

**Notes on the Pterostichine Subgenus *Eosteropus*
(Coleoptera, Carabidae) from Japan
Part 6. A New Species from Shizuoka Prefecture**

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Abstract A new pterostichine carabid beetle is described from Shizuoka Prefecture, Central Japan, under the name of *Pterostichus (Eosteropus) matsunagai*.

Recently, ample specimens of the subgenus *Eosteropus* were obtained by Dr. IMURA and Mr. MATSUNAGA in Shizuoka Prefecture, Central Japan and offered to me for taxonomic study. An examination of its anal projection and male genital organ proved that it is no doubt new to science. In this paper, I am going to describe it under the name of *Pterostichus (Eosteropus) matsunagai*.

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, measured between the roots of postangular setae; EW – greatest width of elytra; EL – greatest length of elytra; WL – length of hind wing; TL – length of hind tarsus; M – arithmetic mean; NSMT – National Museum of Nature and Science, Tokyo.

Before going further, I wish to express my deep gratitude to Dr. Yûki IMURA and Mr. Masamitsu MATSUNAGA for supplying me with important material. My thanks are also due to Mr. Ichiro OSHIO for his assistance in taking the photographs inserted in this paper.

Pterostichus (Eosteropus) matsunagai MORITA, sp. nov.

[Japanese name: Shauzo-kuro-naga-gomimushi]

(Figs. 1–14)

Diagnosis. Tibiae and tarsi brown to dark brown, and more or less lighter than femora; hind angles of pronotum rounded; basal foveae of pronotum rather deep among the members of the *creper* complex; epipleuron becoming narrower towards apex (not truncate); anal projection triangular in lateral view; apical half of ventral surface of aedeagus polished; right paramere of male genitalia U-shaped, with weakly reflexed apical part in left lateral view.

Description. L: 13.14–15.42 mm. Body black; labrum, clypeus and antennae blackish brown; tibiae and tarsi brown to dark brown, and more or less lighter than femora.

Head moderately convex, with moderately convex eyes; genae short and usually convex, rarely oblique in dorsal view; frontal furrows variable in depth and width, usually rather deep, linear, weakly divergent posteriad or parallel to each other, and reaching the level of anterior supraorbital pores on each side, rarely with wrinkles and punctures; lateral grooves deep, wide, inwardly arcuate from apices to the level of anterior supraorbital pores, and narrow and straight posteriad, and curved along eyes on each side; PW/HW 1.36–1.47 (M 1.41) in ♂, 1.38–1.47

(M 1.42) in ♀; surface weakly and sparsely punctate; microsculpture consisting of fine isodiametric meshes; anterior supraorbital setae situated a little before the mid-eye level to basal 2/3 of eyes; posterior ones situated at the post-eye level or a little before that level; relative lengths of antennal segments as follows:— I : II : III : IV : V : VI : XI \approx 1 : 0.53 : 0.87 : 0.94 : 0.91 : 0.91 : 0.89 in ♂, \approx 1 : 0.50 : 0.84 : 0.88 : 0.88 : 0.86 : 0.84 in ♀.

Pronotum wide and rather large, widest at apical third or a little before that level; apex weakly emarginate; sides strongly and widely arcuate in front, weakly so behind or rather strongly convergent to each other towards hind angles, rarely very shallowly sinuate before hind angles; reflexed lateral sides very narrow throughout or becoming wider towards base; PW/PL 1.25–1.34 (M 1.29) in ♂, 1.27–1.39 (M 1.32) in ♀; apical angles a little advanced and rounded at the tips; PW/PA 1.38–1.52 (M 1.45) in ♂, 1.36–1.48 (M 1.42) in ♀; PW/PB 1.33–1.60 (M 1.49) in ♂, 1.44–1.64 (M 1.53) in ♀; PA/PB 1.01–1.15 (M 1.08) in ♂, 1.01–1.11 (M 1.07) in ♀; median line fine, reaching neither apex nor base, and rarely becoming deeper towards base; anterior transverse impression vestigial; posterior transverse impression obliterated; basal foveae rather deep among the members of the *creper* complex, and with coarse punctures and irregular wrinkles; base almost straight; microsculpture consisting of fine transverse meshes.

