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Biodiversity Record: Moon snails of the family Naticidae at Changi

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Subjects: Breast-shaped moon snail, *Mammilla mammata* (Mollusca: Gastropoda: Naticidae) [Fig. 3];
Calf moon snail, *Natica vitellus* (Mollusca: Gastropoda: Naticidae) [Fig. 6];
Pink moon snail, *Naticarius zonalis* (Mollusca: Gastropoda: Naticidae) [Fig. 8];
Ball moon snail, *Neverita didyma* (Mollusca: Gastropoda: Naticidae) [Figs. 1 & 2];
Tiger moon snail, *Paratectonatica tigrina* (Mollusca: Gastropoda: Naticidae) [Fig. 7];
Oval moon snail, *Polinices mammilla* (Mollusca: Gastropoda: Naticidae) [Fig. 5];
Sigatica pomatiella (Mollusca: Gastropoda: Naticidae) [Fig. 4].

Subjects identified by: Lau Wing Lup.

Location, date and time: Singapore Island / Johor Strait, Changi Beach Park; 10 October 2025 around 1930 hrs, 8 November 2025 around 1800 hrs, 19 December 2025 around 1521 hrs.

Habitat: Estuarine intertidal shore with fine sand substrate, at low tide.

Observer: Lau Wing Lup.

Observations: On three occasions over three months, seven species of moon snails were recorded at the site. Except for one specimen of *Neverita didyma*, all the other species were not found alive. The sole living *Neverita didyma* was found prowling and partially buried in fine sand near the water's edge. The snail was able to retract quickly and completely into its shell within seconds after it was dislodged from beneath the sand (Fig. 1).

Besides *Neverita didyma,* all the other species were represented by shells that were washed ashore, or inhabited by hermit crabs and exposed on muddy sand, under rocks or among seagrass. The most common species on all the three occasions are *Natica vitellus* (Fig. 6), *Neverita didyma* (Fig. 2), and *Paratectonatica tigrina* (Fig. 7), with around ten shells of each found on the first trip alone. Conversely, only one shell for each of the other four species was spotted on all three outings. Excluding *Naticarius zonalis* (Fig. 8), the shells of all other naticid species were noted to have orange-brown stain marks on parts of their outer surfaces.

Remarks: Conventional traits for moon snails of the family Naticidae include a globular shell with very few numbers of nucleus whorls, relatively large aperture, and an umbilicus is usually present. In modern seas, naticids are cosmopolitan in distribution, with diversity and abundance increasing towards the tropics. Modern representatives of the family are carnivorous, boring through the shells of their prey to enter the soft parts of the victims, leaving characteristic drill holes with a circular outline (Das et al., 2019).

Although none of Singapore's naticids are registered as locally threatened (see Tan & Tan, 2024), like other creatures of the intertidal zone, they are still vulnerable to anthropological activities such as reclamation and pollution. Except for *Polinices mammilla,* none of the species recorded herein is found in Pulau Satumu (Raffles Lighthouse), the southernmost islet within Singapore's political boundaries (see Tan & Low, 2022). In an earlier comprehensive survey of 67 sites in the Singapore Strait, none of the moon snail species recorded herein was found except for *Natica vitellus* and *Polinices mammilla* (see Sanpanich & Tan, 2016). Despite the family Naticidae being well-represented in Singapore (e.g., Tan & Woo, 2010), many species from Singapore remained unillustrated in the local malacological literature (e.g., Chuang, 1973; Tan & Ng, 1988; Tan & Chou, 2000).

The orange-brown stains found on most of the shells depicted herein resemble those present on shells documented in a drain at East Coast Park by Lau (2021). A possible explanation for the shell discolouration could be due to iron oxide (rust) leeching from soil.

