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A First record of the Ruby Mantis Shrimp *Echinosquilla guerinii* (Crustacea: Stomatopoda: Protosquillidae) in Taiwanese waters

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Abstract

The genus *Echinosquilla* has been reported in Taiwan for the first time herein, extending its distribution to the Northwestern Pacific Ocean. Only one species, *Echinosquilla guerinii* (White, 1861), belongs to this genus. Color illustrations and underwater habitat images have been provided for this new Taiwanese record.

Keywords: biodiversity, mantis shrimp, new record, Taiwan.

Introduction

The mantis shrimps, or stomatopods, are characterized by their greatly developed second maxilliped, which functions as a powerful raptorial appendage. Mantis shrimp are adept marine predators that can be found in a wide range of habitats, from the shore down to about 1,500 m (Ahyong *et al*., 2008). There are currently 69 species of mantis shrimp known from Taiwanese waters (Ahyong *et al*., 2008; Yeh & Hsueh, 2010; Wang & Chiou, 2017; Ahyong & Lin, 2020; 2022) but most specimens have been collected by trawling or commercial nets. The species of the family Protosquillidae Manning, 1980 are unique in their possession of a telson that has been fused with abdominal somite 6. They usually inhabit coral reef and subtidal hard substrate areas, and four genera have been found in the Indo-West Pacific region (Ahyong, 2001); however, only *Haptosquilla glyptocercus* has been recorded in Taiwan. Recently, some interesting specimens collected from a coral reef survey in Xiao Liuqiu were examined and revealed a new record of a protosquillid mantis shrimp from Taiwan. The species was typed as *Echinosquilla*

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guerinii and is described in detail herein. Examined specimens were deposited in the invertebrate collection of the National Museum of Marine Biology and Aquarium in Pingtung, Taiwan.

Taxonomy *Echinosquilla guerinii* (White, 1861)

Figs 1-2

Gonodactylus guerinii White, 1861: 43, Pl. 7 (type locality: Fiji).−Kemp, 1913: 11, 149, 192-193.

Gonodactylus guerinii.−Miers, 1880: 43.

Protosquilla guerinii.−Brooks, 1886: 75, Pl. 16: Figs. 1, 6.

Echinosquilla guerini.−Manning, 1969d: 155, Fig. 5.

Echinosquilla guerinii.−Manning, 1977c: 280.−Moosa, 1991: 165.−Manning, 1995: 21.−Ahyong, 2001: 99, Fig. 48.

Material examined

Xiao Liuqiu, Pingtung County, 14 May 2020: 3 females (TL: 57-68 mm; NMMBCD-5629). 09 March 2022: 1 female (TL: 52 mm; NMMBCD-5630)

Diagnosis

Rostral plate sharply trispinous, with lateral spines slender and directed antero-laterally. Eye with cornea bilobed and flattened anteriorly. Antennule somite dorsal processes producing a short spine that is concealed by the rostral plate. Protopod of antenna with small ventral papilla and anteriorly directed dorsal and ventral spines. Mandibular palp tri-segmented. Propodus of raptorial claw with spine movable proximally. AS1 with small articulated pleural plate antero-laterally. Posterior half of AS5 covered with short, erect spines; posterior margin lined with short, posteriorly directed spines; with postero-lateral spines. AS6 and telson dorsal surfaces entirely covered with long, erect spines (& with soft apices). Posterior margin of telson teeth separated by deep V- or U-shaped concavities; inner and outer margins lined with slender spines. Uropodal protopod with 3-4 dorsal spines proximally; exopod proximal segment's outer margin with 8-9 movable spines; endopod with two dorsal carinae: inner unarmed and outer with 5-7 erect spines.

Color

Overall blood red, interspersed with white spots (Fig. 1). Carapace with a horizontal white band in middle. Spine of the telson brown to orange (basal part white). Uropod red to orange.

Distribution

West Indian Ocean to Central Pacific and now northwards to Taiwan.

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Fig. 1. *Echinosquilla guerinii* (White, 1861): female, 67mm (NMMBCD5629), fresh specimen, dorsal view.

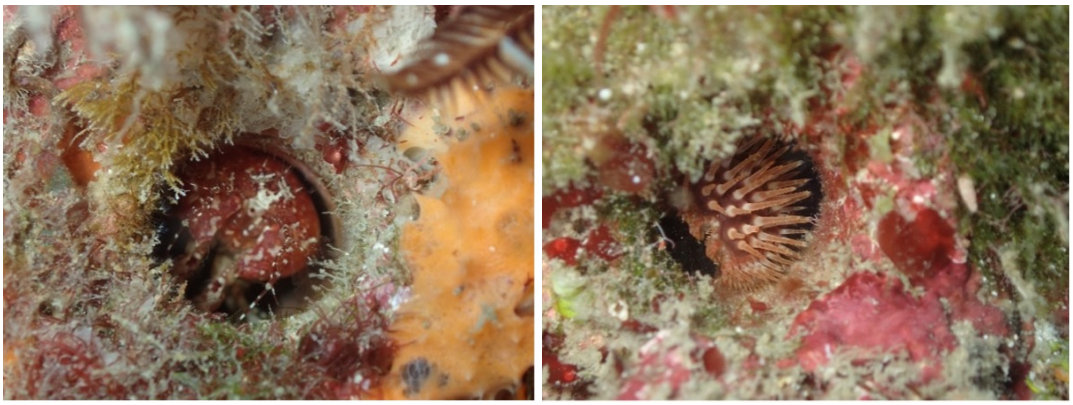

Fig. 2. A. normal state of the ruby mantis shrimp in situ. B. when stressed or threatened, presenting an "urchin-like" appearance.

Remarks

The telson of *E. guerinii* is round (Fig. 2A), with long dorsal spines over the entire surface that, when threatened, presents an appearance (Fig. 2B) similar to that of a sea urchin (*e.g., Echinometra*); specifically,

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it uses the telson and uropods to block the entrance to its burrow. The specimens from Taiwan were collected from a rocky reef setting down in the coral rubble zone, and more than five individuals could be found in a small area. *E. guerinii* was given the local common name of "ruby mantis shrimp" because its blood-red carapace resembles the color of a ruby, as well as "Ruby" being the name of the diver who co-discovered this species locally with the lead author.

Acknowledgments

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