

Two New Pterostichine Carabids from the Island of Shikoku, Southwest Japan

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Abstract Two new apterous *Pterostichus*, named *P. yoshidai* sp. nov. and *P. ishizuchiensis* sp. nov., are described from the Island of Shikoku, Southwest Japan. The former is isolated, but may have certain relationship with *P. macrogenys* BATES. The latter is certainly derived from a common ancestor with *P. shiibanus* HABU known only from the Island of Kyushu.

Through the courtesy of Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, I was given an opportunity to examine two remarkable pterostichine carabids from the Island of Shikoku, Southwest Japan.

The existence of one of them has already been noticed (KASAHARA, 1980, p. 121). A single female of this species was found in a large number of pterostichine examples collected on Mt. Tsurugi-san, Tokushima Prefecture. It was rediscovered by Mr. Masataka YOSHIDA on Mt. Kumosô-yama, Tokushima Prefecture, about 15 km distant to the east from the first locality. It is an isolated species, but may have certain relationship with *Pterostichus macrogenys* BATES (1883, p. 245) and its allies in having peculiar facies characteristic of that group.

The other species was recently discovered by Mr. YOSHIDA at Tsuchigoya on the Ishizuchi Mountains in Ehime Prefecture. It is related to *P. shiibanus* HABU (1958, pp. 70-73, figs. 2, 5) known only from the Island of Kyushu, but is evidently different from it in the conformation of aedeagus. Occurrence of an ally of *P. shiibanus* in the Island of Shikoku has already been known, since a single female of it was taken by Dr. S.-I. UÉNO in May 1976 at the bottom of a pothole lying at the southern part of Ehime Prefecture. Through his courtesy, I have examined the specimen and found that it was somewhat different from either the present new species or *P. shiibanus*. I prefer to refrain from naming it at this opportunity.

In the present paper, I will describe the former under the name of *P. yoshidai* and the latter under that of *P. ishizuchiensis*.

Before going further, I wish to express my sincere gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for giving me the opportunity to examine the interesting specimens and for reading the manuscript of this paper. Thanks are also due to Mr. Masataka YOSHIDA of Tokushima City for his kind help and to Mr. Hitoshi HASEGAWA of the Laboratory of Insect Systematics, National Institute of Agro-environmental Sciences, Tsukuba, for affording me facilities to examine the specimen under his care.

Pterostichus yoshidai KASAHARA, sp. nov.

[Japanese name: Shikoku-ôzu-nagagomimushi]

(Figs. 1-3)

Pterostichus sp.: KASAHARA, 1980, Kitakyûshû-no-konchû, 27: 121.

Description. Length (measured from apex of labrum to apices of elytra) 14.0–16.4 mm. Width 4.45–5.25 mm. General appearance elongate, subparallel-sided, depressed; moderately shiny, blackish brown to black, almost concolorous though palpi and tarsi are dark reddish brown, ventral surface dark reddish brown.

Head large, moderately convex; mandibles stout, fairly long though arcuate at the apical parts; eyes small, almost flat; tempora long and swollen, 1.8 times as long as eyes; frontal furrows very wide and distinct, somewhat divergent posteriad, extending to the mid-eye level, almost smooth though vaguely wrinkled near clypeal suture, which is fine; supraorbital areas convex; lateral grooves rather wide and deep, extending behind to a level far from the posterior margin of eyes and reaching the level of posterior supraorbital setae; surface sparsely minutely punctate, microsculpture scarcely visible, forming transverse meshes; clypeus gently emarginate at apex; labrum more or less asymmetrically emarginate at apex; terminal segment of maxillary palpus as long as the penultimate, cylindrical, truncate at apex; antennae relatively long and thick, extending beyond elytral shoulders, scape 2.3 times as long as wide and almost as long as segment 3, which is 1.8 times as long as segment 2, whose apex is unisetose ventrad.

