

## A New *Leistus* (Coleoptera, Carabidae) from the Kinki District, Central Japan

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**Abstract** A new nebrine carabid beetle, *Leistus (Pogonophorus) matsudai* MORITA, sp. nov., is described from Mie and Nara Prefectures, the Kinki District, Central Japan.

In advance of a forthcoming revision of the Japanese species of the carabid genus *Leistus*, I am going to describe a new species from the Kinki District, Central Japan, under the name of *L. matsudai*, since Mr. Tsutomu MATSUDA, my old friend, gave me an opportunity to study ample material of them for my study.

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; EW – greatest width of elytra; EL – greatest length of elytra; TL – length of hind tarsus; M – arithmetic mean.

Before going further, I wish to express my deep gratitude to Dr. Shun-Ichi UÉNO of the National Museum of Nature and Science, Tsukuba, for critically reading the original manuscript of this paper. My thanks are also due to Dr. Takashi KURIHARA, Messrs. Masao ISHII, Tsutomu MATSUDA, Isao MATOBA, Takeshi MATSUMOTO, Masahiro SAITÔ and Shun-ichi YAMASHITA for supplying me with important material. Mr. Tsutomu MATSUDA has affectionately watched my study of carabid beetles and has given me helpful advice for a long time.

Heartly thanks are also due to Dr. Fumiaki KIMURA, Messrs. Ichiro OHSHIO and Hiroshi OTOBE for their kind help. Without their cooperation, I could not have undertaken this study.

*Leistus (Pogonophorus) matsudai* MORITA, sp. nov.

[Japanese name: Kii-kinokawa-gomimushi]

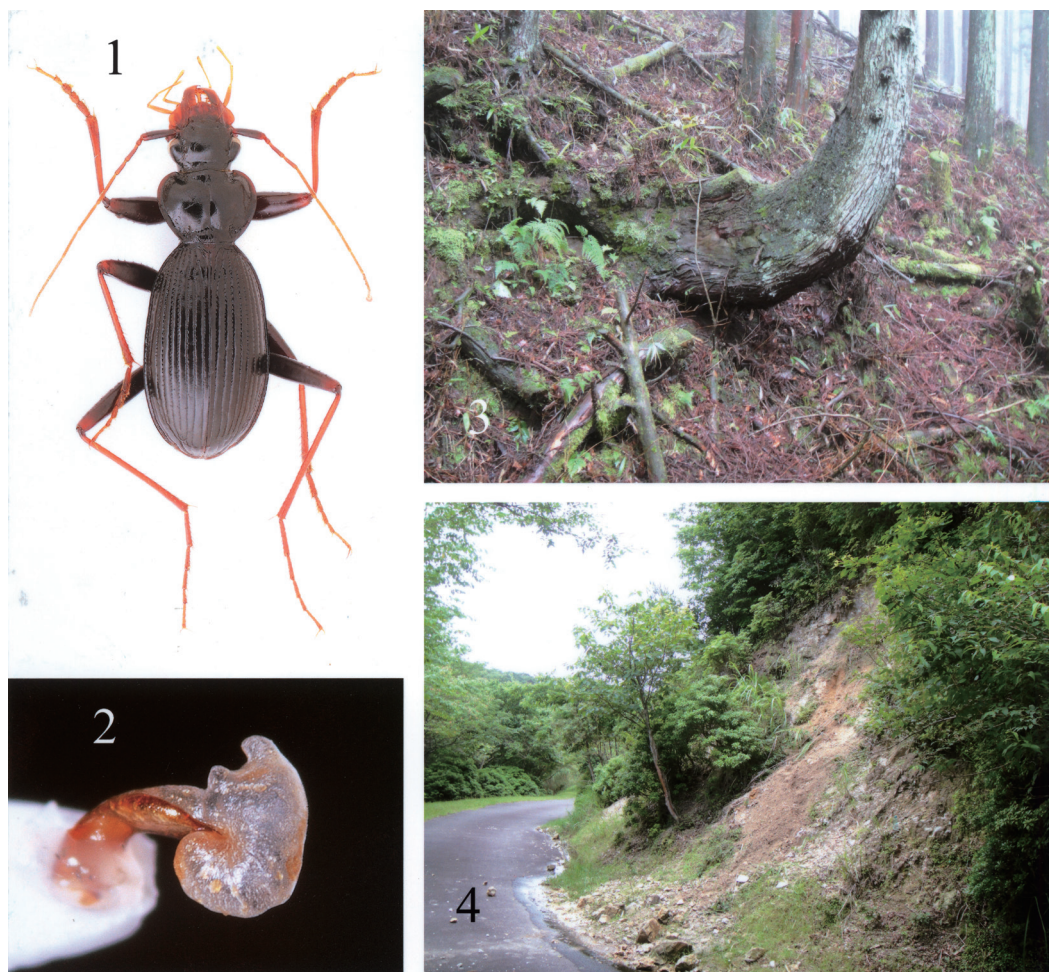
(Figs. 1–12)

