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Japanese Species of the Genus *Pycnomerus* (Coleoptera, Zopheridae), with Description of Three New Species

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Abstract In addition to the three known Japanese species of the genus *Pycnomerus* three more new species are described from Japan: *Pycnomerus boninensis* sp. nov. from the Bonin Islands, *P. strumiger* sp. nov. from central part of Honshu and *P. nishii* sp. nov. from Amami-Ôshima. A key is presented to the six Japanese species including the known and the newly described species.

The genus *Pycnomerus* Erichson, 1842 is one of the largest group in the family Zopheridae, including more than fifty species in the world. Ten species have hitherto been known from Asia, including three species endemic to Japan: the most common species *P. vilis* Sharp, 1885 and two rather rare species *P. sculpturatus* Sharp, 1885 and *P. yoshidai* Aoki, 2011. The recent survey detected, however, three more unknown species from the mainland, Honshu, and two remote islands, the Bonin Islands and Amami-Ôshima. They are shown below together with the three known species.

Before going further, I express my sincere thanks to Mr. Hiromu Kamezawa, Mr. Sachio Kuwahara, Mr. Suguru Nakagawa and Mr. Masaharu Nishi who collected the new species. A greater part of these specimens was offered for my study through the courtesy of Mr. Katsumi Akita (K. AKITA Collection = KAC). Special thanks should be mentioned to Dr. Masashi Inagaki for taking excellent photos for the present paper.

Abbreviations used in the description: PL/PW = pronotal length/pronotal width, EL/EW = elytral length/ elytral width, EL/PL = elytral length/pronotal length, EW/PW = elytral width/pronotal width

