

## A New Species of the Genus *Pterostichus* (Coleoptera, Carabidae) from the Neo-dani, Seinô District of Gifu Prefecture, Central Japan

Akemichi SUGIMURA

282–19, Dokino, Kiyosu-shi, Aichi, 452–0914 Japan

**Abstract** A new species of the macrocephalic pterostichine carabid beetle is described from the Neo-dani Valley, Seinô District of Gifu Prefecture, Central Japan, under the name of *Pterostichus yorikoeae*.

In the summer of 2005, the author and his colleagues discovered a new population of macrocephalic pterostichines in the Midori-dani Valley, a western branch of the Neo-dani Valley, the southern end of the Ryôhaku Mountains located between the Ibi River and the Neo River. This large valley was a blank area in the distribution of macrocephalic pterostichines though some isolated populations of them had been discovered from the neighboring areas. As was expected, the specimens obtained from this area seemed to be distinguishable from the other allied species in view of having a rather small, slender body, a peculiar aedeagus of male genitalia, and so on. On the other hand, several specimens were obtained from Mt. Shagatate-yama, located in the upper stream of the Neo River, about 18 km distant to the north-northwest from the Midori-dani Valley. After a careful study, the author came to the conclusion that these two populations were identical at the species level, though they are different in body length. In this paper, the author is going to describe this new species under the name of *Pterostichus yorikoeae*.

The abbreviations used in the tables inserted in this paper 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.

The holotype to be designated in this paper will be preserved in the collection of the National Science Museum, Tokyo.

Before going further, the author wishes to express his hearty thanks to Dr. Shun-Ichi UENO of the National Science Museum, Tokyo for his critical reading of the manuscript. He is also indebted to Mr. Ryôji TOYOSHIMA of Nagoya for his kind help and advice in this study. Thanks are also due to Messrs. Shinya KAWAI of Tokyo, Katsumi AKITA of Hisai-shi, Mie Prefecture, Masato MORI of Nishinomiya, Shôji KATÔ of Tsushima-shi, Aichi Prefecture, Naoki TODA of Nagoya, Masashi INAGAKI and Mrs. Yoriko INAGAKI of Yokkaichi-shi, Mie Prefecture, for their kind cooperation in collecting or giving a chance to examine the materials.

*Pterostichus yorikoeae* SUGIMURA, sp. nov.

[Japanese name: Neo-ôzu-naga-gomimushi]

(Figs. 1-2)

Length (measured from clypeal apex to elytral apices): 12.2–14.8 mm in male, 13.3–16.9 mm in female. Humeral width: 2.8–4.4 mm in male, 3.1–4.8 mm in female. Other significant measurements are shown in Tables 1 and 2.

Body rather flat. Colour dark brown to blackish brown; head darker; labial and maxillary palpi, labrum, antennae and legs lighter.

Head voluminous and rounded, slightly narrower than or almost as wide as the widest portion of pronotum; apical margin of labrum rather deeply emarginate; frontal furrows long and rather shallow, almost paralleled in apical halves and slightly divergent posteriorly, the posterior portions sometimes deeply depressed and the depressions joining each other at the ends; clypeus with apical margin rugosely bordered, clypeal surface shallowly and longitudinally wrinkled in apical half, sometimes strongly wrinkled and apparently uneven near base; frontal suture distinct only near middle; eyes small and entirely flat; tempora strongly and evenly tumid; lateral grooves rather long and slightly arcuate, extending from the mid-eye level and terminating a little before the posterior supraorbital setae; additional grooves obliquely arcuate, short and shallow though distinct, extending from a little behind the ends of eyes and adjoining the posterior ends of lateral grooves; anterior supraorbital setae situated a little inside the lateral grooves at post-eye level, and posterior ones situated a little behind and inside the ends of the lateral grooves; surface almost smooth, shallowly, sparsely and microscopically punctulate, the punctures rather dense near frontal furrows, bearing microsculpture consisting of meshes from occiput to tempora; genae smooth without wrinkles on ventral surface except for the portions just outside gular sutures, which are shallowly, shortly and transversely wrinkled; gular sutures very fine though distinct; mentum tooth bifid; mentum surface irregularly depressed; a pair of pits on gular sutures very shallow; gula with a shallow and longitudinal furrow at middle; mandibles very long, left one apparently longer than the right, strongly hooked inwards at about apical 1/4; antennae subfiliform, ratio of each segment (I–XI) as follows: 1 : 0.43 : 0.78 : 0.77 : 0.77 : 0.74 : 0.70 : 0.64 : 0.61 : 0.46 : 0.60 in male and about 1 : 0.50 : 0.77 : 0.81 : 0.77 : 0.74 : 0.69 : 0.63 : 0.58 : 0.52 : 0.59 in female, 2nd segment unisetose or sometimes aetose.

