

## A New *Pterostichus* (Coleoptera, Carabidae) from the Southern Japanese Alps

Seiji MORITA

Motoazabu 1–3–28–405, Minato-ku, Tokyo, 106–0046 Japan

**Abstract** A new pterostichine carabid beetle, *Pterostichus kosakai* sp. nov., is described from the Southern Japanese Alps, central Honshu, Japan. It is mainly characterized by shiny elytra in the male, presence of an asymmetric projection on the anal sternite in the male, and large male genital organ.

The group of *Pterostichus abaciformis* (cf. KASAHARA, 1988, p. 56) is characterized mainly by the opaque elytra in the female and the presence of a copulatory piece exposed from the apical orifice of the aedeagus. It is a small group consisting of only three Japanese species: *P. abaciformis* STRANEO (1955, p. 97), *P. mucronatus* STRANEO (1955, p. 93) and *P. masumotoi* TANAKA, MORITA et SUGA (1987, p. 99). Of these, the first species is widely distributed in the Chûbu district, central Honshu, and reaches the eastern part of the Chûgoku district, western Honshu (KASAHARA *et al.*, 1992, p. 23). The remaining two are localized in central Honshu.

In this paper, a fourth species of this group will be described as being new.

The abbreviations used herein are as follows: HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum, measured along the midline; PA – width of pronotal apex; PB – width of pronotal base; EW – greatest width of elytra; EL – greatest length of elytra; FL – length of metafemur; ML – length of metatrochanter; TL – length of hind tarsus; M – arithmetic mean; NSMT – National Science Museum (Nat. Hist.), Tokyo.

Before going further, I wish to express my deep gratitude to Dr. Shun-Ichi UENO of the National Science Museum (Nat. Hist.), Tokyo, for critically reading the original manuscript of this paper. My thanks are also due to Mr. & Mrs. Hanmei HIRASAWA, and Mr. Takashi KOSAKA for supplying me with important material and to Messrs. Kôyô AKIYAMA and Shinichirô FURIHATA for their kind help.

*Pterostichus kosakai* MORITA, sp. nov.

[Japanese name : Todai-ô-naga-gomimushi]

(Figs. 1, 5)

Length: 16.1–20.1 mm (from apical margin of clypeus to apices of elytra).

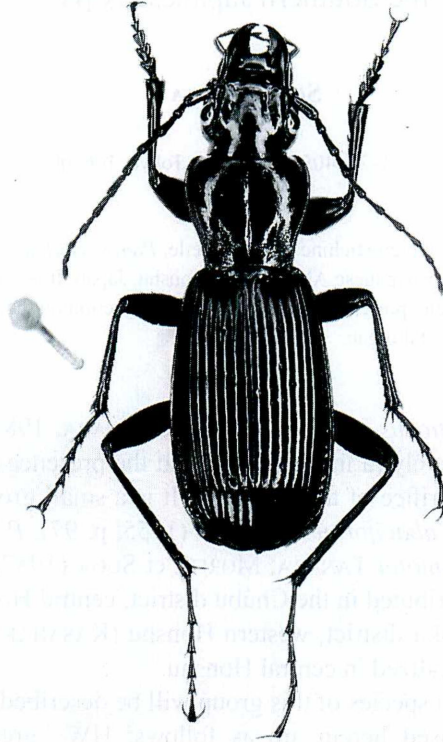


Fig. 1. *Pterostichus kosakai* MORITA, sp. nov., ♂, from Utajuku.

Colour black; dorsal surface shiny in ♂, but the elytra are opaque in ♀; ventral side and appendages blackish brown. Body large and convex.

Head convex; PW/HW 1.24–1.29 (M 1.26) in 13 ♂♂, 1.17–1.26 (M 1.23) in 12 ♀♀; frontal furrows shallow, slightly divergent posteriad or almost parallel, and reaching the mid-eye level; genae strongly convex, about 1/2 as long as eyes, and with wrinkles; eyes convex; lateral grooves very deep, straight, and reaching the mid level of genae; mentum tooth bifid and with a pair of setae; mentum with a deep concavity which has a small pit on each side at the bottom; submentum with a pair of setae; apex of labrum strongly emarginate; mandibles very long and strongly hooked at apices; relative lengths of antennal segments as follows:— I : II : III : IV : V : VI : XI = 1 : 0.58 : 0.91 : 0.90 : 0.86 : 0.83 : 0.78; antennal segment 2 with one seta on ventral side; dorsal surface sparsely and microscopically punctate; microsculpture composed of wide or isodiametric meshes.

