



Gnathiidae from Kumejima Island in the Ryukyu Archipelago, southwestern Japan, with description of three new species (Crustacea: Isopoda)*

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Abstract

A marine biodiversity expedition was carried out from 7 November to 22 November 2009 in Kumejima Island, the Ryukyu Archipelago, southwestern Japan. The dredge and trawl samplings from 10 to 147 m depths yielded five gnathiid species including three new *Gnathia* species. In this paper, these three new species are described based on male morphologies and three morphotypes of larvae are also described.

Key words: Gnathiid isopod, new species, biodiversity expedition, the Ryukyu Archipelago, Kumejima Island

Introduction

The family Gnathiidae Leach, 1814, is a marine isopod family containing approximately 190 species in 12 genera. They have a worldwide distribution from tropical to polar zones and occur from intertidal zones to abyssal waters up to 4,000 m deep (Camp 1988; Cohen & Poore 1994). The adults of Gnathiidae have a strong sexual dimorphism; the male has elongated mandibles but the female lacks them. On the other hand, the larvae have needle-like mouthparts which differ morphologically from adults; distinguishing their sex during the larval stage is not possible with the current stage of our knowledge. In general, the larvae (called “praniza” after feeding on their host’s body fluid), are ectoparasites of teleost or elasmobranch fishes. Reproductive adults do not feed and live in benthic substrata such as sponges, dead coral or mud burrows.

In their natural environment, the adult gnathiids have been overlooked because of their cryptic lifestyle and because they have small body lengths, below 10 mm in most species. Thus, the gnathiid fauna is undersampled in most areas.

In Japanese and adjacent waters, 35 species from 6 genera have been recorded. Currently, 11 species from 4 genera have been described or recorded from the Ryukyu Archipelago locating southwestern Japan: *Elaphognathia nunomurai* Ota, Tanaka, Hirose & Hirose, 2010; *E. rangifer* (Monod, 1926) (Ota *et al.* 2010); *Gnathia camuripenis* Tanaka, 2004; *G. limicola* Ota & Tanaka, 2007; *G. grandilaris* Coetzee, Smit, Grutter & Davies, 2008 (Ota & Hirose 2009b); *G. maculosa* Ota & Hirose, 2009a; *G. nubila* Ota & Hirose, 2009b; *G. trimaculata* Coetzee, Smit, Grutter & Davies, 2009 (Ota & Hirose 2009a); *G. teruyukiae* Ota, 2011; *Tenerognathia visus* Tanaka, 2005; *Thaumastognathia tanseimaruae* Shimomura & Tanaka, 2008.

I participated in the Kumejima Marine Biodiversity Expedition (KUMEJIMA 2009) in the Ryukyu Archipelago and collected five species including three undescribed species from off Kumejima Island. In this paper, I describe male adults of the three new species as the results of this expedition.