*Diagnosis.* Body elongate with narrow elytra; head strongly convex with deep neck constriction; sides of pronotum strongly arcuate throughout; ventral surface of aedeagus smooth; inflated inner sac of aedeagus voluminous, with four lobes.

*Description.* L: 8.71–10.43 mm. Body elongate with narrow elytra.

Body black; antennal segment I and femora blackish brown; antennal segments II and III, labrum, palpi and mandibles brown to reddish brown; rests of antennal segments reddish brown; tibiae and tarsi brown.

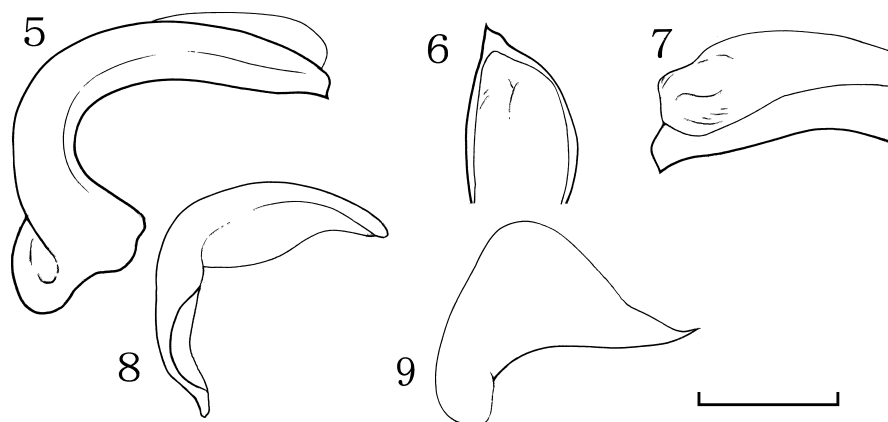
Head strongly convex; frontal furrows shallow, short, divergent posteriad, or rarely almost vanished, and with wrinkles; eyes moderately convex; supraorbital pore situated at basal 1/5 of eye on each side; genae very short and oblique in dorsal view; PW/HW 1.32–1.38 (M 1.35) in ♂, 1.29–1.38 (M 1.34) in ♀; clypeus transverse, with a pair of setae and longitudinal to oblique wrinkles along the sides and apex; frons strongly convex, with shallow and transverse wrinkles; vertex strongly convex,



Figs. 1–4. *Leistus (Pogonophorus) matsudai* MORITA, sp. nov., from Aoyamakôgen. — 1, Male; 2, aedeagus, showing inflated inner sac; 3, 4, collecting spots.

