

Two New Relatives of *Pterostichus cristatoides* (Coleoptera, Carabidae) from Central Japan

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Abstract Two new pterostichine carabid beetles, *Pterostichus (Epinaloe) haku-sanus* sp. nov. and *P. (E.) dandonis* sp. nov., are described from central Honshu, Japan. Both the new species are closely related to *P. (E.) cristatoides* STRANEO.

An apterous pterostichine carabid beetle, *Pterostichus cristatoides* STRANEO (1955, pp. 87, 90–93), has been known from the Hida Mountain Range in central Honshu, Japan. TANAKA (1961, p. 48) redescribed it, and noticed that a new form of the species occurs on Mt. Kiso-komagatake, the highest peak of the Kiso Mountain Range in central Honshu, though not naming it.

On the other hand, two unnamed relatives of the same species have been known in central Honshu. One of them is found on the Hakusan Mountains on the borders of Fukui and Gifu Prefectures. It closely resembles *P. cristatoides* in appearance, but is clearly discriminated from the latter by different configuration of the terminal sternite and genitalia in the male. The other species occurs on Mt. Dando-san and its neighbouring mountains, lying at the southernmost part of the Kiso Range in Aichi Prefecture. In external morphology, this interesting beetle is rather similar to *P. spiculifer* BATES, widely distributed in the eastern half of Honshu, than to *P. cristatoides*, but is no doubt a close relative of the latter because of similarity in the characteristic shape of aedeagus. This is also new to science like other species.

In this paper, I will describe the former under the name of *Pterostichus hakusanus* sp. nov., and the latter under that of *P. dandonis* sp. nov. Both the new species belong to the subgenus *Epinaloe* NAKANE (1979, p. 56) in view of the conformation of male genitalia. The abbreviations used herein are the same as those explained in other papers of mine.

Before going further, I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO of the National Science Museum (Nat. Hist.), Tokyo, for his advice and for reading the manuscript of this paper. Thanks are also due to Professor Masataka SATÔ of Nagoya Womens' University, Messrs. Hiroshi IWASAKI and Masahiro SAITO for their kind help in materials, and to Messrs. Shirô ANDÔ, Michiaki HASEGAWA and Ten NAKASHIMA of the Gifu Prefectural Museum, Seki, for their kind support in field works.

Pterostichus (Epinialoe) hakusanus KASAHARA, sp. nov.

[Japanese name: Hakusan-nagagomimushi]

(Figs. 1-2, 4)

Description. Length (measured from apex of labrum to apices of elytra) 12.5–13.8 mm. Width 4.8–5.3 mm. Black, shiny; labrum, mandibles and femora dark reddish brown; palpi, antennae, tibiae and tarsi reddish brown.

Head moderately convex, shiny; eyes convex; temporae oblique, gently, sometimes distinctly tumid; genae smooth; labrum and mandibles normal; clypeus gently emarginate at apex; clypeal suture very fine; frontal furrows rather deep, divergent in posterior halves, and extending to the level of anterior supraorbital setae; lateral grooves deep, extending to a little behind the post-eye level; surface minutely and sparsely punctate, microsculpture visible, formed by nearly isodiametric meshes; palpi normal; antennae extending to behind shoulders of elytra; relative lengths of scape and segments 2–6 as follows:— 1: 0.53: 0.88: 0.94: 0.94: 0.88; segment 2 unisetose ventrally at apex.

Pronotum cordate, rather flat, shiny, widest at apical fourth, ca. 1.4 times as wide as head (PW/HW 1.36–1.44, mean 1.41), as wide as long in almost the same proportion (PW/PL 1.33–1.41, mean 1.40), ca. 1.35 times as wide as base (PW/PBW 1.30–1.41, mean 1.35); lateral margins evenly well arcuate in apical halves, then strongly convergent posteriad and fully sinuate before base, basal parts almost parallel, and with small irregular notches; lateral reflexed borders narrow, though becoming wider towards apices; lateral grooves almost smooth, or obsoletely punctate; anterior marginal setae inserted a little before the widest part; apical margin emarginate, not bordered, apical angles produced, rounded at the tips; basal margin almost as wide as, or a little wider than the apical, gently emarginate at median part, rather oblique and bordered on each side, basal angles nearly rectangular, pointed at the tips; basal foveae distinct, shallowly and linearly impressed at the bottoms, divergent anteriad, punctate, and often with transverse rugosity; outer sides of furrows flat, punctate; surface with irregular transverse wrinkles; microsculpture slightly visible, formed by fine transverse meshes.

