

## *Bembidion gebleri* GEBLER (Coleoptera, Carabidae) and its New Relative

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**Abstract** The bembidiine carabid beetles related to *Bembidion (Plataphus) gebleri* GEBLER are dealt with. The three subspecies of *B. gebleri*, *gebleri* (s. str.), *persuasum* and *edai*, are redescribed, and *B. nakanei* JEDLIČKA is regarded as a synonym of *B. g. edai*. A new related species is described from Japan under the name of *B. shilenkovi*.

Up to the present, more than fifteen species of the subgenus *Plataphus* have been described or recorded from the Far East. Of these, *Bembidion (Plataphus) gebleri* GEBLER (1833, p. 275) is one of the most important and difficult species both taxonomically and zoogeographically, since its distributional range covers the eastern half of Siberia and extends to North America across the Bering Straits. *Bembidion persuasum* described by NETOLITZKY (1938, p. 38) from Vladivostok has been regarded sometimes as a synonym of or as a geographical race of *B. gebleri*. There still remain some problems concerning their systematic status and identity of related species occurring in the Japanese territory.

In order to clarify these problems, it is necessary to investigate type specimens and make a direct comparative study, especially of the details of microsculpture and male genital organ. While visiting the Naturhistorisches Museum Wien in 1987, I was able to examine the type specimens of both "*B. persuasum*" and "*B. gebleri persuasum edai*." Besides, I was given an opportunity to examine the type specimens of *B. nakanei* JEDLIČKA through the courtesy of Dr. BÍLÝ of the National Museum, Prague. Dr. SHILENKOV sent me for comparative study a short series of *B. gebleri* collected by himself in Altai and at the same time gave me valuable advice.

In this paper, I will redescribe *B. gebleri* including its two subspecies from the Far East, and will describe a new species from Japan under the name of *B. shilenkovi*.

The abbreviations used herein are as follows: HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum, measured along the median 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 Science Museum (Nat. Hist.), Tokyo; NMW – Naturhistorisches Museum Wien; NMP – National Museum, Prague.

Before going further, I wish to express my deep gratitude to Dr. Shun-Ichi UENO of the National Science Museum (Nat. Hist.), Tokyo, for his advice and reading the manuscript of this paper. Thanks are also due to Dr. V. G. SHILENKOV of Irkutsk

State University for giving me useful information and supplying me with important material, and to Professor Masataka SATÔ of Nagoya Women's University, and to Messrs. Azuma ABE, Satoshi YAMAUCHI of Aomori Prefecture and Li Jingke of China for kindly supplying me with valuable material, and to Drs. Heinrich SCHÖNMANN and Manfred JÄCH of the Naturhistorisches Museum Wien and Alexander DOSTAL of Wien, and to Mr. Nobuki YASUDA of the Sôunkyô Museum for their kind help. Further, I am deeply indebted to Dr. Svatopluk BÍLÝ of the National Museum, Prague, for loan of the type specimens of *Bembidion nakanei* JEDLIČKA under his care. Finally, my hearty thanks are also due to my wife Eiko and daughter Asako for their kind help in the field work.

*Bembidion (Plataphus) gebleri gebleri* GEBLER, 1833

(Figs. 1, 3–5)

*Bembidion Gebleri* GEBLER (ESCHSCHOLTZ in lit.), 1833, Bull. Soc. imp. Natur. Mosc., 6, p. 275.

*Bembidion Gebleri*: NETOLITZKY, 1942, Koleopt. Rdsch., 28, p. 106.

*Bembidion gebleri*: LINDROTH, 1943, Ent. Tidskr., 63, p. 9, fig. 6 e; 1963, Opus. ent. Suppl., 24, p. 290, figs. 140 b, 141 b [*partim*].

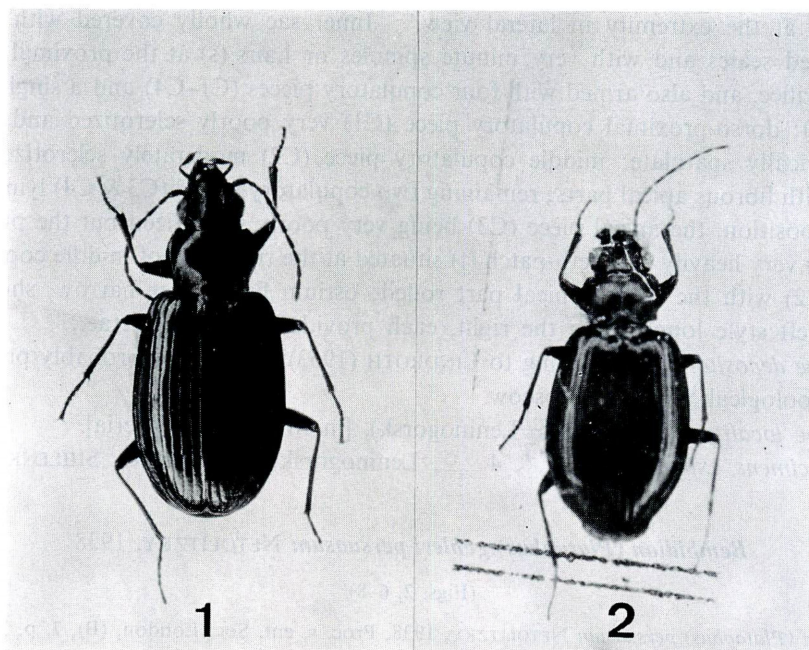
*Bembidion (Peryphus) frigidum* SAHLBERG, 1880, K. Vet. Akad. Handl., 17, p. 16.

Length: 4.6–5.5 mm (from apical margin of clypeus to apices of elytra).

Body flat. Black with bluish, rarely greenish lustre; elytra rarely with brownish lustre; labrum, antennae, palpi, most part of mandibles and legs blackish brown; apices of mandibles, and pro- and mesocoxae reddish brown.

Head rather large and wide without punctures; frontal furrows wide and almost parallel; eyes prominent; frons and supraorbital areas gently convex, the latter bearing two pair of supraorbital pores; anterior pore situated at the mid-eye level and close to each eye, the posterior one situated a little before the post-eye level; mandibles strongly hooked at apices; antennae filiform and fairly long, reaching basal third of elytra; relative lengths of antennal segments as follows:— I: II: III: IV: V: VI: XI= 1: 0.62: 0.93: 0.91: 0.95: 0.97: 1.08; microsculpture clearly impressed in both ♂ and ♀, and consisting of isodiametric meshes.