impunctate or very finely and sparsely punctate, and sometimes with a pair of small rounded foveae; microsculpture clearly impressed and consisting of isodiametric meshes; neck constriction deep; neck short and rugose on dorsal side; labial ligula slender; palpi long and slender; penultimate segment of labial palpus a little longer than the apical segment which is slightly dilated towards apex; penultimate segment of maxillary palpus weakly bent at about basal 1/3, with two stout and short setae on apical part and shorter than the apical segment; labrum rather depressed, median part of apical margin narrowly porrect, and then sides of apical margin weakly emarginate, and with three pairs of setae; relative lengths of antennal segments as follows: — I : II : III : IV : V : VI : XI<sup>1</sup> = 1 : 0.22 : 0.62 : 0.51 : 1.04 : 0.96 : 0.61 in ♂, 1 : 0.22 : 0.63 : 0.46 : 1.04 : 0.96 : 0.58 in ♀.

Pronotum wide, convex, and widest at basal 3/5; sides strongly arcuate throughout with anterior marginal seta situated at the widest part on each side; PW/PL 1.31–1.41 (M 1.36) in ♂, 1.28–1.41 (M 1.35) in ♀; PW/PA 1.58–1.68 (M 1.64) in ♂, 1.55–1.67 (M 1.63) in ♀; PW/PB 1.89–2.07 (M 1.97) in