Elytra with rather narrow basal part; EW/PW 1.23–1.32 (M 1.27) in ♂, 1.28–1.36 (M 1.32) in ♀; EL/EW 1.40–1.51 (M 1.46) in ♂, 1.44–1.49 (M 1.47) in ♀; shoulders widely arcuate; sides divergent to each other or very weakly arcuate from shoulders to the widest point, and moderately arcuate behind, with shallow and wide preapical emargination on each side; striae deep, impunctate, or rarely very finely punctate; intervals moderately convex and impunctate; basal part of interval VIII usually with several transverse wrinkles; marginal series composed of 16–19 pores; epipleuron becoming narrower towards apex (not truncate), and with very narrow and oblique apex; interval III usually with three dorsal pores; the first dorsal pore adjoining stria 3, the second and third adjoining stria 2; in ♂, the first pore situated between basal 1/7 and 1/4 of elytra, the second one situated between basal 2/5 and 3/5, and the third one situated between basal 3/4 and 17/20, respectively; in ♀, the first pore situated between basal 1/5 and 1/4 of elytra, the second one situated between basal 2/5 and the middle, and the third one situated between basal 3/4 and 4/5, respectively; microsculpture consisting of fine transverse meshes.

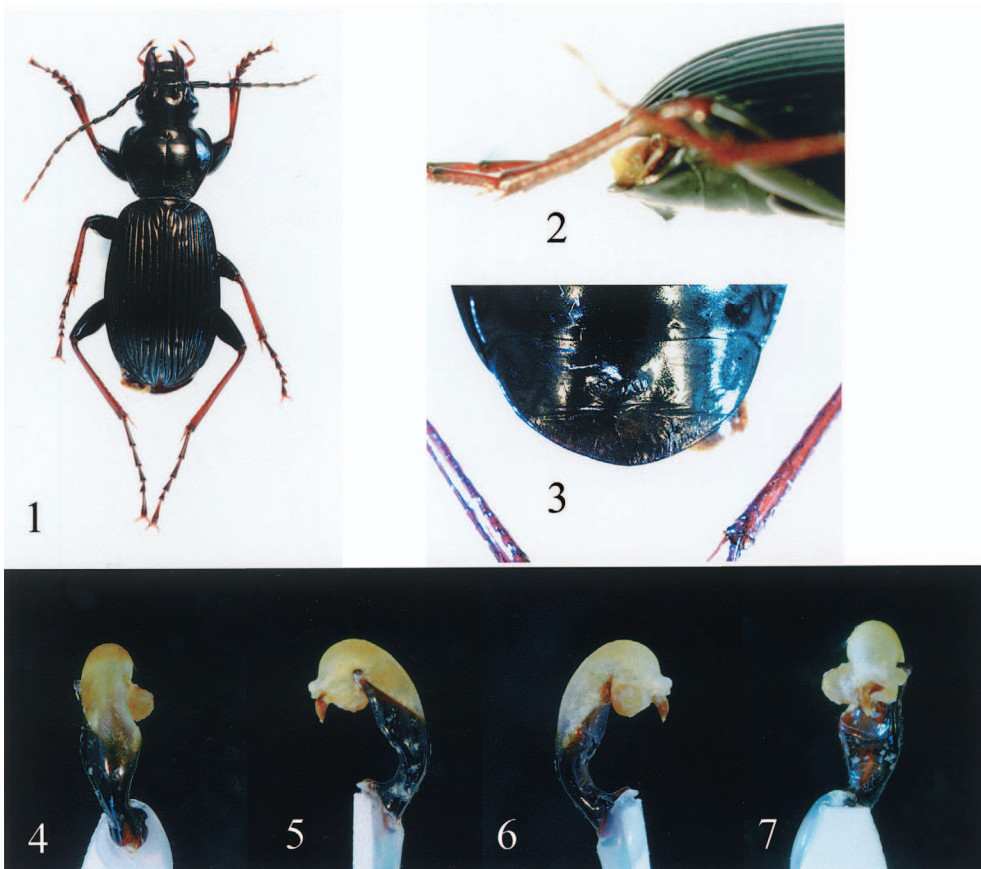
WL/EL 0.35 in 1 ♂.

Mentum tooth elongate and with bifid apex; prepisternum rarely, finely and partially punctate; mesepisternum, metasternum and sides of sternite 1 with several coarse punctures; sides of sternites 2–5 with several punctures and wrinkles.