Apterous. Elytra oblong-ovate, rather flat, shiny, weakly iridescent, widest at about middle, ca. 1.3 times as wide as pronotum (EW/PW 1.22–1.31, mean 1.27), ca. 2.6 times as long as pronotum (EL/PL 2.48–2.64, mean 2.57), about a half as long again as wide (EL/EW 1.42–1.48, mean 1.45); basal border gently curved, obliquely extending to shoulder, and joining lateral border at an obtuse but often mal-defined angle; shoulders narrowly rounded; lateral margins gently arcuate, preapical emarginations shallow; sutural angles obtuse, though rounded at the tips; inner plica invisible; scutellar striole short, lying on interval 1, and connected with basal border; striae moderately impressed, smooth; intervals gently convex; interval 3 with three (rarely four) dorsal pores, anterior one at basal fourth and adjoining stria 3, the remainings adjoining stria 2 at about middle and apical fourth, respectively; marginal

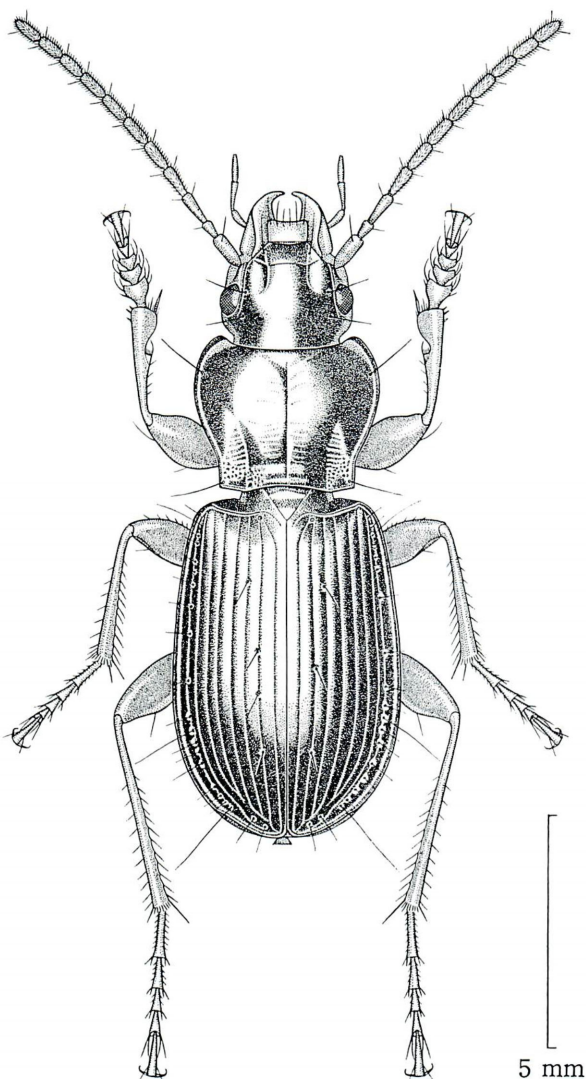
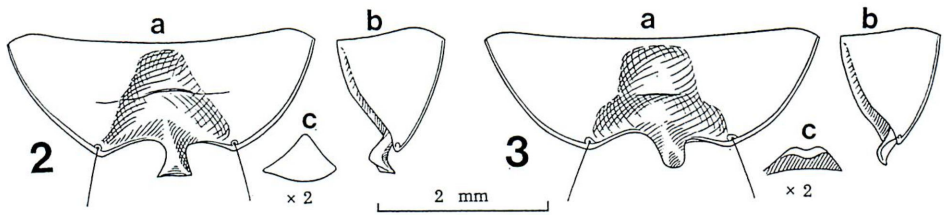


