specific name *Bembidion shibatai* to his memory.

The abbreviations used herein are as follows: L — body length, measured from apical margin of clypeus to apices of elytra; HW — greatest width of head; NW — greatest width of neck, measured just before apical margin of pronotum; PW — greatest width of pronotum; GL — length of genae, measured parallel with the mid-line; eL — length of eye, measured parallel with the mid-line; PL — length of pronotum, measured along the mid-line; PA — width of pronotal apex; PB — width of pronotal base; EW — greatest width of elytra; EL — greatest length of elytra; M — arithmetic mean; NSMT — National Museum of Nature and Science, Tokyo.

I am deeply indebted to Mr. Noboru ITO for his reading the original manuscript of this paper and to Dr. Toshio KISHIMOTO and Keisuke NAKAMURA for their supplying me important material for this study.

***Bembidion shibatai*** MORITA, sp. nov.

[Japanese name: Kirishima-mizugiwa-gomimushi]

(Figs. 1–2)

*Diagnosis.* Body relatively small with wide elytra; colour as in *B. cnemidotum*; frons and vertex smooth; genae rather short; pronotum with large and coarse punctures in the anterior transverse impression and on basal part; elytra rather short, EL/EW 1.43–1.54; elytral dorsal pores on stria 3 or adjoining the stria; elytral microsculpture almost vanished; metasternal process rather narrowly bordered; aedeagus elongate and hardly arcuate at middle in lateral view; apical lobe of aedeagus rather elongate and slightly curved dorsad.

*Description.* L: 4.28–4.71 mm. Body relatively small with wide elytra. Body black; head, pronotum and labrum with dark greenish lustre; elytra with weakly brownish lustre; ventral surface, epipleura and mandibles brown; antennal segments I, II and basal part of III and legs reddish brown; palpi, the rest of antennal segments and proximal halves of femora dark brown.

Head weakly convex; eyes rather flat; PW/HW 1.19–1.23 (M 1.21) in male, 1.19–1.23 (M 1.23) in female; frontal furrows wide, parallel, and almost smooth; frons with a small rounded fovea; frons and vertex smooth; anterior supraorbital pore foveolate, and situated at a little behind the mid-eye level, posterior ones situated at a little before the post-eye level; microsculpture vanished, but the neck is weakly impressed by isodiametric meshes; genae rather short and oblique, GL/eL 0.12–0.27 (M 0.18) in male, 0.11–0.18 (M 0.13) in female; neck very wide; NW/PA 0.88–0.92 (M 0.91) in male, 0.90–0.96 (M 0.93) in female; relative lengths of antennal segments as follows: I : II : III : IV : V : VI : XI  $\approx$  1 : 0.75 : 1.03 : 1.03 : 1.05 : 1.03 : 1.19 in male and female.

Pronotum narrow and convex; PW/PL 1.11–1.16 (M 1.13) in male, 1.15–1.17 (M 1.16) in female; apex straight and with deep gutters (apical gutters) at the sides; anterior transverse impression shallow and with large and coarse punctures; PW/PA 1.28–1.37 (M 1.33) in male, 1.30–1.39 (M 1.34) in female; sides widely and moderately arcuate in front and distinctly sinuate at about 1/4 from base, and then almost parallel to each other towards hind angles; marginal gutters deep and joining apical gutters at the apical angles; PW/PB 1.33–1.37 (M 1.35) in male, 1.37–1.42 (M 1.40) in female; PA/PB 1.00–1.04 (M 1.01) in male, 1.02–1.08 (M 1.05) in female; median line clearly impressed between anterior and posterior transverse impressions, and with several coarse punctures near basal part; base moderately arcuate, and oblique at the sides; basal part with coarse punctures; apical angles not advanced and obtuse; hind ones right and with a weak and short carina; basal foveae deep, oval and smooth at the sides; microsculpture vanished.

Elytra oblong-ovate, with rather wide basal part; EW/PW 1.68–1.80 (M 1.74) in male, 1.64–1.75 (M 1.70) in female; EL/EW 1.43–1.51 (M 1.47) in male, 1.45–1.54 (M 1.48) in female; shoulders widely rounded; sides weakly arcuate towards the widest part and moderately so towards apices; apex of each elytron rounded, forming a small re-entrant angle at suture; intervals weakly convex; stria 1 clearly impressed throughout, coarsely punctate at

