

Two New Species of Oribatid Mites Collected from the Ogasawara Islands (Acari: Oribatida)

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Abstract. Two new species of oribatid mites, *Diplobodes karubei* sp. n. and *Xylobates rotundus* sp. n., are described from the Ogasawara Islands, South Japan. *D. karubei* is characterized by two lines of dorsal ridges on notogaster and thick notogastral setae. *X. rotundus* is distinguished from the known congeners by the broadly rounded body shape and short adanal setae.

Key words: oribatid mites, *Diplobodes*, *Xylobates*, Ogasawara Islands, new species

Taxonomical survey of oribatid mites of the Ogasawara Islands was done for the first time in June-July, 1977 and five species of oribatids of the families Carabodidae and Oribotritiidae were described as new (Aoki, 1978; 1980). Recently, Mr. Haruki Karube of Kanagawa Prefectural Museum of Natural History collected many litter samples from six islands of the Ogasawara Islands. Among oribatid mites extracted from these samples I found two interesting oribatids, which are described below as new species.

Before going further, I wish to express my hearty thanks to Mr. Karube for his kindness to collect for me the litter samples and one of the new species was named after him.

Diplobodes karubei sp. n.

(Fig. 1)

Measurement. Body length 574 (range 505-621) μm , width 310 (range 255-340) μm .

Prodorsum. Rostrum weakly projecting with a rounded margin, showing a clear light area behind. Rostral seta (Fig. 1-D) minutely roughened on surface, strongly bending downward, pointed and warped at tip. Lamellae broad and marginal on prodorsum, connected each other by a transverse, bending ridge. Lamellar seta (Fig. 1-B) thick, strongly curved inward, markedly dentate on dorsal side. Interlamellar seta (Fig. 1-C) somewhat broadened distally, minutely roughened on surface. Sensillus (Fig. 1-A) strongly curled and densely beset with spines on distal half. Prodorsal surface including

lamellae smooth, without any foveolae or granules.

Notogaster. Anterior margin well arched, posterior margin broadly rounded, lateral margins parallel, humeral parts weakly projecting. Fourteen pairs of notogastral setae moderately thick, minutely roughened on surface, bending near basal parts (Fig. 1-E). Four pairs of longitudinal arched ridges arranged laterally on dorsum in two lines, each ridge bearing two setae; the left and right lines of ridges not parallel, but converging toward posterior direction. Five pairs of notogastral setae situated in marginal position. Notogastral surface smooth.

Ano-genital region. Genital plate bearing 4 rather long setae (exceptionally, one specimen from Chichijima Island bearing 5 pairs of setae). Aggenital setae long and well separated from each other. Anal plate with a long, sharply pointed thorn at posteromedian corner (Fig. 1-F), sometimes covered with dense granular cerotegument. Anal seta an_2 inserted nearly at mid-distance along the median margin and an_1 near the posterior end. Adanal setae long, minutely roughened, ad_1 and ad_2 situated posterolaterally to anal opening, ad_3 inserted anterior to the opening and directed medially.

Legs. Setae u on tarsi I and II blunt at tip, but those on tarsi III and IV with a pointed tip. Solenidion ϕ on tibia I very long, almost as long as the total length of tarsus I plus tibia I; solenidion ϕ on tibia II very short and rod-like. Lateral setae on genua I and II thick and bud-like. Inner setae on genua I very thick, with 3 strong branches. All legs monodactyle.

Type-series. Holotype (NSMT-Ac11213) and 6 paratypes (NSMT-Ac 11214 -11219): Mukojima Island, the Ogasawara Islands. 14-VI-2001. H. Karube [M1]; 6 paratypes (NSMT-Ac11220-11224): Imoutojima Island, the Ogasawara Islands. 23-VI-2001. H. Karube [I]; 3 paratypes (NSMT-Ac11225): Chichijima Island, the Ogasawara Islands. 15-VI-2001. H.