Pronotum subcordate, rather flat, widest at about apical fourth, 1.12–1.14 times as wide as head, 1.33–1.35 times as wide as long, 1.37–1.40 times as wide as base; lateral margins more or less parallel near the widest part in the holo- and paratypes though gently arcuate in the allotype, thence well convergent posteriad and sinuate before base, basal parts parallel and crenulate; lateral reflexed borders narrow, though tending to become wider towards apex; apical margin widely emarginate, not bordered, apical angles produced, rounded at the tips; basal margin widely emarginate at the median part, not bordered, basal angles nearly rectangular, pointed at the tips in the paratype, not so sharp or rounded at the tips in the holo- and allotypes; anterior marginal setae inserted at apical fifth, posterior one a little apart from basal angles; basal foveae shallow, sublinear, punctate in the holo- and paratypes, vaguely punctate in the allotype; median line moderately impressed, abbreviated at the extremities; apical crescent furrow weakly impressed in the holo- and paratypes, obsolete in the allotype; surface minutely and sparsely punctate with irregularly waved transverse wrinkles, rather clearly impressed longitudinal wrinkles present at the middle of basal part in the holo- and paratypes; microsculpture partially slightly visible, forming transverse meshes.

Apterous. Elytra elongate, depressed, fused with each other at the suture, widest at about middle, 1.22–1.23 times as wide as pronotum, 1.70–1.75 times as long as wide; basal border complete, curved at the base of stria 4, thence straightly obliquely ex-