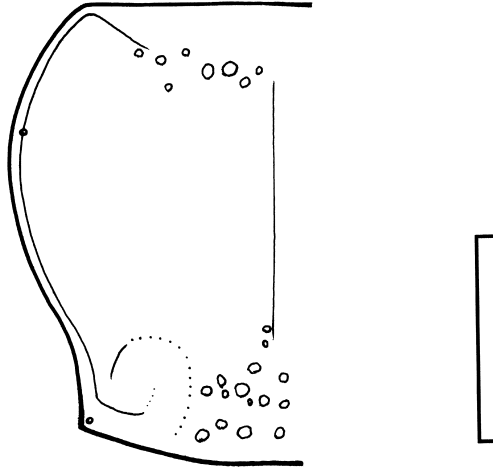
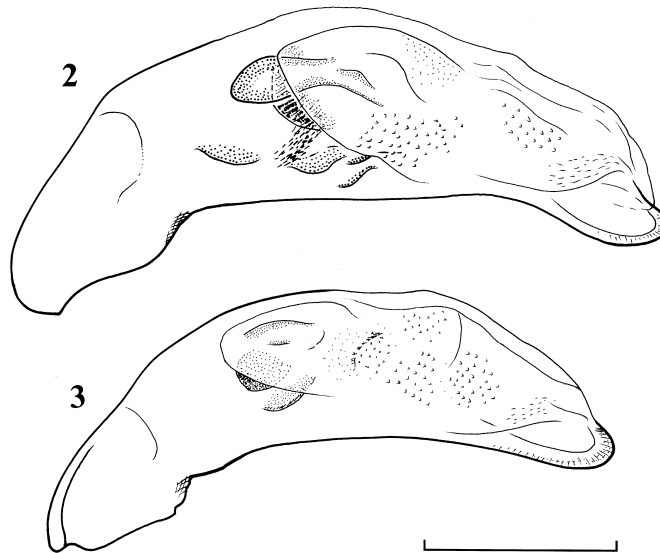


Fig. 1. Pronotum of *Bembidion shibatai* MORITA, sp. nov. (Scale : 0.5 mm.)

basal part, but becoming indistinct at about middle, and vestigial near apical part; stria 2 coarsely punctate in basal half, becoming shallower towards the apical part, and then disappearing near apex or marked with a row of fine punctures at the apex; striae 3–6 coarsely punctate, but disappearing at basal 7/10 of elytra; stria 7 marked with a row of fine punctures, but disappearing at mid level of elytra; scutellar striole rather long and usually marked with a row of six to eight coarse punctures; apical striole vestigial or obliterated; two dorsal pores situated on interval III, and usually adjoining stria 3 or on stria 3; anterior dorsal pore situated between basal 1/4–1/3 of elytra and posterior one at a little behind the middle to 13/20, respectively; microsculpture vanished, but the basal part is very weakly impressed by isodiametric meshes.

Ventral surface almost smooth; metasternal process rather widely bordered at the median part.

Aedeagus rather elongate, hardly arcuate at middle in lateral view; apical lobe rather elongate, slightly curved dorsad and simply rounded at the tip in lateral view. Inner sac covered with very poorly sclerotized scales and armed with six components of sclerites (cf. MORITA, 1994, p. 224); lamellar sclerite poorly sclerotized, but the ventral margin is moderately sclerotized; elongate sclerite robust and heavily sclerotized; poorly sclerotized sclerite situated at the apical part of elongate sclerite; bundle of fibres situated at the right side of elongate sclerite; two small sclerites poorly sclerotized and situated at the ventral position of aedeagus; ostium flag indistinct.



Figs. 2–3. Aedeagi, left lateral view.— 2, *Bembidion shibatai* MORITA, sp. nov.; 3, *B. amamiense* MORITA, sp. nov. (Scale: 0.3 mm.)

Left style provided with a long seta and three short setae at apex; right one provided with a long seta and two short setae at apex and with one short seta at subapical part.

*Type series.* Holotype: ♂ (NSMT), allotype: ♀, paratypes: 12♂♂, 10♀♀, 10. VI. 1993, S. MORITA leg.; 1♂, 4♀♀, 18. IV. 2008, S. MORITA & K. NAKAMURA leg.

*Type locality.* Maruo, Kirishima Mts., Kagoshima Prefecture, Southwest Japan.

*Notes.* This new species is separable from *B. cnemidotum* BATES (1883, p. 273) by having a combination of the following features: 1) eyes less convex, 2) pronotum narrower, 3) anterior transverse impression with several coarse punctures, 4) elytra wider, and 5) aedeagal apical lobe rather elongate and not straight in lateral view.

The above differences mainly in the form of elytra exhibited by this new species and *B. cnemidotum* is sufficient to distinguish them at a glance.

The nearest collecting data of *B. cnemidotum* are as follows: 1♂, Hayato, Kagoshima Prefecture, 18. III. 1976, S. MORITA leg. The standard ratios of body parts in this specimen are as follows: L 4.57 mm; PW/HW 1.20; NW/PA 0.94; GL/eL 0.12; PW/PL 1.21; PW/PA 1.41; PW/PB 1.37; PA/PB 0.97; EW/PW 1.67; EL/EW 1.54.

The standard ratios of body parts shown in the descriptive part are those of five males and five females.

*Etymology.* This species is dedicated to the memory of the late Mr. Taichi SHIBATA.



Fig. 4. Habitus of *Bembidion amamiense* MORITA, sp. nov.

***Bembidion amamiense* MORITA, sp. nov.**

[Japanese name: Amami-mizugiwa-gomimushi]

(Figs. 3–4)

*Diagnosis.* Body relatively small; colour as in the preceding species; frontal furrows divergent posteriad, and sometimes with fine punctures; frons and vertex smooth; genae very short; anterior transverse impression of pronotum shallow, almost smooth or with fine to moderate-sized punctures; basal part of pronotum with fine to moderate-sized punctures; basal parts of elytra wide; elytral microsculpture vanished in male, consisting of wide meshes in female; metasternal process widely bordered at the median part; aedeagus small, weakly arcuate in lateral view, and with rather elongate and simply rounded apex.

