

**TREE SNAILS *Amphidromus* Albers, 1850 (Pulmonata: Camaenidae)  
COLLECTED IN VIETNAM**

**Do Van Nhuong<sup>1</sup>, Dinh Dieu Thuy<sup>2,3,\*</sup>, Do Duc Sang<sup>4</sup>, Nguyen Thanh Tung<sup>5</sup>,  
Le Hung Anh<sup>3,6</sup>, Arthur E. Bogan<sup>7</sup>, Do Van Tu<sup>3,6</sup>**

<sup>1</sup>Ha Noi National University of Education, Vietnam National University, Ha Noi, Vietnam

<sup>2</sup>Vietnam National Museum of Nature, Ha Noi, Vietnam

<sup>3</sup>Graduate University of Science and Technology, Vietnam Academy of Science and  
Technology, 18 Hoang Quoc Viet, Ha Noi, Vietnam

<sup>4</sup>Ha Noi University of Science, VNU, 334 Nguyen Trai, Ha Noi, Vietnam

<sup>5</sup>Can Tho University, Can Tho, Vietnam

<sup>6</sup>Institute of Ecology and Biological Resources, Vietnam Academy of Science and Technology,  
18 Hoang Quoc Viet, Ha Noi, Vietnam

<sup>7</sup>North Carolina Museum of Natural Sciences 11 West Jones St. Raleigh, NC 27601

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**ABSTRACT**

The paper presents results on tree snails based on samples collected from various parts of Vietnam during the period of 2008–2022. As a result, 14 *Amphidromus* species were recorded, which increased the diversity of the genus in Vietnam to a total of 27 species. Four species were new country records including *Amphidromus atricallosus perakensis*, *Amphidromus leucoxanthus*, *Amphidromus perversus natunensis*, and *Amphidromus areolabiatus*. Almost all 14 species were found in the south, while only *Amphidromus roseolabiatus* was recorded in the north. The great variation in the shell morphology of these tree snails required an integrative taxonomic approach to better understand the species diversity of the genus *Amphidromus* in Vietnam.

**Keywords:** Mollusca, land snails, checklist, diversity, Vietnam.

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\*Corresponding author email: [dinhdieuthuy@outlook.com.vn](mailto:dinhdieuthuy@outlook.com.vn)

## INTRODUCTION

The tree snail genus *Amphidromus* Albers, 1850 belongs to the family Camaenidae Pilsbry, 1895, and has a wide distribution across northeast India, Myanmar, Malaysia, Thailand, Laos, Cambodia, Vietnam, Indonesia, the southern Philippines, and China (Solem, 1983; Laidlaw & Solem, 1961). The genus *Amphidromus* features an elongated conic or ovate conic helicoid shell comprising six to eight whorls. The shell may vary from thin and fragile to very thick and solid. In some species, the shell consistently coils to the right (dextral), while in many others, it coils consistently to the left (sinistral). Notably, some species exhibit both left- and right-handed coiling within the same species (Laidlaw & Solem, 1961). Many species and varieties were named during the first half of the nineteenth century, often accompanied by inadequate locality data (Laidlaw & Solem, 1961). The taxonomy of this genus has proven intricate due to the diverse shell morphologies and species distribution. In 1896, Fulton organized 142 specific and varietal names into 18 groups, encompassing 64 species. Pilsbry (1900) expanded the number of species by 81, categorized them into 19 groups. Laidlaw & Solem (1961) discussed the variation in *Amphidromus* shell colours across different areas, as well as the factors contributing to changing shell patterns in many species. This monograph has been deemed an important reference for classifying *Amphidromus* based on shell morphology. As of 2015, 95 species have been recognized (Inkhavilay et al., 2017).

Vietnam's wealth of terrestrial biological diversity arises from its diverse geography and climate. The country lies within a humid monsoon region, characterized by numerous mountains, hills, and diverse natural landscapes. The climate, topography, hydrological features, and vegetation in Vietnam collectively contribute to its rich terrestrial biological diversity (Lap, 2009), which includes land snails. Studies on this group in Vietnam commenced in the mid-19<sup>th</sup> century (Souleyet, 1852; Crosse & Fischer, 1863; Mabille, 1887). Thanh (2008)

documented 448 land snail species in Vietnam. In 2011, Schileyko published a list of 477 pulmonate land snail species and subspecies for the country. The list encompassed 23 *Amphidromus* species. This list is the most comprehensive synthesis of the genus *Amphidromus* in Vietnam. Generally, Schileyko (2011) primarily synthesized the findings of prior studies with limited specimen analysis. Furthermore, distribution information for many species remained unclear.

