

Notes on the Bembidiinae (Coleoptera, Carabidae) of Japan
XVIII. Two New Species of the Genus *Bembidion* from Southwest Japan

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Abstract Two new species belonging to the genus *Bembidion* are described from Southwest Japan under the names, *B. nishidai* and *B. yoshidai*.

What will be dealt with in this part is the result of my study on two species of the genus *Bembidion* obtained in Southwest Japan.

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 for critically reading the original manuscript of this paper. My thanks are also due to Messrs. Mitsuyasu NISHIDA and Masataka YOSHIDA for supplying me with important material for this study.

Bembidion (*Peryphus*) *nishidai* MORITA, sp. nov.

[Japanese name: Kyushu-ruri-mizugiwa-gomimushi]

(Fig. 1)

Diagnosis. Body of moderate size; elytra oval; hind wings reduced; dorsal surface with bluish lustre; legs reddish brown; frons sparsely and finely punctate; apical gutters of pronotum long and deep; carina of pronotum long and prominent; viewed laterally, narrow membranous part of aedeagal inner sac densely covered with spinules and overlapped with ostium flag.

Description. L: 4.07–4.79 mm. Body of moderate size and convex, with oval elytra. Dorsal side and epipleuron black with bluish lustre; ventral side blackish brown; antennal segments I–III, basal part of segment IV, palpi, mouth parts and mandibles reddish brown; rest of antennal segments and legs brown.

Head moderately convex; eyes moderately convex; PW/HW 1.19–1.25 (M 1.22); frontal furrows wide, deep, slightly divergent posteriad, and reaching the post-eye level; frons sparsely and finely punctate; anterior supraorbital pore foveolate and situated a little behind the mid-eye level; posterior ones situated a little behind the post-eye level or on that level; microsculpture not sharply impressed though consisting of polygonal meshes on frons and vertex, and of wide meshes on neck; genae invisible in dorsal view;

relative lengths of antennal segments as follows: — I : II : III : IV : V : VI : XI \cong 1 : 0.83 : 1.37 : 1.16 : 1.05 : 1.04 : 1.35.

Pronotum cordate, moderately convex and widest at basal 3/4; PW/PL 1.25–1.32 (M 1.29); apex moderately emarginate or almost straight; apical gutters rather deep and long; anterior transverse impression shallow, with several fine punctures; PW/PA 1.37–1.41 (M 1.39); sides moderately arcuate in front, or rarely weakly arcuate from apical angles to the widest part, and then moderately sinuate at about basal 1/4, and parallel towards hind angles; reflexed sides rather wide, especially in apical halves; side gutters rather shallow and joining the apical gutters; PW/PB 1.31–1.36 (M 1.33); PA/PB 0.94–0.98 (M 0.96); median line deep and strongly impressed between anterior transverse impression and base; basal part with short and longitudinal wrinkles and coarse punctures; base weakly arcuate at median part, and oblique at the sides; apical angles weakly advanced, and blunt at the tips; hind ones right, with a long carina on each side; basal foveae deep, with moderate punctures; microsculpture consisting of fine transverse meshes on the disc, and of wide ones on the basal part.

Elytra oval and moderately convex; EW/PW 1.58–1.64 (M 1.61); EL/EW 1.44–1.52 (M 1.48); shoulders convex and widely rounded; sides weakly arcuate throughout with very shallow preapical emargination; apex of each elytron rounded, forming a small re-entrant angle at suture; intervals moderately convex and impunctate; stria 1 clearly impressed throughout, rather coarsely punctate at basal part, but the punctures become

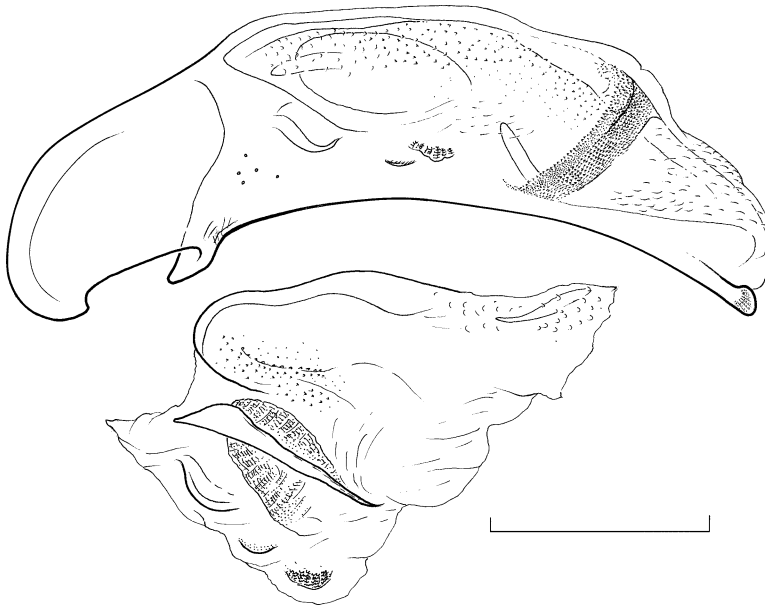


Fig. 1. Aedeagus of *Bembidion (Peryphus) nishidai* MORITA, sp. nov., from Mt. Yamaingiri. (Scale: 0.3 mm.)

indistinct at about middle; striae 2 and 3 similar to stria 1, but shallower at apical parts; striae 4–7 shallower towards apices and obliterated at about basal 3/5; scutellar striole long, deep, free at the apex, situated on interval I, and with several coarse punctures; apical striole deep, long, impunctate and approaching to the apex of stria 7; two dorsal pores situated on interval III, and adjoining stria 3; anterior dorsal pore situated at basal 1/3 of elytra and posterior one at basal 3/5, respectively; microsculpture not sharply impressed though consisting of fine transverse meshes. WL/EL 0.86 in 1 ♂.