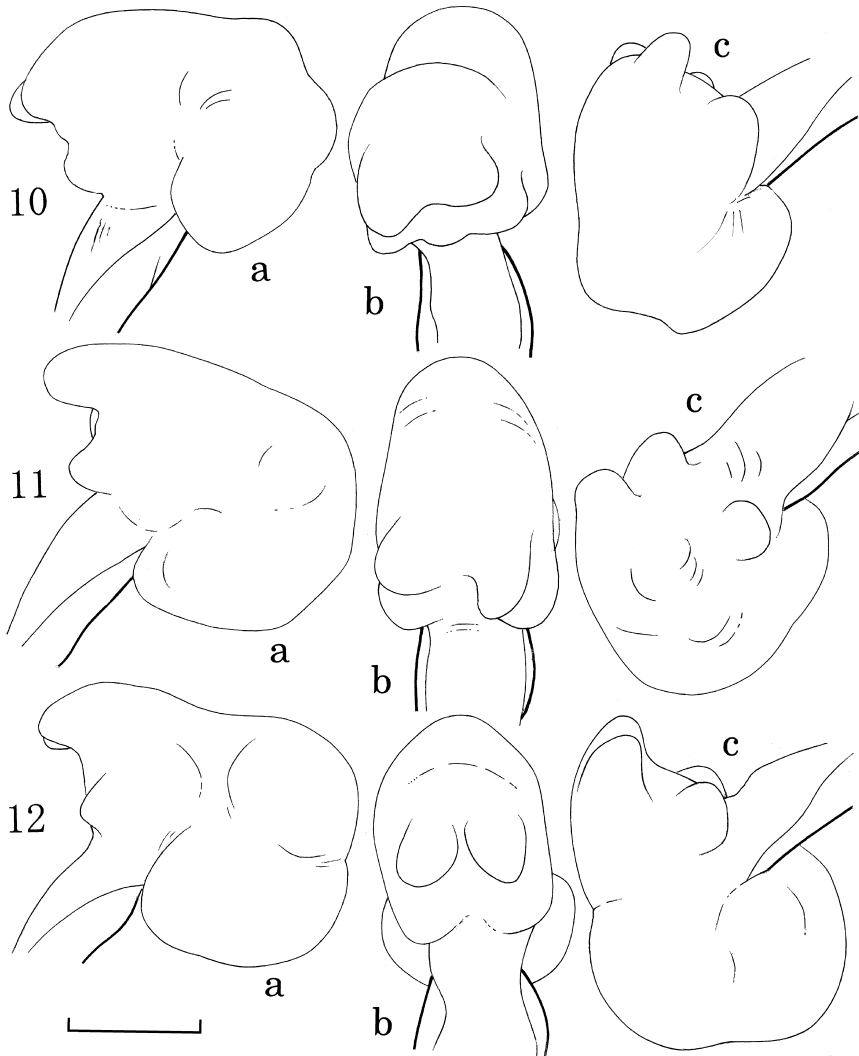


Figs. 5–9. *Leistus (Pogonophorus) matsudai* MORITA, sp. nov., from Aoyamakôgen. — 5, Aedeagus, left lateral view; 6, apical part of aedeagus, dorsal view; 7, apical half of aedeagus, obliquely right dorsal view; 8, right paramere, left lateral view; 9, left paramere, left lateral view. Scale: 0.5 mm.

♂, 1.85–2.28 (M 2.00) in ♀; apical margin weakly emarginate on each side and rather strongly produced at the middle; apical angles moderately produced, narrowly rounded at the tips, and with rather coarse punctures; PA/PB 1.16–1.28 (M 1.20) in ♂, 1.14–1.38 (M 1.24) in ♀; median line finely and clearly impressed, apical end being close to apical margin, while basal end joining posterior transverse impression; reflexed lateral area rather wide throughout, sometimes with several punctures; area between apical margin and anterior transverse impression sparsely and coarsely punctate; basal foveae narrow, rather deep and situated at the meeting point of side gutter and posterior transverse impression on each side, and sometimes rather coarsely punctate; basal part usually coarsely punctate; base almost straight; hind angles wide and obtuse; microsculpture clearly impressed and consisting of wide to transverse meshes.

Elytra elongate, convex and widest at about basal 3/5; EL/EW 1.62–1.81 (M 1.72) in ♂, 1.65–1.73 (M 1.69) in ♀; shoulders usually obliquely and very weakly arcuate or sometimes almost effaced; sides weakly arcuate from shoulders or base to the widest part, moderately so towards apices, and with shallow and narrow preapical emargination on each side; apex of each elytron rounded, forming a small reentrant angle at suture; basal border oblique and straight, and joining scutellar striole; intervals rather moderately convex and impunctate; interval III usually with three or four dorsal pores, rarely two, and they are close to stria 3 or on the interval; the third and fourth pores weak; in 20 ♂♂, 20 ♀♀, the first pore situated between basal 1/10 and 1/5, though lacking in 1 ♂ and 1 ♀; the second pore situated between basal 2/5 and a little behind the middle, though lacking in 3 ♂♂ and 2 ♀♀; the third and fourth pores situated between basal 13/20 and 9/10 in ♂, 3/5 and 9/10 in ♀; basal pore situated on interval I, close to stria 1 or adjoining stria 1; striae rather clearly impressed and coarsely punctate at basal part, though the punctures become indistinct towards apices; striae 1 and 2 clearly impressed throughout, and they join each other at about basal 1/10, and forming a short stria between that level and basal border; striae 3 and 4 free at apical ends or joining each other; stria 5 very deep and curved at apical part (= apical striole), and joining the apex of stria 2; scutellar striole situated on interval I, long, free at the apical end, and coarsely and sparsely punctate; microsculpture consisting of fine transverse meshes. Apterous.

Ventral side coarsely and rather densely punctate, but the gula, hypomeron, epipleuron, most part of metasternum and sternites III–VI are smooth; sides of gula strongly rugose.



Figs. 10–12. *Leistus (Pogonophorus) matsudai* MORITA, sp. nov., showing inflated inner sac. — 10, Specimen from Aoyamakôgen; 11, another specimen from the same locality; 12, specimen from Mt. Gomanodan-zan. — a, Left lateral view; b, dorsal view; c, obliquely right lateral view. Scale: 0.5 mm.

Legs slender; metatrochanter very short; TL/HW 1.45–1.64 (M 1.57) in ♂, 1.40–1.58 (M 1.45) in ♀.