Pronotum transverse, slightly convex though rather flat in basal area, and widest at about 5/8 from base; PW/HW 1.24–1.30 (M 1.27) in 4 ♂♂, 1.24–1.33 (M 1.28) in 4 ♀♀; PW/PL 1.42–1.58 (M 1.52) in 4 ♂♂, 1.44–1.56 (M 1.50) in 4 ♀♀; PW/PA 1.37–1.42 (M 1.39) in 4 ♂♂, 1.30–1.39 (M 1.35) in 4 ♀♀; PW/PB 1.18–1.27 (M 1.22) in 4 ♂♂, 1.15–1.24 (M 1.20) in 4 ♀♀; apical margin widely emarginate, a little narrower than base; PA/PB 0.84–0.91 (M 0.88) in 4 ♂♂, 0.82–0.95 (M 0.88) in 4 ♀♀; sides briefly straight near apical angles, rather strongly arcuate at the widest part and moderately sinuate before hind angles; reflexed lateral borders very wide though becoming narrower towards apices; base nearly straight at the middle, slightly oblique on each side; apical angles produced, blunt at the tips, hind ones nearly rectangular with carinae close to lateral borders; a small rounded fovea rarely present on each



Figs. 1-2. — 1, *Bembidion (Plataphus) gebleri gebleri* GEBLER. — 2, *B. (P.) g. persuasum* NETOLITZKY (holotype).

side before middle; median line sharply impressed; anterior marginal setae situated at the widest part or a little before that level, posterior ones situated just in front of hind angles; basal foveae large and wide; the area between carina and bottom of basal fovea densely wrinkled; microsculpture consisting of isodiametric meshes in both ♂ and ♀.

Elytra oblong-ovate, widest at a level a little behind the middle, with the posterior part rather convex in lateral view; EW/PW 1.55–1.70 (M 1.65) in 4 ♂♂, 1.65–1.72 (M 1.68) in 4 ♀♀, EL/EW 1.37–1.47 (M 1.43) in 4 ♂♂, 1.38–1.51 (M 1.43) in 4 ♀♀; shoulders rounded; sides feebly divergent from behind shoulders to the widest part, and slightly emarginate before apices, with each marginal gutter terminating at the base of stria 5; apex of each elytron rounded, forming a small re-entrant angle at suture; striae entire, shallow and indistinctly crenulate; striae 6 and 7 always free at the posterior ends; scutellar striole long but shallow; intervals almost flat; apical striole deep, moderately curved, and joining stria 5 (cf. LINDROTH, 1963, p. 291, fig. 140 b); apical carina obvious though obtuse; two dorsal pores present on stria 3, situated at  $3/8-2/5$  and  $7/10-3/4$  from base respectively; microsculpture consisting of wide meshes partially forming very transverse ones in ♂, rather irregular wide or transverse meshes in ♀.

In ♀, anal sternite with two pair of setae on a straight transverse line.

Aedeagus elongate and regularly arcuate, with rather large basal part; apical part

rounded at the extremity in lateral view.<sup>1)</sup> Inner sac wholly covered with poorly sclerotized scales and with very minute spinules or hairs (s) at the proximal end of apical orifice, and also armed with four copulatory pieces (C1–C4) and a single teeth-patch (t); dorso-proximal copulatory piece (C1) very poorly sclerotized and almost symmetrically spatulate; middle copulatory piece (C2) moderately sclerotized, and rolled with fibrous apical parts; remaining two copulatory pieces (C3 & C4) lying at the ventral position, the apical piece (C3) being very poorly sclerotized but the proximal one (C4) very heavily so; teeth-patch (t) situated at the right side of middle copulatory piece (C2) with the ventro-apical part rolled; ostium flag rather narrow, short and vague; left style longer than the right, each provided with four setae.

*Type depository.* According to LINDROTH (1963), the type is probably preserved in the Zoological Museum, Moscow.

*Type locality.* Riddersk (=Leninogorsk), [in Mts. Altai, Siberia].

*Specimens examined.* 4 ♂♂, 4 ♀♀, Leninogorsk, Altai, V. G. SHILENKOV leg.

### *Bembidion (Plataphus) gebleri persuasum* NETOLITZKY, 1938

(Figs. 2, 6–8)

*Bembidion (Plataphus) persuasum* NETOLITZKY, 1938, Proc. r. ent. Soc. London, (B), 7, p. 38; 1942, Koleopt. Rdsch., 28, p. 106.

*Bembidion persuasum persuasum*: JEDLIČKA, 1965, Ent. Abh. Mus. Tierk. Dresden, 32, p. 113.

*Bembidion gebleri persuasum*: FASSATI, 1954, Acta. Soc. ent. Cech., 50, p. 82.

*Bembidion gebleri*: LINDROTH, 1963, Opusc. ent. Suppl., 24, p. 290 [partim].