The current study aims to contribute additional data regarding the diversity of *Amphidromus*. This was achieved through the identification and analysis of samples collected from diverse regions across Vietnam over a period of more than ten years.

## MATERIALS AND METHODS

The specimens were collected from over 30 sites across 11 provinces in Vietnam, including both mainland areas and some islands, during the period from 2008 to 2022 (Fig. 1). The mainland sites encompass limestone mountains in Cuc Phuong National Park (Ninh Binh province), Phong Nha-Ke Bang National Park (Quang Binh province), Vinh Cuu (Dong Nai province), Phu Yen, Kien Luong, Ha Tien, and Hon Dat (Kien Giang province). Additionally, some coastal islands were included: Hon Tre, Lai Son, An Son (Kien Giang province), and Con Dao (Ba Ria-Vung Tau province). For some specimens, their shells were cleaned, dried, and stored in plastic boxes. Living specimens were preserved in 80% ethanol. These were photographed using a digital camera to document their coloration. The taxonomic classification system of species along with their synonyms is based on MolluscaBase eds. (2023). The collected specimens have been deposited at the Vietnam National Museum of Nature (VNMN), Hanoi National University of Education (HNUE), and Can Tho University (CTU), and are listed in Table 1.

All tree snail species were identified according to the original descriptions in Fulton (1901), Bavay & Dautzenberg (1909a, b), Laidlaw & Solem (1961), Sutcharit &

Panha (2006), Sutcharit et al. (2013), and Jirapatrasilp et al. (2022). Moreover, we conducted comparisons between our specimens and the illustrated type catalog of *Amphidromus* held at the National History Museum, London (NHMUK), as outlined in Sutcharit et al. (2015).

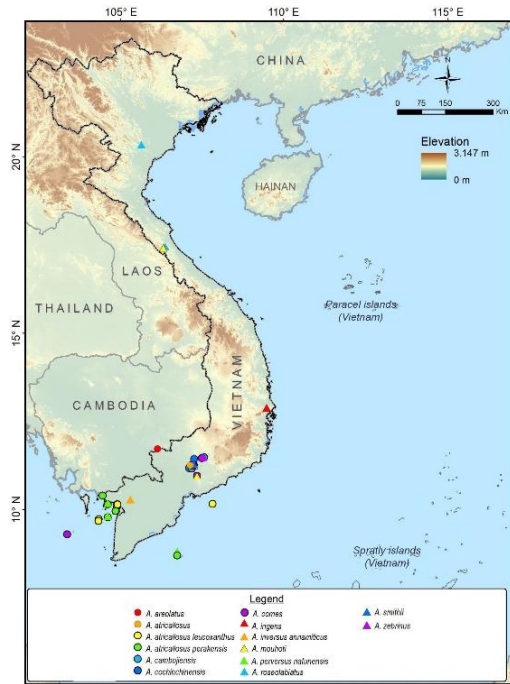


Figure 1. Sampling locations of *Amphidromus* in Viet Nam

Height (H) measurements were taken from the apex to the base of the shell, in parallel with the shell’s axis and perpendicular to the diameter of the shell at its widest point on the

last whorl, including the lip. Width (W) represents the maximum distance between the two sides of the body whorl of the shell. All measurements for adult samples were recorded in millimeters using a micrometer caliper. The values presented for H and W dimensions are the averages derived from measurements taken across all individuals at a given sampling site. Whorls in undamaged adult shells were counted following the methodology of Oesch et al. (2013). All specimens were photographed in standard positions, including the apertural view. We referred to Molluscabase (<https://molluscabase.org/>) for valid names and synonyms. In this context, the abbreviations used include A for adult, J for juvenile, and NP for national park.

**RESULTS**

The collected specimens were identified as 14 different species and subspecies (Table 1). All *Amphidromus* species recorded in Vietnam belong to two subgenera: *Amphidromus* (*Amphidromus*) Albers, 1850 and *Amphidromus* (*Syndromus*) Pilsbry, 1900. These subdivisions are primarily differentiated by variations in shell size, thickness, colouration, and the morphology of reproductive organs (Laidlaw & Solem, 1961; Sutcharit & Panha, 2006). Five species, *Amphidromus inversus annamiticus*, *Amphidromus cambogiensis*, *Amphidromus cochinchinensis*, *Amphidromus smithii*, were re-collected from their type localities.

