

OOPHANA TIOMANENSIS, A NEW STREPTAXID (GASTROPODA: PULMONATA: STREPTAXIDAE) FROM PULAU TIOMAN, PENINSULAR MALAYSIA

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ABSTRACT. – A new species of terrestrial gastropod belonging to the family Streptaxidae Gray, 1860, is described from Pulau Tioman, Peninsular Malaysia. *Oophana tiomanensis*, new species, is compared with two congeners that are nearest geographically (i.e., Thailand) and similarly possess three teeth on the peristome. *Oophana elisa* Gould, 1856, differs from this new species by having the penultimate whorl carinate to the left, while *O. bulbulus* (Morelet, 1862) differs by being larger (height - 15 mm) and distinctly less oblique. The new species being described here is also the first from the genus *Oophana* Ancey, 1884, to be recorded from Peninsular Malaysia.

KEY WORDS. – Gastropod, systematics, *Oophana*, new species, Pulau Tioman, Malaysia.

INTRODUCTION

The pulmonate gastropod family Streptaxidae Gray, 1860, has a circumtropical distribution that includes South America, Africa, southern Asia and several Indo-Pacific islands (Richardson, 1988). From the paucity of biological and ecological information available on streptaxids, we know that they are carnivorous, oviparous or viviparous, and usually occur in leaf litter and decaying wood habitats in limestone areas (Berry, 1963; Van Benthams Jutting, 1954).

In Peninsular Malaysia, taxonomic work on streptaxids was chiefly pioneered by Van Benthams Jutting (1954, 1961a, b). Four streptaxid genera (*Discartemon* Pfeiffer, 1856; *Gulella* Pfeiffer, 1856; *Haploptychius* Möllendorf, 1905; and *Sinoennea* Kobelt, 1904) are known to occur within the region. Since 1961, however, no new streptaxids have been added to the list of 41 species already described from Peninsular Malaysia (Van Bruggen, 1972; Maassen, 2001).

Four decades later, an undescribed streptaxid was found on Pulau Tioman, Peninsular Malaysia. The discovery of this new species is not surprising because a malacological survey of the island has never been performed. In this paper, I report a new streptaxid belonging to a fifth genus *Oophana* Ancey, 1884, which is considered a new record for Peninsular Malaysia.

MATERIAL AND METHODS

Descriptions of *Oophana tiomanensis*, new species, are based on shell characters, which have been used for most of its

congeners thus far (J. J. Vermeulen, pers. comm.). Anatomical characteristics (e.g., the genital system; Stoliczka, 1871; Berry, 1963) could also be used to distinguish species within this family, but such information remains too scarce for worthwhile comparisons to be made. Until comparative studies on the anatomy of its congeners are made available, a description of this new species based on shell characteristics should suffice. Specimens examined are deposited in the Zoological Reference Collection (ZRC), Raffles Museum of Biodiversity Research, National University of Singapore.

TAXONOMY

Oophana Ancey, 1884

Oophana Ancey, 1884: 508; Tryon, 1885: 58; Kobelt, 1906: 101; Thiele, 1931: 730; Benthams Jutting, 1954: 95; Zilch, 1960: 562.

Type species. – *Oophana bulbulus* (Morelet, 1862).

Remarks. – Richardson's (1988) keys for Streptaxidae, in which the genus *Oophana* is distinguished from other genera by having two (sometimes only one) parietal lamellae and three or more other teeth, are followed here. In Peninsular Malaysia, Van Benthams Jutting (1954, 1961a) described seven species of *Oophana* under the subgenus *Haploptychius*, which differs from *Oophana* sensu stricto by having only one parietal lamella present. However, *Haploptychius* has since been treated as a full genus (see Van Bruggen, 1972; Richardson, 1988). Therefore, it can be said that prior to this report, no representatives of *Oophana* occurred in Peninsular Malaysia.

***Oophana tiomanensis*, new species**

(Figs. 1-2)

Materials examined. – Holotype - 1 ex. (Height 10.4 mm; Width 11.4 mm; Height of aperture 6.0 mm) (ZRC.MOL.90), beneath leaf litter on soil, 50 m elevation, Gunung Kajang (2° 46'N 104° 9'E), Pulau Tioman, Peninsular Malaysia, coll. R. Clements, 18 Aug. 2003.

Paratypes – 2 ex. (11.8 mm; 11.4 mm; 6.9 mm) (ZRC.MOL.91) and (10.9 mm; 11.4 mm; 5.4 mm) (ZRC.MOL.92), same locality data as holotype.

Diagnosis. – Shell obliquely ovoid, white or cream coloured, about opaque, with 6-7 whorls. Spire moderately rounded; penultimate whorl more convex on left side; last whorl protruding to the right side, moderately rounded, slightly angular just below the periphery. First 2½ whorls smooth; other whorls sculptured with low, rounded collabral ribs; those on early whorls closely packed, about 8-12 to the mm; those on last whorl furthest apart, about 4 to the mm, continuing into the umbilicus. Suture distinct but not deep. Apex rounded. Base relatively inflated. Umbilicus about 1 mm wide. Aperture oblique, semi-elliptic. Peristome continuous, reflected, thickened, glossy, whitish or yellowish-brown. Parietal side with distinct, slightly undulating lamella continuing 4-5 mm into the aperture. Palatal, basal and columellar side each with single, distinct, knob-shaped tooth. All teeth arranged in cross-shaped manner. Animal with orange-reddish body and tentacles. Foot yellowish.