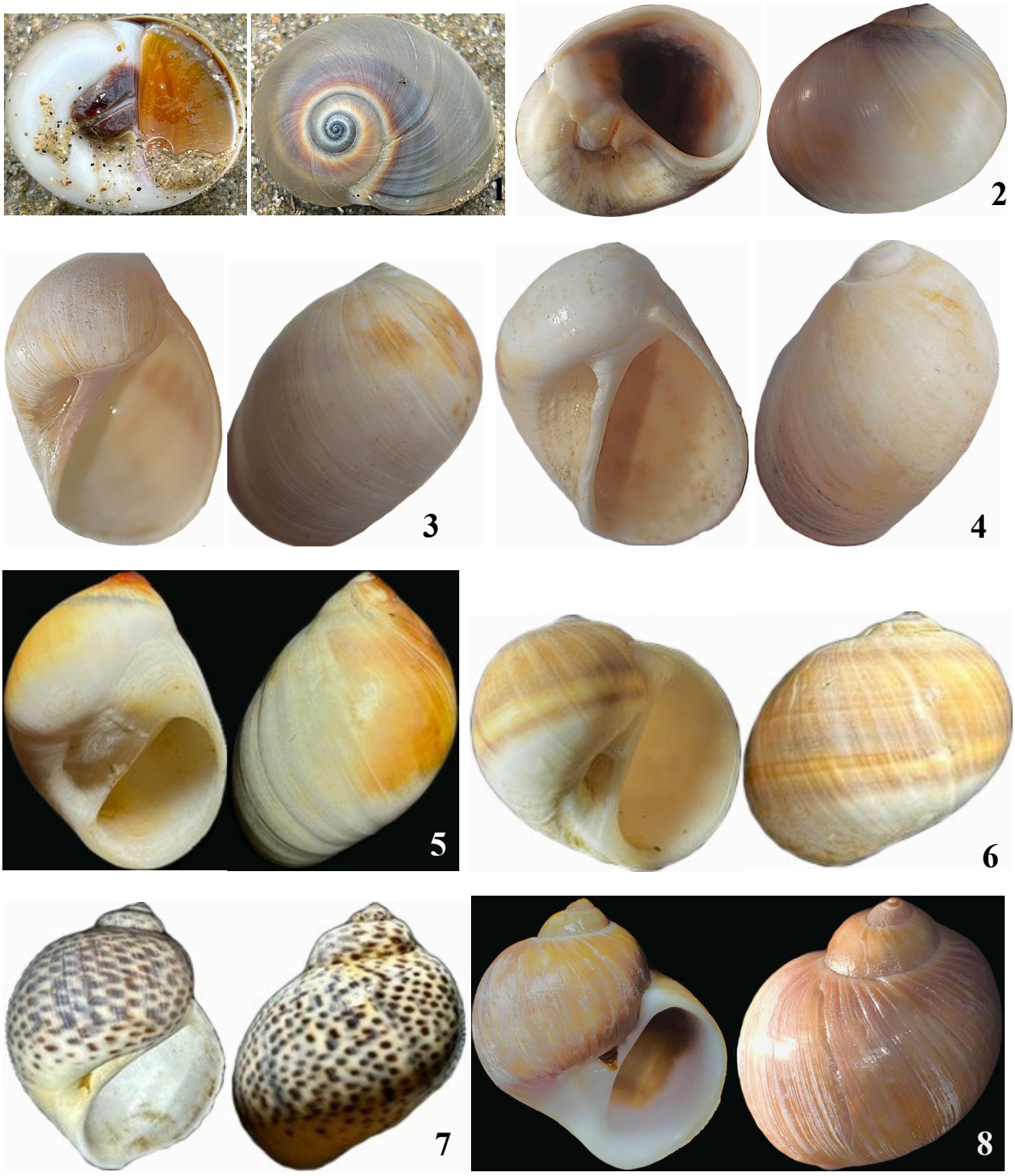

Fig. 1. *Neverita didyma* (about 30 mm shell diameter) – apertural (left) and dorsal (right) views of live example found in December. Fig. 2. *Neverita didyma* (about 48 mm shell diameter) – apertural (left) and dorsal (right) views. Fig. 3. *Mammilla mammata* (about 22 mm shell diameter) – apertural (left) and dorsal (right) views. Fig. 4. *Sigatica pomatiella* (about 10 mm shell diameter) – apertural (left) and dorsal (right) views. Fig. 5. *Polinices mammilla* (about 59 mm shell diameter) – apertural (left) and dorsal (right) views. Fig. 6. *Natica vitellus* (about 35 mm shell diameter) – apertural (left) and dorsal (right) views. Fig. 7. *Paratectonatica tigrina* (about 42 mm shell diameter) – apertural (left) and dorsal (right) views. Fig. 8. *Naticarius zonalis* (about 18 mm shell diameter) – apertural (left) and dorsal (right) views (Photographs by: Lau Wing Lup).

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