Table 1. The average size of our *Amphidromus* specimens collected in Vietnam (The name of provinces where the specimens were collected, and voucher codes were shown below each species)

No.	Species name, locality, and museum code	Number of adults	H (mm)	W (mm)	H/W ratio	Whorl ranges
1	<i>Amphidromus atricallosus</i> (Gould, 1843)					
	Dong Nai, HNUE-LS 000.29	3	59.8 ± 2.3	32.0 ± 0.3	1.86	6–7
	Kien Giang, CTU-LS 014.01	2	58.2 ± 0.6	31.3 ± 0.1	1.85	6–7
	Kien Giang, CTU-LS 012.09	3	59.9 ± 3.4	32.0 ± 0.4	1.87	6–7
2	<i>Amphidromus atricallosus perakensis</i> Fulton, 1901					
	Kien Giang, HNUE-LS 000.09	2	54.3 ± 0.4	31.5 ± 0.5	1.71	6–6 <sup>1/2</sup>
	Kien Giang, HNUE-LS 000.37	3	60.0 ± 0.7	32.4 ± 0.2	1.85	6–6 <sup>1/2</sup>

No.	Species name, locality, and museum code	Number of adults	H (mm)	W (mm)	H/W ratio	Whorl ranges
	Kien Giang, CTU-LS 015.07	3	49.5 ± 0.2	30.2 ± 0.2	1.63	6 <sup>1/4</sup>
	Con Dao, VNMN-IZ 000.002.320	1	53.2	29.3	1.81	6
3	<i>Amphidromus cambojiensis</i> (Reeve, 1860)					
	Dong Nai, HNUE-LS 000.01	5	67.6 ± 0.7	35.4 ± 0.8	1.90	6 <sup>1/2</sup> -7 <sup>1/2</sup>
	Dong Nai, HNUE-LS 000.02	7	65.9 ± 1.9	35.0 ± 0.9	1.87	6 <sup>1/2</sup> -7
	Dong Nai, HNUE-LS.000.04	12	66.7 ± 2.6	35.7 ± 2.7	1.86	6 <sup>1/2</sup> -7
	Dong Nai, VNMN-IZ 000.002.305	2	64.3 ± 2.4	34.0 ± 0.2	1.89	6 <sup>1/2</sup> -7
	Dong Nai, VNMN-IZ 000.002.306	1	70.2	37.0	1.89	6-6 <sup>1/2</sup>
4	<i>Amphidromus cochinchinensis</i> (Pfeiffer, 1857)					
	Kien Giang, HNUE-LS 000.08	1	45.0	22.2	2.02	6 <sup>1/2</sup>
5	<i>Amphidromus comes</i> (L. Pfeiffer, 1861)					
	Dong Nai, HNUE-LS 000.06	3	50.2 ± 1.7	27.3 ± 0.9	1.84	6 <sup>1/4</sup> -7
	Dong Nai, HNUE-LS 000.07	17	47.0 ± 2.2	26.1 ± 2.1	1.79	6-6 <sup>3/4</sup>
	Kien Giang, VNMN-IZ 000.002.319	1	46.4	25.1	1.84	6 <sup>1/4</sup>
	Dong Nai, VNMN-IZ 000.002.307	3	44.4 ± 0.2	27.4 ± 0.3	1.62	6-6 <sup>1/2</sup>
6	<i>Amphidromus ingens</i> Möllendorff, 1900					
	Phu Yen, VNMN-IZ 000.002.318	3	60.4 ± 0.4	33.9 ± 0.3	1.78	6-6 <sup>1/2</sup>
7	<i>Amphidromus inversus annamiticus</i> (Crosse et Fischer, 1863)					
	Kien Giang, HNUE-LS 000.30	4	48.6 ± 2.7	26.0 ± 0.9	1.86	6 <sup>3/4</sup>
	Kien Giang, CTU-LS 012.01	6	51.8 ± 2.3	30.2 ± 1.1	1.71	6 <sup>1/2</sup>
	Kien Giang, CTU-LS 012.03	10	48.7 ± 2.4	25.5 ± 2.1	1.90	6 <sup>1/2</sup>
	Kien Giang, CTU-LS 012.04	4	49.6 ± 0.7	27.2 ± 0.6	1.82	6 <sup>1/2</sup>
	Kien Giang, CTU-LS 012.05	6	50.2 ± 1	28.1 ± 0.4	1.78	6-6 <sup>1/4</sup>
8	<i>Amphidromus leucoxanthus</i> (von Martens, 1864)					
	Kien Giang, HNUE-LS 000.36	1	57.8	31.5	1.77	6 <sup>3/4</sup> -7
	Kien Giang, CTU-LS 015.01	7	51.2 ± 2.4	26.4 ± 1.4	1.93	6 <sup>1/2</sup>
	Kien Giang, CTU-LS 015.02	13	52.6 ± 1	28.4 ± 0.7	1.84	6 <sup>1/4</sup> -6 <sup>3/4</sup>
	Kien Giang, CTU-LS 015.04	11	52.3 ± 1.6	27.2 ± 0.3	1.92	6 <sup>1/2</sup>
	Kien Giang, CTU-LS 015.05	15	52.1 ± 1.2	27.6 ± 0.5	1.88	6 <sup>1/2</sup>
9	<i>Amphidromus mouhoti</i> (Pfeiffer, 1861)					
	Dong Nai, VNMN-IZ 000.002.316	1	34.3	16.5	2.07	6 <sup>1/4</sup>
	Quang Binh, VNMN-IZ 000.002.317	2	35.9 ± 0.3	20.2 ± 0.1	1.77	6
10	<i>Amphidromus perversus natunensis</i> Fulton, 1906					
	Kien Giang, CTU-LS 015.11	4	49.1 ± 1.4	29.0 ± 1.2	1.68	6-6 <sup>1/4</sup>
	Kien Giang, CTU-LS 015.12	5	50.3 ± 1.3	28.3 ± 2.1	1.77	6-6 <sup>1/2</sup>
	Con Dao Island, VNMN-IZ 000.002.309	1	58.7	30.0	1.95	6 <sup>1/2</sup>
11	<i>Amphidromus roseolabiatum</i> Fulton, 1896					
	Quang Binh, VNMN-IZ 000.002.314	4	37 ± 0.4	20.6 ± 0.1	1.79	6 <sup>1/4</sup>
12	<i>Amphidromus areolatus</i> (L. Pfeiffer, 1861)					
	Tay Ninh, HNUE-LS 000.10	1	25.5	12.3	2.07	5 <sup>1/2</sup>
13	<i>Amphidromus smithii</i> Fulton, 1896					
	Dong Nai, HNUE-LS 000.12	1	35.5	15.6	2.27	6 <sup>1/2</sup>
	Dong Nai, VNMN-IZ 000.002.311	1	32.5	14.2	2.28	6 <sup>1/4</sup>
	Dong Nai, VNMN-IZ 000.002.312	1	36.0	17.2	2.09	6
	Dong Nai, VNMN-IZ 000.002.313	1	35.0	15.4	2.27	6
14	<i>Amphidromus zebrinus</i> (Pfeiffer, 1861)					
	Dong Nai, HNUE-LS 000.11	2	23.0 ± 0.3	12.1 ± 0.1	1.90	6