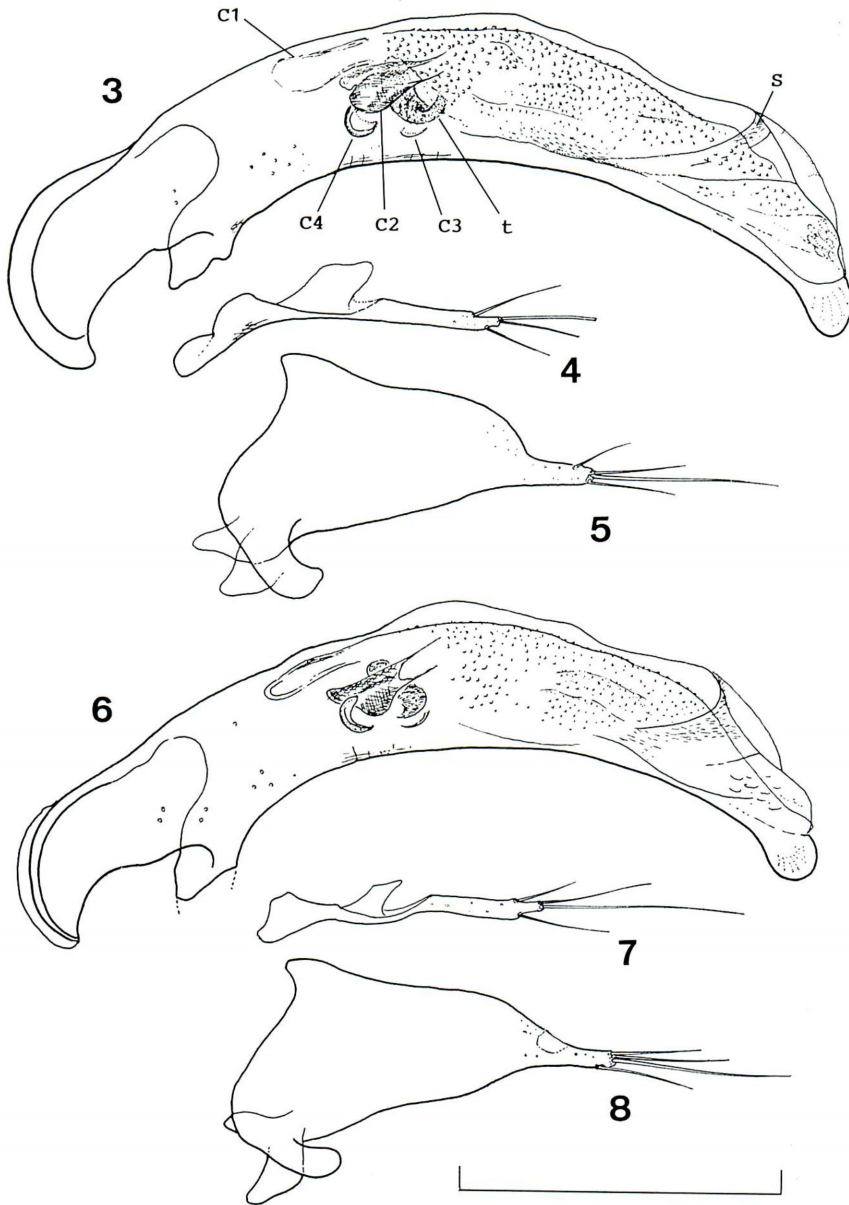
Length: 4.40 mm in ♂, 4.34 mm in ♀ (from apical margin of clypeus to apices of elytra).

Black with weakly bluish lustre; elytra with brownish lustre but hardly iridescent; labrum, antennae, palpi, mandibles and legs blackish brown; coxae and metatrochanters lighter than legs.

Head wide, without punctures; frontal furrows shallower than in the nominotypical form, wide, and reaching a little behind the mid-eye level; microsculpture consisting of isodiametric meshes in both ♂ and ♀.

Pronotum transverse, widest at about 2/3 from base; PW/HW 1.29 in ♂, 1.26 in ♀, PW/PL 1.22 in ♂, 1.19 in ♀, PW/PA 1.29 in ♂, 1.29 in ♀, PW/PB 1.22 in ♂, 1.19 in ♀; apical margin a little narrower than base; PA/PB 0.94 in ♂, 0.92 in ♀; sides moderately arcuate in front and distinctly sinuate before hind angles; reflexed lateral borders wide throughout; apical angles slightly produced, blunt at the tips, hind ones nearly rectangular or somewhat acute, with carinae; basal foveae narrower and deeper than in the nominotypical form, and with sparse wrinkles; in ♂, microsculpture consisting of very wide or transverse meshes but partially of wide meshes, especially on the disc; in ♀, microsculpture consisting of very wide meshes but partial-

1) According to LINDROTH's drawing (1963, p. 292, fig. 141 b), the apical part is well rounded. However, my examination proved that this falls in the range of individual variation.



Figs. 3-8. Male genital organ, left lateral view; 3, 6, aedeagus (C1-C4: copulatory pieces, t: teeth-patch, s: mat of spinules or hairs); 4, 7, right style; 5, 8, left style. (Scale: 0.4 mm).  
— 3-5, *Bembidion (Plataphus) gebleri gebleri* GEBLER from Leninogorsk; 6-8, *B. (P.) g. persuasum* NETOLITZKY from Mt. Changbai.

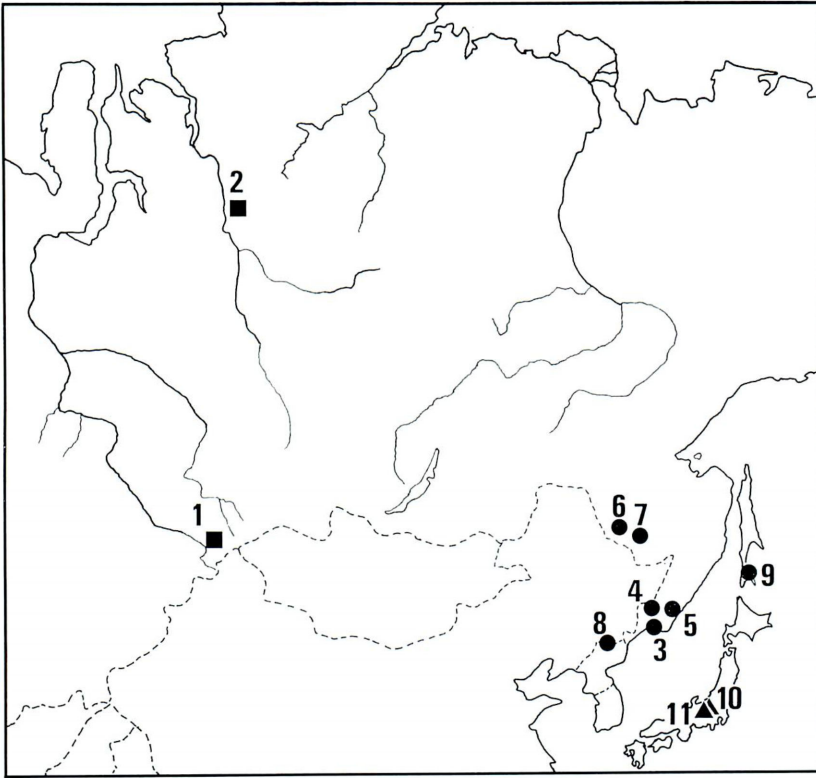


Fig. 9. Map showing the distribution of *Bembidion (Plataphus) gebleri* in the Far East. ■ - *B. (P.) g. gebleri* GEBLER; ● - *B. (P.) g. persuasum* NETOLITZKY; ▲ - *B. (P.) g. edai* FASSATI. — 1, Riddersk (=Leninogorsk); 2, Kantaika; 3, Vladivostok; 4, Nikolsk Usurijsk (=Us-surijsk); 5, Setschan (=Partizansk); 6, Chitaizki-Sterena; 7, Chingau (=Khingán); 8, Mt. Changbai, Jirin; 9, Mt. Tshekhov, S. Sakhalin; 10, Kamikôchi; 11, Mt. Norikura-dake.

ly\_of isodiametric meshes, especially on the disc.

