

Notes on the Bembidiinae (Coleoptera, Carabidae) of Japan XXVI. Three New Species of the Subgenus *Nipponobembidion* HABU et BABA

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Abstract Three new bembidiine carabids of the subgenus *Nipponobembidion* are described from Hokkaido, northern Japan: *Bembidion* (*Nipponobembidion*) *hagai* MORITA, sp. nov., *B. (N.) yasudai* MORITA, sp. nov., and *B. (N.) nisekoense* MORITA, sp. nov.

What will be dealt with in this paper is the result of my study on three new species of the subgenus *Nipponobembidion* HABU et BABA, 1968, obtained in Hokkaido, northern Japan.

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; PW — greatest width of pronotum; 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; NIAES — the National Institute for Agro-Environmental Sciences, NARO, Tsukuba; NMNST — Department of Zoology, the National Museum of Nature and Science, Tsukuba; SMC — the present author's collection, Tokyo.

Bembidion (*Nipponobembidion*) *hagai* MORITA, sp. nov.

[Japanese name: Rakko-mizugiwa-gomimushi]

(Figs. 1 a & 2 b)

Description. L: 2.82–3.43 mm.

Head and pronotum black with a very weak greenish lustre; elytra black with a very weak brownish lustre, sometimes with a bluish lustre; ventral side black; hypomeron and epipleuron blackish brown; antennal segment I and basal parts of segments II–IV and legs reddish brown to brown; the rest of antennal segments and mouth parts brown to dark brown. In teneral specimens, elytra brown.

Head weakly convex; eyes weakly convex; frontal furrows wide, shallow, almost parallel to each other and reaching basal 1/3 of eyes; frons and vertex impunctate; PW/HW 1.29–1.39 (M 1.32) in ♂, 1.22–1.35 (M 1.31) in ♀; anterior supraorbital pores deep, situated at mid-eye level; posterior ones situated at or a little behind the post-eye level; microsculpture strongly impressed, composed of isodiametric meshes; genae very short and oblique; neck wide; relative lengths of antennal segments as follows: — I : II : III : IV : V : VI : XI = 1.00 : 0.70 : 0.91 : 0.82 : 0.83 : 0.79 : 1.19 in ♂, = 1.00 : 0.73 : 0.92 : 0.81 : 0.84 : 0.77 : 1.22 in ♀.

Pronotum transverse, moderately convex, and widest at basal 3/5; PW/PL 1.42–1.54 (M 1.48) in ♂, 1.42–1.52 (M 1.48) in ♀; PW/PA 1.33–1.43 (M 1.38) in ♂, 1.35–1.38 (M 1.37) in ♀; PW/PB 1.28–1.43 (M 1.34) in ♂, 1.36–1.40 (M 1.36) in ♀; PA/PB 0.92–1.00 (M 0.97) in ♂, 0.92–1.02 (M 0.99) in ♀; apex very weakly emarginate or straight, usually narrower than base; sides strongly arcuate and usually sinuate just before hind angles; areas of reflexed sides narrow in anterior halves, though rather wide in posterior halves; anterior transverse impression shallow in median part and vanished on the sides; median line liner, impressed between anterior transverse impression and base, and with several

longitudinal wrinkles near base; base very weakly arcuate in median part, and oblique at the sides; apical angles strongly and narrowly produced, and narrowly rounded at the tips; hind angles obtuse, with a very weak carina on each side; basal foveae rounded, deep, and almost smooth; microsculpture clearly impressed and composed of wide to transverse meshes on the disc and isodiametric ones on the base.