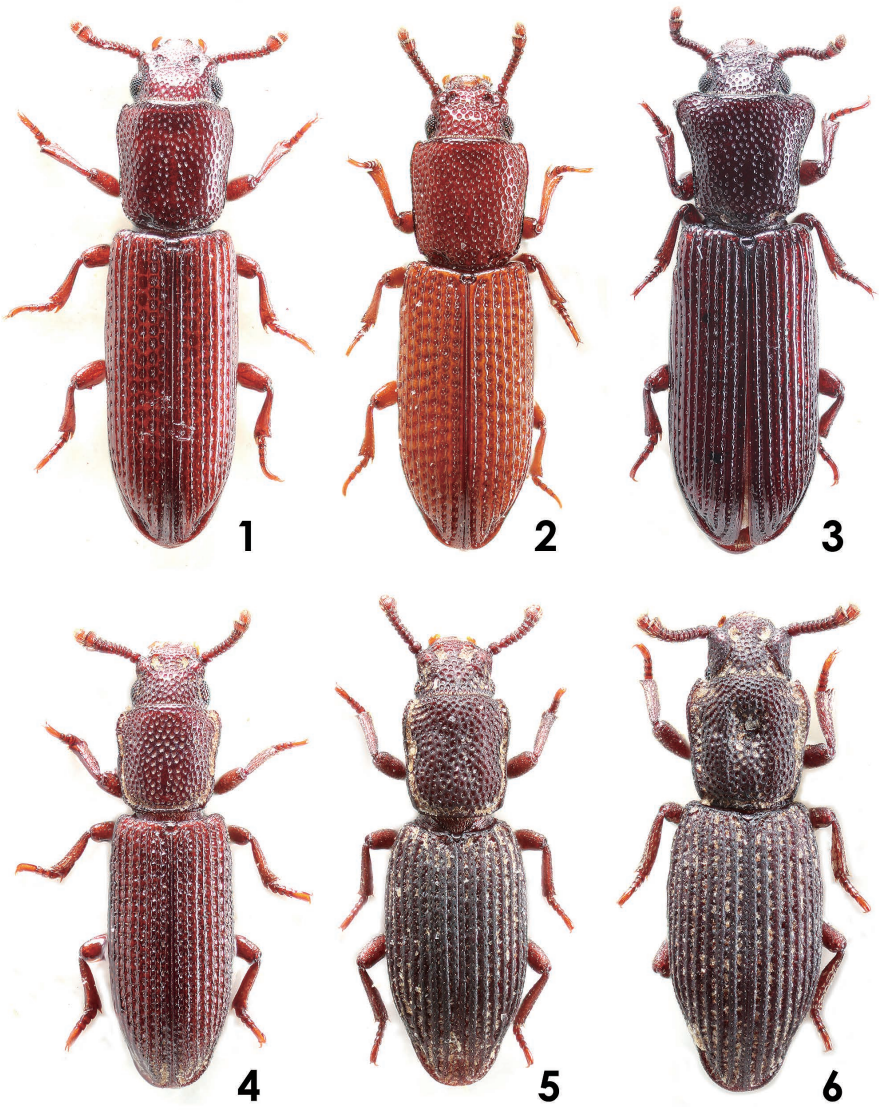
Pycnomerus vilis Sharp

(Figs. 1, 7 & 13)

Pycnomerus vilis Sharp, 1885: 77; Löbl & Smetana, 2008: 79; Aoki, 2009: 4, fig. 1; 60, fig. 26E; 114, fig; 2012: 16, fig. 24.
Penthelispa vilis: Nakane, Ohbayashi, Nomura & Kurosawa, 1963: 219, pl. 110, fig. 7; Kurosawa, Hisamatsu & Sasaji, 1985: 294, pl. 48, fig. 17; Hirano, 1996: 29, photo 2.
Penthelispa japonicas Reitter, 1899: 216.

Body length 2.70–3.95 (av. 3.39) mm. PL/PW = 1.10–1.12, EL/EW = 2.19–2.38, EL/PL = 2.38–2.67, EW/PW = 1.14–1.27.

Distribution. Japan (from Hokkaido to the Ryukyus).



Figs. 1–6. Six Japanese species of *Pycnomerus*. —— 1, *Pycnomerus vilis* SHARP; 2, *P. boninensis* sp. nov. (holotype); 3, *P. strumiger* sp. nov. (holotype); 4, *P. sculpturatus* SHARP; 5, *P. nishii* sp. nov. (holotype); 6, *P. yoshidai* AOKI.

Pycnomerus boninensis sp. nov.

(Figs. 2, 8 & 14)

Body length. 3.15–3.60 (av. 3.21) mm.

Color. Yellowish red brown to dark brown, glossy.

Head. Anterior margin of clypeus gently curved, with minute white setae. Eyes comparatively small, tuberculate in front of eye on each side, with distinct concavity inside. Oval punctures on frons

and vertex larger in lateral part than in median part. Antenna (Fig. 8) 11-segmented; antennomere X widest, not strongly expanded transversely, 1.29 times as wide as XI, 1.58 times as wide as IX; antennomere XI as long as X, weakly pointed at tip, showing weak angularity on each side; III–VIII smallest, IX a little larger than them; II rounded, only a little larger than III.

Pronotum (Fig. 14) flat, nearly square, only a little longer than wide (PL/PW = 1.06–1.14), anterior margin straight, lateral margins nearly straight, not sinuate; anterolateral angles blunt and inconspicuous. Dorsal side of pronotum without median concavity, evenly punctured without median glabrous area.

Elytra rather short, nearly parallel-sided in basal 3/4, 2.16–2.19 times as long as wide, 2.24–2.34 times as long as pronotum, and 1.14–1.17 times as wide as pronotum. Anterior margin of elytra bending to form projecting humeral corners. Elytral ridges 2 and 3, ridges 4, 5 and 6, ridges 7 and 8 joining together apically, respectively. Setae on elytra minute, but surely observable.

Ventrites bearing anterior process with feeble angularity; round punctures largest on ventrite 1, becoming smaller on 2, and more on 3; punctures on 5 large in anterior part and small in posterior part.

Legs. Relation in length: fore tarsi = mid tarsi = hind tarsi = mid tibiae > fore tibiae = hind tibiae.

