

A New Species of Scale Worm *Hololepidella* (Polynoidae, Polychaeta) Associated with an Ophiuroid from Ogasawara Islands, Japan

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Abstract A new species of commensal scale worm, *Hololepidella boninensis* (Polynoidae, Polychaeta) is described based on a specimen collected with an ophiuroid from Chichi-jima, Ogasawara Islands, Japan. The new species is characterized by a dotted prostomium, absence of microtubercles on the elytra, neurosetae that are all bidentate, and a brownish body color.

Key words: polychaete, scale worm, *Hololepidella*, Ogasawara Islands.

Many commensal polychaetes have been recorded from diverse hosts (e.g. Willey, 1905; Gibbs, 1969; Devaney, 1967; Dimock and Davenport, 1971; Uchida, 1983; Pettibone, 1969, 1993; Petersen and Britayev, 1997), and scale worms account for 40% of them (Uchida, 1983). From Japanese waters, over 10 species of scale worms are known to be commensal (Okuda, 1936, 1950; Uchida, 1983), and 3 species of *Hololepidella* are known from echinoderm hosts: *H. nigropunctata* (Horst) from giant sea-star *Acanthaster planci* at Kushimoto, Kii Peninsula (Uchida, 1975) and from ophiuroids at Okinawa (Pettibone, 1993); *H. comatula* Uchida from crinoids at Kushimoto (Uchida, 1975); *H. commensalis* Willey from sand dollars at Kushimoto (Uchida, 1992). We studied many poly-

chaetes from the Ogasawara Islands including commensal polynoids, and found a unique specimen of *Hololepidella*. The species is similar to *H. nigropunctata* and *H. comatula* in having a brownish body color, but the morphology of prostomium and elytra differs from the formerly described species. Therefore we described it herein as a new species.

Materials and Methods

A specimen was collected by hand in the field, fixed with 10% neutralized formaldehyde, and transferred to 70% alcohol. Some parapodia were dissected and prepared for scanning electron microscope (SEM) observation by dehydration through a graded alcohol series (80, 90, 95, 99, 100%), air-drying,

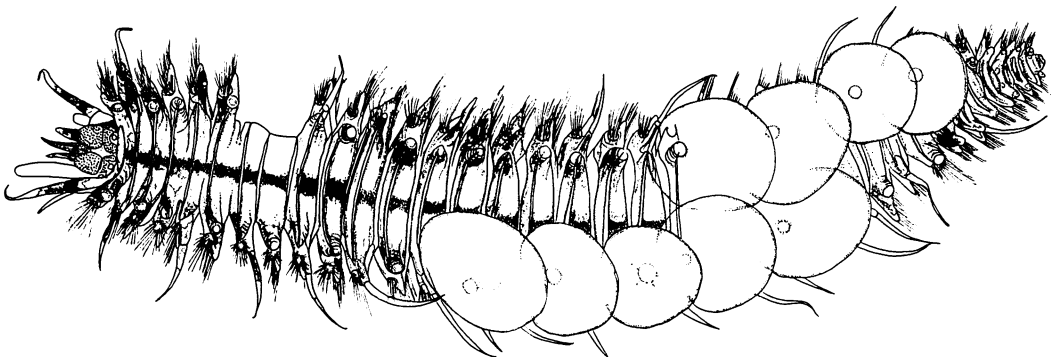


Fig. 1. Whole view of *Hololepidella boninensis* sp. nov., dorsal view.