**Checklist of *Amphidromus* species in Vietnam** (\*collected in this study; \*\*from checklist by Schileyko (2011) and not obtained in this study)

**Family Camaenidae Pilsbry, 1895**

**Subfamily Camaeninae Pilsbry, 1895**

**Genus *Amphidromus* Albers, 1850**

**Subgenus *Amphidromus* Albers, 1850**

*Bulimus* (*Amphidromus*) Albers, 1850: 138.

Type species. *Helix perversus* Linnaeus, 1758, by the subsequent designation of von Martens (1860: 184).

***Amphidromus asper* Haas, 1934\*\***

Type locality. “Süd-Annam, 120 km von der Küste, auf dem Wege zum Plateau von Lang-Bian, zw. 600-1000 H” (Central Vietnam, 120 km on the way from the coast to the Lang Bian Plateau, 600-1000 meters elevation).

***Amphidromus atricallosus* (Gould, 1843)\*** (Fig. 2a)

*Bulimus atricallosus* Gould, 1843: 142.

*Bulimus eques* Pfeiffer, 1857: 158; Fischer, 1891: 30, 31.

*Amphidromus* (*Amphidromus*) *atricallosus* Laidlaw & Solem, 1961: 530; Sutcharit & Panha, 2006: 14.

*Amphidromus atricallosus* Schileyko, 2011: 49.

Type locality. Tavoy, Burmah.

Material examined. VIETNAM: Dong Nai province: 3A, HNUE-LS 000.29, Vinh Cuu district, Dong Nai Culture and Nature Reserve, 2008, Nhuong DV leg.; Kien Giang province: 2A, CTU-LS 014.01, Kien Hai district, Lai Son Island, natural forest, 9°47'55.1"N - 104°37'22.9"E, alt. 33 m, 14.xi.2013, Be NV leg.; Kien Giang province: 3A, CTU-LS 012.09, Hon Dat district, 10°09'53.0"N - 104°53'53.0"E, vii.2008, Be NV leg.