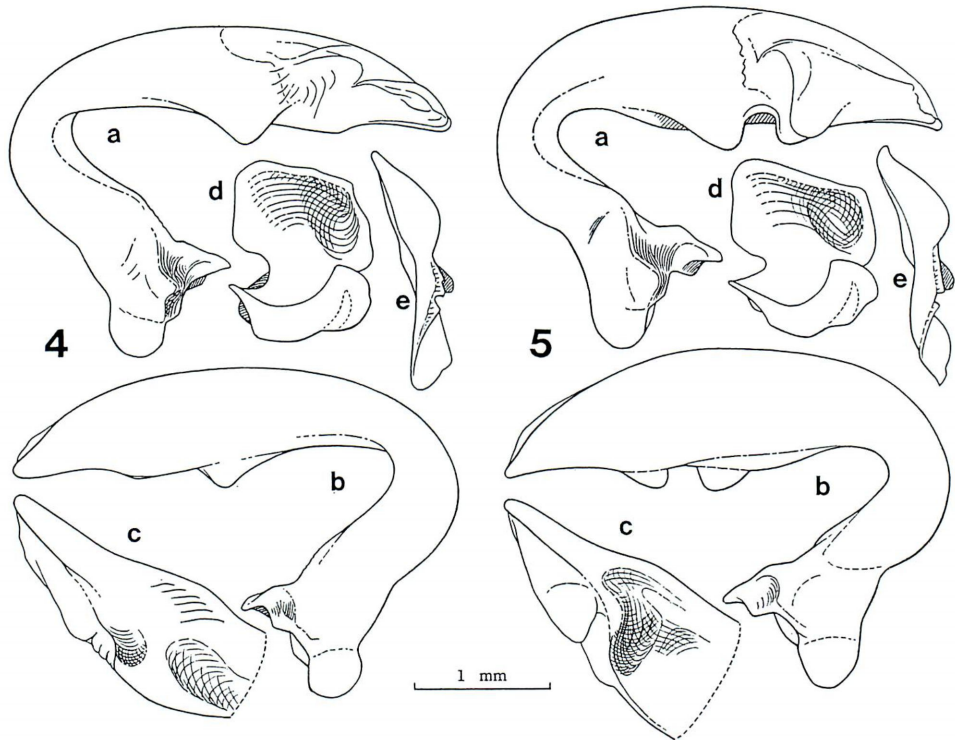
Fig. 1. *Pterostichus (Epinaloe) hakusanus* KASAHARA, sp. nov., ♂, from Ohshirakawa, Gifu Prefecture.

series of pores 16–19 in number, widely spaced at middle; microsculpture visible, formed by fine transverse meshes.

Basal three segments of meso- and metatarsi externally sulcate. Ventral side shiny, partially punctate; prosternal process furrowed at middle, not bordered; in the male, terminal sternite deeply excavated in apical half, its apical margin deeply emarginate and with a projection, which is distinctly dilated apicad and truncate at the



Figs. 2-3. Terminal sternites in the males of *Pterostichus (Epinaloe)* spp. — 2, *P. (E.) hakusanus* KASAHARA, sp. nov., from Ohshirakawa, Gifu Prefecture; 3, *P. (E.) cristatoides* STRANEO from Shimajima-dani, Nagano Prefecture; a, ventral view; b, left lateral view; c, apex of projection in rear view.



Figs. 4-5. Male genitalia of *Pterostichus (Epinaloe)* spp. — 4, *P. (E.) hakusanus* KASAHARA, sp. nov., from Ohshirakawa, Gifu Prefecture; 5, *P. (E.) cristatoides* STRANEO from Shimajima-dani, Nagano Prefecture; a-c, aedeagus; a, left lateral view; b, right lateral view; c, apical half in ventral view; d, left paramere; e, right paramere.

apex; in caudal view, truncated face of anal projection triangular.

Aedeagus strongly bent at basal two-fifths, with a distinct tumour at the left ventral side of apical third, and with rounded apex; left paramere wide, square; right one narrow, straight, tapering towards apex.

Type series. Holotype: ♂, Shiramizu, Ohshirakawa (1,350 m alt.), Shirakawamura, Gifu Pref., 1-VII-1988, S. KASAHARA leg.; allotype: ♀, same data as for the holotype. Paratypes: 2 ♂♂, 3 ♀♀, same data as for the holotype; 13 ♂♂, 4 ♀♀, same locality, 2-VII-1988, S. KASAHARA leg.; 1 ♂, Ikegahara, Ohno-shi, Fukui Pref., 13-VII-1986, S. KASAHARA & M. SAITO leg.

The holo- and allotypes are deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. The paratypes are separately preserved in the collections of the Gifu Prefectural Museum, Seki, and of mine.

