LIVING WORLD
Journal of the Trinidad and Tobago Field Naturalists' Club
admin@ttfnc.org

ISSN 1029-3299

TRINIDAD AND TOBAGO
FIELD NATURALISTS' CLUB

Potential New Establishment of an Exotic Snail, *Pomacea canaliculata* (Lamarck 1891) (Gastropoda: Ampullariidae) in Trinidad

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Mohammed, R.S. 2015. Potential New Establishment of an Exotic Snail, *Pomacea canaliculata* (Lamarck 1891) (Gastropoda: Ampullariidae) in Trinidad. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 2015, 67-68.

Potential New Establishment of an Exotic Snail, *Pomacea canaliculata* (Lamarck 1819) (Gastropoda: Ampullariidae) in Trinidad

The aquatic freshwater gastropods are represented by eight families in Trinidad: Ampullariidae, Hydrobiidae, Lymnaeidae, Neritidae, Physidae, Planorbidae, Pleuroceridae and Thiaridae. Within these families, three established exotics can be deemed invasive aquatic species (IAS): *Melanoides tuberculata* or the "Red rimmed melania" and *Tarebia granifera* or the "Quilted melania," both belonging to the family Thiaridae. The third IAS is *Pomacea diffusa* or the "Spike-topped apple snail," which belongs to the family Ampullariidae, of which there are three other native species (Mohammed and Rutherford 2012). This note brings to light the occurrence of a potential fifth member of the Ampullariidae family to be documented in natural drainages of Trinidad, *Pomacea canaliculata* or the "Channelled apple snail."

During January 2014, while walking southward in the Guanapo River, from the bridge along the Churchill-Roosevelt Highway, three snail egg cases were found at the following coordinates (20P UTM): Site 1 (691249 E, 1174326 N), Site 2 (691223 E, 1174250 N) and Site 3 (691169 E, 1174216 N). At Site 1, the egg case was seen attached to rock, whereas at Sites 2 and 3 they were attached to concrete debris. All egg cases were bright pink to red (Fig. 1A), very different from the aquamarine-coloured egg case typical of the native *Pomacea glauca* as well as from the bright peach- or orange-coloured egg cases typical for the invasive *P. diffusa*. All three egg cases were collected. One was immediately stored in 70% alcohol, whilst the other two were secured in tissue paper then placed in a sample jar and taken back to the Department of Life Sciences (DLS) at The University of the West Indies (UWI) for further study. A search of the Guanapo River for novel-looking *Pomacea* like snails was launched, but no individuals were found.

At the DLS, all egg cases were measured and found to be the following lengths; 4.5cm, 5.2cm and 4.8cm. They were all of similar height (approx. 1.5cm) and width (approx. 2.1cm). Individual eggs ranged between 1.0mm to 2.0mm in diameter. The two egg cases that had not been preserved in alcohol were then mounted with Blu Tack (Bostik, France) to the side of a glass aquarium 5.0cm above 10.0cm deep water with mild aeration in an attempt to hatch the eggs. After nine days, juvenile snails emerged from one of the egg cases; however, after 20 days the second egg case disintegrated into the water. The juveniles have since been housed at the DLS in a glass aquarium and the sub-adults photographed to confirm identification.

Preliminary findings indicate that these snails are possibly *Pomacea canaliculata* on the basis of the egg case and the morphology of the snail shell, which have a deep, characteristic channel within the shell (Fasulo 2004) that gives the species its common name (Fig. 1B). Similarly Hayes *et al.* (2012) also support this. K.A. Hayes (Department of Biology, Howard University, Washington, DC, USA) indicated that the snails are definitely of the *P. canaliculata* group, of which several species are native to the Orinoco Basin (pers. comm.). Juveniles of the other local species, *P. glauca* and *P. diffusa*, lack a deep bore within the shell and can thus be differentiated from *P. canaliculata*. Generally the live specimen has a superficial resemblance to *P. glauca*.

In September 2014, adult *Pomacea* were noted at an

outdoor enclosure at a fish import facility at Mausica, Trinidad, and pink egg cases were noted on the inner sides of the large plastic tank. The outflow from the facility enters the Mausica River, which is downstream from the Guanapo River along the main Caroni River system. Investigations at the Guanapo, Mausica, Caroni and Arima Rivers, which are located between the Guanapo and Mausica Rivers, have not yielded any additional egg cases or suspicious adult snails. Nonetheless, I suspect that a breeding population of *P. canaliculata* has become established within the general Mausica and Guanapo region and can seed establishment of the species in Trinidad. *Pomacea diffusa* became established in Trinidad almost a decade before first being recorded officially (Mohammed and Rutherford 2012). Therefore, no records of the early distribution and spread of *P. diffusa* were noted. It is premature to deem juvenile *P. canaliculata* an established species, but monitoring of this species should be continued within the general area. The juveniles were retained for genetic comparative investigations.

