

***Amphidromus atricallosus vovanae*, a new subspecies of *Amphidromus* from Vietnam
(Mollusca: Gastropoda: Camaenidae)**

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Abstract: A new subspecies belonging to the genus *Amphidromus* Albers, 1850 is described from Vietnam and compared to six other subspecies within this genus: *Amphidromus atricallosus atricallosus* (Gould, 1843), *Amphidromus atricallosus leucoxanthus* (von Martens, 1864), *Amphidromus atricallosus laidlawi* Solem 1985, *Amphidromus atricallosus classarius* Sutcharit & Panha, 2006, *Amphidromus atricallosus perakensis* Fulton, 1901 and *Amphidromus atricallosus temasek* Tan, Chan & Panha, 2011.

Introduction: *Amphidromus* is a genus within the family **Camaenidae** with many species collected in Vietnam. In the summer of 2018, another subspecies belonging to this genus was collected. It was not listed in the works by Parkinson, Hemmen & Groh (1987), Abbott (1989), Dharma (2005), Stanisic, Shea, Potter & Griffiths (2010), Schileyko (2011), Tan et al. (2011), Parsons (2014), Raheem et al., 2014, Thach (2005, 2007, 2012, 2016, 2017, 2018), Inkhavilay, Sutcharit & Panha (2017), Lok & Tan (2018). In this article, it is described as new to science.

Abbreviations:

NHMUK: Natural History Museum, London, UK

NNT: Collection Dr Thach

VTV: Collection Vo Thi Van

AH: Aperture height

BH: Body whorl height

SH: Shell height

SW: Shell width

Systematics:

Class **GASTROPODA** Cuvier, 1797

Superfamily **HELICOIDEA** Rafinesque, 1815

Family **CAMAENIDAE** Pilsbry, 1895

Subfamily *Camaeninae* Pilsbry & Olsson, 1954

Genus *Amphidromus* Albers, 1850

Type species: *Helix perversus* Linnaeus, 1758
(subsequent designation by Martens, 1896)

Subgenus *Amphidromus* (*Amphidromus*) s. str.

Amphidromus* (*Amphidromus*) *atricallosus vovanae
subsp. nov.
Figs 1-6

Type material: **Holotype** 55.8mm high (Figs 1-3) NHMUK. **Paratypes:** **Paratype 1:** 54.9 mm high (Figs 4-5), NNT; **Paratype 2:** 50.9 mm high (Fig 6, bottom), NNT; **Paratype 3:** 56.8 mm high (Fig. 6, top), VTV.
[All types from type locality]

Type locality: Xuân Lộc District, Đồng Nai Province, Vietnam.

Habitat: Around trees.

Diagnosis: The new species is characterised by its large adult size, absence of black stripes on the parietal wall, the presence of a short, black varix, the black inner margin of the outer lip and special ornamentation with widely spaced, reddish brown axial stripes that never reach the suture of the body whorl.

Description: Shell large for the genus (average height between 50.9 mm and 56.8 mm), moderately thick, dextral and sinistral in coiling, elongately tapering in shape with width 52.3% of height (see table 1). Spire

broad and moderately tall, sutures constricted. Body whorl inflated and occupying 68.3% of shell height, periphery rounded. Outer surface ornamented with short varix at spire whorl and widely-spaced, long axial stripes that never reach the suture of the body whorl. Sculpture consisting of weak, oblique axial riblets. Aperture wide and occupying 48.3% of shell height, outer lip calloused (with black, well-visible inner margin reaching anterior extremity of parietal wall) and reflected at dorsal side, not rolled to form a rounded tube and reaching anterior extremity of parietal wall. Apex yellowish white, parietal wall calloused and well defined. Umbilicus closed, columella slightly curved and also calloused.

Background colour yellow with reddish brown axial stripes, bluish white aperture, white outer lip and columella, black varix and inner margin of outer lip.

No	1	2	3	4
SH (mm)	55.8	54.9	50.9	56.8
SW (mm)	28.0	29.7	26.7	30.0
SW/SH	0.50	0.54	0.52	0.53
MeanSW/SH	0.523			
AH (mm)	27.5	27.3	25.0	25.7
AH/SH	0.49	0.50	0.49	0.45
MeanAH/SH	0.483			
BH (mm)	38.5	38.3	34.6	37.6
BH/SH	0.69	0.70	0.68	0.66
MeanBH/SH	0.683			

Table 1

Comparison: *Amphidromus atricallosus vovanae* subsp. nov. mainly differs from *Amphidromus atricallosus atricallosus* (Gould, 1843) (Fig. 7) in lacking a black stripe on the parietal wall, a thinner outer lip, less constricted sutures, the presence of brown axial stripes on the outer surface and a black inner margin of outer lip.

Amphidromus atricallosus leucoxanthus (von Martens, 1864) (Fig. 8) is mainly distinguished from the new subspecies in having a thicker shell, a longer varix, the absence of brown axial stripes and black inner margin of outer lip inside the aperture.

Amphidromus atricallosus classarius Sutcharit & Panha, 2006 (Fig. 9) resembles the new subspecies in having a yellow background colour, but mainly differs by its smaller adult size, always sinistral coiling, presence of conspicuous subsural bands and lack of reddish brown axial stripes and black inner margin of the reflected outer lip at the dorsal side of the body whorl.

Amphidromus atricallosus laidlawi Solem, 1985 (Fig. 10) is close to the new subspecies in having reddish brown axials, but the varix is longer, the spire broader, the parietal wall not white, nor strongly calloused, the inner margin of the outer lip is absent and the axial stripes are narrower, not widely-spaced, much longer (reaching the suture of the body whorl).

Amphidromus atricallosus perakensis Fulton, 1901 (Fig. 11) is readily distinguishable from the new subspecies in having a more inflated body whorl, a narrow subsutural band, the lack of a black varix, the black inner margin of the outer lip and the presence of reddish brown axial stripes at the outer surface.

Amphidromus atricallosus temasek Tan, Chan & Panha, 2011 (Fig. 12) mainly differs from the new subspecies in having a swollen body whorl, the absence of brown axial stripes, the posterior part of the outer lip strongly deviates to the right side of the aperture, the presence of a white subsutural band on the body whorl and not the ill-defined parietal wall.

Etymology: This new subspecies is named after Võ Thị Vân from Vietnam for providing the type material.

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PLATE

1-6: *Amphidromus atricallosus vovanae* subsp. nov., Vietnam

1: Holotype, 55.8 mm high, ventral view, NHMUK

2: Holotype, dorsal view, NHMUK

3: Holotype, reflected outer lip, NHMUK

4: Paratype 1, 54.9 mm high, ventral view, NNT

5: Paratype 1, spiral view, NNT

6 (top): Paratype 3, 56.8 mm high, apical view, VTV

6 (bottom): Paratype 2, 50.9 mm high, umbilical view, NNT

7: *Amphidromus atricallosus atricallosus* (Gould, 1843) for comparison. Photo by G. & Ph. Poppe, 2015.

8: *Amphidromus atricallosus leucoxanthus* (von Martens, 1864). For comparison, photo from Thach, 2018.

9: *Amphidromus atricallosus classarius* Sutcharit & Panha, 2006. For comparison. Photo by NHMUK.

10: *Amphidromus atricallosus laidlawi* Solem, 1985. For comparison. Photo by G. & Ph. Poppe, 2017.

11: *Amphidromus atricallosus perakensis* Fulton, 1901. For comparison. photo by G. & Ph. Poppe, 2017.

12: *Amphidromus atricallosus temasek* Tan, Chan & Panha, 2011. For comparison. Photo by G. & Ph. Poppe, 2011.