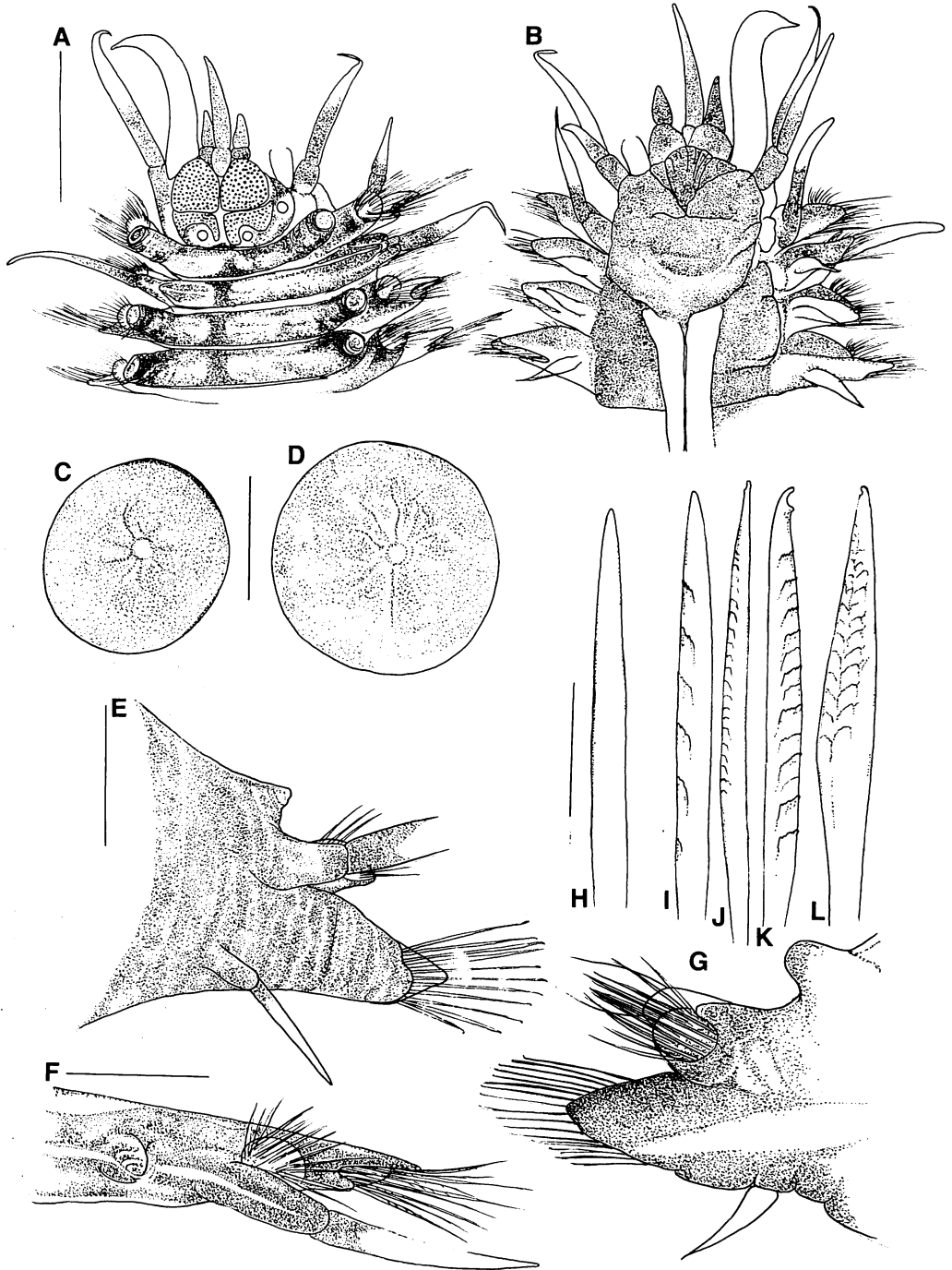


Fig. 2. Head, elytra, parapodium and chaetae of *Hololepidella boninensis*.sp. nov. A and B, head part, dorsal (A) and ventral (B) view; C, 1st left elytron; D, 16th left elytron; E-G, 7th parapodium, posterior (E), upper (F), and anterior (G) view; H and I, notosetae from 7th segment; J, K, L, supura-acicular (J) middle (K) and lower (L) neurosetae from 7th segment. Scales are 0.5 mm (A-D), 0.2 mm (E-G) and 0.02 mm (H-L).