Ventral side almost smooth; metasternal process rather narrowly and finely bordered at the median part.

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

Inner sac covered with poorly sclerotized scales and armed mainly with five components of sclerites; elongate sclerite moderately sclerotized; bundle of fibres large, and situated at the right side of elongate sclerite; ostium flag narrow and distinct; viewed laterally, narrow membranous part densely covered with spinules and overlapped with ostium flag.

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

Type series. Holotype: ♂, Mt. Yamaingiri, 12–VI–1993, S. MORITA leg. (NSMT). Allotype: ♀, Mt. Yamaingiri, 12~13–IX–1992, S. MORITA leg. Paratypes: 1 ♂, Mt. Yamaingiri, 12~13–IX–1992, S. MORITA leg.; 2 ♂♂, Mt. Yamaingiri, 12–VI–1993, S. MORITA leg.; 3 ♂♂, Mt. Shiratori-yama, 8–X–1994, M. NISHIDA leg.

Localities. Mt. Yamaingiri and Mt. Shiratori-yama, Kumamoto Prefecture, South-west Japan.

Dispersal potential. Adults of this new species possess reduced hind wings and are probably incapable of flight.

Notes. This new species is unique in the reduced hind wings and structure of aedeagal inner sac.

The standard ratios of body parts shown in the descriptive part are those of 2 ♂♂ from Mt. Yamaingiri and 2 ♂♂ from Mt. Shiratori-yama.

***Bembidion yoshidai* MORITA, sp. nov.**

[Japanese name: Yoshida-mizugiwa-gomimushi]

(Figs. 2–3)

Diagnosis. Body of small size; head and pronotum with weak bluish lustre; elytra with weak brownish lustre; frons sparsely and finely punctate; hind angles of pronotum with a weak carina; elytra wide; basal part of elytral striae 1–7 not impressed and consisting of rows of punctures; sternites not pubescent; metasternal process widely and deeply bordered at the median part; aedeagus elongate and weakly arcuate; aedeagal

inner sac armed mainly with whip-shaped sclerite, hemispherical sclerite and bundle of fibres.

Description. L: 3.57–4.43 mm. Body of small size and convex. Dorsal side and epipleuron black; head and pronotum with weak bluish lustre; elytra with weak brownish lustre; ventral side blackish brown; antennal segments I–III, basal part of segment IV, palpi and legs light brown; mouth parts, rest of antennal segments, and mandibles brown to light brown.

Head moderately convex; eyes moderately convex; PW/HW 1.19–1.23 (M 1.21) in ♂, 1.15–1.21 (M 1.19) in ♀; frontal furrows wide, deep, slightly divergent posteriad, and reaching the level of basal 1/4–1/3 of eye; frons sparsely and finely punctate; anterior supraorbital pore foveolate and situated at the mid-eye level; posterior ones situated at the post-eye level; microsculpture not impressed though consisting of wide meshes on the neck; genae invisible in dorsal view; relative lengths of antennal segments as follows: — I : II : III : IV : V : VI : XI \approx 1 : 0.72 : 1.04 : 1.00 : 1.03 : 1.00 : 1.23.

Pronotum transverse and convex; sides weakly arcuate or nearly straight from the apical angles to the widest part, moderately arcuate, sinuate at about basal 1/5, and then parallel towards hind angles; PW/PL 1.30–1.37 (M 1.33) in ♂, 1.28–1.38 (M 1.33) in ♀; apex weakly emarginate; apical gutters deep and long; anterior transverse impression shallow, with several punctures; PW/PA 1.35–1.42 (M 1.39) in ♂, 1.35–1.38 (M 1.36) in ♀; reflexed sides very narrow throughout; side gutters deep and joining the apical gutters at the apical angles; PW/PB 1.25–1.26 (M 1.25) in ♂, 1.22–1.28 (M 1.26) in ♀; PA/PB 0.88–0.92 (M 0.90) in ♂, 0.90–0.94 (M 0.92) in ♀; median line deeply impressed between anterior and posterior transverse impressions; base weakly arcuate or almost straight at middle and oblique at the sides; basal part with a few coarse punctures and weak and irregular wrinkles; apical angles weakly advanced and blunt at the tips; hind ones right or obtuse, and with a seta and a weak carina; in 1 ♀, right hind angle with two setae; basal fovea deep, with linear bottom and several transverse wrinkles at outside; posterior transverse impression deep and joining linear bottom of basal fovea and with

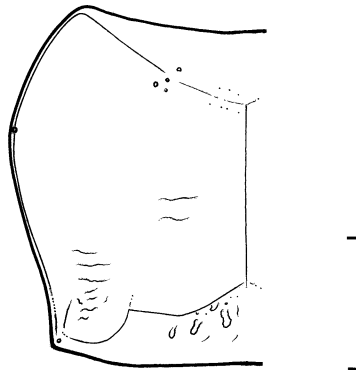


Fig. 2. Pronotum of *Bembidion yoshidai* MORITA, sp. nov. (Scale: 0.3 mm.)

some punctures; microsculpture vanished.