Type-series. Holotype. ♂, Haha-jima Island, the Bonin Islands, X.2001 emarg., S. Kuwahara leg. – Paratypes. 4 exs., same data as holotype ; 1 ex. Mt. Sakaiga-take, Haha-jima Is., the Bonin Iss. 15.IV.1996, H. Kamezawa leg. Holotype (NSMT-I-C 200311) and 2 paratypes (NSMT-I-C 200312 and 200313) are deposited in the collection of National Museum of Nature and Science, Tsukuba and 2 paratypes (MPMIn 9000001 and 9000002) in the collection of Mie Prefectural Museum.

Remarks. The new species is distinguishable from the known Asian congeners by the combination of the following features: (1) Short elytra (2.24–2.34 times as long as pronotum), (2) flat and nearly square pronotum with straight anterior and lateral margins, (3) usually light color of body.

Etymology. The specific name "*boninensis*" comes from the Bonin Islands where the specimens were collected.

Pycnomerus strumiger sp. nov.

(Figs. 3, 9 & 15)

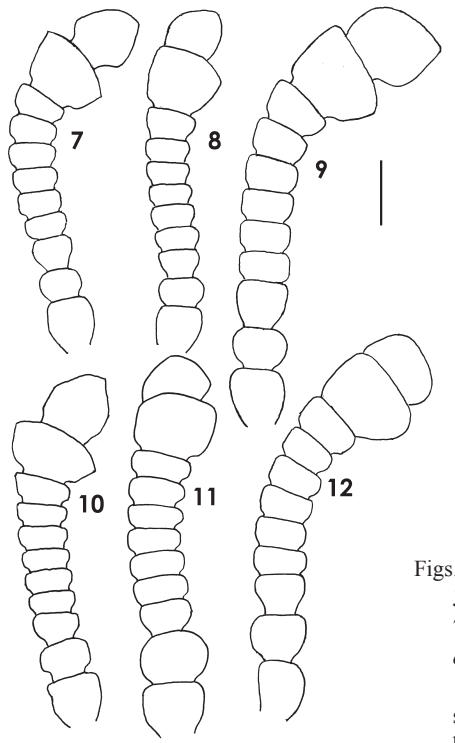
Body length. 4.10 mm.

Color. Body brownish black, antennae and legs dark brown.

Head. Vertex almost flat, frons with distinct pair of horn-like projections on anterior margin. Eye comparatively large, a little larger than lateral tubercle in front of eye; inconspicuous shallow concavity provided inside the tubercle. Antenna (Fig. 9) 11-segmented; antennomere X widest, 1.25 times as wide as XI, 1.50 times as wide as IX; antennomere XI longer than X, weakly pointed at tip.

Pronotum (Fig. 15). Anterolateral corner on each side strongly projecting laterad into conspicuous tubercle with rounded tip in dorsal aspect, but pointed at tip in laterodorsal aspect; thus, pronotum trapezoid in form, strongly narrowing posteriad, widest in anterior margin which is 1.44 times as wide as posterior narrowest part; dorsal side of pronotum without median concavity, only with a pair of distinct hollows along posterior margin; surface evenly covered with oval punctures, without showing smooth area in median part.

Elytra. Elongate, nearly parallel-sided, 2.19 times as long as wide, 2.45 times as long as pronotum, 1.06 times as wide as anterior margin which is strongly concave; anterolateral corners well projecting anteriad. Elytral ridges 2 and 3, ridges 4, 5 and 6, ridges 7 and 8 joining together in apical part, respectively.



Figs. 7–12. Antennae (left side) of the six Japanese species of *Pycnomerus*. —— 7, *Pycnomerus vilis* Sharp; 8, *P. boninensis* sp. nov.; 9, *P. strumiger* sp. nov.; 10, *P. sculpturatus* Sharp; 11, *P. nishii* sp. nov.; 12. *P. yoshidai* Aoki. (Scale bar: 0.1 mm)

Ventrites bearing anterior process weakly pointed anteromedially; surface with large oval punctures becoming smaller in median parts of ventrites II and III; small round organ present medially on suture between ventrites IV and V.