Pronotum convex and widest at about apical 1/5 (measured along the median line); PW/PL 1.22–1.36 (M 1.28) in 13 ♂♂, 1.24–1.35 (M 1.29) in 12 ♀♀; PW/PA 1.29–1.35 (M 1.30) in 13 ♂♂, 1.24–1.34 (M 1.29) in 12 ♀♀; PW/PB 1.37–1.48 (M 1.43) in 13 ♂♂, 1.37–1.50 (M 1.44) in 12 ♀♀; apex widely emarginate and not bordered; PA/PB 1.05–1.13 (M 1.06) in 13 ♂♂, 1.05–1.21 (M 1.12) in 12 ♀♀; sides slightly arcuate in front, rather strongly convergent, and then very shallowly sinuate and crenulate a little before hind angles; base weakly emarginate at median part, oblique inside each hind angle; apical angles strongly produced and widely rounded; hind ones rectangular; anterior pair of setae inserted at the widest part, posterior ones a little before and inside hind angles; anterior transverse impression obsolete; median line clearly impressed, reaching neither apex nor base; basal foveae rather deep, linear, and with fine and coarse punctures; microsculpture composed of transverse meshes.

Elytra elongate-ovate, convex and widest at basal 5/9; basal part narrow, EB/EW 0.61–0.64 (M 0.63) in 13 ♂♂, 0.61–0.64 (M 0.62) in 12 ♀♀; shoulders indistinct and widely rounded; EW/PW 1.22–1.28 (M 1.25) in 13 ♂♂, 1.23–1.32 (M 1.27) in 12 ♀♀; EL/EW 1.55–1.65 (M 1.61) in 13 ♂♂, 1.52–1.67 (M 1.60) in 12 ♀♀; sides very slightly arcuate from behind shoulders to the widest part, moderately arcuate in apical parts, and with wide and very shallow preapical emargination; epipleuron gradually narrowed towards apex; inner plica indistinct; apices variable in form in ♂, usually conjointly rounded, rarely forming a small re-entrant angle at suture, but the apices are separately and widely rounded and form a large re-entrant angle at suture in ♀; basal border very slightly arcuate; basal pore situated on interval II and joining proximal part of stria 2, an additional basal pore rarely present on one side and situated at the proximal end of stria 3; intervals slightly to moderately convex; striae rather deep throughout, almost smooth or very weakly crenulate; scutellar striole usually indistinct, rarely very short and situated on interval II; dorsal pores variable in number and position, usually 5–6, sometimes 4, 7 or 8, rarely 3 on each side in ♂, usually 6–9, rarely 5 or 10 in ♀; position of dorsal pores on each side as follows: interval I usually with 1 or 2 pores, rarely 3 (usually adjoining stria 1, sometimes on interval I); stria 1 sometimes with one pore; interval II and stria 2 rarely with one or two pores, respectively; interval III usually with 1 or 2 pores, sometimes 3, rarely with 4 or 6; stria 3 usually with 1 pore, sometimes 2, rarely 3, 4 or 5; stria 4 and interval V rarely with one pore, respectively; marginal series composed of 17–22 pores; microsculpture clearly impressed, consisting of wide or transverse meshes in ♂, and consisting of very small, dense and isodiametric meshes in ♀.

Mesepisternum, metepisternum, and sides of sternites 1 and 2 sparsely and finely punctate; in ♂, anal sternite widely excavated at the middle, and with a short projection which is asymmetric and has an oblique apex; in ♀, anal sternite widely depressed between a pair of outer setae, and usually narrowly emarginate at the tip.