Elytra oblong-ovate, rather convex, widest at a level a little behind middle; EW/PW 1.71 in ♂, 1.66 in ♀, EL/EW 1.31 in ♂, 1.40 in ♀; shoulders rounded; sides gently arcuate and hardly emarginate before apices; apex of each elytron as in the nominotypical form; apical striole shallower than in the nominotypical form and joining stria 5, or the apical anastomosis of striae 5 and 6; striae almost entire, finer and shallower than in the nominotypical form; scutellar striole long and shallow; intervals flat; two dorsal pores on stria 3, situated at about 1/4 and 3/5 from base respectively; microsculpture not sharply impressed, though consisting of irregular lines which are almost transverse.

Aedeagus elongate and moderately arcuate with the apical part well rounded in lateral view; ostium flag vague; mat of spinules or hairs at the proximal end of apical

orifice denser and wider than in the nominotypical form.<sup>2)</sup>

*Type depository.* Naturhistorisches Museum Wien.

*Localities.* Wladiwostok (type locality!), Nikolsk Usurijsk, Chitaizki-Sterena, Setschan, and Chingau.

*Specimens examined.* 1 ♀ (holotype of *B. persuasum* NETOLITZKY, "16.V.1920"/"Wladiwostok. Sib. or Frieb.)/"coll Netolitzky"/"*B. (Plataphus) persuasum* Net. Type! Netolitzky"/"TYPUS"/"Coll Netolitzky"; 1 ♂, 1 ♀, Mt. Changbai, Jirin, northeastern China, 24-VI-1987, Li Jingke leg.

*Range.* Eastern part of Siberia, South Sakhalin (cf. KRYZHANOVSKIJ & MOLODOVA, 1973), and northeastern part of China.

*Notes.* As was already pointed out by NETOLITZKY (1942, p. 106), this subspecies is distinguished from the nominotypical one by the following points: 1) finer elytral striae; and 2) linear microsculpture on elytra in both ♂ and ♀. Besides, I found additional differences in my material as follows:— 3) body smaller on an average; 4) blackish coloration with bluish lustre; 5) apical striole shallower and sometimes joining the apical anastomosis of striae 5 and 6; 6) viewed laterally, apical part of aedeagus well rounded; and 7) mat of minute spinules or hairs in inner sac denser and wider. In this paper, I regarded it as one of the geographical races of *B. gebleri*, but even now, it is difficult to decide the true systematic position of this form and also of "*B. persuasum jenseni* NETOLITZKY" (1942, p. 106). It is to be hoped that more material of continental forms will be found in wide blank areas (cf. Fig. 9) by future investigations.

### *Bembidion (Plataphus) gebleri edai* FASSATI. 1954

[Japanese name: Aomarugata-mizugiwa-gomimushi]

(Figs. 10–15)

*Peryphus (Plataphus) persuasum*: UENO, 1954, Shin Konchû, Tokyo, 7(5), pp. 44, 45.

*Bembidion (Plataphus) gebleri persuasum edai* FASSATI, 1954, Acta. Soc. ent. Cech., 50, p. 83, fig. 7.

*Bembidion (Plataphus) persuasum edai*: NAKANE, 1963, Icon. Ins. Japon. Col. nat. ed., 2, p. 28, pl. 14, fig. 23; 1978, Nature & Insects, Tokyo, 13(8), p. 6. — JEDLIČKA, 1965, Ent. Abh. Mus. Tierk. Dresden, 32, p. 113.

*Bembidion (Plataphus) nakanei* JEDLIČKA, 1965, Ent. Abh. Mus. Tierk. Dresden, 32, p. 113. — NAKANE, 1978, Nature & Insects, Tokyo, 13(8), p. 6. [Syn. nov.].

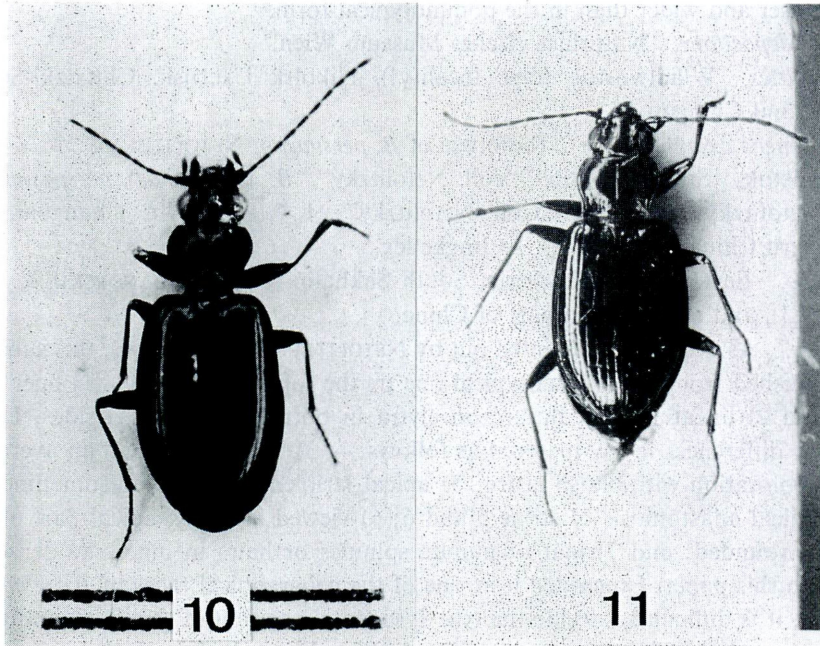
*Bembidion (Plataphus) gebleri*: MORITA, 1985, Coleopt. Japan Col., Osaka, 2, p. 99, pl. 19, fig. 3.

Length: 3.95–5.15 mm (from apical margin of clypeus to apices of elytra).

Colour as in *B. (P.) g. persuasum* NETOLITZKY but the bluish lustre is always stronger on the dorsal surface.

Head convex; frontal furrows deep, rather wide and almost parallel; relative lengths

2) The material available for this study is only a single Chinese specimen. For this reason, I was unable to extract the inner sac and investigate other components, but they appear identical with those of the nominotypical form.



Figs. 10–11. *Bembidion (Plataphus) gebleri edai* FASSATI. — 10, “*B. (P.) g. persuasum edai* FASSATI” (cotype); 11, “*B. (P.) nakanei* JEDLIČKA” (cotype).