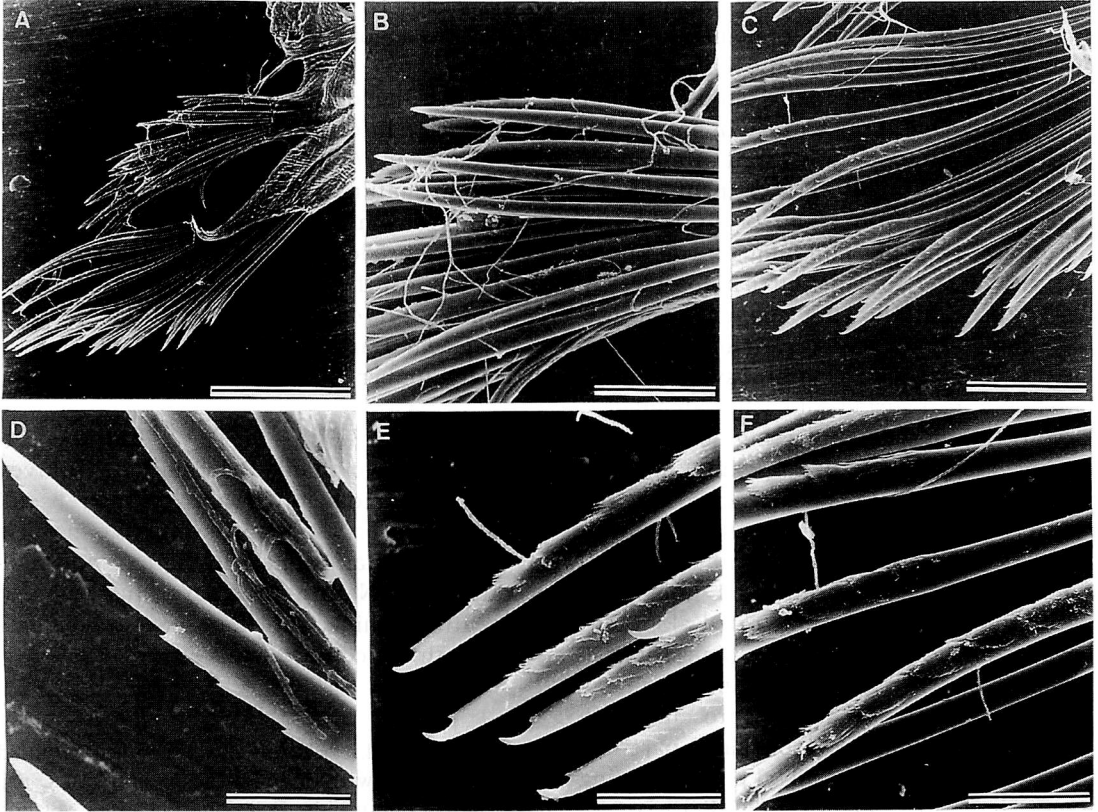


Fig. 3. Scanning electron micrographs of *Hololepidella boninensis* sp. nov. A, 7th parapodium, anterior view; B, bundle of notosetae; C, bundle of neurosetae; D, close-up view of notosetae; E and F, tip (s) (E) and middle (F) of neurosetae. Scales are 200 μm (A), 50 μm (B), 75 μm (C), 20 μm (D, E), 30 μm (F).

coating with palladium and Pt using an ion-sputter (Hitachi E-1030), and finally studied with a Hitachi S-800. Type specimen is deposited in the Natural History Museum and Institute, Chiba (CBM-ZW).

Systematics

Family Polynoidae Malmgren, 1867

Subfamily Harmothoinae Willey, 1902

Genus *Hololepidella* Willey, 1905

Hololepidella boninensis sp. nov.

(Figs. 1–3)

Material examined. Holotype, CBM-ZW-463, complete worm without some elytra, Chichi-jima, Ogasawara Islands, Japan, subtidal coral reef area, associated with ophiuroid at depth 10 m, 1995 May 10, leg. H. Tachikawa by hand.