In ♂, anal sternite widely depressed, with irregular wrinkles between a pair of setae, and very narrowly bordered along the margin, but the apex interrupted; anal projection triangular, usually with rounded and very slightly curved apex in lateral view; microsculpture composed of fine transverse meshes in basal half, and of isodiametric ones in apical half.

In ♀, anal sternite widely arcuate and narrowly bordered throughout; apical part slightly depressed and wrinkled, with two pair of setae on a shallow arc open anteriorly; longitudinal carina very weak, situated at apical half, and with several deep transverse sulci and weak wrinkles at the sides; microsculpture composed of transverse meshes in basal half, and of isodiametric ones in apical half.

Legs long and slender; metatrochanter short, with rounded apex; metafemora each with two setae in ventral view; basal three segments of meso- and metatarsi each with outer sulci; claw segments of meso- and metatarsi with several setae on each ventral side; TL/HW 1.52–1.62 (M 1.56) in ♂, 1.32–1.46 (M 1.37) in ♀.



Figs. 1–7. Male of *Pterostichus (Eosteropus) matsunagai* MORITA, sp. nov. — 1, Habitus; 2, hind body, right lateral view; 3, same, ventral view; 4, aedeagus, showing inflated inner sac, dorsal view; 5, same, right lateral view; 6, same, left lateral view; 7, same, ventral view.

Genital segment ovate, without handle.

Aedeagus robust, with basal part rather elongate; apical half of ventral surface polished; apical third of ventral surface strongly depressed, and forming a fovea and without edge of the fovea; surface behind the fovea with several transverse wrinkles; right wall heavily sclerotized and not forming a carina at the ventral edge; apex rather wide in ventral view.

Inner sac armed mainly with a large lobe, several small lobes, and rolled membraneous part (cf. MORITA, 2007, p. 413); rolled membraneous part consisting of moderately sclerotized scales; large lobe covered with minute and poorly sclerotized spinules.

Right paramere U-shaped, rather small, and becoming narrower towards apex; ventral side of apical part weakly reflexed.

Spermatheca elongate, with weakly reflexed apex

Individual variation of elytral chaetotaxy. Samples were selected at random. The number and position of elytra of sixteen males were studied. Of these, four specimens have an additional pore on one side, the pore joining stria 2 and situated at basal third in three specimens; in one specimen,

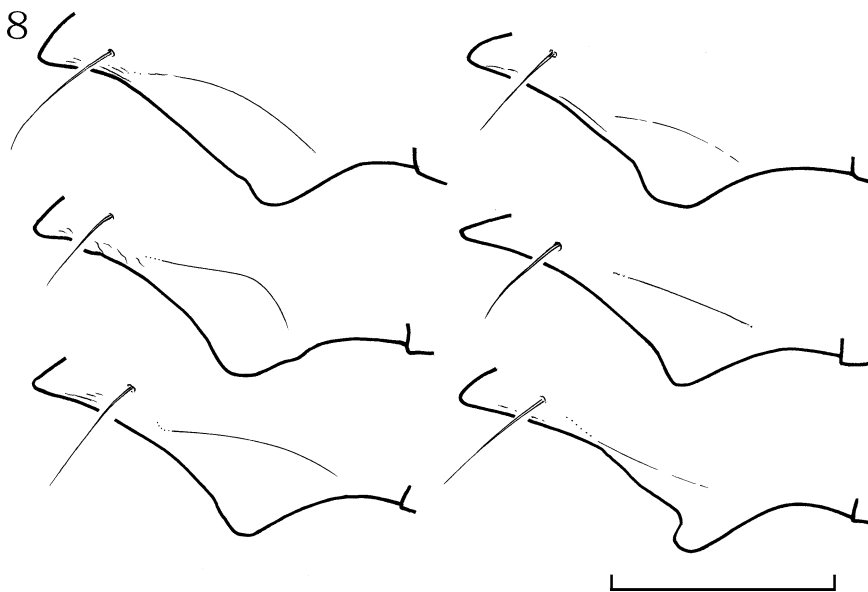


Fig. 8. Anal sternite of *Pterostichus (Eosteropus) matsunagai* MORITA, sp. nov., right lateral view, showing individual variation. (Scale: 1.00 mm.)

the pore situated a little behind the middle and on the interval III. The remaining eleven males show the ordinary elytral chaetotaxy.