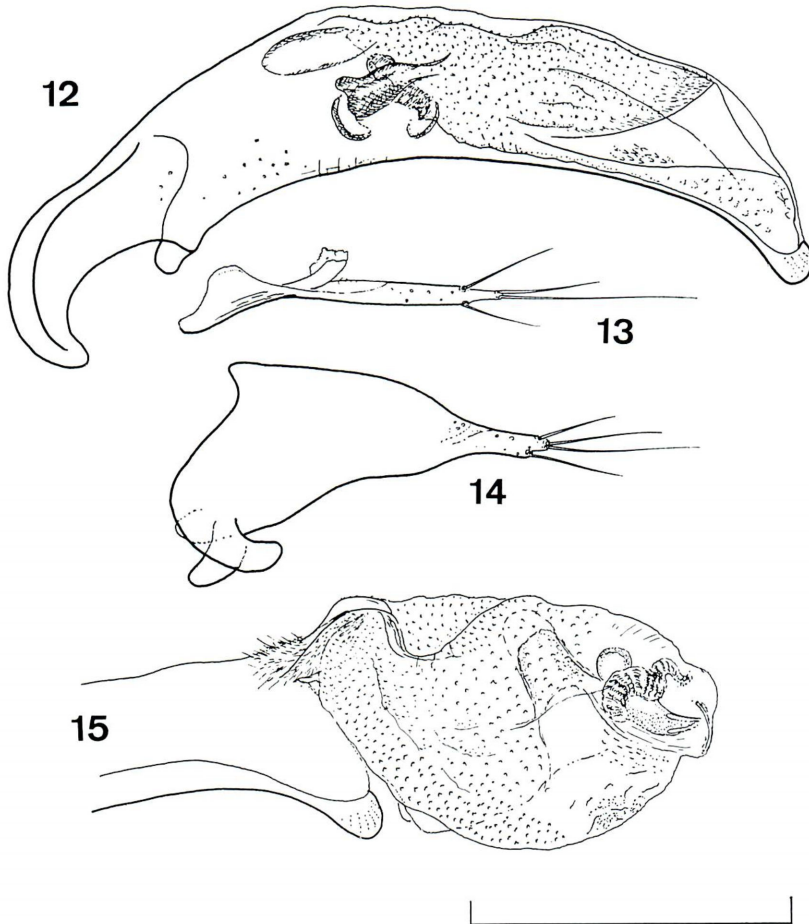
of antennal segments as follows:— I: II: III: IV: V: VI: XI=1: 0.65: 0.98: 1.04: 1.03: 1.08: 1.18; microsculpture consisting of isodiametric meshes in both ♂ and ♀.

Pronotum transverse; PW/HW 1.14–1.20 (M 1.17) in 6 ♂♂, 1.15–1.21 (M 1.19) in 5 ♀♀, PW/PL 1.34–1.45 (M 1.39) in 6 ♂♂, 1.39–1.50 (M 1.44) in 5 ♀♀, PW/PA 1.31–1.41 (M 1.36) in 6 ♂♂, 1.29–1.35 (M 1.31) in 5 ♀♀, PW/PB 1.16–1.26 (M 1.22) in 6 ♂♂, 1.15–1.20 (M 1.17) in 5 ♀♀; apical margin slightly emarginate, a little narrower than base; PA/PB 0.87–0.94 (M 0.89) in 6 ♂♂, 0.87–0.91 (M 0.89) in 5 ♀♀; a small rounded fovea rarely present on each side before middle; basal fovea with sparse wrinkles; hind angles usually acute or rarely rectangular; microsculpture consisting of wide meshes but partially of isodiametric ones.

Elytra oblong-ovate, widest at about middle; EW/PW 1.69–1.76 (M 1.71) in 6 ♂♂, 1.67–1.78 (M 1.73) in 5 ♀♀, EL/EW 1.39–1.48 (M 1.42) in 6 ♂♂, 1.36–1.46 (M 1.43) in 5 ♀♀; apical striole deeper than stria, moderately curved, and usually joining the apical anastomosis of striae 5 and 6, or rarely joining stria 5 (when the stria 6 is free at the posterior end); two dorsal pores situated at  $8/25-7/17$  and  $7/10-3/4$  from base respectively; microsculpture consisting of irregular lines which are almost transverse.

Aedeagus more elongate; apical part moderately rounded in lateral view (sometimes strongly rounded than in the specimen illustrated in Fig. 12); inner structure almost the same as in *B. g. persuasum*; minute spinules or hairs more densely covering





Figs. 12–15. Male genital organ of *Bembidion (Plataphus) gebleri edai* FASSATI from Kamikôchi in left lateral view; 12, aedeagus; 13, right style; 14, left style; 15, aedeagus, showing everted inner sac. (Scale: 0.4 mm.)

the proximal end of apical orifice; styles as in *B. g. persuasum*, each provided with four setae.

*Type depository.* National Museum, Prague.

*Localities.* Kamikôchi (type locality!), 1,500 m in altitude, Nagano Prefecture, and Mt. Norikura-dake, on the borders between Nagano and Gifu Prefectures, central Honshu, Japan (cf. Figs. 9, 22).

*Specimens examined.* 1 ♂, “*B. gebleri* ssp. *persuasum* n. *Edai* m. PARATYPUS—Det. M. Fassati 1956”/“Paratypus”/“JAPAN-ALPS., 1500 m, Kamikochi, 27.VII. 1952, leg. S. Eda, coll M. Fassati” (NMW); 1 ♂, “1400, M. H. MT. NORIKURA. JAPAN-ALPS.”/“Cotype”/“Mus. Nat. Pragae 23962 Inv.”/“*nakanei* sp. n det. Ing

Jedlička" (NMP); 1 ♂, (no locality data), "Cotype"/"Mus. Nat. Pragae 23963 Inv."/"nakanei sp. n det. Ing Jedlička" (NMP); 1 ♀, Kamikôchi, 29-VII-1952, S. EDA leg.; 1 ♂, Kamikôchi, 7-VII-1973, S. MORITA leg.; 5 ♂♂, 2 ♀♀, Kamikôchi, 21-VI-1985, S. MORITA leg.; 1 ♂, 3 ♀♀, Kamikôchi, 16-VII-1988, S. MORITA leg.

*Notes.* Evidently, this Japanese form is closely related to *B. (P.) g. persuasum*. It is, however, distinguished from the latter by the following points: 1) more strongly bluish lustre on dorsal side; 2) hind angles usually acute; 3) apical striole usually joining the apical anastomosis of striae 5 and 6; and 4) aedeagus a little more robust.