Elytra oval and moderately convex; EW/PW 1.41–1.58 (M 1.49) in ♂, 1.43–1.57 (M 1.50) in ♀; EL/EW 1.25–1.39 (M 1.34) in ♂, 1.32–1.44 (M 1.38) in ♀; shoulders widely rounded; side gutters obtusely arcuate on the shoulders; sides moderately arcuate throughout and with a very shallow preapical sinuation; apex of each elytron widely rounded, forming a small re-entrant angle at suture; intervals weakly convex and impunctate; striae rather shallow, and almost smooth or partially and very weakly crenulate; scutellar striole very short and impunctate; basal pore situated before the meeting point of striae 1 and 2; apical striole very deep, impunctate, weakly curved inwards, adjoining apex of stria 5, and forming a carina at outer side; two dorsal pores situated on interval III, and adjoining stria 3; anterior dorsal pore situated between basal 3/10–2/5 of elytra in ♂, 3/10–7/20 in ♀, and posterior one between basal 13/20–3/4 in ♂, 13/20–7/10 in ♀, respectively; microsculpture weakly impressed, and composed of fine transverse lines. Hind wings reduced.

Ventral surface almost smooth; in ♂, sternite VII narrowly produced and with several longitudinal wrinkles between a pair of setae; in ♀, sternite VII widely produced and weakly depressed along margin of a level between a pair of inner setae.

Male genital organ similar in basic structure to that of *B. (N.) ainu*. Aedeagus robust, elongate and weakly arcuate in lateral view; basal part elongate; apical part inclined to the right in dorsal view; apical part rather high and strongly produced ventro-apical in lateral view; apex simply rounded.

Ostium flag rather narrow and poorly sclerotized.

Left style usually with one or two long setae at apical part and a short seta at subapical part; right style usually with one or two long setae and a short seta at apical part; left style longer than the right one.

Type series. Holotype: ♂ (NMNST), Mt. Rakko-dake, 3.VII.2003, K. HAGA leg. Paratypes: 25 ♂♂, 7 ♀♀ (SMC), same data as the holotype.

Type locality. Mt. Rakko-dake, Hiroo-chô, Hokkaido, northern Japan.

Range. Hidaka Mountains, Hokkaido, northern Japan.

Notes. This new species is very closely allied to *Bembidion (Nipponobembidion) ainu* HABU et BABA known from “Mt. Daisetsu, N. Japan” (HABU & BABA, 1968, p. 145). It is, however, distinguished from the latter by the following points: 1) apical angles of pronotum strongly produced and narrowly rounded at the tips, 2) reflexed lateral sides of pronotum narrower, 3) elytra more elongate, 4) elytra more convex in lateral view, 5) apical striole of elytra deeper, 6) aedeagal base more elongate, and 7) aedeagal apical lobe strongly curved ventro-apical.

The standard ratios of the body parts shown in the descriptive part are based on measurements of 10 ♂♂ and 5 ♀♀.

Specimens compared. *Bembidion (Nipponobembidion) ainu* HABU et BABA, 1968: Holotype, ♀ (NIAES), “Holotype *Bembidion ainu* HABU et BABA” // “VI, 26, 1958 Mt. Daisetsu Hokkaido K. BABA”; 2 ♂♂ (SMC), Numanohara, Daisetsu Mts., 29.VII.1985, N. YASUDA leg.; 2 ♂♂ (SMC), Mt. Kuro-dake, Daisetsu Mts, 1.VI.1986, N. YASUDA leg.; 4 ♂♂ (SMC), same locality, 7.VIII.1987, N. YASUDA leg.

The standard ratios of the body length and the body parts based on measurements of 4 ♂♂ from Mt. Kuro-dake are as follows: L: 3.00–3.29 mm; relative lengths of antennal segments as follows:— I : II : III : IV : V : VI : XI \cong 1.00 : 0.81 : 1.02 : 0.93 : 0.92 : 0.91 : 1.29; PW/PL 1.45–1.53 (M 1.49);

