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First Japanese record of the genus Paragrubia Chevreux, 1901 (Crustacea: Amphipoda: Ampithoidae) from Kumejima Island

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Abstract. The ampithoid amphipod Paragrubia vorax Chevreux, 1901 was collected from Kumejima Island, southwest Japan, as the first Japanese record of this genus. Specimens collected from Kumejima Island represent the northernmost record of the species in the Pacific Ocean.

Introduction

The family Ampithoidae is known as herbivorous amphipods inhabiting seagrass and seaweed beds (Conlan 1982; Poore et al. 2008). The small ampithoid genus Paragrubia Chevreux, 1901 is characterized by the accessory flagellum with 3 or more articles, gnathopod I subequal to or larger than gnathopod II, and uropod I peduncle having large distoventral process (Peart & Ahyong 2016), and is currently represented by the following ten species: P. apoorrei Hughes & Peart, 2013; P. cassini Hughes & Peart, 2013; P. dongara Hughes & Peart, 2013; P. dwyeri Hughes & Peart, 2013; P. edgari Peart, 2009; P. latipoda Ren, 2001; P. pilipes (Ledoyer, 1984); P. springthorpei Hughes & Peart, 2013; P. variata (Sheard, 1936); P. vorax Chevreux, 1901. They have been reported from tropical to temperate shallow waters in the Indo-Pacific (e.g. Ren 2001; Hughes & Peart 2013; Peart & Hughes 2014) but never from Japan.

During the first author’s recent leisure-diving trip in Kumejima Island, southwest Japan, the occurrence of P. vorax was recognized, and thus, we herein report this as the first Japanese record of the genus Paragrubia.

Material and Methods

The specimens of P. vorax were collected from red algal turfs of Jania sp. on the subtidal coral reefs in Shichu-gama, Kumejima Island (26°21′16″N, 126°51′25″E; 6–8 m deep) by using SCUBA. Measurements are given for dorsal length, defined as the length from tip of rostrum to posterior margin of telson. The specimens were dissected under a binocular stereomicroscope, and then appendages were fixed on slide mounts with Hoyer’s medium. Observations and line drawings were made by using a light microscope and a binocular stereomicroscope with the aid of drawing tube.

All the specimens examined in this study were deposited in the Ryukyu University Museum Fujukan, University of the Ryukyus, Okinawa, Japan (RUMF).

Taxonomy

Family Ampithoidae Stebbing, 1899
Genus Paragrubia Chevreux, 1901
New Japanese name: Nettai-hige-naga-yokoebi-zoku
Paragrubia vorax Chevreux, 1901
New Japanese name: Nettai-hige-naga
(Figs. 1, 2)

Not P. vorax: Myers, 1985: 33, figs 24–25 (accepted as P. latipoda, following Ren 2006)

Material examined. All the specimens were collected at 26°21′16″N, 126°51′25″E, Shichugama, Kumejima Island, Okinawa, Japan, 6–8 m deep, algal turf of Jania sp. on coral reefs, on September 9, 2016, by M. Kodama using SCUBA: 1
Fig. 1. *Paragrubia vorax* Chevreux, 1901. A–C, male, 11.5 mm (RUMF-ZC-6201); D, male, 7.3 mm (RUMF-ZC-6203). A, habitus (pleopods and coxal gills omitted), lateral view; B1, right gnathopod I, lateral view; B2, propodus and dactylus of right gnathopod I (setae omitted), lateral view; C1, right gnathopod II, lateral view; C2 and D, propodus and dactylus of right gnathopod II (setae omitted), lateral views. Scale bars: A, 2.0 mm; B1 and C1, 1.0 mm; B2, C2 and D, 0.2 mm.
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Diagnosis. Antenna I accessory flagellum with 4 or 5 articles. Mandibular setal row with 6–9 (usually 7) robust setae. Lower lip outer plates weakly notched. Maxilla I inner plate with 1 plumose seta; palp article II with 3–5 (usually 4) robust setae. Gnathopod I larger than gnathopod II; coxa produced anteriorly, but not reaching antennal sinus of head; basis with large anterodistal lobe; ischium lacking anterodistal lobe; carpus lacking robust setae dorsally; propodus palm with deep excavation. Gnathopod II coxa not tapering distally; basis with anterodistal lobe; ischium lacking anterodistal lobe;
propodus palm convex, sometimes with shallow depression on palm. Epimeral plates II and III each with small tooth on posterodistal corner. Telson subtrapezoidal, with oblique medial rows of slender setae and lateral rows of slender setae.