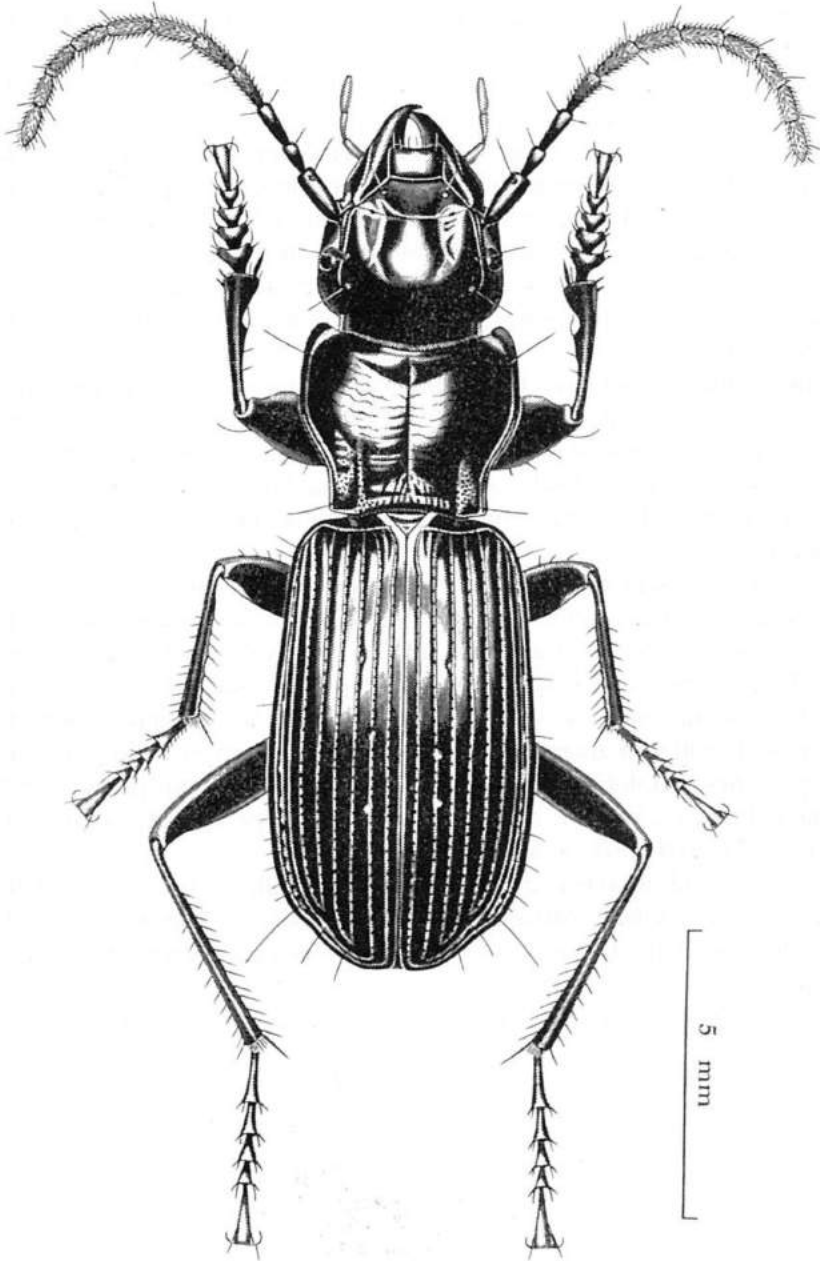


Fig. 1. *Pterostichus yoshidai* KASAHARA, sp. nov., ♂, from Mt. Kumosô-yama in Tokushima Prefecture.

tending to shoulder and meeting with lateral border at an obtuse angle; lateral margins evenly gently arcuate from behind shoulders to apical fourth, then roundly convergent to apices; preapical emargination shallow; inner plica slightly visible; apex of each elytron widely rounded, sutural angle distinct in the allotype but rather dull in the holo- and paratypes; scutellar striole short, present on interval 2; striae clearly impressed, more or less wide, punctate; intervals weakly convex, interval 6 widening at the base, interval 3 with three dorsal pores, of which the anterior one lies at the basal third and adjoins stria 3, and the posterior two adjoin stria 2 and lie at about middle and apical third, respectively; marginal series of pores consisting of 16–18 setae, which are widely spaced at middle; microsculpture more clearly impressed in the female than in the male, consisting of meshes which are nearly isodiametric in the female but more or less transverse in the male.

Ventral surface punctate on pro-, meso-, metepisterna, mesosternum and sternites 3–4, sternites 5–8 vaguely punctate with irregular wrinkles at the lateral parts; prosternum shallowly furrowed at the middle, with the process bordered at apex; in the male, terminal sternite shallowly concave at the middle of apical half, the concavity being interrupted with a longitudinal ridge at the middle, and truncate and lightly bisinuate at apex.

Basal two segments of meso- and metatarsi sulcate on the external face.

Aedeagus relatively stout, strongly bent at about 90 degrees at the basal third, gently arcuate and tumid ventrad at the middle, preapical part well curved downwards in lateral view; apical lobe longer than wide, tapering towards apex, though narrowly rounded at the tip; inner sac with a copulatory piece at the ventro-apical third; left paramere wide and well arcuate at apex; right paramere short and rounded at apex.

Type series. Holotype: ♂, allotype: ♀, Mt. Kumosô-yama, 1,200 m alt., Tokushima Pref., 17. V. 1981, M. YOSHIDA leg.; paratype: ♀, Mt. Tsurugi-san, Tokushima Pref., 28. VIII. 1978, S. KASAHARA leg.

The holo- and allotypes are deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. The paratype is deposited in the collection of the Laboratory of Insect Systematics, National Institute of Agro-environmental Sciences, Tsukuba.

Notes. The present new species may be related to *P. macrogenys* BATES and

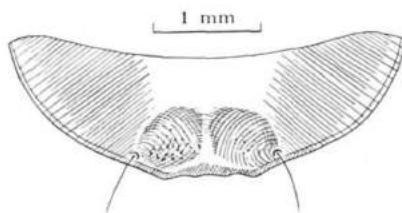


Fig. 2. *Pterostichus yoshidai* KASAHARA, sp. nov.; terminal sternite in the male.