Pronotum rather flat, obtapezoidal, widest at about apical 1/4 in male or at about 1/4.2 in female (measured along the median line); pronotal apex moderately emarginate, apical angles rather strongly and acutely protruding; sides almost straightly or feebly arcuately convergent forwards from the widest portion, evenly and rather strongly sinuately convergent backwards, and almost paralleled a little before base; pronotal base not bordered, weakly though widely emarginate at the middle, horizontally and almost straightly truncate beside the emargination, bearing very shallow, short and longitudinal wrinkles along the middle of basal margin; anterior marginal setae

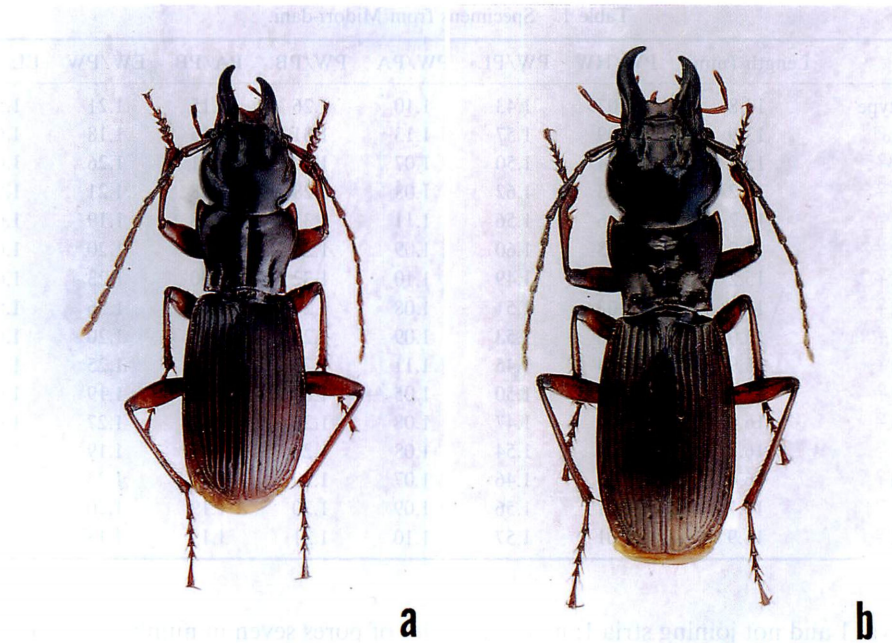


Fig. 1. *Pterostichus yorikoeae* SUGIMURA, sp. nov., from Midori-dani; a: male (holotype); b: female (paratype).

situated moderately before the widest portion, posterior ones situated apparently before and inside basal angles and moderately remote from the tips of corners; anterior transverse impression shallow, posterior one obsolete; median line shallow though distinct, anterior end extending a little beyond the anterior transverse impression and posterior one terminating near the posterior transverse impression; transverse wrinkles beside anterior half of median line very shallow; posterior angles almost rectangular; lateral channel narrow with shallow punctures arranging in irregular interval; basal foveae very shallow and narrow, somewhat linearly extending forwards, rather densely punctate or sometimes impunctate, and rather distinctly wrinkled inside; dorsal surface bearing microsculpture consisting of irregular meshes.