Aedeagus elongate and strongly arcuate at basal 1/3 in lateral view; basal part wide, with arcuate and heavily sclerotized sagittal aileron; ventral surface smooth; in lateral view, apical half almost straight and weakly twisted to the right; apical lobe short and compressed; apical part oblique; apex pointed; viewed dorsally, apical 1/4 wide and widely occupied by membranous part; apical orifice situated at a little behind the apex.

Inflated inner sac simple, voluminous and C-shaped in lateral view; dorsal side with four small lobes situated symmetrically; sides weakly to strongly expanded laterad; surface membranous, with-

out spines and copulatory pieces, though ventral surface with very minute spines which are very poorly sclerotized.

Right paramere elongate, moderately arcuate and poorly sclerotized, though the basal part is moderately so; left paramere triangular, basal and ventral parts moderately sclerotized, with weakly curved apical part and strongly pointed apex.

*Type series.* Holotype: ♂, Aoyamakôgen, 7–VII–2012, S. MORITA & M. SAITÔ leg. Paratypes: 11 ♂♂, 10 ♀♀, 20–VII–1991, Aoyamakôgen, T. MATSUDA leg.; 1 ♀, 26–IX–1993, same locality, T. MATSUDA leg.; 3 ♂♂, 1 ♀, 23–VII–2000, same locality, T. MATSUDA leg.; 59 ♂♂, 69 ♀♀, same locality, 7–VII–2012, S. MORITA & M. SAITÔ leg.; 69 ♂♂, 50 ♀♀, same locality, 8–VII–2012, S. MORITA leg.; 1 ♂, Mt. Gomanodan-zan, 29–X–1979, I. MATOBA leg.; 2 ♂♂, same locality, 4–VI–2011, T. MATSUMOTO leg.; 15 ♂♂, 3 ♀♀, same locality, 1–VII–2012, S. YAMASHITA leg.

*Localities.* Aoyamakôgen, Iga-shi, Mie Prefecture; Mt. Gomanodan-zan, Nara Prefecture.

*Range.* The Kinki District, Central Japan.

*Depositories of the type series.* The holotype and some paratypes are deposited in the Department of Zoology, the National Museum of Nature and Science, Tsukuba. Some of the paratypes are distributed to the following museums in Japan: Hokkaido University Museum; Kashiwara City Museum of Insect; Mie Prefectural Museum; Osaka Museum of Natural History; College of Agriculture, Ehime University and Toyohashi Museum of Natural History.

*Specimens dissected and measured.* Standard ratios of body parts shown in the descriptive part are those of 20 males and 20 females from the type locality. The genitalia of 26 males from Aoyamakôgen and 4 males from Mt. Gomanodan-zan were dissected. Besides, the inner sacs of 20 specimens from the former locality and 2 specimens from the latter were everted, respectively.

*Notes.* Judging from the male genital organ including structure of inner sac, this new species is very closely allied to *Leistus (Pogonophorus) kozakai* PERRAULT (1984, p. 273) known from Mt. Ishizuchi-san, Ehime Prefecture. It is, however, distinguished from the latter by the following points: 1) head more convex, 2) neck constriction deeper, 3) apical margin of labrum more strongly porrect at middle, 4) elytral shoulders usually obliquely and very weakly arcuate, 5) aedeagus shorter and more arcuate in lateral view, and 6) dorsal lobes of inner sac smaller.