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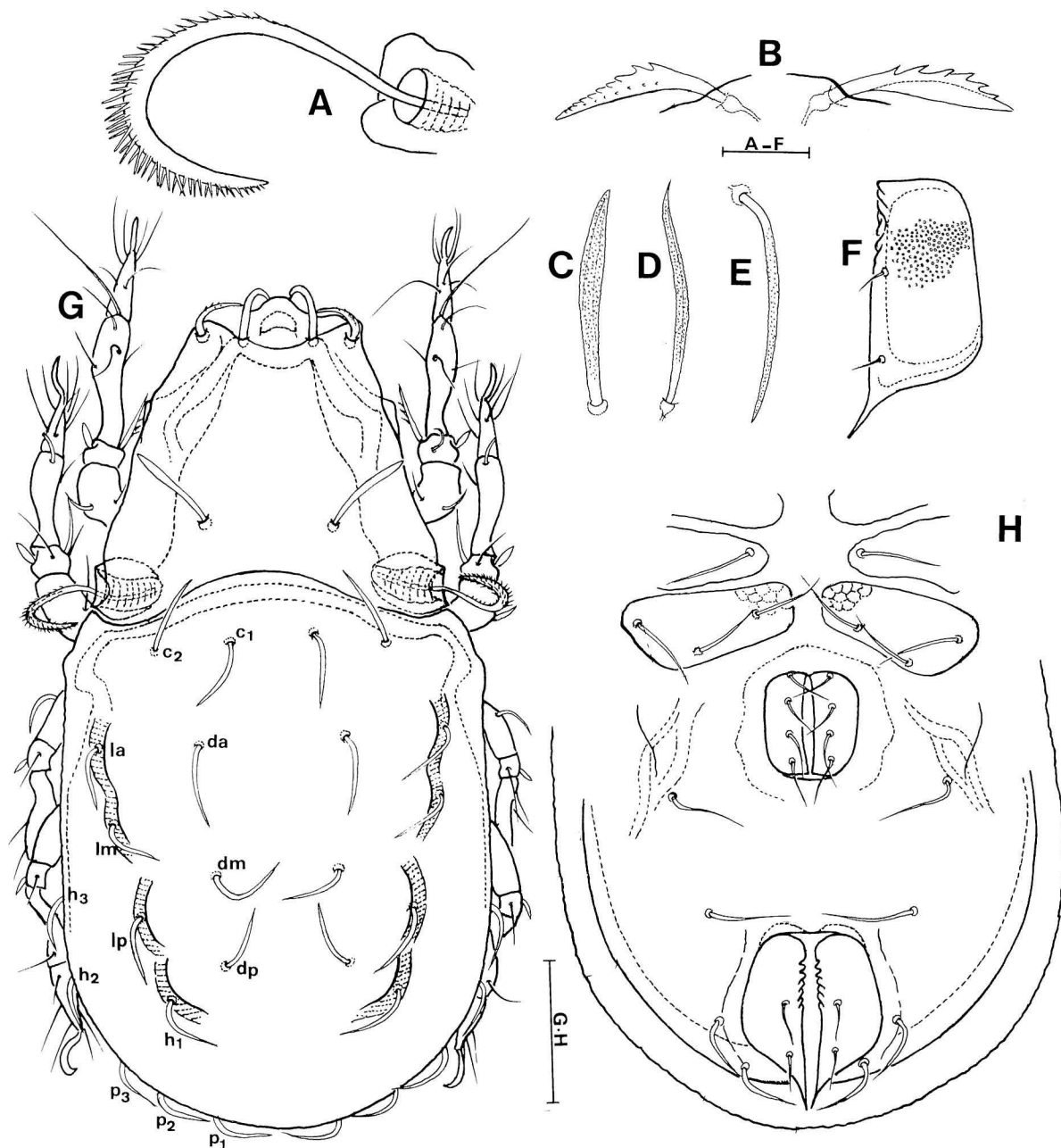


Fig. 1. *Diplobodes karubei* sp. n. A: Sensillus. B: Lamellar setae. C: Interlamellar seta. D: Rostral seta. E: Notogastral seta. F: Anal plate. G: Dorsal side of body. H: Ventral side of body. (Scale for A-F: 20 μ m; G-H: 100 μ m)

Karube [C]; 3 paratypes (NSMT-Ac11226): Hahajima Island, the Ogasawara Islands. 19-VI-2001. H. Karube [H1]. Holotype and most of paratypes are deposited in the collection of National Science Museum, Tokyo and two paratypes in Kanagawa Prefectural Museum of Natural History, Odawara.