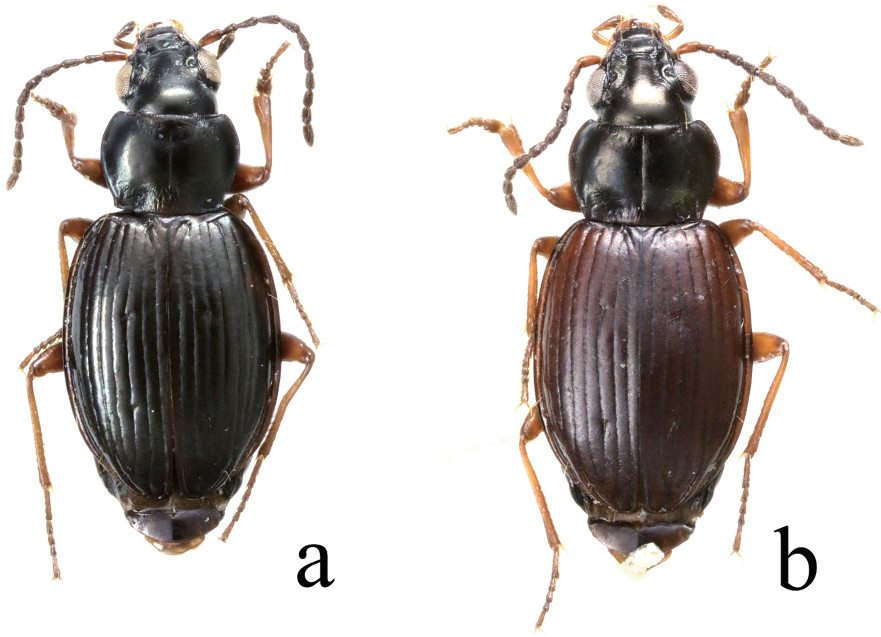


Fig. 1. Dorsal habitus of *Bembidion* (*Nipponobembidion*) spp. — a, *B. (N.) hagai* MORITA, sp. nov.; b, *B. (N.) nisekoense* MORITA, sp. nov.

PW/PA 1.30–1.40 (M 1.35); PW/PB 1.24–1.32 (M 1.27); PA/PB 0.91–0.98 (M 0.94); EW/PW 1.46–1.48 (M 1.47); EL/EW 1.27–1.34 (M 1.31).

Etymology. The specific epithet is dedicated to the collector of the type series.

***Bembidion* (*Nipponobembidion*) *yasudai* MORITA, sp. nov.**

[Japanese name: Hidaka-mizugiwa-gomimushi]

(Fig. 3 a–b)

Description. L: 2.75–3.07 mm. Dorsal side blackish brown; ventral side blackish to dark brown; antennal segments, legs, and mouth parts brown.

In 1 ♂ (teneral), antennal segments I–III, mouth parts, and legs reddish brown; the rest of antennal segments brown; elytra brown.

Head weakly convex; eyes small though moderately convex; frontal furrows wide, deep, almost parallel to each other and reaching mid-eye level; frons and vertex impunctate; PW/HW 1.22–1.32 (M 1.26) in ♂, 1.24 in ♀; relative lengths of antennal segments as follows: — I : II : III : IV : V : VI : XI \cong 1.00 : 0.80 : 0.90 : 0.92 : 0.87 : 0.88 : -.- in ♂ (segment XI missing), \cong 1.00 : 0.73 : 0.90 : 0.79 : 0.81 : 0.79 : 1.20 in ♀.

Pronotum rather narrow; PW/PL 1.41–1.50 (M 1.47) in ♂, 1.50 in ♀; PW/PA 1.31–1.41 (M 1.35) in ♂, 1.31 in ♀; PW/PB 1.26–1.33 (M 1.30) in ♂, 1.26 in ♀; PA/PB 0.93–1.01 (M 0.97) in ♂, 0.96 in ♀; apical angles strongly produced and narrowly rounded at the tips; sides very shallowly sinuate just before hind angles; reflexed lateral sides narrow and becoming wider towards hind angles; hind angles obtuse; basal foveae deep; microsculpture on the disc composed of transverse meshes.

