

Biodiversity Record: The glass snail, *Macrochlamys kelantanensis*, in Singapore

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Subjects: Kelantan glass snail, *Macrochlamys kelantanensis* (Mollusca: Gastropoda: Ariophantidae).

Subjects identified by: Chan Sow-Yan and Lau Wing Lup.

Location, date and time: Singapore Island at two locations —

- 1) Toa Payoh Sensory Park; 2 March 2020 at around 1430 hrs.
- 2) Hougang Avenue 9; 1 May 2020 at 1817 hrs.

Habitat: Urban parkland. At Toa Payoh Sensory Park, in concrete planter boxes, among leaf litter at the base of ornamental plants. At Hougang, in an urban park, on grass, among dead leaves, beside and on walkway near yellow creeping daisy (*Sphagneticola trilobata*) and wild pepper plant (*Piper sarmentosum*).

Observer: Lau Wing Lup.

Observations: Observations obtained of both live and dead snails at the two locations are similar and combined here. Examples of *Macrochlamys kelantanensis* were found among dead leaves sheltered by ornamental plants in concrete planter boxes. They hid on the undersides of the leaves, but emerged to crawl onto the surfaces of the leaves after rain (Fig. 1). Individuals were seen eating damp paper (Fig. 2), and freshly dead leaves (Fig. 3). They live sympatrically with other snail species such as *Lissachatina fulica* and *Subulina octona*. When agitated, these snails secrete a yellowish slime. From many other observations, the authors find that this species is most conspicuous during wet weather conditions, or on cool and cloudy mornings and evenings. The largest specimens have a shell width of about 20 mm.

All individuals of *Macrochlamys kelantanensis* observed have a pale yellowish-grey foot and body, slightly darker on the dorsal side, particularly on the head region and eye tentacles. The posterior end of its foot has a pale greyish-brown caudal



Fig. 1. Dorsal view of some live *Macrochlamys kelantanensis*. Note that the juvenile snail at the top left corner has comparatively paler flesh. (Photograph by: Lau Wing Lup).



Fig. 2. A *Macrochlamys kelantanensis* snail feeding on damp paper. (Photograph by: Lau Wing Lup).



Fig. 3. Two *Macrochlamys kelantanensis* snails eating freshly dead leaves. (Photograph by: Lau Wing Lup).



Fig. 4. Dorso-lateral view of a live *Macrochlamys kelantanensis*. Note the well-developed right and left lobes (orange arrows), and the raised caudal horn (blue arrow). (Photograph by: Lau Wing Lup).

horn. The mantle edge (shell lobes and dorsal lobes) is well developed and of a dull brownish or greyish-brown colour (Fig. 4). The flesh of juvenile snails appears to be paler than that of adults (Fig. 1). Freshly dead empty shells (Fig. 5) are shiny, translucent and orange-brown, with many radial growth lines. The aperture is crescent-shaped, with slightly thickened peristome in adult specimens. The open umbilicus is deep and narrow. The shell surface is smooth with five to six regularly increasing whorls, and has a rounded periphery.

Remarks: *Macrochlamys kelantanensis* was described from Kelantan, Peninsular Malaysia, and also occurs in Thailand and southeastern Myanmar, where it is considered to have been introduced accidentally via horticultural and agricultural activities (Pholyotha et al., 2018; Pholyotha et al., 2020a). In Singapore, this species was previously misidentified as *Sarika resplendens* (also as *Macrochlamys resplendens*), the only known member of its subfamily Macrochlamydyinae, since it was first reported by Lim (1969). This opportunity is used to clarify that historical records of that species are misidentified *Macrochlamys kelantanensis* (e.g., Ho, 1995; Tan & Woo, 2010; Tan et al., 2015). Because *Macrochlamys kelantanensis* often occurs in anthropogenic habitats such as parks and plantations (e.g., Pholyotha et al., 2020a), and this species is found only in urban areas locally, the authors are of the opinion that it is an introduced instead of native species, as indicated by Tan et al. (2012, as *Sarika resplendens*).

Interestingly, the real *Sarika resplendens* also occurs in Singapore, but was only found after the mid-2000s. *Sarika resplendens* is clearly a rather recent introduction, probably with the ornamental plant trade, and possibly originating from Thailand, where the species is very common (see Pholyotha et al., 2020b). There are however several extremely similar species in the *Sarika resplendens* group that cannot be readily differentiated without anatomical investigation or molecular analyses (see Pholyotha et al., 2020b). Compared with *Macrochlamys kelantanensis*, it grows to a larger size and has a duller shell, with a flatter spire. The animal differs considerably in being a two-tone light grey and white (Fig. 6).



Fig. 5. Apical (top row), dorso-lateral (middle row) and basal (bottom row) views of dead *Macrochlamys kelantanensis* shells. Note general yellowish “glassy” appearance, irregular and thin growth lines, depressed conical shell outline, rounded periphery of the last whorl, deep and narrow umbilici, and thickened lip on a mature shell (far left in bottom row). Space between black bars = 1 mm. (Photographs by: Lau Wing Lup).



Fig. 6. A *Sarika resplendens*, with shell width of about 22 mm, on a leaf stalk of *Dracaena fragrans* at Mandai Lake Road on 1 June 2016. (Photograph by: Chan Sow-Yan).

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