In his key to the East Asian species of *Bembidion* (1965), JEDLIČKA described *B. nakanei* based on four examples from Kamikôchi, Central Japan. Of these, the two specimens recorded above were re-examined by myself. According to Dr. BÍLÝ (pers. comm.), one of the remaining two type specimens bears a label with the name of its type locality, Kamikôchi, and the other is labelled as Mt. Norikura. These examples, however, must belong to the type series. I am unable to understand why he did not add the second locality, Mt. Norikura(-dake), to his original description.

Both FASSATI and JEDLIČKA extracted male genital organs from their specimens. Unfortunately, they became flattened and deformed, and looked like that of the following new species. In his description, however, FASSATI gave a good drawing of his specimen.

***Bembidion (Plataphus) shilenkovi* MORITA, sp. nov.**

[Japanese name: Nise-aomarugata-mizugiwa-gomimushi]

(Figs. 16-21)

Length: 4.04-4.95 mm (from apical margin of clypeus to apices of elytra).

Body convex. Black, shiny with bluish lustre; elytra with iridescent lustre; labrum, antennae, palpi mandibles and most part of legs blackish brown; basal parts of femora and metatrochanters reddish brown.

Head wide and rather convex above; frontal furrows wide and shallow, usually a little divergent posteriad or rarely parallel, and reaching a little behind the mid-eye level; eyes prominent; anterior supraorbital pore situated at or a little behind the mid-eye level, posterior one just before the post-eye level; mandibles strongly hooked at apices; antennae filiform and long; relative lengths of antennal segments as follows:— I: II: III: IV: V: VI: XI=1: 0.70: 1.02: 1.04: 1.08: 1.08: 1.30; microsculpture distinct, consisting of almost isodiametric meshes.

Pronotum transverse and widest at about 4/7 from base; PW/HW 1.21-1.32 (M 1.27) in 30 ♂♂, 1.20-1.35 (M 1.27) in 30 ♀♀, PW/PL 1.38-1.55 (M 1.45) in 30 ♂♂, 1.40-1.55 (M 1.49) in 30 ♀♀, PW/PA 1.35-1.46 (M 1.40) in 30 ♂♂, 1.30-1.46 (M 1.39) in 30 ♀♀, PW/PB 1.14-1.26 (M 1.18) in 30 ♂♂, 1.14-1.23 (M 1.18) in 30 ♀♀; apical margin slightly emarginate, a little narrower than base; PA/PB 0.78-0.90 (M 0.84) in 30 ♂♂, 0.82-0.90 (M 0.85) in 30 ♀♀; sides moderately arcuate in front and very slightly sinuate before hind angles; reflexed lateral borders wide though becoming

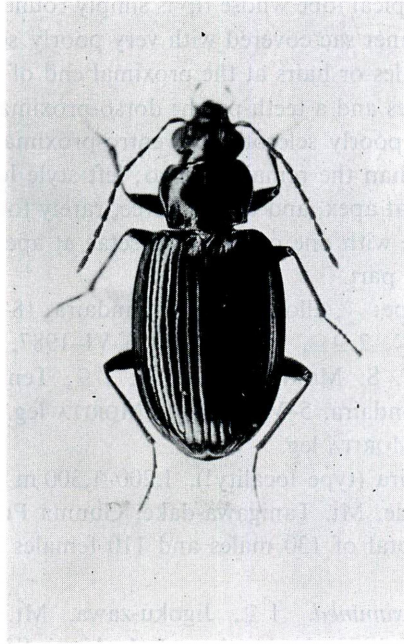


Fig. 16. *Bembidion (Plataphus) shilenkovi* MORITA, sp. nov., from Tenjindaira on Mt. Tanigawadake, Gunma Prefecture.

narrower towards apex; base nearly straight at the middle, slightly oblique on each side; apical angles moderately produced and rounded at the tips, hind ones nearly rectangular, with carinae close to lateral borders; a small rounded fovea rarely present on each side before middle; median line impressed, though reaching neither apex nor base; anterior transverse impression vague; basal foveae large and deep, with vague wrinkles; anterior marginal setae situated a little before the widest part, posterior ones situated just before hind angles; microsculpture consisting of transverse meshes.

Elytra oval, convex and widest at about middle; EW/PW 1.55–1.70 (M 1.60) in 30 ♂♂, 1.56–1.71 (M 1.63) in 30 ♀♀, EL/EW 1.39–1.49 (M 1.43) in 30 ♂♂, 1.38–1.49 (M 1.43) in 30 ♀♀; sides rather strongly arcuate and slightly emarginate before apices; apex of each elytron rather widely rounded, forming a small re-entrant angle at suture; striae entire, becoming a little shallower towards apices, and clearly punctate, especially in basal halves; scutellar striole long; intervals slightly convex; apical striole usually deep, moderately curved and joining stria 5 (striae 6 and 7 free at the posterior ends), rarely joining the apical anastomosis of striae 5 and 6 (in this case, the stria 7 is free at the posterior end); two dorsal pores on stria 3, situated at  $3/8-3/7$  and  $2/3-3/4$  from base respectively; microsculpture not sharply impressed, though consisting of irregular lines which are almost transverse.

Male genital organ similar in basic structure to that of *B. (P.) g. edai*. Aedeagus elongate, less robust, and much narrowed at the apical third on the dorsal side in

profile, with rather long apical lobe whose tip is simply rounded or sometimes reduced as shown in Fig. 20.<sup>3)</sup> Inner sac covered with very poorly sclerotized scales, but devoid of very minute spinules or hairs at the proximal end of apical orifice, and armed with four copulatory pieces and a teeth-patch; dorso-proximal copulatory piece somewhat spatulate and very poorly sclerotized; ventro-proximal copulatory piece much more poorly sclerotized than the remaining two; left style longer than the right; left style with two long setae at apex, and two or three, rarely four, short setae at apex or subapical part; right style with one or two long setae at apex and two or three short setae at apex or subapical part.

*Type series.* Holotype: ♂, allotype: ♀, Tenjindaira, 18-VI-1988, S. MORITA leg. (NSMT). Paratypes: 1 ♂, 2 ♀♀, Tenjindaira, 6-VI-1987, S. MORITA leg.; 8 ♂♂, Machigasawa, 6-VI-1987, S. MORITA leg.; 1 ♂, 1 ♀, Tenjindaira, 12-IX-1987, S. MORITA leg.; 2 ♀♀, Tenjindaira, 5-VI-1988, S. MORITA leg.; 119 ♂♂, 105 ♀♀, Tenjindaira, 18-VI-1988, S. MORITA leg.