Elytra rather elongate with more obliquely arcuate shoulders; side gutters moderately arcuate on

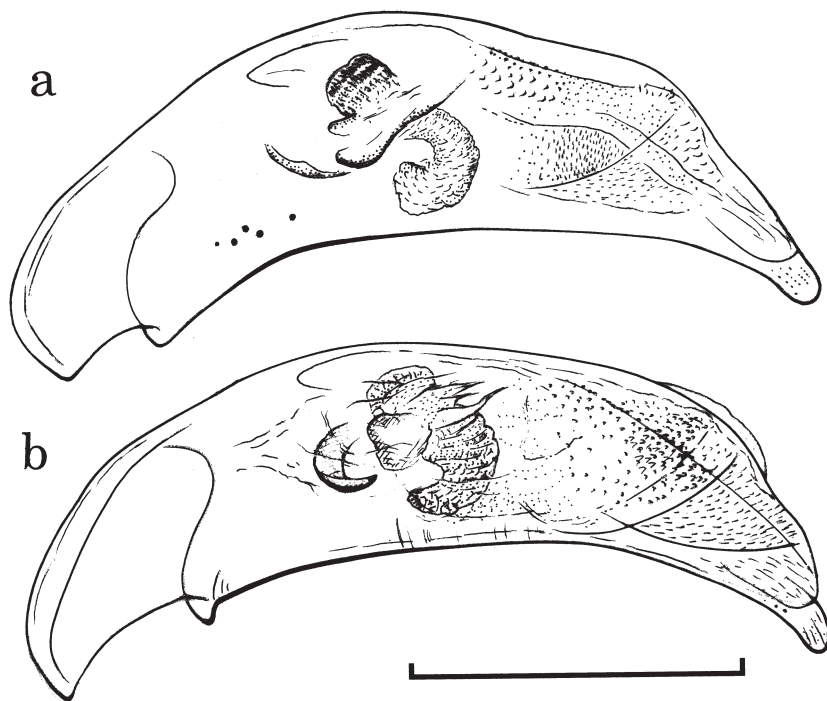


Fig. 2. Aedeagi of *Bembidion (Nipponobembidion)* spp. in left lateral view. — a, *B. (N.) ainu* HABU et BABA from Numanohara; b, *B. (N.) hagai* MORITA, sp. nov. Scale: 0.30 mm.

the shoulders; intervals very weakly convex; EW/PW 1.47–1.58 (M 1.54) in ♂, 1.53 in ♀; EL/EW 1.34–1.42 (M 1.37) in ♂, 1.38 in ♀; two dorsal pores situated on interval III, and adjoining stria 3; anterior dorsal pore situated between basal 1/3–2/5 of elytra in ♂, 2/5 in ♀, and posterior one between basal 7/10–3/4 in ♂, 7/10 in ♀, respectively.

Aedeagus elongate and moderately curved in lateral view; apical half not high in lateral view; apical lobe elongate and simply produced ventro-apicad.

Left style usually with one to three long setae and a short seta at apical part; right style with two long setae at apical part and a short seta at subapical part.

Ostium flag vague and very poorly sclerotized.

Type series. Holotype: ♂ (NMNST), Mt. Poroshiri-dake, 22.VII.1988, N. YASUDA leg. Paratypes: 2 ♂♂, 1 ♀ (SMC), same data as the holotype; 1 ♂ (SMC), same locality, 24.VII.1971, Y. WATANABE leg.

Type locality. Mt. Poroshiri-dake, Niikappu-chō, Hokkaido, northern Japan.

Range. Hidaka Mountains, Hokkaido, northern Japan.

Notes. This new species is very closely allied to *Bembidion (Nipponobembidion) ainu* HABU et BABA. It is, however, distinguished from the latter by the following points: 1) darker coloration on dorsum, 2) eyes more convex, 3) microsculpture of pronotum composed of transverse meshes, 4) hind angles of pronotum obtuse, 5) pronotum narrower, PW/PL 1.41–1.50 in ♂, 6) basal foveae of pronotum deeper, 7) elytral shoulders more arcuate, 8) elytra weakly convex in lateral view, and 9) aedeagus more elongate, with slenderer apical lobe in lateral view.