Description. Holotype 12 mm long, 2.5 mm wide including chaetae, for 36 segments, 17–

18 pairs of elytra, last segment minute (Fig. 1). Sex unknown. Body flattened, tapering slightly both anteriorly and posteriorly. Pigmentation on dorsal cirrophores and styles of dorsal cirri, on dorsum partly as nearly continuous transverse bands, and on ventral and lateral side of mouth part (Figs. 1 and 2A, B). Elytra and elytriphores 20 pairs, 2, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 32, 35, 37, 38, including most of posterior pairs (probably lacking elytra), on usual segments oval to subreniform, without microtubercles, brown pigmentation scattered all around elytra with densely in anterior edge (Fig. 2C, D).

Bilobed prostomium with lobes truncate, without peaks, surface of prostomium with many dots, not pigmented (Fig. 2A); anterior pair of eyes anterolateral, smaller posterior pair posterodorsal; ceratophore of median an-

tenna medium-size, in anterior notch of prostomium, style tapered; lateral antennae with ceratophores inserted terminoventrally, with style short, subulate; palps stout, tapered, without pigmentation; tentaculophores lateral to prostomium, each without seta and papillae (Fig. 2A, B). Second segment without nuchal lobe, with first pair of elytraphores, biramous parapodia, and long ventral buccal cirri similar to tentacular cirri; notosetae similar to those of following segments; neurosetae similar to upper ones of following segments (Fig. 2E–J). One transverse ciliary band on dorsal surface of each segment.

Notopodium with projecting acicular lobe on lower side; large neuropodium with tapered subtriangular presetal acicular lobe and shorter rounded postsetal lobe (Figs. 2, E–G, and 3A). Notosetae 16 to 20 in number, about same width as neurosetae, all unidentate with blunt tip, minutely serrated along one border (Figs. 2H, I, and 3B, D). Neurosetae all bidentate, 25–30 in number per segment. Few (8–10) supraacicular neurosetae with prominent spinous rows on basal part and minute spinous row on distal part extending to near bare tip (Figs. 2J and 3C, E–F); superior neurosetae 4–6 in number, long and minutely serrated with dully bidentate tip (Figs. 2K, L and 3E); all neurosetae with eitere tips (with secondary tooth) (Figs. 2 J–L and 3C, E). Dorsal cirri with long cylindrical cirrophores on posterior sides of notopodia, styles extending close to tips of neurosetae; dorsal tubercles indistinct; ventral cirri extending to near tip of neuropodial lobe.

The holotype was found living associated with an ophiuroid, *Ophiocoma* sp., among rocks on a coral reef.

Etymology. The species is named for the type-locality Bonin (=Ogasawara) Islands.

Remarks. The new species *Hololepidella boninensis* is characterized by a dotted prostomium and the distribution of its bidentate neurosetae, and can be distinguished from other species of the genus by the absence of microtubercles and apparent coloration on the elytra. In Japan, three species of *Hololepidella*, *H. commensalis* Willey, 1905, *H. nigropunctata* (Horst, 1915), and *H. comatula* Uchida, 1975, have been recorded (Pettibone, 1993; Uchida, 1992). Among them, *H. bonin-*

ensis closely resembles *H. nigropunctata* by its body coloration and setae, but the latter species has microtubercles on its elytra, whereas the former lacks them. *H. boninensis* can be differentiated from *H. comatula* Uchida and *H. commensalis* Willey by the bidentate nature and entire tip of all neurosetae. From the Philippine Islands, Hartmann-Schröder (1981, 1984) recorded three species of the genus: *H. alba* Hartmann-Schröder, *H. obtusa* Hartmann-Schröder, and *H. lobata* Hartmann-Schröder, each with a large number of elytrae (37 pairs or more).

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小笠原諸島父島の沿岸から獲られた ウロコムシの1新種

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小笠原諸島父島の水深 10 m の地点からクモヒトデの一種に付着していたウロコムシ科の多毛類の新種 *Hololepidella boninensis* sp. nov. が獲られたので、ここに報告する。この種は頭口葉に黒い微小突起を備え、また鱗に微小突起とカラーパターンを欠くことで同属の他種から区別できる。