Notes. TANAKA (1985, p. 118) recorded the Hakusan Mountains as a locality of *P. cristatoides*. I obtained a male example, which is referable to *P. cristatoides*, in a branch valley of the Ohshirakawa, only 1.5 km northeast of the habitat of the present new species. It is, however, somewhat different from topotypical individuals in the shape of the right paramere, which is evidently slenderer and curved inwards at the apex. It seems to be an unnamed local race of *P. cristatoides*, occurring sympatrically with the present new species on the Hakusan Mountains.

***Pterostichus (Epinialoe) dandonis* KASAHARA, sp. nov.**

[Japanese name: Dando-nagagomimushi]

(Figs. 6-8)

Description. Length (measured as in the preceding species) 13.2-13.8 mm. Width 4.7-5.1 mm. General appearance narrower than in the preceding species. Black, shiny; labrum and mandibles dark reddish brown; palpi, antennae and legs reddish brown to dark reddish brown; ventral side almost dark reddish brown.

Head moderately convex; eyes more convex than those of the preceding species, more or less prominent; temporae gently tumid; genae smooth; frontal furrows distinct, though not so deep, divergent in posterior halves; clypeal suture fine; lateral grooves deep, extending to a little behind the post-eye level; surface impunctate; microsculpture slightly visible, formed by isodiametric meshes; antennae normally long; relative lengths of scape and segments 2-6 as follows:— 1: 0.57: 0.83: 1: 0.93: 0.93; segment 2 ventrally unisetose at apex.

Pronotum cordate, narrower than in the preceding species, gently convex, shiny, widest at apical fourth, ca. 1.4 times as wide as head (PW/HW 1.31-1.43, mean 1.37), as wide as base in almost the same proportion (PW/PBW 1.33-1.49, mean 1.42), ca. 1.3 times as wide as long (PW/PL 1.22-1.38, mean 1.32); lateral margins evenly well arcuate in apical halves, then strongly convergent posteriad and gently sinuate before base, basal part often more or less divergent posteriad and with small irregular notches; lateral grooves almost smooth; anterior marginal setae inserted a little before the widest level; apical margin emarginate, not bordered, apical angles produced, rounded at the tips; basal margin almost as wide as the apical, gently emarginate at the median part, rather oblique and bordered on each side, basal angles distinct, rectangular;

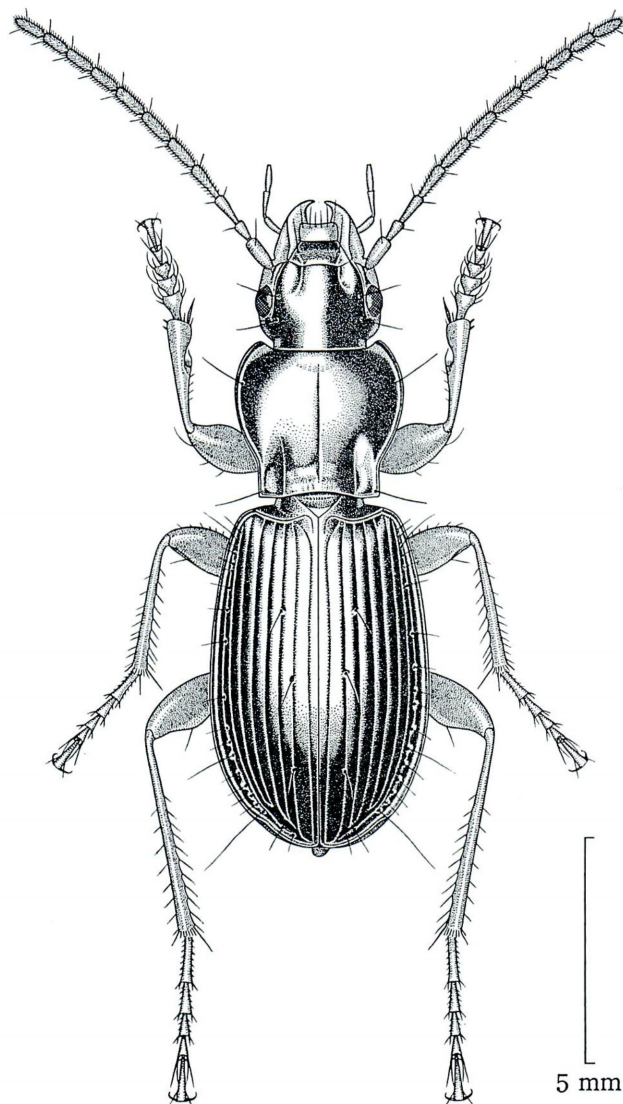


Fig. 6. *Pterostichus (Epinialoe) dandonis* KASAHARA, sp. nov., ♂, from Mt. Dando-san, Aichi Prefecture.

basal foveae linearly impressed, parallel in basal halves, somewhat divergent in anterior parts, smooth; outer sides of furrows more or less reflexed, smooth; median line strongly impressed; apical crescent and basal transverse depressions obsolete; surface smooth, though often with transverse wrinkles; microsculpture slightly visible, formed by very fine transverse meshes.

