

**A new species of *Amphidromus* from Laos
(Gastropoda, Pulmonata, Camaenidae)**

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The dextral species *Amphidromus protania* spec. nov. is described from Laos. Its genital anatomy is compared with that of other *Amphidromus* species. Some notes on conchologically similar taxa are added.

Key words: Gastropoda, Pulmonata, Camaenidae, *Amphidromus*, taxonomy, anatomy, SE Asia, Laos.

INTRODUCTION

During a collection-trip to Laos in June and July 2003 the senior author collected material of a number of *Amphidromus* species, one of which with an unusual shell shape. It turned out that that species is not dealt with in the monograph of Pilsbry (1900) and also not in the catalogue of Laidlaw & Solem (1961). In more recent additional papers dealing with *Amphidromus* (Djajasasmita, 1982; Dharmas, 1993; Panha, 1996) the species is also not mentioned, which supports our feeling that it is new to science. Many *Amphidromus* species are known, but we found only a single conchologically somewhat similar one in the literature.

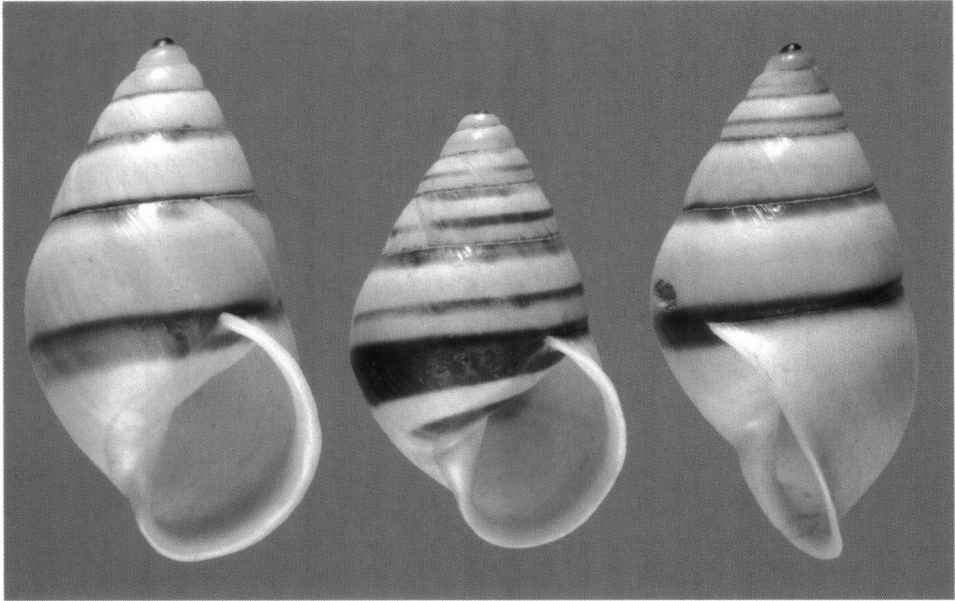
Abbreviations for shell characters: H, shell height; W, shell width. For collections (the number of specimens is indicated after a slash): KW, colln K. Kittel, Wiesthal; LS, colln H. Lehmann, Sendenhorst; RMNH, Nationaal Natuurhistorisch Museum, Leiden; SMF, Natur-Museum Senckenberg; VS, colln. J. J. Vermeulen, Singapore; ZMB, Zoologisches Museum, Museum für Naturkunde der Humboldt-Universität, Berlin; ZSM, Zoologische Staatssammlung, München.

SYSTEMATIC PART

Amphidromus Albers, 1850: 138 (part.). Type species, by subsequent designation (von Martens, 1860: 184): *Helix perversus* Linné, 1758.

***Amphidromus (Amphidromus) protania* spec. nov. (figs 1-4)**

Material examined. – Type series: South Laos, Salavan province, near the village Ban Donxé, on a



Figs 1-3. *Amphidromus protania* spec. nov. 1, holotype (RMNH 98143), actual height 31.2 mm; 2-3, paratypes (LS), Laos, Salavan province, Ban Donxé, actual heights 26.2-30.4 mm. Photographs by J. Goud, Leiden.

small, dry, limestone plateau between rice fields and the east bank of the Se Don river, 15°10'543"N 106°13'749"E; H. Lehmann leg., 29.vi.2003 (RMNH 98143/holotype, 98144/4; SMF/4; ZMB/4; ZSM/4; KW/4; LS/16).

Excluded from the type series: Central Laos, Khammouane province, 25 km N of Thakek, T. Whitten leg. (VS/1), and Bolikhamsay province, 5 km SE of Laksao, T. Whitten leg. (VS/1).

Description. – Shell dextral, conical, perforate, yellow to white, covered by a very thin, in live snails greenish, periostracum; relatively small, with 6-6.5 slightly convex whorls. Apex dark-brown, obtuse, with a microsculpture of very fine pits. The very delicate periostracum has fine spiral striae; if this is missing, the shells are dull and smooth with only some irregular growth-lines. Aperture ovate, whitish inside. Peristome white, narrowly expanded, with an inconspicuous callus along the parietal side. The umbilicus is a very narrow chink. There is not much variation in the colour-pattern. Almost always there is a narrow, dark brown, sub-sutural band. Some specimens have a second, mostly interrupted, narrow, brown band near the middle of the upper whorls, which sometimes continues on the body whorl.

Dimensions: H 26.2-31.3 mm; W 16.0-18.4 mm. The holotype measures 31.2 x 17.8 mm.