Remarks. In the genus *Diplobodes* Aoki four species have been known: *D. kanekoi* Aoki, 1958 from Japan, *D. floridus* Mahunka, 1978 from Maurice Island, *D. sperbus* Mahunka, 1978 from Maurice Island, and *D. aokii* Mahunka, 1989 from Kenya. The new species is easily distinguishable from these species by the notogaster with only 4 pairs of ridges arranged in two lateral lines, while the other members of the genus have 7-8 ridges arranged in 4 lines on dorsum. The median 4 pairs of dorsal setae in the new species are inserted on the quite flat surface of dorsum and neither ridges nor swellings are found

around the insertions of the setae. Interlamellar setae and notogastral setae of the new species are thickened, while those of the other species are fine.

Etymology. The specific epithet refers to Mr. Haruki Karube, who collected for me the litter samples of the Ogasawara Islands including the new species of oribatids.

Xylobates rotundus sp. n.

(Fig. 2)

Measurement. Body length 765 (range 668-940) μ m, width 569 (range 495-720) μ m.

Prodorsum. Rostrum bearing a distinct trapezoidal projection with rounded coners. Lamella short, reaching anteriorly nearly mid-distance of prodorsal length. Prodorsal setae fine and sparsely barbed; setae *in* and *le* similar in length,