Elytra elongated subquadrate, flat, widest at about basal  $1/1.7$ , feebly and evenly roundly widened from just behind shoulders to the widest portion, moderately roundly narrowed apicad with preapical emarginations very shallow; shoulders distinct; elytral apices divided with sutural angles never angulate; inner plica hardly visible; basal border complete; intervals scarcely convex, bearing distinct microsculpture consisting of fine meshes; interval 3 with two dorsal pores, anterior one at about basal  $1/2$ , posterior one at about apical  $1/5.3$ , each pore adjoining stria 2; striae shallow, striae 3–4 and 5–6 respectively joining each other, terminating a little before the elytral apex, striae 6–7 never reaching basal border; scutellar striole very short and interrupted, lying on

Table 1. Specimens from Midori-dani.

	Length (mm)	PW/HW	PW/PL	PW/PA	PW/PB	PA/PB	EW/PW	EL/EW
Holotype ♂	14.8	1.07	1.43	1.10	1.26	1.15	1.21	1.57
1♂	13.9	1.09	1.57	1.13	1.31	1.15	1.18	1.61
1♀	15.2	1.04	1.50	1.07	1.29	1.21	1.26	1.61
1♀	15.2	1.03	1.62	1.08	1.28	1.18	1.21	1.57
1♀	15.2	1.06	1.56	1.11	1.31	1.18	1.19	1.64
1♀	15.2	1.03	1.60	1.09	1.23	1.13	1.20	1.63
1♀	15.2	1.02	1.49	1.10	1.32	1.20	1.23	1.66
1♀	15.5	1.03	1.51	1.08	1.29	1.19	1.26	1.59
1♀	15.9	1.06	1.53	1.09	1.29	1.18	1.20	1.64
1♀	15.9	1.04	1.45	1.11	1.33	1.19	1.25	1.60
1♀	15.9	0.98	1.50	1.05	1.24	1.18	1.19	1.63
1♀	16.0	1.04	1.47	1.08	1.26	1.17	1.27	1.61
1♀	16.1	1.04	1.54	1.08	1.26	1.17	1.19	1.58
1♀	16.4	1.03	1.46	1.07	1.29	1.21	1.23	1.66
1♀	16.7	1.01	1.56	1.09	1.30	1.19	1.20	1.63
1♀	16.9	1.01	1.57	1.10	1.31	1.19	1.18	1.65

interval 1 and not joining stria 1; marginal series of pores seven in number near base, six in number near apex, lacking pores near middle.

Legs slender, dorsal surface of all tarsi smooth, scattering sparse punctures near apical margin; protibiae slightly bowed at apical 1/3 in both sexes; femora slender with shallow and transverse wrinkles on surface; surface of hind coxae and trochanters smooth without wrinkles.

Prosternum and propleura smooth, impunctate; prosternal process not bordered, without longitudinal furrow medially, apex obtusely angulate; mesosternum shallowly and rather sparsely punctate only near sides; metasternum impunctate; sternite 3 bearing irregular and shallow wrinkles near the middle and densely punctate near sides; sternites 4–7 bearing irregular and shallow wrinkles near sides; terminal sternite in male weakly and transversely raised near the middle, widely, shallowly and subcircularly depressed between apical setae, with apical margin very narrowly marginated and almost evenly rounded though slightly sinuate at the middle, the margination slightly broadened though distinct at the middle, a pair of setae situated a little before apical margin; terminal sternite in female shallowly and transversely depressed at apical 1/3, with apical margin narrowly marginated and almost evenly rounded, the margination near the middle narrower than in male.

Aedeagus strongly bent inwards at about basal 1/3, rather robust near the middle, and rather abruptly protruding downwards at about apical 1/3; apical 1/3 of ventral surface flat; apical lobe produced, with apex rounded in dorsal view and slightly inclined dextrally in frontal view; right paramere short, clearly constricted at about apical 1/4 with apex rounded and weakly produced forwards, weakly bent inwards near the base, apical surface rather deeply and densely punctate outside and bearing microsculpture

Table 2. Specimens from Mt. Shagatate-yama.