The body length and standard ratios of body parts were measured: – in total 5 ♂♂, 3 ♀♀ from Mt. Gomanodan-zan; L: 9.14–10.57 mm; PW/HW 1.28–1.34 (M 1.32) in ♂, 1.30–1.38 (M 1.35) in ♀; PW/PL 1.33–1.36 (M 1.34) in ♂, 1.28–1.36 (M 1.32) in ♀; PW/PA 1.56–1.71 (M 1.64) in ♂, 1.61–1.69 (M 1.65) in ♀; PW/PB 1.91–2.02 (M 1.94) in ♂, 1.95–2.03 (M 1.99) in ♀; PA/PB 1.15–1.25 (M 1.18) in ♂, 1.19–1.25 (M 1.21) in ♀; EW/PW 1.25–1.27 (M 1.26) in ♂, 1.33–1.39 (M 1.37) in ♀; EL/EW 1.72–1.76 (M 1.74) in ♂, 1.62–1.70 (M 1.65) in ♀; TL/HW 1.52–1.60 (M 1.56) in ♂, 1.49–1.67 (M 1.56) in ♀; relative lengths of antennal segments as follows: — I : II : III : IV : V : VI : XI = 1 : 0.22 : 0.66 : 0.48 : 1.09 : 0.91 : 0.65 in ♂, 1 : 0.23 : 0.64 : 0.45 : 1.04 : 0.95 : 0.59 in ♀.

Almost all specimens of the present new species were found from under barks, mosses or flakes and in cracks on bare vertical wall of mountain roads, coexisting with *Synuchus (Synuchus) cycloderus* (BATES), *Brosocosoma doenitzi* (HAROLD) and *Pentagonica daimiella* BATES.

*Specimens compared.* *Leistus (Pogonophorus) kozakai* PERRAULT: 1 ♂, 1 ♀, Mt. Ishizuchi-san, Ehime Pref., 3–XI–1973, T. MATSUDA leg.; 1 ♀, same locality, 5–IX–1980, S. MORITA leg.; 3 ♂♂, same locality, 20–VI–2003, M. ISHII leg.; 1 ♂, same locality, 1–VIII–2003, T. KURIHARA leg. The body length and standard ratios of body parts of three males and two females are as follows: — L: 9.14–10.57 mm; PW/HW 1.28–1.35 (M 1.32) in ♂, 1.33, 1.37 (M 1.35) in ♀; PW/PL 1.28–1.32 (M 1.30) in ♂, 1.30, 1.38 (M 1.34) in ♀; PW/PA 1.52–1.67 (M 1.62) in ♂, 1.58, 1.68 (M 1.63) in ♀; PW/PB 1.96–2.03 (M 2.00) in ♂, 2.07, 2.08 (M 2.08) in ♀; PA/PB 1.22–1.28 (M 1.24) in ♂, 1.31,



1.24 (M 1.28) in ♀; EW/PW 1.30–1.33 (M 1.31) in ♂, 1.35, 1.28 (M 1.32) in ♀; EL/EW 1.64–1.77 (M 1.71) in ♂, 1.74, 1.71 (M 1.73) in ♀; TL/HW 1.49–1.59 (M 1.56) in ♂, –, 1.46 in 1 ♀; relative lengths of antennal segments as follows: — I : II : III : IV : V : VI : XI ≅ 1 : 0.24 : 0.61 : 0.45 : 0.98 : 0.91 : 0.59 in ♂, 1 : 0.23 : 0.61 : 0.42 : 1.01 : 0.89 : — in ♀.

## 要 約

森田誠司：近畿地方産キノカワゴミムシ（コウチュウ目オサムシ科）の1新種。—— 三重県青山高原などから採集されたキノカワゴミムシを新種と認め、キイキノカワゴミムシ *Leistus (Pogonophorus) matsudai* MORITA, sp. nov. と命名記載した。この種は、雄交尾器の形状ならびに内部構造から判断して四国の石鎚山から知られているシコクキノカワゴミムシ *L. (P.) kozakai* PERRAULT に近い種であるが、頭がより隆まり、頸部はより強くくびれ、上翅の肩はわずかながら湾曲する傾向にあることのほか、陰茎は短く、内袋の背面の膨れが小さいなどの差異が認められる。

## Reference

PERRAULT, G. G., 1984. Le genre *Leistus* FROEHLIG (Coleoptera-Carabidae-Nebriini) V. Le groupe de *Leistus obtusicollis* BATES. *Bull. Mens. Soc. linn. Lyon*, **53**: 261–276.

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