*Localities.* Tenjindaira (type locality!), 1,200-1,300 m in altitude, and Machigasawa, 1,100 m in altitude, Mt. Tanigawa-dake, Gunma Prefecture, Central Japan.

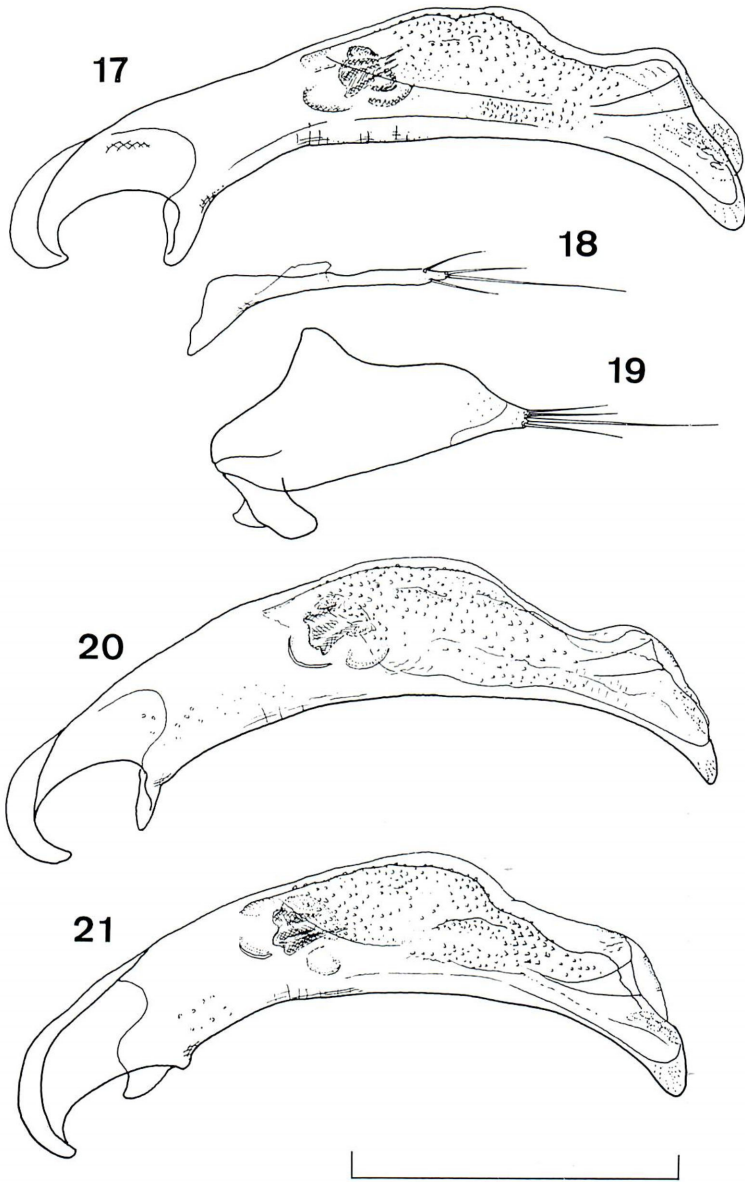
I have examined a total of 130 males and 110 females from the localities given above.

*Further specimens examined.* 1 ♀, Jigoku-zawa, Mt. Hakkôda-san, 1,200 m alt., Aomori Pref., 9-VIII-1988, A. ABE leg.; 1 ♂, Ainai, Sôma-mura, Aomori Pref., 13-VIII-1987, A. ABE leg.; 1 ♀, Riv. Anmon-gawa, Ajigasawa-chô, Aomori Pref., 7-VIII-1987, S. YAMAUCHI leg.; 2 ♂♂, 1 ♀, Noro-zawa, Ajigasawa-chô, Aomori Pref., 25-VII-1988, A. ABE leg.; 2 ♂♂, 1 ♀, Mt. Katta-dake, Zaô, Miyagi Pref., 24-VII-1976, S. MORITA leg.; 1 ♀, Marunuma, Katashina-mura, Gunma Pref., 29-VIII-1972, S. MORITA leg.; 1 ♂, 1 ♀, Shibunoyu~Nakayama-tôgê, Chino-shi, Nagano Pref., 6~8-VII-1979, S. MORITA leg.; 2 ♂♂, 1 ♀, Mt. Amakazari-yama, Nagano Pref., 3-IX-1988, S. MORITA leg.; 3 ♂♂, 4 ♀♀, Renge-onsen, Niigata Pref., 20-VIII-1986, M. SATÔ leg.; 1 ♂, 1 ♀, Abe-tôgê, Shizuoka-shi, Shizuoka Pref., 24-VI-1978, S. MORITA leg.; 1 ♀, Mt. Chausu-dake, Shizuoka-shi, Shizuoka Pref., 21-VIII-1978, S. MORITA leg.

*Notes.* Because of close similarity in the basic structure of male genital organ, this new species is doubtless closely related to *B. (P.) g. edai*. It is, however, distinguished from the latter by the following points: 1) more convex body; 2) darker coloration on the dorsal surface with stronger iridescent lustre; 3) deeper basal foveae on pronotum; 4) oval elytra; 5) convex intervals; 6) deeper elytral striae with punctuation; 7) aedeagus with strongly narrowed part at the apical third of dorsal surface; 8) aedeagal apical lobe simply rounded; 9) inner sac without spinules or hairs at the proximal end of apical orifice; and 10) ventro-proximal copulatory piece very poorly sclerotized.

Like *B. (P.) g. edai*, this beetle is found at middle to high elevations under stones

3) I am aware of the fact that the aedeagal apical part shows considerable individual variation in the details of outline, but the structure of inner armature is very constant within the same population.



Figs. 17-21. Male genital organ of *Bembidion (Plataphus) shilenkovi* MORITA, sp. nov., in left lateral view; 17, aedeagus of a toptypical specimen; 18, right style; 19, left style; 20, aedeagus of a toptypical specimen, showing the variation; 21, aedeagus of the specimen from the Abe-tôgé, Shizuoka Prefecture. (Scale: 0.4 mm.)