Apterous. Elytra oblong-ovate, gently convex, shiny, slightly iridescent, widest

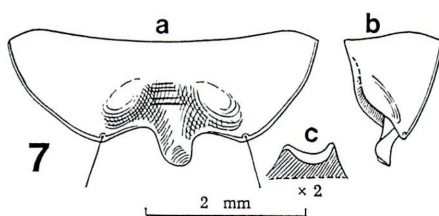


Fig. 7. Terminal sternite in the male of *Pterostichus (Epinialoe) dandonis* KASAHARA, sp. nov., from Mt. Dando-san, Aichi Prefecture; a, ventral view; b, left lateral view; c, apex of projection in rear view.

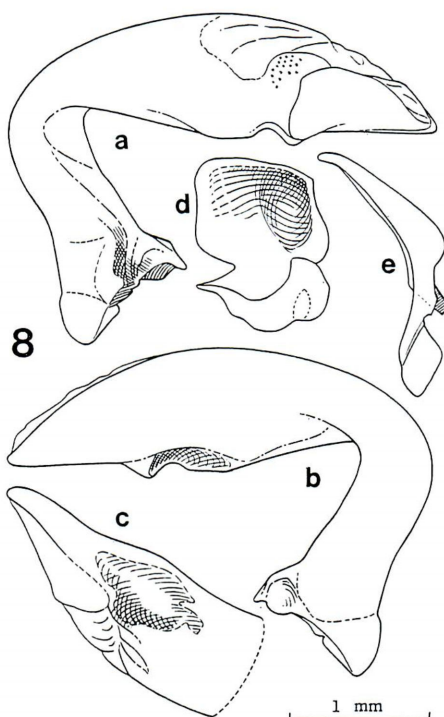


Fig. 8. Male genitalia of *Pterostichus (Epinialoe) dandonis* KASAHARA, sp. nov., from Mt. Dando-san, Aichi Prefecture; a-c, aedeagus; a, left lateral view; b, right lateral view; c, apical half in ventral view; d, left paramere; e, right paramere.

at about middle, ca. 1.3 times as wide as pronotum (EW/PW 1.25–1.32, mean 1.28), ca. 2.6 times as long as pronotum (EL/PL 2.46–2.73, mean 2.57), about a half as long again as wide (EL/EW 1.48–1.55, mean 1.52); basal border gently curved, obliquely extending to shoulder, and joining lateral border at a very obtuse or mal-defined angle; shoulders rounded; lateral margins gently arcuate, preapical emarginations shallow;

sutural angles obtuse, rounded at the tips; inner plica invisible; scutellar striae very short, lying on interval 1, and connected with basal border; striae clearly impressed, smooth; intervals gently convex; interval 3 with three dorsal pores, anterior one at basal fourth and adjoining stria 3, the remainings adjoining stria 2 at about middle and apical fourth, respectively; marginal series of pores 16–17 in number, widely spaced at middle; microsculpture slightly visible, formed by fine transverse meshes.

Basal three segments of meso- and metatarsi externally sulcate, sometimes also internally. Ventral side almost smooth, though apical half of mesepisterna and lateral side of metasternum punctate; in the male, terminal sternite trapezoidally concave in apical half and gently tumid outside of the concavity, apical margin emarginate and with a somewhat asymmetrical projection, whose apex is rounded.

Aedeagus strongly bent at basal two-fifths, raised and bisinuate at the left ventral side at apical third, deeply and widely concave on the ventral surface at apical third; left paramere wide, square; right one slender, gently arcuate, tapering towards apex.