Thirty-four females have been examined. In one individual, the third ordinary pore of the right elytron is lacking. The six females have an additional pore on one side; all of them joining stria 2, and situated between basal 1/3–7/10. In one individual, the additional pore is situated on the interval III and at basal 1/3 of elytra. The remaining individuals show the ordinary elytral chaetotaxy.

Individual variation of anal projection. In male, anal projection triangular, usually as in the top left of Fig. 8. Apex of the anal projection is variable in shape: it is usually narrowly rounded, rarely wide as in the top right of Fig. 8. An extreme is as in the bottom right of Fig. 8: apical part very narrow. It is similar to that of *P. (E.) ohkawai*, but the apex is shorter.

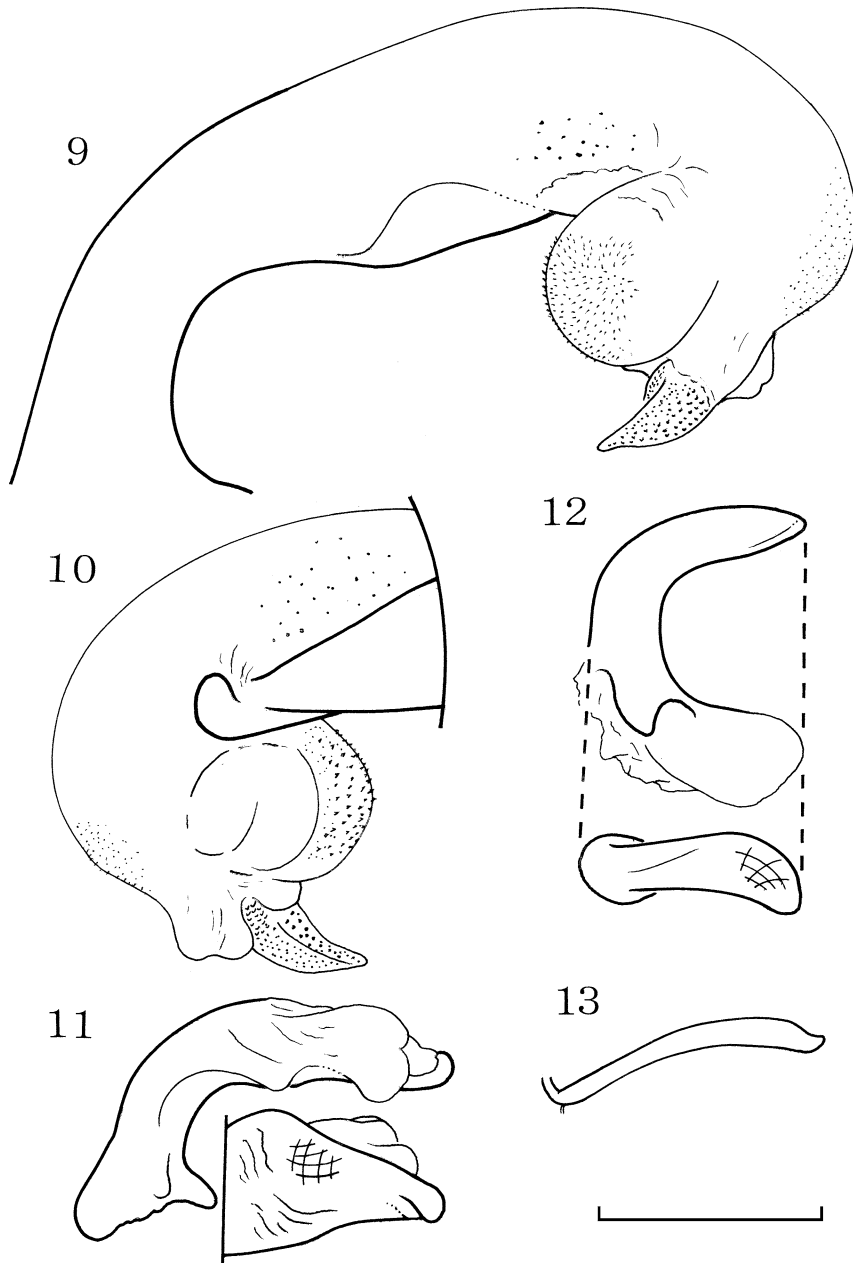
Individual variation of male genital organ. The genitalia of nine males have been studied. Aedeagal apex is rather wide as in the extreme left and the middle of Fig. 15. In one specimen, apex is narrow as in the second from the right of Fig. 15.