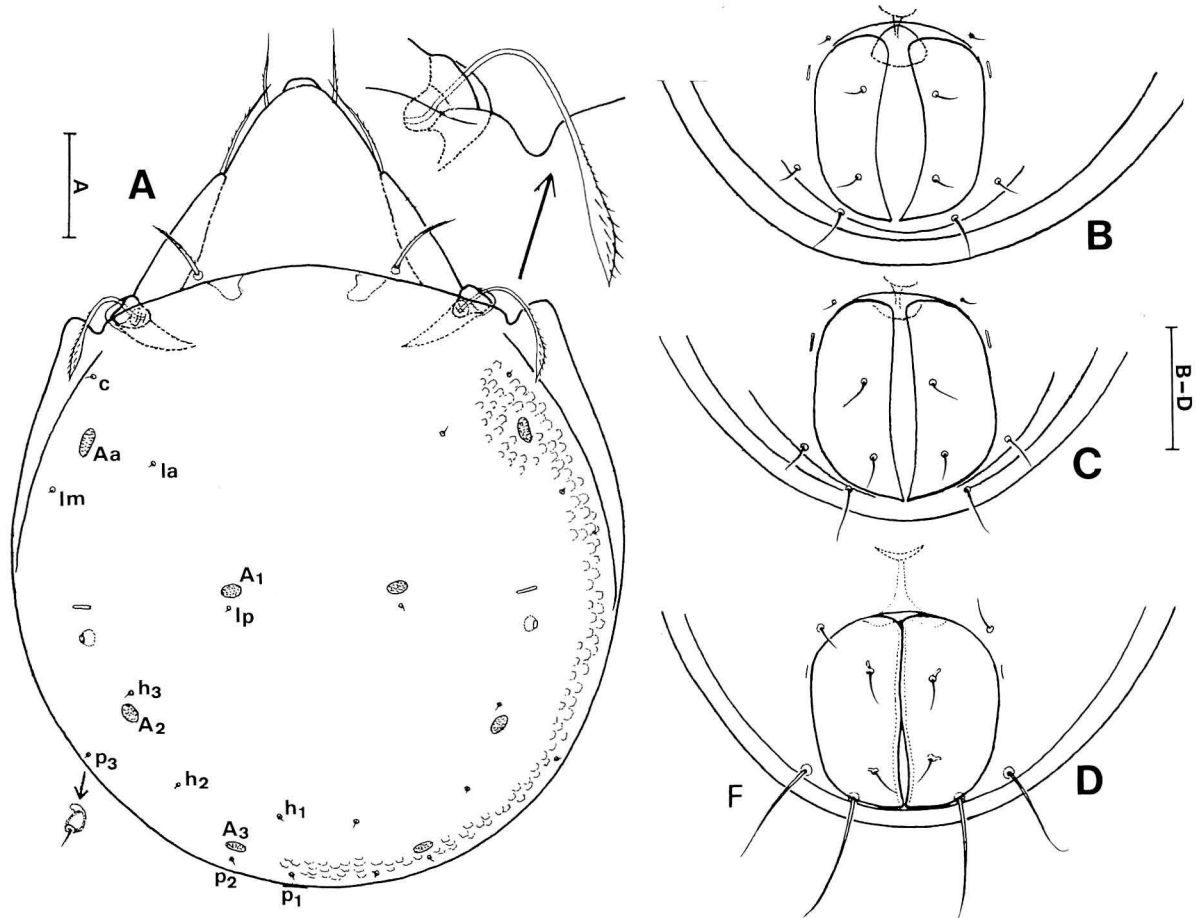


Fig. 2. *Xylobates rotundus* sp. n. A: Dorsal side of body. B and C: Anal region (B: specimen from Imoutojima Is.; C: specimen from Hahajima Is.). — *Xylobates magnus* Aoki. D: Anal region (after Aoki, 1982). (Scales for A and B-D: 100 μ m)

ro 3/5 as long as *in*. Bothridium with a narrow flap. Sensillus bending backward, bearing a spindle-shaped head with many fine spines.

Notogaster. Notogaster broadly rounded, nearly circular in outline, only slightly longer than wide, being 1.05-1.09 \times as long as wide. Basal part of anterior margin of pteromorph distinctly notched. Areae porosae *Aa* a little larger than the remaining ones; areae porosae *A*₁ never divided into two parts, their mutual distance short, about 1/4 as wide as notogaster. Notogastral setae minute, hardly visible, shorter than their setal pore (Fig. 2-A, left bottom); setae *lp* situated just posterior to *A*₁; setae *h*₃ close and in front of *A*₂.

Ano-genital region. Genital plate with 5 setae arranged in a straight longitudinal line. Anal opening large, about 2.4 \times as long as and 2.7 \times as wide as genital opening; anal plate with 2 short setae; *an*₁ and *an*₂ distant from the posterior and anterior ends of the plate for the same length, respectively. Adanal seta *ad*₃ short, as long as anal setae; relative lengths of adanal setae *ad*₃ : *ad*₂ : *ad*₁ = 1 : 1.6 : 4.2; *ad*₁ hardly reaching posterior margin of body or sometimes extending a little beyond it (Figs. 2-B and 2-C). Adanal fissure close and parallel to lateral margin of anal opening. Aggenital setae situated in about mid-distance of interspace between genital and anal openings, separated from each other for the distance a little narrower than the width of anal opening.

Table 1. Difference in body length (in μ m) of *Xylobates rotundus* sp.n. from the Ogasawara Islands.

Length	Width	Locality
668	505	Anijima Is.
670	495	"
670	508	"
675	513	"
676	515	"
698	540	Imoutojima Is.
710	535	"
718	-	Hahajima Is.
723	548	Imoutojima Is.
725	550	"
740	505	Hahajima Is.
830	619	Mukojima Is.
850	612	"
850	625	"
860	641	"
878	655	"
895	675	"
940	720	"

Type-series. Holotype (NSMT-Ac11227) and 13 paratypes (NSMT-Ac11234-11241): South side of Zougashira-yama, Mukojima Island, the Ogasawara Islands. 14-VI-2001. H. Karube [M1]; 2 paratypes (NSMT-Ac11228-11229): Nagahama-bashi, Hahajima Island, the Ogasawara Islands. 19-VI-2001. H. Karube [H1]; 5 paratypes (NSMT-Ac11230): Mansaku-hama, Anijima Island, the Ogasawara Islands. 15-VI-2001. H. Karube [A]; 7 paratypes (NSMT-Ac11231-11233): Imoutojima Island, the Ogasawara Islands. H. Karube [I].

