

Discovery of *Myxostoma petiverianum* Wood, 1828 (Gastropoda: Caenogastropoda: Cyclophoroidea: Cyclophoridae) on Hòn Cau, Vietnam

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ABSTRACT The land snail *Myxostoma petiverianum* is previously known from only a few localities in Cambodia and Vietnam. We report on a new record of *Myxostoma petiverianum* from Hòn Cau, an island in the Côn Đảo Archipelago, south-eastern Vietnam.

KEYWORDS *Myxostoma petiverianum*, Vietnam, Hòn Cau, Côn Đảo Archipelago.

INTRODUCTION

The species *Myxostoma petiverianum* Wood, 1828 is until recently, one of the lesser known land snails of Southeast Asia. A flurry of scientific attention on the land snails of southern Vietnam and neighbouring areas in recent years have led to renewed malacological attention on *M. petiverianum*. Egorov (2016) recorded and described the shell and radula morphology of *M. petiverianum* from Kep National Park in Cambodia and Côn Sơn in Vietnam while Foon (2016) described a new subspecies *Myxostoma petiverianum tenggolensis* Foon, 2016 from Peninsular Malaysia (for nomenclatural emendation, see Bouchet, 2016). Nguyễn and Nguyễn (2016) reported the presence of *M. petiverianum* (under the name *Cyclotus fasciatus* Martens, 1864) from Hòn Tre, An Sơn and Lại Sơn islands off the coast of Rạch Giá, south-western Vietnam. Raheem *et al.* (2017) included a photographed specimen of *M. petiverianum* in their pictorial guide to Vietnamese land snails.

In the midst of these publications, a picture of a snail photographed by the first author in 2014 on Hòn Cau, Vietnam and uploaded onto an internet-based citizen science platform was spotted by the third author. Communication was initiated between the authors and it was confirmed that the photographed snail was indeed *M. petiverianum* based on conchological and anatomical comparisons with museum collection specimens and literature. The discovery of *M. petiverianum* on Hòn Cau, Côn Đảo Archipelago is herein reported for permanent scientific record.

Observation and identification of *Myxostoma petiverianum* on Hòn Cau, Vietnam

During the citizen science project titled “Con Dao Land and Sea” organised under the Biodiversity PEEK program, the first and second authors were exploring the rainforests of Hòn Cau (8°41.337'N, 106°44.266'E), Côn Đảo Archipelago, Vietnam when they came across an unidentified land snail on August 3, 2014. This unidentified land snail was photographed

(Figure 1) and submitted to the citizen science platform iNaturalist (www.inaturalist.org). This photograph was later examined by the third author and cross-checked with descriptions in literature and museum collection lots (*see* Foon, 2016). Note that Hòn Cau is a satellite island of Côn Sơn [= Pulo Condore] (Figure 2), the latter of which is the most well-known locality of *M. petiverianum* based on historical and museum records (Egorov 2016, Foon 2016).

There are many discernible characters in the photographed individual which identify it as *Myxostoma petiverianum*. First, the operculum is thick, horny, has a periphery adorned with somewhat loosely overlapping brown lamellae at the exterior and a raised interior where the columellar muscle is attached to. Second, the shell has a peripheral dark brown band set against a light brown base as well as a peristome that is dark brown, thickened and reflected. Also, the aperture is orientated ventrally and obliquely with respect to the coiling axis. Third, the living animal colour, fine blackish-greyish mottling as well as the genital groove match that of the living sub-adult illustrated in Plate 1, Figure G in Egorov (2016).

Besides these, historical records of land snails from Côn Đảo archipelago (Martens, 1872) suggest no species are closely-related to *Myxostoma petiverianum* except *Cyclophorus volvulus* Müller, 1774. Yet, *Cyclophorus volvulus* can be easily distinguished from *M. petiverianum* by its shell, which has much thicker, dark brown spiral band below the periphery, an aperture that is orientated somewhat parallel to the coiling axis and a rather tall spire with sharp apex (Pfeiffer, 1846), none of which characterises the *M. petiverianum* individual in Figure 1.



Figure 1. Photograph of a living adult *Myxostoma petiverianum*, taken on Hòn Cau, Vietnam. (Photograph by: Scott J. Trageser)

DISCUSSION

This is the first photograph taken of a live adult *Myxostoma petiverianum* (Figure 1). This new locality record is a range extension, which taken together with all known records of *M. petiverianum* in the literature (Egorov, 2016, Foon, 2016, Nguyễn & Nguyễn, 2016), suggests that the species has a distribution limited to the islands and hills of the Mekong Delta region (Figure 2).

The discovery and identification of this land snail via citizen science demonstrates the usefulness of citizen science initiatives in addressing knowledge gaps in under-explored regions with potentially high biodiversity.