	Length (mm)	PW/HW	PW/PL	PW/PA	PW/PB	PA/PB	EW/PW	EL/EW
1♂	12.2	1.08	1.46	1.10	1.33	1.21	1.22	1.58
1♂	12.9	1.07	1.46	1.08	1.28	1.18	1.22	1.61
1♂	13.1	1.10	1.48	1.12	1.29	1.15	1.25	1.62
1♂	13.1	1.06	1.55	1.13	1.31	1.16	1.20	1.60
1♂	13.1	1.06	1.47	1.12	1.30	1.16	1.21	1.56
1♂	13.2	1.06	1.44	1.11	1.33	1.19	1.26	1.56
1♂	13.2	1.08	1.43	1.10	1.30	1.18	1.24	1.55
1♂	13.3	1.05	1.47	1.13	1.24	1.10	1.27	1.56
1♂	13.5	1.06	1.56	1.12	1.26	1.12	1.26	1.52
1♂	14.6	1.09	1.46	1.06	1.22	1.14	1.21	1.67
1♀	13.3	1.08	1.56	1.13	1.37	1.21	1.17	1.66
1♀	13.3	1.06	1.42	1.09	1.27	1.17	1.25	1.64
1♀	13.4	1.08	1.55	1.11	1.31	1.18	1.22	1.64
1♀	13.5	1.08	1.56	1.10	1.33	1.21	1.20	1.61
1♀	13.9	1.03	1.57	1.06	1.29	1.22	1.21	1.70
1♀	14.1	1.01	1.49	1.10	1.32	1.21	1.17	1.67
1♀	14.1	1.06	1.59	1.07	1.33	1.24	1.24	1.52
1♀	14.1	1.02	1.53	1.08	1.28	1.18	1.23	1.64
1♀	14.1	1.04	1.58	1.09	1.31	1.19	1.19	1.60
1♀	14.3	1.05	1.54	1.09	1.33	1.22	1.17	1.64
1♀	14.3	1.05	1.58	1.10	1.31	1.19	1.18	1.61
1♀	14.5	1.08	1.46	1.09	1.30	1.20	1.18	1.70
1♀	14.7	1.02	1.48	1.08	1.29	1.19	1.24	1.68
1♀	14.7	1.04	1.49	1.12	1.35	1.21	1.21	1.71
1♀	14.8	1.03	1.52	1.08	1.31	1.22	1.21	1.65
1♀	14.8	1.04	1.53	1.06	1.31	1.23	1.22	1.63
1♀	15.0	1.01	1.58	1.06	1.30	1.22	1.18	1.63

consisting of meshes inside; left paramere wide and quadrate with corners rounded, posterior margin curved inwards, anterior margin shallowly and sparsely punctate, rather shallowly concave at the middle, microsculpture on outer surface consisting of meshes.

*Local variation.* The specimens from the Midori-dani are apparently larger in size than those from Mt. Shagatate-yama, but other significant characteristics are almost the same in condition.

*Type series.* Holotype: ♂, Midori-dani, ca. 800 m in alt., Motosu-shi, Gifu Pref., 8~23-X-2005, Yoriko INAGAKI leg. Paratypes: 2♀♀, same data as for the holotype; 1♀, same locality as for the holotype, 12~25-VI-2005, Akemichi SUGIMURA leg.; 1♀, same locality as for the holotype, 25-IX~8-X-2005, Shôji KATÔ leg.; 1♀, same locality as for the holotype, 8~23-X-2005, Shôji KATÔ leg.; 2♀♀, same locality as for the holotype, 23-X~13-XI-2005, Masashi INAGAKI leg.; 2♀♀, same locality as for the holotype, 23-X~13-XI-2005, Naoki TODA leg.; 1♀, same locality as for the holotype, 23-X~13-XI-2005, Akemichi SUGIMURA leg.; 1♀, same locality as for the holotype, 9

