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Biodiversity Record: Predation of a fireworm, *Eurythoe* sp., by a crab, *Pilumnus vespertilio*

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Subjects: Common hairy crab, *Pilumnus vespertilio* (Crustacea: Decapoda: Brachyura: Pilumnidae);
Fireworm, *Eurythoe* sp. (Annelida: Polychaeta: Amphinomida: Amphinomidae).

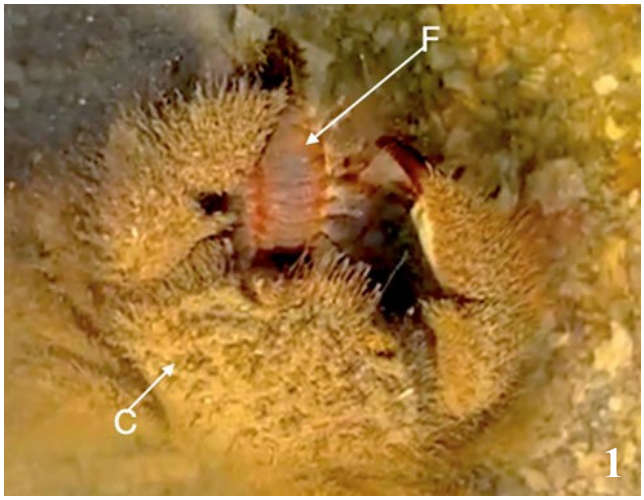
Subjects identified by: Lim Jia En.

Location, date and time: Singapore Strait, Terumbu Raya; 30 April 2025; around 1130 hrs.

Habitat: Marine, rocky coral substratum, at coral reef edge. During low spring tide.

Observers: Lim Jia En and Yap Wei Liang Nicholas.

Observation: A hairy crab of about 3 cm carapace width was found holding and eating a fireworm, *Eurythoe* sp. which was moving (Fig. 1). Possibly sensing disturbance by the observers, the crab proceeded to carry the worm into its burrow (Fig. 2).



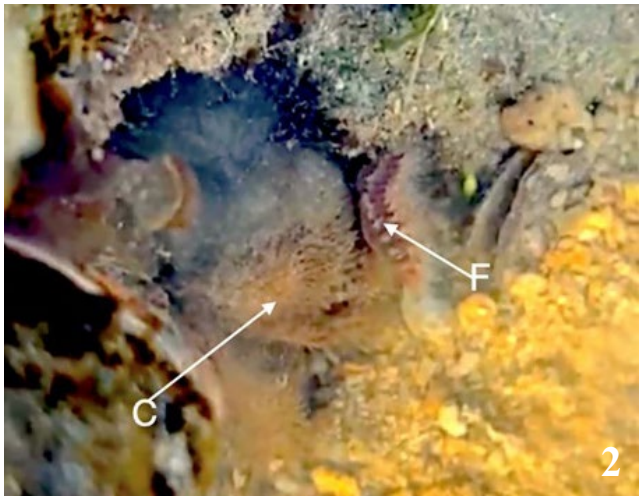


Fig. 1. In-situ dorsal view of hairy crab (C) holding and eating a fireworm (F). Fig. 2. In-situ dorsal view of hairy crab (C) retreating into its burrow carrying the fireworm (F). (Photographs by: Yap Wei Liang Nicholas).

Remarks: *Pilumnus vespertilio* has a wide distribution in the Indo-Pacific (Kyomo, 2002). Over a 3-month study period in Okinawa, Japan, this species was reported to feed primarily on algae, brittle stars and molluscs, but not on worms (Kyomo, 1999). Because diet may differ geographically for populations of a species (Simpfendorfer et al., 2001), it is unclear if those occurring in Southeast Asia would exhibit the same diet preference.

The diet of *Pilumnus vespertilio* in Singapore has been anecdotally reported in online blogs but not formally published (see Tan, 2019a, for photographs and a list of references associated with these observations). Individuals of this crab have been observed feeding on seaweed, bristle worms, molluscs and sponges. With photographic evidence, we herein record that the fireworm (*Eurythoe* sp.) is included in the diet of *Pilumnus vespertilio*. The crab was seen holding the worm which was still moving while retreating into its burrow when it sensed disturbances. It was not observed as to how the crab caught the worm. The crab could have hunted down the worm for consumption or opportunistically scavenged on an injured worm.

Fireworms from the genus *Eurythoe* are commonly found in coral rubble and under stones on the shores of Singapore. They have sharp bristles filled with venom, which break off easily when handled. When these bristles puncture through bare skin, the venom can cause burning pain, thus giving fireworms their common name (Tan, 2019b). Some xanthid crabs that consume such venomous prey are resistant to the toxins, as well as being capable of accumulating these in their bodies as a protective mechanism against predators (Zhang et al., 2025). Although this requires an in-depth investigation, it is possible that *Pilmnus vespertilio* might be capable of doing the same.

Acknowledgement: This record is part of a joint research initiative between Singapore Oceanarium, Resorts World Sentosa and the National University of Singapore.

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