**Distribution.** South Africa (Griffiths 1973, 1976); Red Sea (Ruffo 1938, 1969); Madagascar (Ledoyer 1982); Seychelles (Chevreux 1901; type locality); Mauritius (Appadoo & Myers 2004); Maldives (Walker 1905); Indonesia (Schellenberg 1938); South China Sea (Ren, 2001, 2006); Kumejima Island, Japan (present study); Papua New Guinea (Peart & Hughes 2014); Kosrae (Myers 1995); New Caledonia (Ledoyer 1984; Peart & Hughes 2014); Norfolk Island (Hughes & Peart 2013); Tonga (Myers 1986); Western Samoa (Myers 1997); Cook Islands (Myers 1990); Hawaii (Barnard 1955, 1970); Society Island (Myers 1989).

**Remarks.** Our specimens at hand agree with the original description of *P. vorax* by Chevreux (1901) and also recent redescriptions and illustrations by Ledoyer (1982), Ren (2006), Hughes & Peart (2013), and Peart & Hughes (2014). Appadoo & Myers (2004) indicated that two morphological types are recognized in the male gnathopod I: one (including type material) has a deep excavation on the palm, and the other has a shallow excavation, and they also implied that more than one species exist in the *P. vorax*. Indeed, materials described by Myers (1985) from Fiji having a shallow excavation were recently accepted as *P. latipoda* (see Ren 2001, 2006). Our Japanese specimens has a deeply excavated palm on male gnathopod I ([Fig. 1B2](#)), and thus, should be attributed to the true *P. vorax*.

In our specimens, male gnathopod II palm show a small morphological variation: one male has convex palm with a shallow depression on proximal area of the palm ([RUMF-ZC-6203](#); Fig. 1D), while another male has convex palm with a shallow depression on rather center area of the palm ([RUMF-ZC-6201](#); Fig. 1C2). This small variation appears to be an intraspecific variation.

The present species, *P. vorax*, closely resembles *P. latipoda* and *P. edgari* in sharing large male gnathopod I (larger than gnathopod II; [Fig. 1A](#)), and convex palm of gnathopod II ([Fig. 1C2, D](#)). However, the present species can be distinguished from *P. latipoda* by the following points: (1) gnathopod I coxa is more produced anteriorly ([Fig. 1B1](#)) than that of *P. latipoda*, (2) gnathopod I carpus lacks robust seta dorsally ([Fig. 1B1](#)), while that of *P. latipoda* bears 3 pair of robust setae dorsally, and (3) gnathopod II coxa is parallel (not tapering distally; [Fig. 1C1](#)), whereas that of *P. latipoda* is tapering distally. The present species also differs from *P. edgari* in the following points: (1) epimeral plates II and III each have a small tooth on the posterodorsal corners ([Fig. 1A](#)), while in *P. edgari*, their posterodorsal corners are rounded without tooth; (2) female gnathopod II basis has an anterodorsal lobe, whereas that of *P. edgari* lacks the anterodorsal lobe.

*Paragrubia vorax* has been reported from a wide area of Indo-Pacific, but never from Japan. Our specimens examined in this study represent the first Japanese record of the species as well as the genus, and also represent the northernmost record of the species in Pacific Ocean.

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**References**


要旨. 久米島から採集された標本に基づき，ネッタイヒゲナガヨコウエビ属 (新称) Paragrubia Chevreux, 1901 (端脚目: ヒゲナガヨコウエビ科)
Chevreux, 1901 のネッタイヒゲナガ (新称) \textit{P. vorax} Chevreux, 1901 を報告する。これは本属・種の日本からの初記録であるとともに、太平洋における本種の分布の北限記録となる。

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