Remarks. Four species of the genus *Xylobates*, *X. vastus* (Mihelčič, 1956) from Spain, *X. bipilis* Hammer, 1972 from Tahiti, *X. maigsius* Corpuz-Raros, 1979 from the Philippines and *X. magnus* Aoki, 1982 from Japan, are similar to the new species in having broad notogaster and vestigial notogastral setae. The new species is, however, distinguishable from *X. vastus* by the more rounded notogaster, the larger body size and setae *lp* situated posterior to A_1 , from *X. maigsius* by the longer lamellar and interlamellar setae (longer than rostral setae) and the larger body size, from *X. bipilis* by the areae porosae A_1 close to each other and the shorter adanal setae ad_1 , and from *X. magnus* by the areae porosae not divided into two parts and situated closer to each other, the shorter adanal setae ad_1 and ad_2 .

The body size of the new species is much variable among the specimens from different islands of the Bonin Islands. Table 1 shows that specimens from Anijima Is. are smallest (668-676 μm), those from Mukojima Is. are largest (830-940 μm) and those from Imoutojima and Hahajima Is. are intermediate.

No special morphological difference other than body size is found among them.

References

- Aoki, J., 1958. Eine neue Gattung von Carabodidae aus der Insel Hachijo, Japan (Acarina: Oribatei). *Zoological Science*, 67: 390-392. (in Japanese.)
- Aoki, J., 1978. New carabodid mites (Acari: Oribatei) from the Bonin Islands. *Memoirs of National Science Museum, Tokyo*, (11): 81-89.
- Aoki, J., 1980. A revision of the oribatid mites of Japan. I. The families Phthiracaridae and Oribotritiidae. *Bulletin of Institute of Environmental Science and Technology, Yokohama National University* 6: 1-89.
- Aoki, J., 1982. New species of oribatid mites from the southern islands of Japan. *Bulletin of Institute of Environmental Science and Technology, Yokohama National University*, 8: 173-188.
- Corpuz-Raros, L. A., 1979. Philippine Oribatei (Acarina). I. Preliminary list of species and description of forty new species. *The Philippine Agriculturist*, 62:1-82.
- Hammer, M., 1972. Investigation on the oribatid fauna of Tahiti, and some oribatids found on the Atoll Rangiroa. *Biol. Skr. Dan. Vid. Selsk.*, 19(3): 1-65, pls. 1-25.
- Mahunka, S., 1978. Neue und interessante Milben aus dem Genfer Museum XXVII. A first survey on the oribatid (Acari) fauna of Mauritius, Reunion and the Seychelles. *Revue Suisse de Zoologie*, 85: 177-236.
- Mahunka, S., 1989. Oribatids from the southern hemisphere (Acari: Oribatida). *Acta Zoologicae Hungaricae*, 35:41-79.
- Mihelčič, F., 1956. Oribatiden Sudeuropas III. *Zoologischer Anzeiger*, 156: 9-29.

摘 要

J. Aoki, 2002. Two New Species of Oribatid Mites Collected from the Ogasawara Islands (Acari: Oribatida). *Bull. Kanagawa prefect. Mus. (Nat. Sci.)*, (31): 19-22. (青木淳一, 2002. 小笠原諸島で採集されたササラダニ類の2新種. 神奈川県立博物館研究報告 (自然科学), (31): 19-22.)

小笠原諸島の父島、母島、兄島、妹島および聳島において荻部治紀氏によって採取された落葉および腐葉土から多数のササラダニ類が分離抽出され、その中に2新種が発見されたので、命名記載した。母島、兄島、妹島、聳島から得られたカルベイブシダニ (新称) *Diplobodes karubei* sp. n. は、同属の4既知種が胴背面に4列の隆起を持ち、その上に生ずる胴背毛が細いのに対し、胴背面の隆起は2列しかなく、胴背毛が太いので容易に区別される。母島、兄島、妹島、聳島から得られたオオマルシダレコソダニ (新称) *Xylobates rotundus* sp. n. は体が大型で幅広く、後胴体部がほぼ円形、胴背毛はきわめて微小、背孔 A_1 が接近し、桁毛および桁間毛が吻毛よりも長く、肛側毛 A_2 が短く体の輪郭を超えて伸びないなどの特徴の組み合わせによって既知のすべての種から区別される。

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