Male genitalia. Apical piece nearly twice the length of basal piece; lateral lobe with only one strong seta at tip.

Holotype: ♂, Kozeki-cho, Ôtsu City, Shiga Prefecture, Central Japan, 7.V.2015, S. Nakagawa leg. Holotype (NSMT-I-C 200314, antenna, ventrite and genitalia mounted separately on slides) is deposited in the collection of National Museum of Nature and Science, Tsukuba.

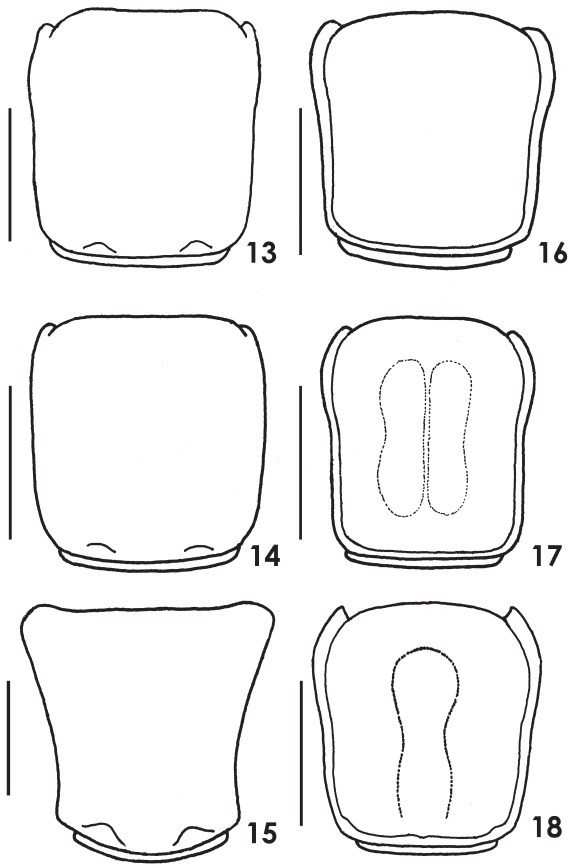
Remarks. The new species is readily distinguishable from the known congeners by its larger body size over 4 mm and the peculiar shape of pronotum with prominently projecting anterolateral corners. The following combination of characters is also useful for discrimination of the new species: (1) Glossy brownish black body, (2) pronotum without marginal rim, and (3) slender elytra, 2.19 times as long as wide.

Etymology. The specific name means " having strumae (tubercles) " on the anterolateral corners of pronotum.

Pycnomerus sculpturatus Sharp

(Figs. 4, 10 & 16)

Pycnomerus sculpturatus Sharp, 1885: 77; Löbl & Smetana, 2008: 79; Aoki, 2009: 112, fig. (p.118); 2011: 37, figs. 24, 24A.
Penthelispa sculpturatus : Sasaji, 1985: 294; Hirano, 1996: 19, fig.1.



Figs, 13–18. Pronota of the six Japanese species of *Pycnomerus*. —— 13, *Pycnomerus vilis* SHARP; 14, *P. boninensis* sp. nov.; 15, *P. strumiger* sp. nov.; 16, *P. sculpturatus* SHARP; 17, *P. nishii* sp. nov.; 18, *P. yoshidai* AOKI. (Scale bars: 0.5 mm)

Body length 3.08–3.40 (av. 3.23) mm. PL/PW = 1.03–1.05, EL/EW = 2.20–2.27, EL/PL = 2.36–2.58, EW/PW = 1.10–1.18.

Distribution. Japan (Honshu, Shikoku, Kyushu, Tsushima and the Ryukyus); Taiwan.

Pycnomerus nishii sp. nov.

(Figs. 5, 11 & 17)

Body length. 2.43–2.85 (av. 2.70) mm.

