Identification of the exotic species of Apple snail from selected locations in Sri Lanka using shell characteristics and radula morphology

W.G.N. Gimhani, G.N. Hirimuthugoda, and S. Kumburegama

Department of Zoology, University of Peradeniya, Peradeniya

Apple snails of the genus *Pomacea* are native to Central and South America. Several species of the genus have been introduced to South Asia including *Pomacea canaliculata*, which is a major rice pest. There is only one species of apple snail, *Pila globosa* native to Sri Lanka. But, in the 1980s an apple snail of the genus *Pomacea* sp. had been introduced to Sri Lanka through the aquarium trade. While some believe this species to be *Pomacea diffusa* others argue it to be *P. canaliculata.* However, both species are considered invasive and there is a high risk of *P. canaliculata* introduction to the island if this has not yet happened. Hence, the correct identification of the species present in the country is essential for future management efforts of exotic apple snails. Therefore, the objectives of this study were to identify the *Pomacea*sp. in Sri Lanka, using shell morphometry and radula ultrastructure, and compare them to those of the native apple snail, *Pila globosa,* and furthermore, to compare its radula ultrastructure to that of published data on the exotic rice pest, *P. canaliculata.* Live samples and shells of the two species were collected from different locations in Kandy, Colombo and Kurunegala. Shell morphological parameters such as shell height, shell width, aperture height, aperture width, operculum height, and operculum width were measured using Vernier calipers. Five snails of each of the two species were anesthetized in 5% ethanol, fixed in Bouin's, and dissected to extract the radula. The slide-mounted radulae were observed under the microscope to characterize the teeth patterns of *Pomacea* sp. and *Pila globosa.* The shell and operculum morphometry data and radula ultrastructure of the *Pomacea sp.* showed characteristic differences with those of *Pila globosa.* Furthermore, the radula teeth pattern of the locally found *Pomacea* sp. was distinct from that of *P. canaliculata* published in other countries. Therefore, it was concluded that the species of *Pomacea* encountered during the study was *P. diffusa.*

Key words: Apple snail, Pomacea, identification, shell, radula