

First record of side-gilled slug, *Berthellina delicata*, in Singapore

Subjects: Side-gilled slug, *Berthellina delicata* (Mollusca: Gastropoda: Pleurobranchidae).

Subjects identified by: Toh Chay Hoon and Tan Siong Kiat. Food sponge identified by Lim Swee Cheng.

Location, date and time: Singapore Strait - Pulau Senang, 30 March 2014, 1700-1900 hrs; and off western Pulau Sudong, 17 November 2014, around 1030 hrs.

Habitat: Marine. Coral reef flat exposed at low tide (Pulau Senang). Subtidal zone on coral rubble at depth of 5-13 m (Pulau Sudong).

Observer: Rene Ong.

Observation: The first example (about 10 mm in length) was found under a rock exposed at low tide on the reef flat at Pulau Senang (Fig. 1). It was collected and kept in an aquarium for observations, for a month. Some sponges growing on rocks were placed in the aquarium on alternate days. The slug was observed to extrude its proboscis to feed on a sponge of the genus *Clathria*, and ate an area approximately half its size in around 5 minutes. The animal remained motionless and hidden under a rock most of the time and appears to be active only when it is foraging and feeding (Fig. 3).

The second example (about 12 mm in length) was hand collected during a SCUBA dive survey off Pulau Sudong (Fig. 2). It was noticeably paler yellowish orange compared to the first specimen, and was also kept in an aquarium for observations. However it did not seem to be interested in the random sponges offered to it, including *Clathria* that the first one fed on. Feeding was not observed for this individual.

Remarks: The slugs are tentatively identified as *Berthellina delicata*, a species known to occur in the Indian Ocean and the western Pacific (Gosliner et al., 2008; 2015). Their identities cannot be confirmed as there are a few similar *Berthellina* species in the Indo-Pacific that are not readily distinguishable by external morphology (Gosliner et al., 2008). Regardless, the present record appears to be the first of the genus *Berthellina* in Singapore waters (see Tan & Woo, 2010).

Although the two specimens are very similar looking, the first is a darker orange with more distinct sparse white spots on its notum (see Figs. 1 & 2). Our observations seem to suggest that the right kind of food sponge was not offered to the second specimen. It is not known if different species of *Berthellina* have specific prey preferences, but there remains a possibility that the two are not conspecific.

References:

- Gosliner, T. M., D. W. Behren & Á. Valdés, 2008. *Indo-Pacific Nudibranchs and Sea Slugs: A field guide to the World's most diverse fauna*. Sea Challengers Natural History Books & The California Academy of Sciences, Washington. 425 pp.
- Gosliner, T. M., Á. Valdés & D. W. Behrens, 2015. *Nudibranch & Sea Slug Identification. Indo-Pacific*. New World Publications, Inc., Jacksonville, Florida, USA. 408 pp.
- Tan S. K. & H. P. M. Woo, 2010. *A Preliminary Checklist of the Molluscs of Singapore*. Raffles Museum of Biodiversity Research, National University of Singapore. 78 pp.

Note: This is a contribution of the Singapore **Comprehensive Marine Biodiversity Survey** conducted by the National University of Singapore's Tropical Marine Science Institute and the National Parks Board.

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Fig 1. Dorsal (left) and ventral views of *Berthellina delicata* from Pulau Senang. The gills on the right side of the animal are clearly visible in the ventral view.



Fig 2. Dorsal (left) and ventral views of *Berthellina delicata* from Pulau Sudong. The rolled rhinophores, oral veil and foot, are visible in the ventral view.



Fig 3. Left picture shows *Berthellina delicata* feeding on *Clathria* sponge. Picture on right shows a lateral view of the same slug with an eye, rhinophores, oral veil and gills visible.

Photographs by Rene Ong