Legs slender; tarsi smooth on dorsal side; 2 basal segments of mesotarsi each with outer sulcus; 3 basal segments of metatarsi each with outer sulcus; TL/HW 1.32–1.48 (M 1.41) in 13 ♂♂, 1.30–1.42 (M 1.35) in 12 ♀♀; metatrochanter short and with



rounded apex; ML/FL 0.38–0.44 (M 0.41) in 10 ♂♂ and 6 ♀♀.

Aedeagus large (body length is shown in the explanations for Figs. 2–5), elongate and strongly bent at basal third; ventral side narrow and forming a longitudinal ridge from apical third to apex; apical lobe very short and simply rounded in oblique right ventro-lateral view; inner sac armed with two copulatory pieces; apical copulatory piece triangular and rolled, and with bent dorsal corner; microsculpture consisting of isodiametric meshes on the external surface of apical copulatory piece. Right paramere robust, straight, and with narrowly rounded apex; left one wide.

*Type series.* Holotype: ♂, 4~13-VI-1998, H. HIRASAWA leg. Allotype: ♀, 7-VI-1998, S. MORITA leg. (NSMT). Paratypes: 2 ♂♂, 1 ♀, 20-V-1998, T. KOSAKA leg.; 8 ♂♂, 1 ♀, 28-V-1998, T. KOSAKA leg.; 2 ♂♂, 2 ♀♀, 30-V-1998, T. KOSAKA leg.; 6 ♂♂, 2 ♀♀, 6~10-VI-1998, T. KOSAKA leg.; 4 ♂♂, 7-VI-1998, S. MORITA leg.; 3 ♂♂, 4 ♀♀, 8-VI-1998, S. FURIHATA leg.; 8 ♂♂, 11 ♀♀, 4~13-VI-1998, H. HIRASAWA leg.; 3 ♂♂, 6 ♀♀, 30-VI~3-VII-1998, T. KOSAKA leg.

*Locality.* Utajuku, about 1,700–1,800 m alt., Hase-mura, Nagano Prefecture, Central Japan.

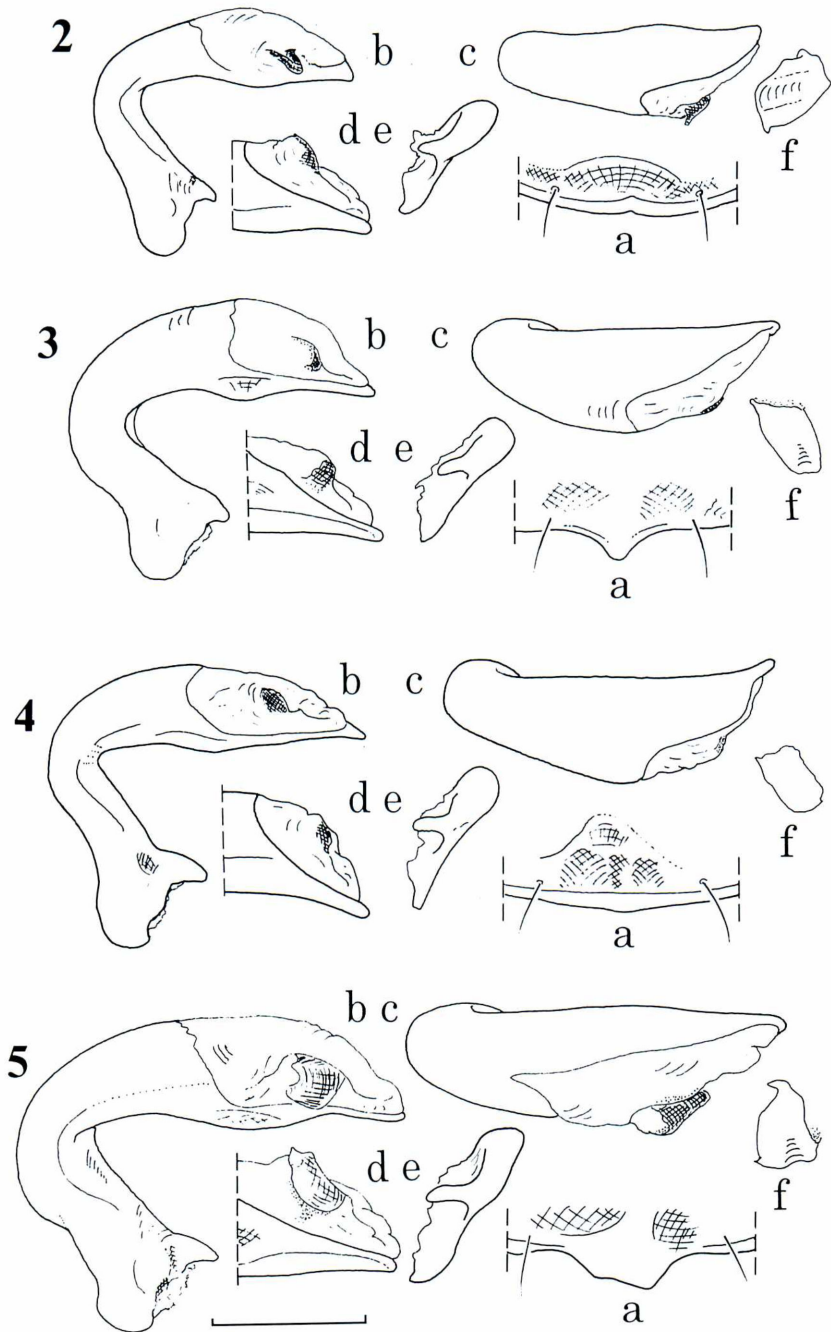
*Notes.* This new species is separable from all the other members of the *abaciformis* group by having an asymmetric projection of anal sternite in the male and bearing a large male genital organ as shown in Fig. 5.