Color. Body black, mat; antennae and legs dark brown, glossy.

Head. Vertex weakly swollen; lateral tubercle in front of eye ragged, accompanied inside by large concavity. Eyes small, diameter 0.19–0.24 times as long as distance between eyes. Antenna (Fig. 11) 11-segmented; antennomere X massive, not strongly expanded transversely, 1.27–1.30 times as wide as XI; antennomeres IV–VIII small, same in length and width, IX wider than VIII; III longer than IV–VIII; II rounded, very large, distinctly longer and wider than III.

Pronotum (Fig. 17). Enough longer than wide. PL/PW = 1.14–1.18, a little wider anteriorly than posteriorly; anterior margin gently swollen, straight in median part; anterolateral angles inconspicu-

ous, never reaching or exceeding beyond anterior margin; lateral margins sinuate, accompanied by distinct groove, separating flat rim from dorsal disc; a pair of shallow longitudinal concavities in median part of pronotum.

Elytra rather short and broad, widest at middle portion, 1.89–1.92 times as long as wide, distinctly wider than pronotum, 1.31–1.34 times as wide as the latter; apical 1/3 of elytra sharply narrowing; from base to apex elytral ridges 6 and 7 jointed at first, then 4 and 5, at last 2 and 3. Elytral setae very minute, difficult to find.

Legs. Relation in length: fore tarsus = mid tarsus < hind tarsus; fore tibia < mid tibia = hind tibia.

Male genitalia. Parameres 1.8 times as long as basal piece; apical tips of paramere with two setae; longer seta whip-like, twice as long and thick as shorter one.

Type-series. Holotype. ♂, Kominato, Amami City, Amami-Ôshima Island, southern Japan, 16.V.2015. Masaharu Nishi leg. – Paratypes. 1 ♂, same data as holotype; 1 ♂, Mt. Yuwan-dake, Amami-Ôshima Is., southern Japan, 27.IV.2012, Masaharu Nishi leg.; 1 ♂, Yui-dake, Setouchi-cho, Amami-Ôshima Island, southern Japan, 24.V.2014, Masaharu Nishi leg.; 1 ex., Higashinakama, Sumiyo-cho, Amami-Ôshima Island, southern Japan, 17.V.2014, Masaharu Nishi leg.

Holotype (NSMT-I-C 200315) and two paratypes (NSMT-I-C 200316 and 200317) are deposited in the collection of National Museum of Nature and Science, Tsukuba and two paratypes (MPMIn 9000003 and 9000004) in the collection of Mie Prefectural Museum.

Remarks. Among the known species of the genus *Pycnomerus*, the following nine species have a pair of shallow longitudinal depressions on pronotal disc: *Pycnomerus annae* Ivie & Ślipinski, 1989, *P. biimpressus* Ivie & Ślipinski, 1989, *P. darlingtoni* Ivie & Ślipinski, 1989, *P. hottae* Ivie & Ślipinski, 1989, *P. terebrans* (Oliver, 1790), *P. sulcicollis* LeConte, 1963, *P. haematodes* (Fabricius, 1801), *P. quercus* Stephan, 1989 and *P. yoshidai* Aoki, 2011. The new species has also the depressions on pronotal disc, but its eyes are not so large as those of *P. biimpressus*, *P. terebrans*, *P. sulcicollis*, *P. haematodes* and *P. quercus*, while not so small as those of *P. hottae* and *P. yoshidai*. The remaining two species, *P. annae* and *P. darlingtoni* have eyes of intermediate size just like those of *P. nishii* sp. nov. The new species is distinguishable from the two species by the terminal two antennomeres (X and XI), which are not fused, but forming a loose 2-segmented club (Fig. 11).

Etymology. The specific name was dedicated to Mr. Masaharu Nishi, who collected the new species in Amami-Ôshima Island.

Pycnomerus yoshidai Aoki

(Figs. 6, 12 & 18)

Pycnomerus yoshidai Aoki, 2011: 13, figs. 1–3.