Etymology. – The species name is derived from the type locality, Pulau [=Island] Tioman.

Remarks. – Outside of Peninsular Malaysia, the nearest congeners of *O. tiomanensis*, new species, are located in Thailand and other parts of Indo-China. After examining descriptions of eight *Oophana* species occurring in neighbouring Thailand and Indo-China (see Van Bentham-Jutting, 1954), only two were suitable for comparison with *O. tiomanensis*, new species, because they similarly possess three teeth on the peristome. *Oophana elisa* Gould, 1856,

differs from this new species by having the penultimate whorl carinate to the left, while *O. bulbulus* (Morelet, 1862) differs by being larger (height - 15 mm) and distinctly less oblique.

Distribution. – Gunung Kajang, Pulau Tioman, Peninsular Malaysia (present study).

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Fig. 1. Live animal of *Oophana tiomanensis*, new species, from Pulau Tioman, Peninsular Malaysia. The body and tentacles are orange-red while the foot is yellow. Photo: H. H. Tan.



Fig. 2. Shell of *Oophana tiomanensis*, new species. Holotype (ZRC.MOL.83) from side, top and bottom.

of this particular species and H. H. Tan for the photograph of the live snail.

LITERATURE CITED

- Ancey, M. C.-F. 1884. Sur les divisions proposes dans le genre *Streptaxis*. *Le Naturaliste*, **6**: 399.
- Berry, A. J. 1963. The anatomy of two Malayan limestone hill Streptaxidae, *Sinoennea kanchingensis* Tomlin and *Oophana diaphanopepla* van Bentham Jutting, with special reference to the genital system. *Proceedings of the Malacological Society of London*, **35**: 139-150.
- Gould, A. A. 1856. Descriptions of new species of shells. *Proceedings of the Boston Society of Natural History*, **6**: 11-16.
- Gray, J. E. 1860. On the arrangement of the land pulmoniferous Mollusca into families. *The Annals and Magazine of Natural History*, **6**: 267-269
- Kobelt, W. 1904. *Nachrichtsblatt der Deutschen Malakozoologischen Gesellschaft*, **36**: 27-29.
- Kobelt, W. 1906. *Die gattung Paludina L.A.M. Neue Folge in Martini and Chemnitz System Conchylien Cabinet 1*, **12b**: 101.
- Maassen, W. J. M. 2001. A preliminary checklist of the non-marine molluscs of West-Malaysia. "A handlist". De Kreukel, Amsterdam. 155 pp.
- Morelet, P. M. A. 1862. In: Guérin-Méneville, F. E., *Revue et Magasin de Zoologie*, **14**: 477.
- Pfeiffer, L. 1856. Versuch einer Anordnung der Heliceen nach natürlichen Gruppen. *Malakozoologische Blätter*, **2**: 112-183.
- Richardson, C. L. 1988. Streptaxacea: Catalog of species Part I Streptaxidae. *Tryonia*, **16**: 1-326.
- Stoliczka, F. 1871. Notes on the terrestrial Mollusca from the neighbourhood of Moulmein, with descriptions of new species. *The Journal of the Asiatic Society of Bengal*, **40**: 143-177.
- Thiele, J. 1931. *Handbuch der Systematischen Weichtierkunde Teil 1. Amsterdam*. 735 pp.
- Tryon, G.W., Jr. 1885. *Manual of Conchology: Testacellidae, Oleacinidae, Streptaxidae, Helicoidea, Vitrinidae, Limacidae, Arionidae Volume I*. Philadelphia. 363 pp.
- Van Bentham Jutting, W. S. S. 1954. The Malayan Streptaxidae of the genera *Discartemon* and *Oophana*. *Bulletin of the Raffles Museum*, **25**: 71-106.
- Van Bentham Jutting, W. S. S. 1961a. Additional new species and new localities of the family Vertiginidae and the genera *Oophana* and *Opisthostoma* from Malaya. *Bulletin of the Raffles Museum*, **26**: 34-48.
- Van Bentham Jutting, W. S. S. 1961b. The Malayan Streptaxidae, genera *Huttonella* and *Sinoennea*. *Bulletin of the Raffles Museum*, **26**: 5-33.
- Van Bruggen, A. C. 1972. On a new Streptaxid (Mollusca, Gastropoda, Pulmonata) from a Sangihe Island, Malay Archipelago, with notes on the distribution of Streptaxids in Southeast Asia. *Proceedings of the Koninklyke Nederlandse Academie van Wetenschappen, Amsterdam (C)*, **75**: 391-401.
- Zilch, A. 1960. Gastropoda: Euthyneura. In: Wenz, W. (ed.), *Handbuch der Paläozoologie*. Berlin. 834 pp.