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Raheem *et al.* (2017) illustrated guide and discussions on *Myxostoma petiverianum* specimens in the NHM collection. All authors also thank the reviewers for their constructive comments on the manuscript.

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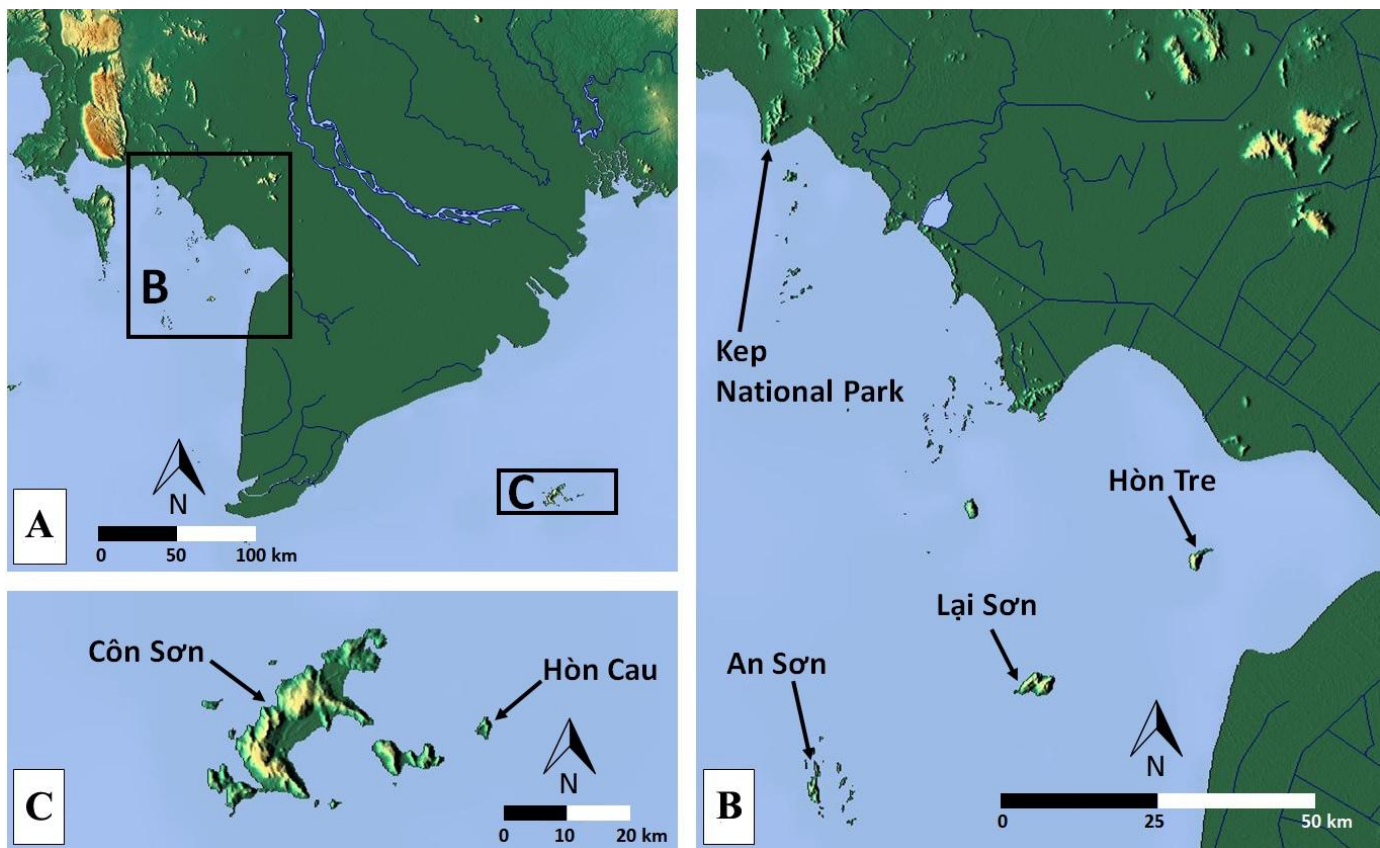


Figure 2. Maps showing known localities of *Myxostoma petiverianum* in the literature (Egorov, 2016, Foon, 2016, Nguyễn & Nguyễn, 2016) as well as records from this study. A. Overview of the Mekong Delta, with boxes indicating areas zoomed in for figures B and C. B. Localities with *M. petiverianum* in the Côn Đảo archipelago. C. Localities with *M. petiverianum* at south-western Vietnam and Cambodia. Relief basemap by Hans Braxmeier (maps-for-free.com).



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