Body length 2.55–3.35 (av. 2.99) mm. PL/PW = 1.00–1.14, EL/EW = 1.82–1.92, EL/PL = 2.13–2.43, EW/PW = 1.21–1.34.

Distribution. Japan (Shikoku).

Key to the Six Japanese Species of the Genus *Pycnomerus*

1. Body glossy, without distinct marginal rim area around pronotum, with a pair of distinct concavities along posterior margin of pronotum; elytra smoothly narrowing apically 2
— Body not glossy, with distinct marginal rim area around pronotum, without distinct concavities along posterior margin of pronotum; elytra sharply narrowing apically 4
2. Anterior corners of pronotum markedly jutting out laterad forming conspicuous tubercle on each

side (Figs. 3 and 15). Body length 4.10mm. Central part of Honshu（Shiga Prefecture) ····· ····· *P. strumiger* sp. nov.

— Anterior corners of pronotum normal, only with weak angles ····· 3

3. Pronotum only feebly narrowing posteriorly, with almost straight lateral margins; elytra rather short (EL/EW = 2.06–2.19; EL/PL = 2.24–2.34); antennomere X not strongly expanded transversely; antennomere XI as long as X. Body length 3.15–3.60 (av. 3.21) mm. The Bonin Islands ····· *P. boninensis* sp. nov.

— Pronotum clearly narrowing posteriorly, with a little sinuate lateral margins; elytra long (EL/EW = 2.19–2.38; EL/PL = 2.38–2.67); antennomere X strongly expanded; antennomere XI distinctly shorter than X. Body length 2.70–3.95 (av. 3.39) mm. Japan (from Hokkaido to the Ryukyus）····· *P. vilis* Sharp, 1885

4. Eyes extremely small, degenerated, diameter 0.13–0.19 times as long as their mutual distance; hind wings vanished; antennomere XI widely rectangular; anterolateral corners of pronotum sharply pointed, extending beyond anterior margin; dorsal depression of pronotum conspicuous. Body length 2.55–3.28 (av. 2.99) mm. Shikoku (Tokushima, Ehime and Kochi Prefectures) ····· *P. yoshidai* Aoki, 2011

— Eyes not so small; hind wings existing; antennomere XI polygonal; anterolateral corners of pronotum inconspicuous, never extending beyond anterior margin; depressions of pronotum inconspicuous or lacking ····· 5

5. Eyes normal in size, 0.31–0.48 times as long as their mutual distance; pronotum shorter, PL/PW = 1.03–1.08; elytra longer and narrower, EL/EW = 2.20–2.27, EW/PW = 1.10–1.18; dorsum of pronotum flat, without median depressions. Body length 3.08–3.40 (av. 3.23) mm. Japan (Honshu, Shikoku, the Izu Islands, Tsushima Island, the Ryukyus) and Taiwan ····· ····· *P. sculpturatus* Sharp, 1885

— Eyes smaller than usual, 0.19–0.24 times as long as their mutual distance; pronotum longer, PL/PW = 1.14–1.18; elytra shorter and broader, EL/EW = 1.89–1.92, EW/PW = 1.31–1.34; dorsum of pronotum with shallow median depressions. Body length 2.48–2.85 (av. 2.70) mm. The Ryukyus (Amami-Ôshima Island) ····· *P. nishii* sp. nov.

要　　約

青木淳一：日本産ツヤナガヒラタホソカタムシ属（鞘翅目コブゴミムシダマシ科）の種について．——コブゴミムシダマシ科のツヤナガヒラタホソカタムシ属については日本から３種が知られていたが，今回，小笠原諸島からムニンツヤナガヒラタホソカタムシ *Pycnomerus boninensis* sp. nov.，滋賀県からコブツヤナガヒラタホソカタムシ *P. strumiger* sp. nov.，奄美大島からアマミツヤナガヒラタホソカタムシ *P. nishii* sp. nov. の３新種が見いだされたので記載し追加した．また，既知種を含め日本産６種への検索表を示した．

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