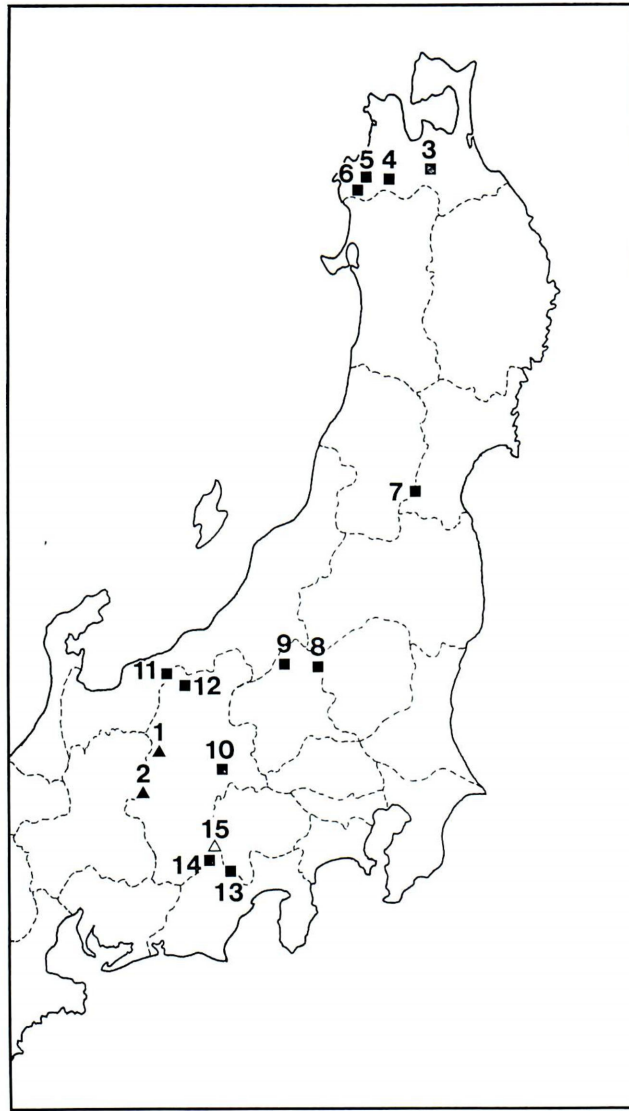


Fig. 22. Map showing the distribution in Japan of *Bembidion (Plataphus) gebleri edai* FASSATI and *B. (P.) shilenkovi* MORITA, sp. nov. ▲ – *B. (P.) g. edai* FASSATI; ■ – *B. (P.) shilenkovi* MORITA, sp. nov.; △ – *B. (P.)* sp. — 1, Kamikōchi; 2, Mt. Norikura-dake; 3, Jigoku-zawa; 4, Ainai; 5, Riv. Annon-gawa; 6, Noro-zawa; 7, Mt. Katta-dake; 8, Marunuma; 9, Tenjindaira and Machigasawa; 10, Shibunoyu ~ Nakayama-tōgē; 11, Renge-onsen; 12, Mt. Amakazari-yama; 13, Abe-tōgē; 14, Mt. Chausu-dake; 15, Mt. Senmai-dake.

at the edges of cold streams, small rivers and also snow patches. On Mt. Tanigawadake, the type locality of this species, several individuals of other bembidiines, *B. nuncaestimatum* NETOLITZKY, *B. misellum* HAROLD and *B.* sp. (MORITA, unpublished),

were obtained at the same time. Of these, the first species seems to have been confused with this new bembidiine because of similar coloration and body form, but the relationship between them does not appear very close.

Though widespread in the mountainous area of Aomori Prefecture, northern Honshu, this new species has not been found so far in Hokkaido, the northernmost main island of Japan. This is strange, since even flightless carabid beetles (*e.g.*, *Pterostichus mirificus* BATES, *Oroblemus parvicollis* S. UÉNO, and so on) are sometimes distributed onto the Oshima Peninsula of Hokkaido (cf. UÉNO, 1987, pp. 123–132). It is possible that this bembidiine will also be found in Hokkaido, especially on that peninsula.

This new species is dedicated to Dr. V. G. SHILENKOV whose kind help enabled me to complete the present paper.

### Postscript

A single male bembidiine belonging to the group under consideration was collected by myself on Mt. Senmai-dake, Shizuoka-shi, Central Japan (No. 15 in Fig. 22). Though this beetle is seemingly referable to *B. (P.) g. edai*, its aedeagus is similar to that of *B. (P.) shilenkovi*. Besides, it is a very small individual, 3.44 mm in length. The standard ratios of the body parts are as follows: PW/HW 1.19, PW/PL 1.48, PW/PA 1.33, PW/PB 1.25, PA/PB 0.94, EW/PW 1.60, EL/EW 1.43.

It is possible that this beetle may belong to a new geographical race. However, determination of its true systematic position should be postponed until many more individuals can be obtained on the same mountain.

The collecting data of the specimen in question are as given below: 1 ♂, Mt. Senmai-dake, Shizuoka-shi, Shizuoka Pref., Central Japan, 22–VII–1981, S. MORITA leg.

### 要 約

森田誠司: *Bembidion (Plataphus) gebleri* GEBLER と近縁の 1 新種. — アルタイから記載された *Bembidion (Plataphus) gebleri* GEBLER を再記載するとともに、ウラジオストックから記載された “*B. (P.) persuasum* NETOLITZKY” をおもに交尾器の研究からその亜種とみなし、中国の長白山からも記録した。また日本産の “*edai*” も同一種の亜種とみなし、同時に *B. (P.) nakanei* JEDLIČKA をその同物異名とみなした。また陰茎の内部構造から判断して、近縁と思われる 1 新種、ニセアマルガタミズギワゴミムシ *B. (P.) shilenkovi* を谷川岳より記載した。この新種は、北は青森県八甲田山から、西は新潟県蓮華温泉まで分布している。本種は、外部形態のみならず、陰茎の先端から 1/3 の部分が背面でいちじるしくくびれること、先端部が細く単純に丸まること、先端開口部の基部に微細な棘または毛の束を欠如することなどにより、明確に識別される。なお摘出された交尾器は、乾燥して縮小したり変形すると、とくに *B. (P.) g. edai* の場合に *B. (P.) shilenkovi* との識別が困難になるので、注意が必要である。最後に南アルプスの千枚岳で採集された個体に関して、かんたんにつれておいた。外部形態では *B. (P.) g. edai* によく似ているが、交尾器は *B. (P.) shilenkovi* のもの

に近い。ここでは分類学上の問題点を示すにとどめた。

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