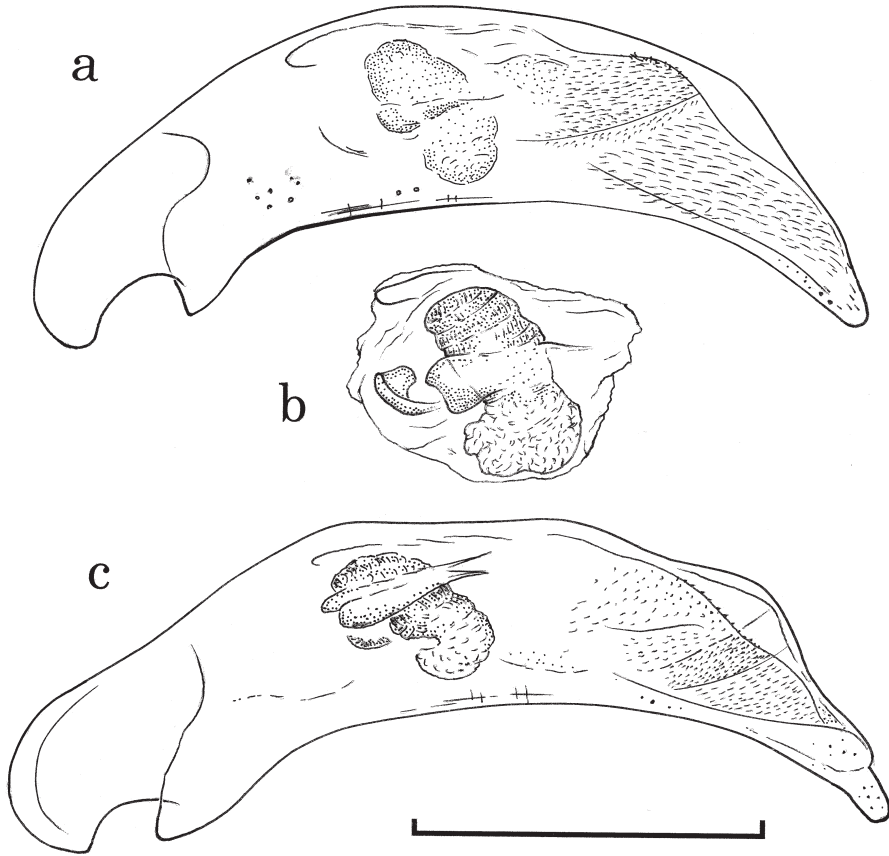


Fig. 3. Aedeagi and extracted inner sac of *Bembidion* (*Nipponobembidion*) spp. in left lateral view. — a, *B. (N.) yasudai* MORITA, sp. nov.; b, extracted inner sac of *B. (N.) yasudai* MORITA, sp. nov., in slightly oblique left lateral view; c, *B. (N.) nisekoense* MORITA, sp. nov. Scale: 0.30 mm.

The standard ratios of body parts shown in the descriptive part are based on measurements of 3 ♂♂ and 1 ♀.

Etymology. The specific epithet is dedicated to the collector of the holotype.

***Bembidion* (*Nipponobembidion*) *nisekoense* MORITA, sp. nov.**

[Japanese name: Niseko-mizugiwa-gomimushi]

(Figs. 1 b & 3 c)

Description. L: 2.82–3.43 mm.

Head and pronotum black with a very weak greenish lustre; elytra brown, sometimes with a lustre; intervals of elytra sometimes covered with microsculpture of irregular meshes and without a lustre; ventral side blackish brown; antennal segment I, legs, mouth parts, hypomeron, and epipleuron reddish brown to brown; the rest of antennal segments brown; clypeus and labrum dark brown.

Head weakly convex; eyes weakly convex; frontal furrows wide, deep, almost parallel to each other, and reaching mid-eye level; PW/HW 1.27–1.33 (M 1.32) in ♂, 1.31–1.35 (M 1.33) in ♀; genae

rather long and oblique; relative lengths of antennal segments as follows: — I : II : III : IV : V : VI : XI \cong 1.00 : 0.74 : 0.95 : 0.92 : 0.83 : 0.89 : 1.29 in ♂, \cong 1.00 : 0.77 : 0.84 : 0.77 : 0.82 : 0.85 : 1.20 in ♀.