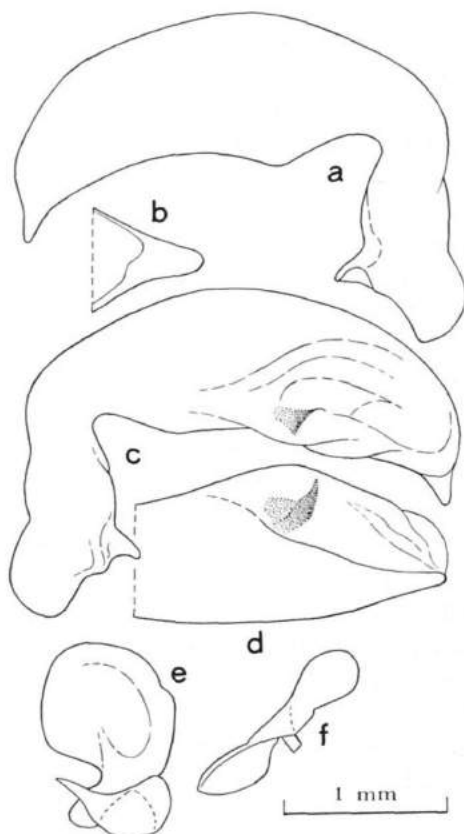


Fig. 3. Male genitalia of *Pterostichus yoshidai* KASAHARA, sp. nov.; a-d, aedeagus; a, right lateral view; b, apical part in dorsal view; c, left lateral view; d, apical two-thirds in ventral view; e, left paramere; f, right paramere.

its allied species in having large head bearing small eyes, unisetose antennal segment 2, concave terminal sternite in the male and genitalic characteristics, but can be readily distinguished from the latter in shorter mandibles, shape of pronotum, more elongated and depressed elytra, and so on.

Pterostichus ishizuchiensis KASAHARA, sp. nov.

[Japanese name: Ishizuchi-nagagomimushi]

(Figs. 4, 5)

Description. Length (measured from apex of labrum to apices of elytra) 12.8–13.4 mm. Width 4.2–4.3 mm. Wholly shiny black in the male, with mat elytra in the female; labrum, mandibles, antennae, femora and ventral surface dark reddish brown, both maxillary and labial palpi, tibiae and tarsi reddish brown in the holotype, darker or blackish in the allotype.

Head fairly large, relatively wide, moderately convex and shiny; eyes rather small, feebly convex; tempora strongly convergent behind, shorter than eyes, slightly tumid;

genae rugose near buccal fissure; frontal furrows wide and very shallow, smooth, extending to the mid-eye level; supraorbital areas convex; clypeal suture fine; lateral grooves deep, extending to a little behind the post-eye level; surface sparsely minutely punctate, microsculpture partially visible, forming transverse meshes; clypeus emarginate at apex; labrum more or less emarginate at apex; terminal segment of maxillary palpi almost as long as the penultimate, cylindrical, slightly tumid at the middle, truncate at apex; antennae rather thick, extending beyond shoulders of elytra, scape twice as long as wide, 1.2 times as long as segment 3, which is 1.4 times as long as segment 2, the latter unisetose ventrad at apex.

Pronotum shiny, quadrate-cordate, moderately convex, widest at about apical fourth, 1.21–1.25 times as wide as head, 1.21–1.23 times as wide as long, 1.35–1.40 times as wide as base; lateral margins gently arcuate, lightly sinuate before base, irregularly notched especially in basal halves; lateral reflexed borders narrow, though becoming wider towards apices; marginal grooves obsolete near the bases, vaguely punctate; anterior marginal setae inserted at apical fifth; apical margin gently emarginate at the median part and lightly sinuate on each side, not bordered, apical angles produced, rounded at the tips; basal margin widely emarginate at the median part, slightly oblique on each side, not bordered, basal angles nearly rectangular though rounded at the tips; basal foveae deep, densely strongly punctate, rugged at the bottoms, spaces outside of foveae somewhat convex, densely punctate, basal part between the foveae convex, rather coarsely punctate with vague longitudinal wrinkles; median line moderately impressed, deepening near base; apical crescent furrow weakly impressed in the holotype, obsolete in the allotype; surface sparsely, very minutely punctate and with vague transverse wrinkles, microsculpture partially visible, forming fine transverse meshes.