Specimens of the juvenile snails hatching from the egg mass are now lodged at the Zoological Museum, DLS, UWI, and also have been sent to the Department of Biology, Howard University, for morphological and genetic identification.

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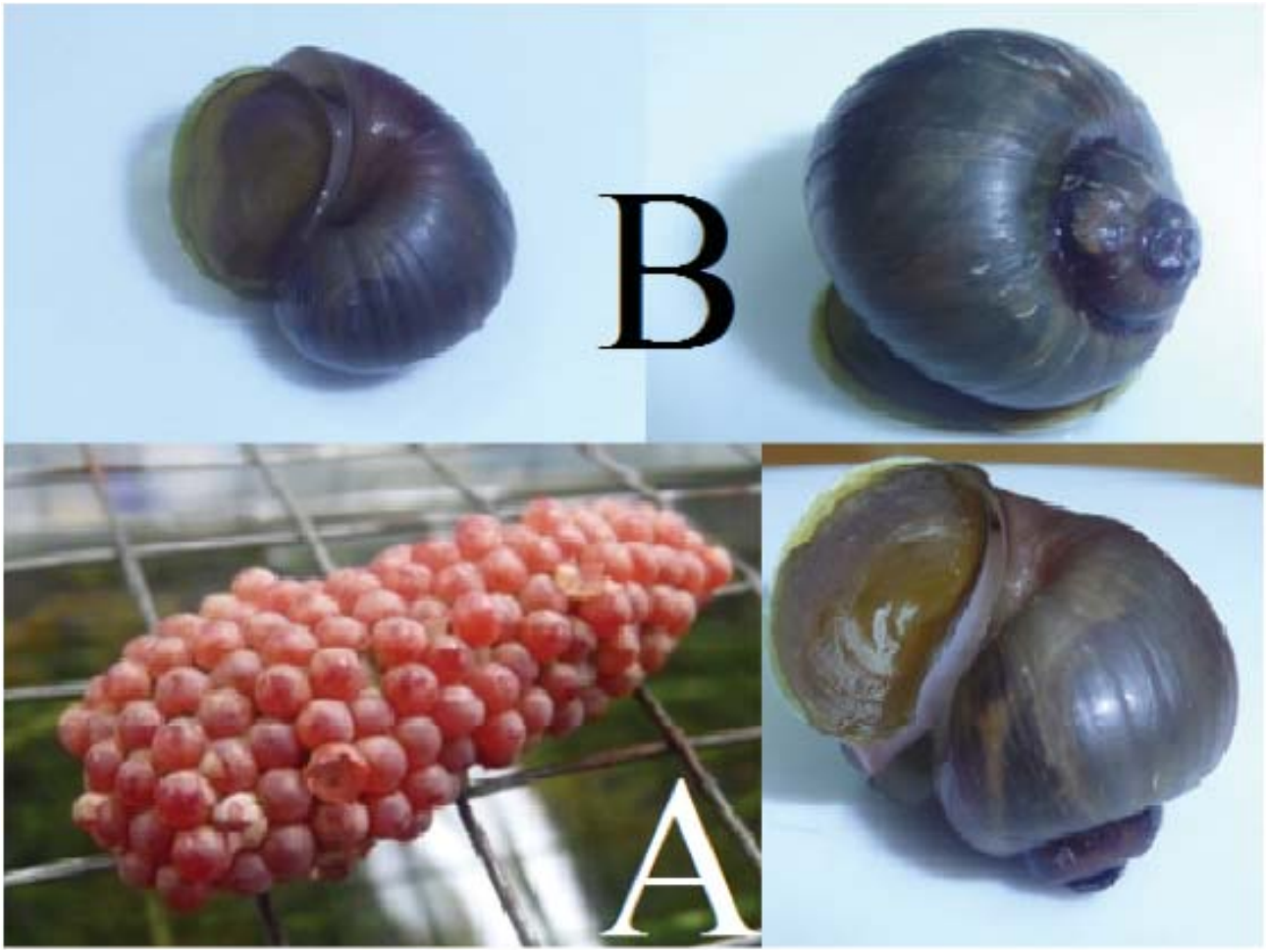

Fig. 1. (A) Pink egg case found at the Guanapo River; **(B)** 1-year-old juvenile *Pomacea canaliculata* (1.5cm shell diameter).