On the other hand, the female of this new species looks like that of *P. mucronatus*. However, it is distinguished from the latter by the following points: basal part of pronotum usually without wrinkles and anal sternite narrowly emarginate between a pair of inner setae [in *P. mucronatus*, basal part of pronotum with longitudinal wrinkles near the median line and transverse or oblique ones in the basal foveae, and anal sternite very slightly produced at the tip in ventral view].

To my surprise, a single male of *Pterostichus masumotoi* belonging to the same group was recently taken at the same locality as this new species (acc. to HIRASAWA, pers. comm.). Unfortunately, habitat segregation between the two species was not observed. Various pterostichine beetles fallen in many baited traps were gathered in a single large killing jar.

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Figs. 2–5. Anal sternite in ♂ and male genital organ in *Pterostichus* spp. — 2, *P. abaciformis* STRANEO (a–e, specimen from Kamikôchi, 14.6 mm in body length; f, specimen from Tobiraonsen, 16.0 mm in body length); 3, *P. mucronatus* STRANEO from the Yatsu-ga-take Mts. (a–e, 16.6 mm in body length; f, 16.9 mm in body length); 4, *P. masumotoi* TANAKA, MORITA et SUGA (a–e, specimen from Aokikôsen, 19.1 mm in body length; f, specimen from Kashio, Ooshika-mura, 17.4 mm in body length); 5, *P. kosakai* MORITA, sp. nov., from Utajuku, (a–e, 18.4 mm in body length; f, 17.9 mm in body length). — a, Anal sternite in ♂; b, aedeagus, left lateral view; c, aedeagus, dorsal view; d, apical part of aedeagus, ventral view; e, right paramere, left lateral view; f, apical copulatory piece, oblique dorsal view. Scale : 2 mm.



## 要 約

森田誠司：南アルプス産ナガゴミムシの1新種。——南アルプス北沢峠の北西に位置する歌宿付近で、大型のナガゴミムシの1種が小坂 隆氏により採集された。この種は、陰茎先端開口部より骨片が露出している点から判断して、ムナビロナガゴミムシ種群に属するものであるが、既知の3種とは、雄腹部末端節に特異な形態の突起をもつこと、大型の雄交尾器をもつことなどで明瞭に識別されたため、新種とみとめて *Pterostichus kosakai* と命名した。なお興味深いことに、採集者のひとりの平沢氏によると、歌宿付近に設置されたベイトトラップより回収された多数のナガゴミムシの中から、同じ種群に属する *P. masumotoi* の雄1頭が見出されたという。

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