Apterous. Elytra oblong-ovate, fused with each other at the suture, shiny in the male, fully mat in the female, moderately convex, widest at about middle, 1.2 times as wide as pronotum, 1.6–1.7 times as long as wide; basal border complete, curved at the base of interval 4, thence obliquely extending to shoulder and joining lateral border at an obtuse angle; lateral margins evenly gently arcuate from behind shoulders to apical emargination, which is shallow; apices widely rounded in the holotype, more or less truncate in the allotype, sutural angles distinct; scutellar striole short, lying on interval 1; striae deeply impressed, rather wide, punctate, striae 1 and 2 arising from basal pores, all striae apart from basal border at the bases; intervals moderately convex in the holotype, less convex in the allotype; interval 3 with three dorsal pores, anterior one at about basal fourth and adjoining stria 3, posterior two adjoining stria 2 a little before the middle and at apical fourth, respectively; marginal series of pores 17 in number, widely spaced at middle; microsculpture strongly impressed in the female, consisting of isodiametric meshes, weakly impressed and nearly isodiametric in the male.

Ventral surface moderately shiny, pro-, meso-, metepisterna, mesosternum and

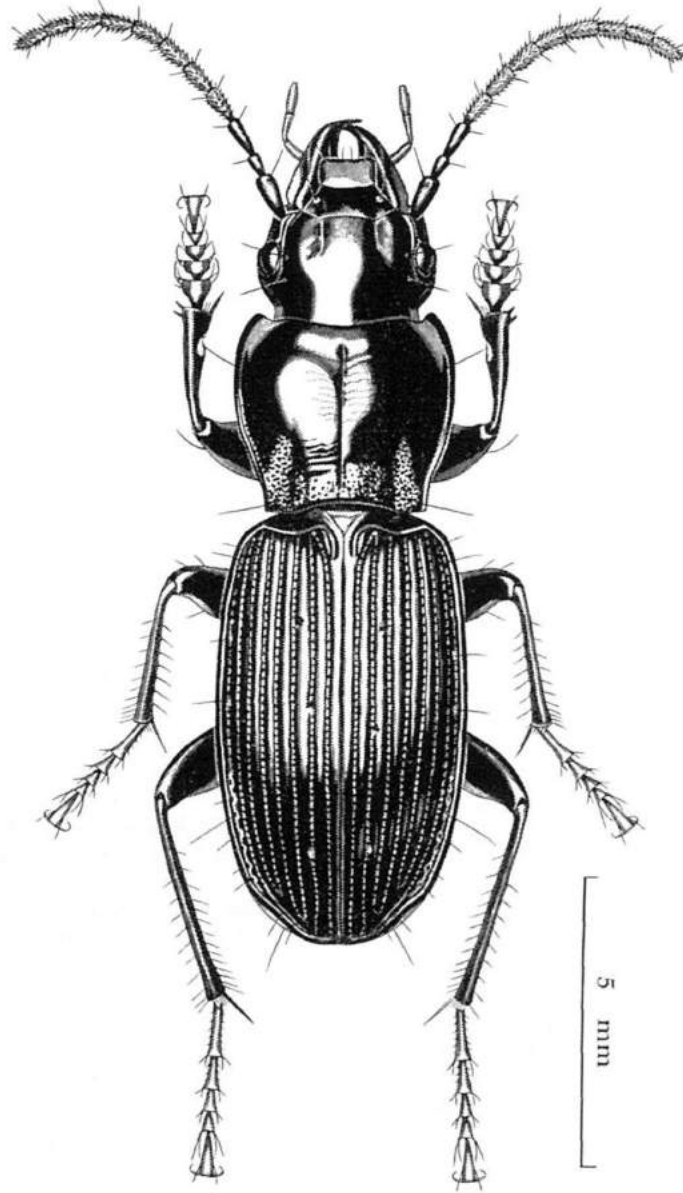


Fig. 4. *Pterostichus ishizuchiensis* KASAHARA, sp. nov., ♂, from Tsuchigoya on the Ishizuchi Mountains in Ehime Prefecture.

sternites 3–4 punctate; prosternal process furrowed at the middle, bordered and rugose at apex; in male, terminal sternite depressed in apical half, somewhat truncate at apex.