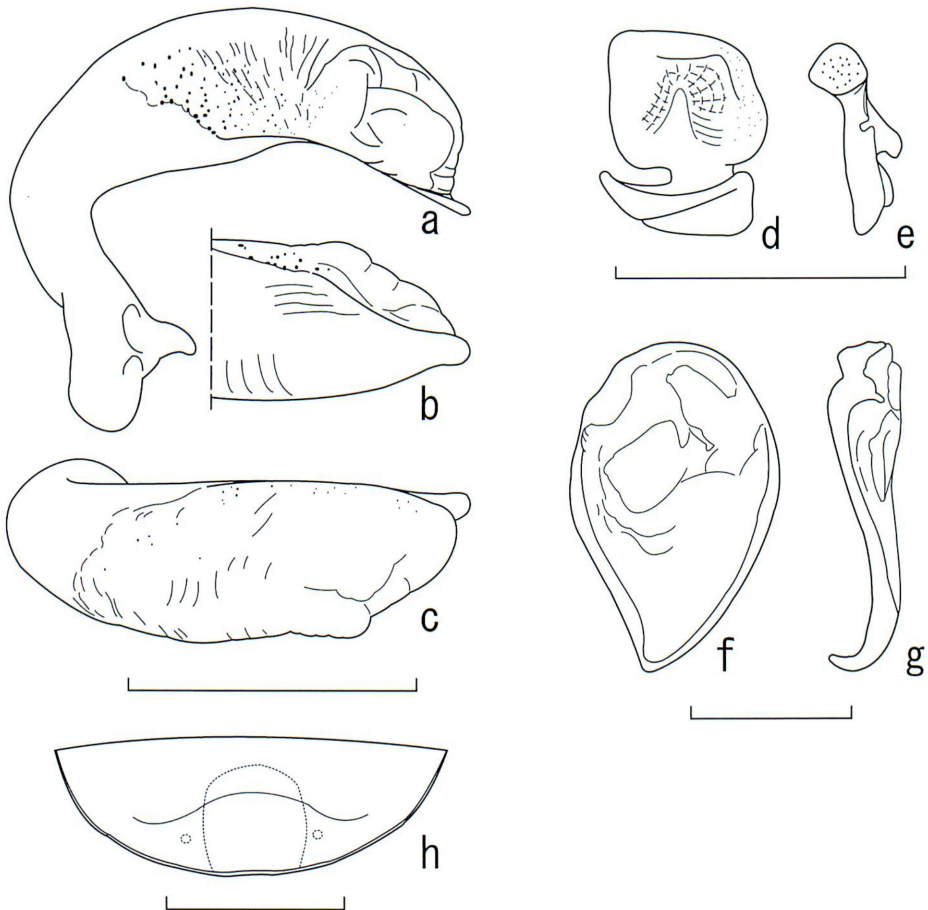


Fig. 2. Male genitalia of *Pterostichus yorikoeae* SUGIMURA, sp. nov., holotype; a-c, aedeagus: a, left lateral view; b, apical part in ventral view; c, dorsal view; d, left paramere; e, right paramere; f-g, genital segment: f, ventral view; g, left lateral view; h, male terminal sternite. Scale: 2 mm.

~22-X-2006, Shôji KATÔ leg.; 1♀, same locality as for the holotype, 5~19-XI-2006, Ryôji TOYOSHIMA leg.; 1♀, same locality as for the holotype, 5~19-XI-2006, Akemichi SUGIMURA leg.; 1♀, same locality as for the holotype, 19-XI~10-XII-2006, Naoki TODA leg.; 1♂, same locality as for the holotype, 19-XI~10-XII-2006, Yoriko INAGAKI leg.; 1♂, 1♀, Mt. Shagatate-yama, ca. 700 m in alt., Motosu-shi, Gifu Pref., 25-X-2003, Masato MORI leg.; 1♀, same locality, 2-XI-2003, Masato MORI leg.; 4♂♂, 10 ♀♀, same locality, 9-X~3-XI-2006, Katsumi AKITA leg.; 1♀, same locality, 27-X-2006, Shinya KAWAI leg.; 2♂♂, 1♀, same locality, 19-XI~10-XII-2006, Yoriko INAGAKI leg.; 1♂, 1♀, same locality, 19-XI~10-XII-2006, Shôji KATÔ leg.; 1♂, 1♀, same locality, 19-XI~10-XII-2006, Naoki TODA leg.; 1♂, 1♀, same locality, 19-XI~10-XII-2006, Akemichi SUGIMURA leg.

*Localities.* Midori-dani and Mt. Shagatate-yama, Seinô District, Gifu Pref., Central Japan.