*Description.* L: 4.14–4.57. Body relatively small; colour as in the preceding species. Head weakly convex; eyes rather flat; PW/HW 1.26 in male, 1.24, 1.23 in female; frontal furrows wide, divergent posteriad, reaching the post-eye level, almost smooth in male, and with very short wrinkles and fine punctures in female; frons with a small rounded fovea; frons and vertex not punctate; anterior supraorbital pore foveolate, and situated at a little behind the mid-eye level; posterior ones situated at the post-eye level; microsculpture vanished, but the neck is weakly impressed by isodiametric meshes at the sides; genae very

short, GL/EL 0.07 in male, 0.07, 0.09 in female; NW/PA 0.90 in male, 0.87, 0.89 in female; relative lengths of antennal segments as follows: I : II : III : IV : V : VI : XI  $\approx$  1 : 0.70 : 0.99 : 1.04 : 0.99 : 1.02 : 1.26 in male and female.

Pronotum narrow and convex; PW/PL 1.15 in male, 1.13, 1.18 in female; apex straight and with deep gutters at the sides; anterior transverse impression shallow, and almost smooth or with fine to moderate-sized punctures; PW/PA 1.36 in male, 1.36, 1.40 in female; sides bordered, widely and moderately arcuate in front and distinctly sinuate at about 1/4 from base, and then very weakly divergent again towards hind angles; PW/PB 1.30 in male, 1.28, 1.28 in female; PA/PB 0.95 in male, 0.94, 0.91 in female; median line clearly impressed between anterior and posterior transverse impressions, and with several coarse punctures; base moderately arcuate, and oblique at the sides; basal part finely to moderately punctate; apical angles not advanced and obtuse; hind angles right or obtuse, and with a weak and short carina; basal foveae deep, oval and smooth at the sides; microsculpture vanished.

Elytra oblong-ovate, with wide basal part; EW/PW 1.71 in male, 1.66, 1.66 in female; EL/EW 1.50 in male, 1.58, 1.51 in female; shoulders widely rounded; sides weakly arcuate or almost straight towards the widest part and moderately arcuate towards apices; apex of each elytron rounded, forming a small re-entrant angle at suture; intervals weakly convex; stria 1 clearly impressed throughout, coarsely punctate in basal half, but the punctures disappearing towards apex; striae 2–5 coarsely punctate in basal part, and disappearing at basal 4/5; stria 6 coarsely punctate in basal part, and disappearing at basal 3/5; stria 7 marked with a row of fine punctures, but the punctures disappearing at mid-level of elytra; scutellar striole rather long and usually marked with a row of five to seven coarse punctures; apical striole vestigial or obliterated; two dorsal pores situated on interval III, and adjoining stria 3 or on stria 3; anterior dorsal pore situated at basal 1/4 and posterior one at basal 3/5 of elytra, respectively; microsculpture vanished in male, consisting of wide meshes in female.

Ventral surface almost smooth; metasternal process widely bordered at the median part.

Aedeagus relatively small, weakly arcuate in lateral view; apical lobe rather elongate and simply rounded at the tip in lateral view.

Left style provided with a long setae and two short setae at apex; right one provided with a long seta and two short setae at apex.

*Type series.* Holotype: ♂ (NSMT), allotype: ♀, paratype: 1 ♀, 10. III. 1993, T. KISHIMOTO leg.

*Type locality.* Shinkogachi, Uken-son, Amami-Ôshima Is., Kagoshima Prefecture, Southwest Japan.

*Notes.* I was unable to study the inner sac of aedeagus because only a single male is available at present. I therefore placed this new species tentatively in the group of *B. cnemidotum*.

This new species resembles the preceding one in general appearance, but can be distinguished from the latter by the following points: 1) body smaller, 2) genae shorter, 3) basal part of elytra wider, 4) elytral microsculpture consisting of wide meshes in female, 5) metasternal process more widely bordered at the median part, and 6) aedeagus small, arcuate in lateral view and with straight apical lobe.

*Etymology.* The name of the present new species is derived from Amami-Ōshima Is., in which lies the type locality “Shinkogachi”.

## 要 約

森田 誠司: 日本産ミズギワゴミムシ類の知見. XV. *Bembidion cnemidotum* に近縁の西日本産ミズギワゴミムシの2新種. —— 鹿児島県霧島および奄美大島から発見されたミズギワゴミムシ *Bembidion* の2新種を記載した. これらは, *B. cnemidotum* 種群に属するが, 頭部の点刻群の有無, 上翅の形状などで明瞭に異なる. ここでは, はじめの新種を, 昨年お亡くなりになった本学会の芝田太一氏に献名した. 同氏が多くの熱心なアマチュア甲虫研究者を育てかつ甲虫分類学の発展に貢献されたことを, 讃えるとともに, ご冥福をお祈りしたい.

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