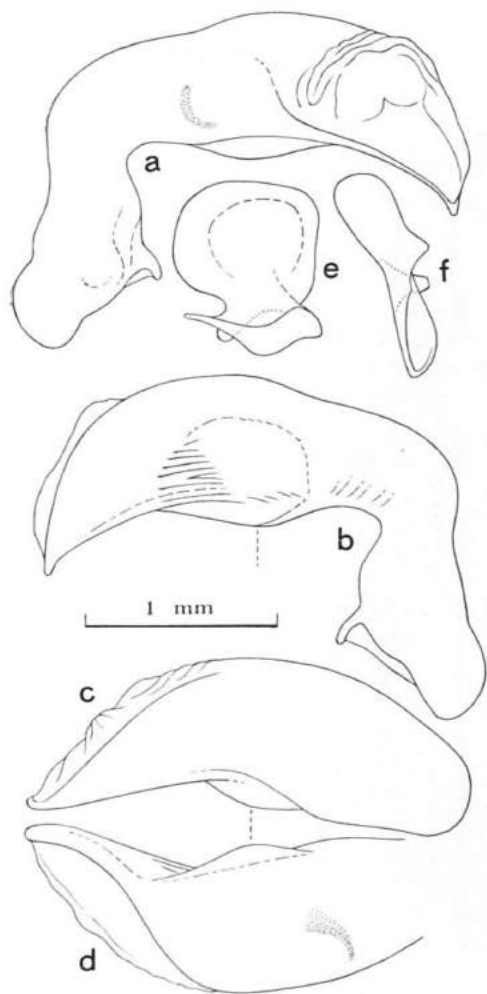


Fig. 5. Male genitalia of *Pterostichus ishizuchiensis* KASAHARA, sp. nov.; a-d, aedeagus; a, left lateral view; b, right lateral view; c, dorsal view; d, ventral view; e, left paramere; f, right paramere.

Aedeagus stout at the basal part, shallowly concave just behind middle on the right side, the concavity bearing rather strongly impressed transverse wrinkles at the anterior part; right ventral edge with a fin-shaped longitudinal lamella, which is visible through the concavity in dorsal view; inner sac with a crescent-shaped copulatory piece at the middle of the ventral side; left paramere wide, almost square; right paramere thick, rounded at apex.

Type series. Holotype: ♂, allotype: ♀, Tsuchigoya on the Ishizuchi Mountains, 1,550 m alt., Ehime Pref., 15. VII. 1985, M. YOSHIDA leg.

The holo- and allotypes are deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo.

Notes. The present new species is closely allied to *P. shiibanus* HABU but the

latter can easily be separable from the former by having larger body and peculiarities of aedeagus, which is deeply excavated at the preapical part and has a bisinuate longitudinal carina on the mid-line of ventral surface (cf. HABU, 1958, p. 73, fig. 5, B; KASAHARA & IMASAKA, 1980, p. 6, fig. 2 A-C).

摘 要

四国から、ナガゴミムシ属 *Pterostichus* の 2 新種、シコクオオズナガゴミムシ *P. yoshidai* とインズチナガゴミムシ *P. ishizuchiensis* を記載した。

前種は分布的には孤立しているが、ニッコウオオズナガゴミムシ *P. macrogenys* BATES と類縁関係があり、後種は九州のみから知られていたシイバナガゴミムシ *P. shiibanus* HABU に近縁で、共通の祖先型から分化したものであることは疑いない。

Addendum

After the manuscript of this paper was put to the press, I received from Mr. Yoshiyuki Irô, to whom my sincere thanks are due, a male specimen of *P. ishizuchiensis* obtained by him at the type locality.

This specimen is somewhat smaller than the holo- and allotypes in the body size, being 12.0 mm in length and 3.8 mm in width, though no difference in the conformation of aedeagus can be detected between this and the holotype specimens. It is, therefore, designated as the paratype; its collecting data are as given below.

Paratype: 1 ♂, Tsuchigoya on the Ishizuchi Mountains, 1,550 m alt., Ehime Pref., 11. VI. 1972, Y. Irô leg.

The paratype is deposited in my collection.

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