Anatomy. – Vas deferens long, thin, entering the epiphallus laterally. Flagellum slender, much longer than penis and epiphallus together. Epiphallus slender, much longer than the small penis. Lumen of the penis with distinct longitudinal pilasters, covered at the upper part near the short subglobular verge with a thin, additional layer of tissue with a different texture, still showing the pilasters underneath. Penial retractor attached clearly above the junction of penis and epiphallus. Vagina very long and wide, forming a long, uniform tube with the basally swollen pedunculus. Vagina connected with numerous

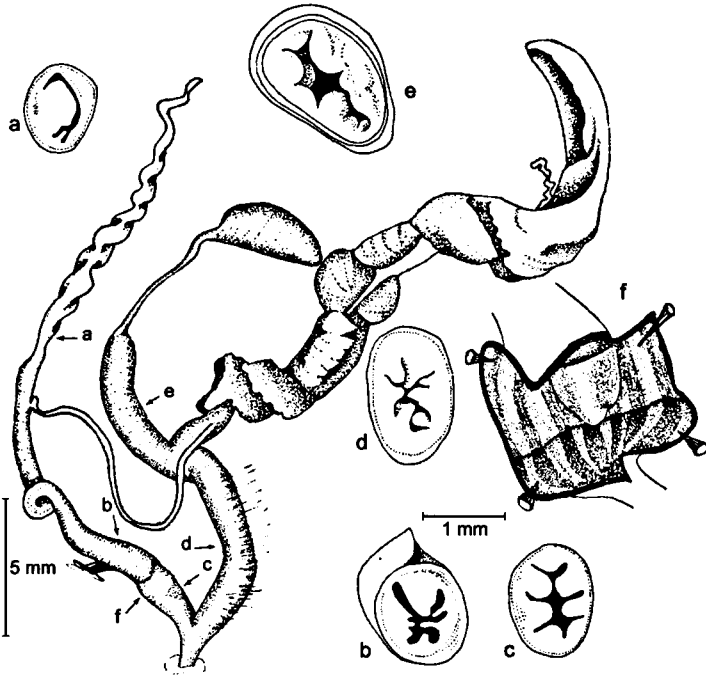


Fig. 4. Anatomical details of *Amphidromus protania* spec. nov. 4, genital apparatus, with cross-sections (a-e) through the flagellum (a), epiphallus (b), penis (c), vagina (d), and pedunculus (e) and a detail of the lumen with the verge and pilasters of the opened penial complex (f).

strong fibres to the adjacent body wall. Upper half of the pedunculus thin, with a large bursa. Free oviduct short.

Remarks. – Laidlaw & Solem (1961) summarized the data on the genital anatomy. According to this publication it is hardly possible to use most of the old data on the anatomy because the identification of the species is uncertain, or since only the exterior of the genitalia is described. Only Bishop (1977) and Solem (1983) gave useful descriptions of the internal structure of the terminal parts of the genitalia. Panha (2001) published figures of the external aspects of the genitalia of six *Amphidromus* species from Thailand.

According to Solem (1983) both radula and jaw structures cannot be used to identify *Amphidromus* species. He found however, that the structures of the terminal genitalia may be diagnostic as they are known to be in other camaenid genera. The junior author, while investigating 13 *Amphidromus* species from the entire range of the genus (except for the Philippines), came to the same preliminary conclusion.

Amphidromus protania spec. nov. differs clearly from the other *Amphidromus* species by its conical shell shape in combination with the colour pattern. Conchologically most similar is *Amphidromus tanyai* Panha, 1996. This is the species that is referred to in a later paper (Panha et al., 2001: 109, fig. 1) as *A. af. haematostomus* von Moellendorff, 1898. In the latter paper the figure used in the original description of *A. tanyai* by Panha (1996: fig. 1), is used once more. *Amphidromus protania* spec. nov. is distinctly larger than *A. tanyai*, lacks the blue subsutural band, and possesses an open umbilicus and a dark-brown apex. As may be concluded from the figures published by Panha (1996: fig. 1), the shells of *A. tanyai* are not smooth but have

a distinct, spiral sculpture.

On the basis of its genital anatomical characters, *A. protania* spec. nov. should be classified with *Amphidromus* (*Amphidromus*). Panha (1996) originally placed *A. tanyai*, without knowing its anatomy, in the subgenus *Syndromus* Pilsbry, 1900, but Panha et al. (2001: 107), referring to it as *A. af. haemastostomus* classified the species with the nominate subgenus.

The true *Amphidromus haemastostomus* (Zilch, 1953: 132, pl. 22 figs 4-5) from its type locality, the Boloven Plateau (Laos, Pakxong province), was rediscovered by the senior author near that place in a large population. This species differs from *A. tanyai* most clearly by its sinistral, more elongated shell, with a dark brown parietal callus. It is characterized anatomically by the presence of a very short flagellum and a short, conical verge and should be classified with *Amphidromus* (*Syndromus*).

So far, *Amphidromus protania* spec. nov. is only known from the type locality. The shells from Central Laos are not regarded as paratypes because they are in a rather poor condition and eroded.

Derivatio nominis. – The species is named in honour of the daughter Tania of the senior author, who died 28 years old after a heavy illness.

ACKNOWLEDGEMENTS

We are particularly grateful to Mr J. Goud (RMNH), who made the photographs, and to Mrs Sompheth Khammanivong (Luang Prabang, Laos), the interpreter and guide in Laos, who made it possible by her engaged help that many interesting *Amphidromus* species could be collected.

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