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Natural History Snippets

Sri Lanka Natural History Society

Physella acuta
THE INVASIVE ACUTE BLADDER SNAIL

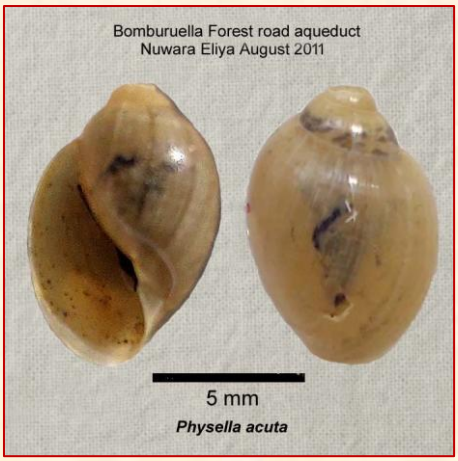
Collected by Malik Fernando on 6 August, 2011 from the Bomburuella forest road aqueduct

One of the most thrilling moments of my life started as an SLNHS trip to Nuwara Eliya from the 5th to the 7th August, 2011 organised by Tara Wickramanayake. There were six of us, staying at the Black Forest Lodge on the Nanu Oya-Nuwara Eliya road, a short distance from the Black Pool Bridge. On the 6th morning we went for a walk along a road that led to the Bomburuella Forest where Pedro Camp, for scouts, is located. The forest lies to the east of Lake Gregory and Mahagastota.

The pair of *Physella acuta* collected

The gravel road we walked on had a forest on one side and a precipice on the other. On the forest side was a cemented aqueduct with a sluggish flow of water along it. All eyes were on the trees looking for birds. All, save mine, that were focussed on the aqueduct looking for water snails. I eventually found some that I did not recognise, never for a moment thinking that, many years later in 2024, I would be able to report the first record of an invasive snail in Sri Lanka [1].

I was unprepared to collect small water snails. These 8-9 mm snails that were on the walls of the cemented aqueduct, just below the water surface, looked like tiny black seeds. They had the annoying habit of loosening their hold when I attempted to pick them and dropping to the bottom where they disappeared in leaf litter. Those that I did get hold of crumpled between my fingers, as the shells were so fragile. But I eventually did manage to collect two and brought them in a polythene bag to Colombo.



I was unable to find any images that matched my specimens in the books that I possessed and so the snails remined unidentified. I put them away and forgot about them. Till 2024, when I started working on them again, this time being more experienced at searching on the internet. But I had only one shell (pictured at left), as the other had been damaged beyond repair in the process of removing the soft tissues and drying the shell. An important character that was a pointer to the family was the left-turning nature of the shell: it spirals in an anti-clockwise fashion, whereas most shells spiral clockwise, described as right-turning.

Another feature that was important in its identification had been noted while photographing the live animals in 2011, the significance of which had not been realised at the time. The edges of the mantle were prolonged into finger-like extensions that covered the shell. The photographs on the next page show these. I eventually identified the animal as *Physella acuta* (Draparnaud, 1805).

Features that will enable identifying these snails

In the field:
In flowing or still water. Clinging to the side of cement structures, on plant stems, underwater parts of floating plants. A tendency to release its hold on the substrate and fall to the bottom of the pond or stream when disturbed. The shell extremely fragile.

In the laboratory or home aquarium:
The details of the shell and soft tissues in the live animal are conveniently observed in a Petri dish of water under good illumination. This also enables photography, which may be necessary as the snails may not stay in one place but keep moving, making detailed observation of the soft tissues difficult.

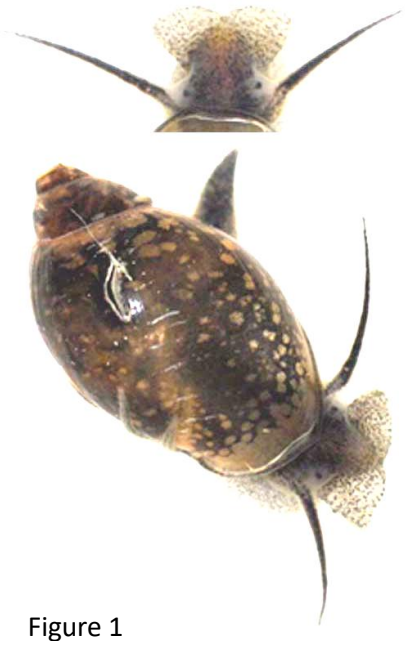


Figure 1

Figure 2

Figure 3

Figure 1: The dorsal view shows the spotted chocolate-brown mantle showing through the translucent shell. The head has two head lobes to either side, two tapering, rod-like tentacles and a pair of eyes at the base of the tentacles. The posterior end of the foot is pointed, seen to one side of the shell.

Figure 2: The three-quarter anterior view from the columella side shows five mantle lobes (the anterior columella group), indicated by white lines, spreading over the front of the shell.

Figure 3: An apical view showing the posterior apertural group of mantle lobes emerging from under the outer lip of the shell and spreading towards the shell apex. The foot with its pointed posterior end can be seen below.

New record for Sri Lanka

As far as I know this is the first record of this snail in Sri Lanka, collected from just one location. Here is an opportunity for SLNHS members, and others, to contribute to the advancement of knowledge by searching for this snail and, if found, sharing your find locations with me through SLNHS and/or the WNPS, as I would like to maintain a database of reported spread throughout the country. The finds may be reported independently in journals of the researcher's choice. Why should we search for them?

***P. acuta* is an alien invasive snail**

We should be concerned with the spread of an alien species because of adverse consequences on local species and other possible harmful consequences. *P. acuta* is native to North America, from where it has spread to all parts of the world except Antarctica. It was first reported in India in 2020, in a freshwater canal in Kerala. It had been first collected by Draparnaud in 1805 from a river in France. Say collected it in North America in 1817.

Its reaction to disturbance by letting go of the substrate was found to be a response to predatory leeches or contact with other snails, first described in 1921. Members of the family Physidae, including *P. acuta*, are known to be hosts of avian parasitic flat worms—responsible for causing 'swimmers itch'. This is a transient allergic reaction to the entry of larvae through the intact skin of persons in contact with water containing the parasites. The presence of *P. acuta* in water bodies used by humans, say for bathing or agriculture, could have medical implications.

The spread of *P. acuta* around the world was attributed at first to the import of aquatic plants for aquariums and ponds. A more recent summary of the causes of "human-mediated drivers of dispersal …" (Vinarski, 2017) include "canal building, the aquarium trade and, more recently, alteration of natural freshwater habitats."

This Snippet is based on an article that was first published in *Loris*, the journal of the Wildlife & Nature Protection Society (WNPS): First record of the invasive Freshwater Bladder Snail Physella acuta (Draparnaud 1805): Gastropoda, Physidae. Loris Vol 30, issue 4, 1 December 2024: 52-55.

Readers who wish more information about the species are referred to the article in *Loris*. The article also contains a full list of references. Use the link below and search through Volume 30, issue 4 using 'Read more' or 'Download'.

https://www.wnpssl.org/publications/

References

1. Fernando, Malik. First record of the invasive Freshwater Bladder Snail Physella acuta (Draparnaud 1805): Gastropoda, Physidae. Loris Vol 30, issue 4, 1 December 2024: 52-55.
2. Vinarski, M.V. (2017). The history of an invasion: phases of the explosive spread of the physid snail *Physella acuta* through Europe, Transcaucasia and Central Asia. *Biol Invasions* (2017) **19** (4):1299-1314. DOI 10.1007/s10530-016-1339-3. Accessed 12.8.2024.