Elytra elongated ovate and moderately convex; EW/PW 1.61–1.69 (M 1.65); in ♂, 1.58–1.62 (M 1.60) in ♀; EL/EW 1.46–1.54 (M 1.50) in ♂, 1.49–1.54 (M 1.51) in ♀; shoulders convex and widely rounded; sides weakly arcuate throughout with very shallow preapical emargination; apex of each elytron rounded, forming a small re-entrant angle at suture; intervals impunctate, usually weakly convex, rarely almost flat; basal part of stria 1 marked with a row of coarse punctures and the remaining part clearly impressed throughout and rather coarsely punctate, but the punctures become indistinct at about middle; striae 2–4 similar to stria 1, but becoming indistinct at basal 4/5; striae 5 and 6 obliterated at about basal 7/10; stria 7 marked with a row of punctures, but disappearing at the middle; scutellar striole long, shallow, free at the apex and situated on interval I, and moderately punctate, or partially marked with a row of punctures; apical striole short and almost vestigial; two dorsal pores situated on interval III, and adjoining stria 3; anterior dorsal pore situated at basal 3/10–1/3 of elytra and posterior one at basal 3/5–7/10, respectively; microsculpture not sharply impressed and partially consisting of fine transverse meshes.

Ventral side almost smooth; sternites not pubescent; metasternal process widely and deeply bordered at the median part.

Aedeagus elongate and weakly arcuate; apical lobe rather elongate, and widely rounded at the tip in lateral view; basal orifice large; right wall of basal part strongly emarginate in right lateral view.

Inner sac covered with poorly sclerotized scales and armed mainly with five components of sclerites; whip-shaped sclerite moderately sclerotized and joining hemispherical sclerite at basal part; bundle of fibres large, and situated at the right side of whip-shaped sclerite; small fibres situated near the apical part of whip-shaped sclerite; a mat of spinules situated at the ventral side of aedeagus; ostium flag narrow and distinct. Each style with a long seta and two short setae at the apex.

Type series. Holotype: ♂ (NSMT), allotype: ♀, paratypes: 3 ♂♂, 9 ♀♀, 5–V–1973,

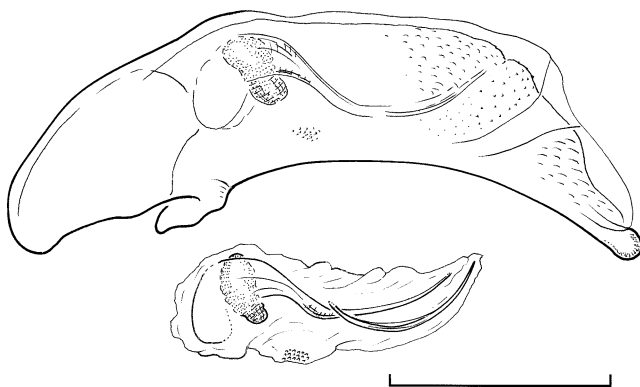


Fig. 3. Aedeagus of *Bembidion yoshidai* MORITA, sp. nov. (Scale: 0.3 mm.)

M. YOSHIDA leg.

Locality. Hatsuno, Sumiyô-mura, Amami-Ôshima Is., Kagoshima Prefecture, Southwest Japan.

Dispersal potential. This new species has fully functional hind wings.

Notes. This new species resembles *Bembidion trajectum* NETOLITZKY (1939, p.51) in general appearance, but can be distinguished from the latter by the following points: 1) different coloration on dorsal side, 2) sides of pronotum sinuate at about basal 1/5, 3) basal part of pronotum less punctate, 4) elytra wider and shorter, and 5) different structure of aedeagus (cf. HABU, 1959, p. 258).

The standard ratios of body parts shown in the descriptive part are those of 3 ♂♂ and 4 ♀♀.

要 約

森田誠司：日本産ミズギワゴミムシ類の知見。XVIII. 西日本産ミズギワゴミムシの2新種。——西日本から2種のミズギワゴミムシを記載した。ひとつは、*Peryphus* 亜属に所属する種で、熊本県の山犬切および白鳥山から採集された。本種は体形、体色などのほか、後翅が縮小しているため、識別はやさしい。もうひとつは、吉田正隆氏により奄美大島から発見された種で、キアシルリミズギワゴミムシ *B. trajectum* NETOLITZKY に似ているが、体色、前胸背板の側縁の波曲、基部点刻の差異、幅広い上翅、陰茎の内部構造などに明瞭な差異がみとめられる。

References

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