Individual variation of right paramere. Right paramere is usually as in Fig. 12 and Fig. 14 (left figure). Apical fourth of the right paramere is weakly curved dorsad as in Fig. 14 (right figure).

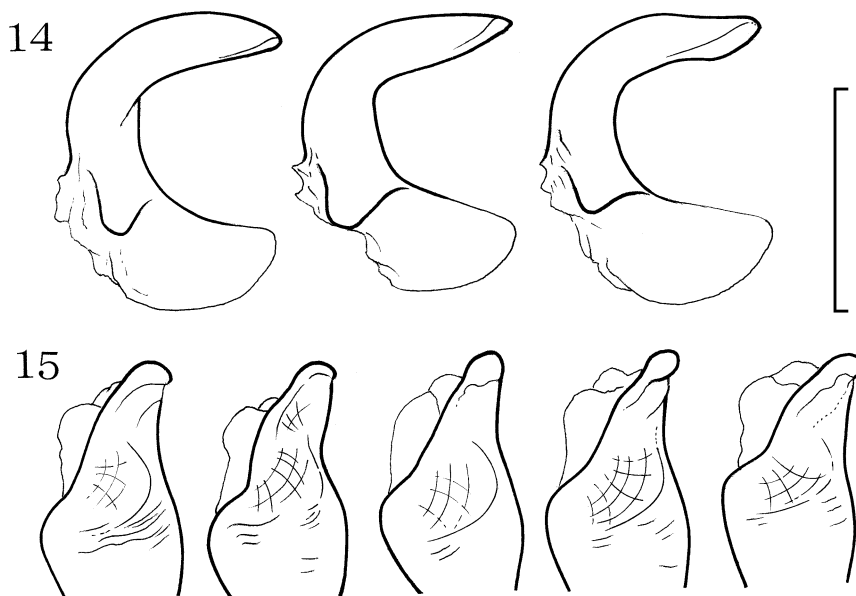
Type series. Holotype: ♂, (NSMT), paratypes: 30 ♂♂, 96 ♀♀, 27–VI~18–VII–2010, Y. IMURA & M. MATSUNAGA leg.

Type locality. Mt. Shauzo-yama, 1,750–1,830 m alt., (=Mt. Shauzu-yama), Tenryû-ku, Hamamatsu-shi, Shizuoka Prefecture, Central Japan.

Notes. This new species seems closely allied to *Pterostichus (Eosteropus) ohkawai* MORITA (2010, p. 112) known from Ooshika-mura, Nagano Prefecture. It is, however, distinguished from the latter mainly by the shape of anal projection, polished ventral side of aedeagus and the shape



Figs. 9-13. *Pterostichus (Eosteropus) matsunagai* MORITA, sp. nov. — 9, Aedeagus, showing inflated inner sac, left lateral view; 10, apical part of aedeagus, showing inflated inner sac, right lateral view; 11, aedeagus, left lateral view and apical part of aedeagus, ventral view; 12, right paramere, left lateral view and apico-dorsal view; 13, spermatheca. (Scale: 2 mm for 11: 1 mm for 9, 10, 12, 13.)



Figs. 14–15. *Pterostichus (Eosteropus) matsunagai* MORITA, sp. nov., showing individual variation. — 14, right paramere, left lateral view; 15, apical part of aedeagus, ventral view. (Scale: 1 mm for 14; 2 mm for 15.)

of right paramere.

The standard ratios of body parts shown in the descriptive part are those of 10 ♂♂ and 10 ♀♀.

要 約

森田誠司：日本産クロナガゴミムシの研究。6. 静岡県からの1新種。——静岡県浜松市シャウゾ山（＝シャウゾ山）から井村有希博士らによって採集されたクロナガゴミムシを、研究の結果、新種と認めシャウゾクロナガゴミムシ *Pterostichus (Eosteropus) matsunagai* と命名記載した。本種は、前胸背板の後角が丸みを帯び、雄の腹端節の突起が三角形、交尾器の右側片がU字型、陰茎下面にしわを持つが、滑らかである点などの組み合わせで、長野県大鹿村から知られているアカイシクロナガゴミムシ *P. (E.) ohkawai* MORITA と識別される。

References

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