Pronotum transverse; PW/PL 1.43–1.61 (M 1.50) in ♂, 1.47–1.53 (M 1.50) in ♀; PW/PA 1.38–1.46 (M 1.42) in ♂, 1.36–1.45 (M 1.41) in ♀; PW/PB 1.24–1.39 (M 1.30) in ♂, 1.24–1.33 (M 1.28) in ♀; apex very weakly emarginate or straight; PA/PB 0.86–0.98 (M 0.92) in ♂, 0.89–0.94 (M 0.91) in ♀; sides strongly arcuate in front, and weakly arcuate towards hind angles; reflexed sides narrow; microsculpture clearly impressed and composed of wide or transverse meshes on the disc and isodiametric ones on the base.

Elytra oval and wide; EW/PW 1.41–1.63 (M 1.47) in ♂, 1.43–1.52 (M 1.47) in ♀; EL/EW 1.28–1.38 (M 1.33) in ♂, 1.32–1.39 (M 1.36) in ♀; basal part wide; shoulders narrowly rounded; side gutters narrowly arcuate on the shoulders; intervals weakly convex and impunctate; striae rather shallow, and almost smooth, rarely weakly crenulate; anterior dorsal pore situated between basal 3/10–2/5 of elytra in ♂ and ♀, and posterior one between basal 13/20–4/5 in ♂, 13/20–7/10 in ♀, respectively; microsculpture weakly impressed, and composed of fine transverse lines.

Aedeagus slender, weakly arcuate, and not high at about middle in lateral view; apical part inclined to the right in dorsal view; apical part rather long and weakly emarginate on dorsal margin in lateral view; apical lobe narrow, long, and weakly produced ventro-apicad in lateral view; apex simply rounded at the tip.

Ostium flag rather wide and very poorly sclerotized.

Left style usually with one or two long setae and one or two short setae at apical part; right style usually with one or two long setae at apical part and rarely with a short seta at subapical part.

Type series. Holotype: ♂ (NMNST), Mt. Iwao-nupuri, 20.VII.2000, S. MORITA leg. Paratypes: 16 ♂♂, 15 ♀♀ (SMC), same data as the holotype.

Type locality. Mt. Iwao-nupuri, Kutchan-chô, Hokkaido, northern Japan.

Range. Niseko Mountains, Hokkaido, northern Japan.

Notes. This new species is very closely allied to the preceding species. It is, however, distinguished from the latter by the following points: 1) pronotum wider, PW/PL 1.43–1.61, 2) elytra wider, EL/EW 1.28–1.39, 3) aedeagus more elongate, and not high at about middle in lateral view, 4) apical lobe of aedeagus narrower and longer, and 5) ostium flag of inner sac wider.

The standard ratios of body parts shown in the descriptive part are based on measurements of 10 ♂♂ and 6 ♀♀.

Etymology. The specific epithet is given after the type locality.

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要 約

森田誠司：日本産ミズギワゴミムシ類（鞘翅目オサムシ科）に関する知見. XXVI. アイヌミズギワゴミムシ亜属の3新種. ———本論文では、北海道日高山脈（幌尻岳および楽古岳）およびニセコ山地から採集されたアイヌミズギワゴミムシ亜属 *Nipponobembidion* HABU et BABA の3種を、それぞれラッコミズギワゴミムシ *B. (N.) hagai*, ヒダカミズギワゴミムシ *B. (N.) yasudai*, ニセコミズギワゴミムシ *B. (N.) nisekoense* と命名し、記載した。

Reference

HABU, A., & K. BABA, 1968. An unrecorded and an undescribed species of *Bembidion* from Hokkaido, Japan, with the description of a new subgenus (Coleoptera, Carabidae). *Kontyû, Tokyo*, **36**: 144–146.

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