Type series. Holotype: ♂, Uradani (950 m alt.), Mt. Dando-san, Shitara-chô, Aichi, Pref., 19–VII–1980, S. KASAHARA leg.; allotype: ♀, same data as for the holotype. Paratypes: 10 ♂♂, 10 ♀♀, same data as for the holotype; 31 ♂♂, 17 ♀♀, same locality, 20–VII–1980, S. KASAHARA leg.; 1 ♂, same locality, 31–V–1981, H. IWASAKI leg.; 2 ♂♂, same locality, 11–X–1981, H. IWASAKI leg.; 1 ♂, same locality, 11–VI–1983, H. IWASAKI leg.

Other specimens examined. 1 ♂, Azo, Shimoyama-mura, Aichi Pref., 12–VI–1982, H. IWASAKI leg.; 1 ♂, Konzoure, Asuke-chô, Aichi Pref., 12–VI–1982, H. IWASAKI leg.; 1 ♂, Mennoki-tôge, Tsugu-mura, Aichi Pref., 29–V–1988, M. SATÔ leg.

The holo- and allotypes are deposited in the collection of the Department of Zoology, National Science Museum (Nat. Hist.), Tokyo. The paratypes are separately preserved in the collections of H. IWASAKI and mine.

Notes. The present new species is easily distinguished from the preceding species and its allies by its peculiar facies resembling *P. spiculifer*, but is easily separable from that species by different conformation of genitalia in the male.

要 約

笠原須磨生: シンシュウナガゴミムシ (オサムシ科) に近縁の2新種。——本州中部から、シンシュウナガゴミムシ *Pterostichus (Epinialoe) cristatoides* STRANEO に近縁の2新種を記載した。

1) ハクサンナガゴミムシ *P. (E.) hakusanus* は、白山山地の福井、岐阜両県内で発見された。本種の外形は、シンシュウナガゴミムシによく似ているが、雄の腹部末端節腹板と交尾器の形態がいちじるしく相違し、とくに末端節後縁の突出片の形態はきわめて特徴的で、ように他種と識別できる。なお、白山山地には、シンシュウナガゴミムシの地方型も産し、一部では同所的にみられる。

2) ダンドナガゴミムシ *P. (E.) dandonis* は、愛知県北部の段戸山とその周辺山地に分布する。本種の外形は、前種より明らかに細形で、むしろ、ハラトゲナガゴミムシ *P. (E.) spiculifer* BATES に似ているが、陰茎の形態的特徴は、疑いもなくシンシュウナガゴミムシとの類縁関係を示す興味深い種である。

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Elytra, Tokyo, 17 (1): 43, May 15, 1989

晩秋のナガゴミムシ数種

笠原 須磨 生

Sumao KASAHARA: Some Pterostichine Carabids Collected
in the Late Autumn

昨年 (1988), 紅葉の美しい晩秋の栃木県藤原町で, 地下浅層に潜むチビゴミムシとガロアムシの調査を行なった. その折, 副産物として採集されたナガゴミムシ類数種を報告しておく. いずれも, 小浜川の地表面から約 40~60 cm の深さに埋没している大きい石塊の下や礫層から掘り出されたもので, すでに越冬態勢にあるものと思われた.

Pterostichus spiculifer BATES ハラトゲナガゴミムシ

1♂, 栃木県藤原町湯坂峠, 22-X-1988. 笠原須磨生採集; 2♂♂, 3♀♀, 栃木県藤原町見通沢, 23-X-1988, 上野俊一, 笠原須磨生採集.

Pterostichus macrogenys BATES ニッコウオオズナガゴミムシ

1♂. 栃木県藤原町見通沢, 23-X-1988, 上野俊一採集.

Pterostichus latistylis TANAKA タナカナガゴミムシ

1♂, 1♀, 栃木県藤原町見通沢, 23-X-1988, 上野俊一, 笠原須磨生採集.

Pterostichus asymmetricus BATES ミズギワナガゴミムシ

1♀, 栃木県藤原町湯坂峠, 22-X-1988, 山崎柄根採集.

上記のうち, タナカナガゴミムシは, ハラトゲナガゴミムシの集団中にみられた. なお, タナカナガゴミムシの基準型は関東西部山地に分布し, 雄交尾器右側片が幅広く, 先端部は切断状である. 栃木県藤原町産のそれは, 幅広いが切断状ではなく, 先端がとがっていて, 東北地方 (山形県米沢市) のものによく似ている点で興味深い. 本種の栃木県における記録は, これまでになかったと思う.

末尾ながら, 当日, ご指導とお世話にあずかった上野俊一, 山崎柄根両先生, ならびに斉藤明子さんに厚くお礼を申し上げる.