*Notes.* This new species doubtless has a close relationship to *Pterostichus fukube* SUGIMURA (2005, pp. 641–647) from Mt. Fukube-ga-take and Mt. Kôka-san and is very similar to it, but is easily distinguishable by having the following characteristics: 1) Body smaller in size, 2) tempora more strongly tumid, 3) basal foveae of pronotum punctate, 4) shoulders broader and more distinctly angulate, 5) aedeagus of male genitalia strongly bent inwards at about basal 1/3 and rather abruptly curved downwards at apical 1/3, with apico-ventral surface flat. It also differs from *Pterostichus akitai* MORITA, (2004, pp. 29–33) from the Suzuka Mountains by the following points: 1) frontal furrows evidently divergent posteriorly, 2) pronotal basal foveae shallower, 3) dorsal pores on elytra usually divided into two sets, 4) apical margin of abdominal sternite in male extremely feebly sinuate medially without evident notch, 5) aedeagus of male genitalia more strongly bent inwards and curved downwards at apical 1/3.

## 要 約

杉村明道：岐阜県西濃地方の根尾谷から発見されたナガゴミムシの1新種。——著者らは、2005年に、揖斐川と根尾川に挟まれた両白山地の南端に位置する根尾谷の支流、水鳥谷において、オオズナガゴミムシを採集した。近隣地域の中濃地方には、瓢ヶ岳と高賀山から記載されたミノオオズナガゴミムシ *Pterostichus fukube* が分布しているにもかかわらず、この広大な谷は、これまでオオズナガゴミムシの分布の空白地帯であった。著者の予想どおり、この地域から得られた個体群はやや細い体形、特徴のある♂交尾器中央片を有しており、他の近似種とは区別ができた。さらに著者は根尾川上流のシャガタテ山でもオオズナガゴミムシを採集したが、両地域の個体を比較検討した結果、これらは同じ種集団に属しており、疑いなくミノオオズナガゴミムシに近縁であるが、体がより小型であること、頬が強く張り出すこと、前胸背板基部は点刻され鞘翅肩部は明瞭で狭まらないこと、雄交尾器中央片は基部 1/3 で強く内側に屈曲し、先端 1/3 は強く下方へ湾曲すること、および先端 1/3 の下面は平滑であることなどの特長を有しており容易に区別できるので、この地域の集団を新種と認めネオオオズナガゴミムシ *Pterostichus yorikoe* SUGIMURA, sp. nov. と命名して記載した。なお、本種はスズカオオズナガゴミムシ *Pterostichus akitai* にも似ているが、前頭溝の拡がり方、♂腹部末端節の先端の形状や交尾器中央片の特徴により区別できる。

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*Elytra, Tokyo*, **35**(1): 286, May 30, 2007

## A New Record of *Copelatus andamanicus* (Coleoptera, Dytiscidae) from the Daitô Islands, far off Southwest Japan

Yûsuke MINOSHIMA

Laboratory of Entomology, Tokyo University of Agriculture,  
1737 Funako, Atsugi-shi, Kanagawa-ken, 243-0034 Japan  
E-mail: 01040232@nodai.ac.jp

In Japan, *Copelatus andamanicus* RÉGIMBART, 1899 has been known to be widely distributed in the Ryukyu Islands (MORI & KITAYAMA, 2002); however, no record has been made from the Daitô Islands. Recently I collected five individuals of this species on the Minami-daitô Island of the island group and examined further two specimens preserved in the visitors' center "Minami-daitô Shima-marugoto-kan" (MS). In this short paper, I record it for the first time from the Daitô Islands.

*Specimens examined.* 2♂♂, near Daitô Shrine, 12-III-2005, Y. MINOSHIMA leg.; 1♂, 1♀, Zaisho, 29-XI-2002, R. NAKADA leg. (MS); 2♀♀, Zaisho, 25-III-2005, Y. MINOSHIMA leg.; 1♀, Zaisho, 26-III-2005, Y. MINOSHIMA leg.

All the specimens examined are housed in the Laboratory of Entomology, Tokyo University of Agriculture (TUA), except for those followed by MS.

I thank Mr. Kazuaki HIGASHI (MS) for his permission to examine the specimens and kind support during the field works. Hearty thanks are also expressed to Mr. Masato MORI (Kankyo Kagaku Co., Ltd.) for his kind advice on the distributional information. Dr. Tadashi ISHIKAWA (TUA) provided helpful comments on the draft manuscript.

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