Distribution. Vietnam (Dong Nai, Kien Giang, Ninh Thuan, Khanh Hoa), Malaysia,

Lower Myanmar, South of Thailand (Schileyko, 2011).

Remarks. The materials have the same characters as *Bulimus atricallosus* (Gould, 1843) such as a solid shell, imperforate conical shape, with 6–7 slightly convex whorls, lunate-oval aperture, white and reflected lip; they also match with the description in Laidlaw & Solem (1961): substantial size and have white sub-band below the suture. Variability in our specimens is observed in both sinistral and dextral shells, displaying coloration that spans from yellow green to light yellow or white; the apex tends to be light yellow to white; the axis may be either straight or curved, and the parietal is slightly black or milky white; some individuals exhibit a slit-like umbilicus. Notably, this species presents various morphological variations across different regions (Sutcharit & Panha, 2006), suggesting the need for further research.

***Amphidromus atricallosus perakensis* Fulton, 1901\*** (Fig. 2b)

*Amphidromus perakensis* Fulton, 1901: 104, pl. 9, figs. 8–10.

*Amphidromus* (*Amphidromus*) *atricallosus perakensis* Sutcharit & Panha, 2006: 21, figs. 4F, G.

Type locality. Perak (Peninsular Malaysia).

Material examined. VIETNAM: Kien Giang province: 3A, 2J, CTU-LS 015.07, Kien Luong district, Binh An limestone hill, 10°09'49.5"N - 104°37'12.1"E, 8.xii.2014, Be Hai VV leg.; Kien Giang province: 2A, CTU-LS 015.08, Ha Tien city, Thach Dong limestone hill, 10°24'39.4"N - 104°28'29.4"E, 9.xii.2014, Be Hai VV leg.; Kien Giang province: 1A, CTU-LS 015.09, Kien Hai district, Hon Tre Island, 09°58'19.0"N - 104°50'49.5"E, 21.x.2020, Be NV leg.; Kien Giang province: 3A, 5T, CTU-LS 015.10, Kien Hai district, Hon Tre island, 09°58'19.5"N - 104°50'46.5"E, 14.xi.2013, Be NV leg.; Kien Giang province: 2A, 2J, HNUE-LS 000.09, Kien Hai district, Hon Tre Island, 09°58'19.3"N - 104°50'46.5"E,

21.x.2020, Nhuong DV leg.; Kien Giang province: 3A, HNUE-LS 000.37, Hon Dat district, 10°09'53.0"N - 104°53'53.0"E, vii.2008, Be NV leg.; Ba Ria-Vung Tau province: 1A, VNMN-IZ 000.002.320, Con Dao Island, 8°42'31.313"N - 106°35'49.445"E, 18.v.2022, Tu DV leg.

Distribution. Vietnam (Kien Giang, Con Dao island), southern Malaysia peninsula (including Singapore) (Sucharit & Panha, 2006).

Remarks. Our specimens were identified as *Amphidromus atricallosus perakensis* by having some characteristics such as there are both dextral and sinistral shells, yellow shell with a conspicuous band at the suture, slightly convex, peristome white, thick, expanded and slightly reflected (Fulton, 1901). Specimens collected in Vietnam show variation in size (see Table 1).

***Amphidromus cambojiensis* (Reeve, 1860)\***  
(Fig. 2c)

*Bulimus cambojiensis* Reeve, 1860: 204.

*Amphidromus cambojiensis*—Laidlaw & Solem, 1961: 529; Schileyko, 2011: 50; Sutcharit et al., 2015: 62, figs. 4F–G.

*Amphidromus lamdongensis* Thach & Huber in Thach, 2016: 67, figs. 32, 339–342.

*Amphidromus schileykoi* Thach, 2016: 68, figs. 39, 381–383.

*Amphidromus montesdeocai* Thach & Huber in Thach, 2017: 43, figs. 454–458.

Type locality. Cambodia (Cambodia).

Material examined. VIETNAM: Dong Nai province: 8A, 1J, HNUE-LS 000.01, Vinh Cuu district, forest in Dakinde, 11°10'18.03"N - 107°02'06.88"E, 24.v.2010, Nhuong DV leg.; Dong Nai province: 7A, HNUE-LS 000.02, Vinh Cuu district, forest around Ba Hao lake, 11°16'40.26"N - 107°05'12.13"E, 23.v.2010, Nhuong DV leg.; Dong Nai province: 1J, HNUE-LS 000.03, Vinh Cuu district, forest in zone No. 93, 11°16'19.39"N - 107°04'34.24"E, 22.v.2010, Nhuong DV leg.; Dong Nai province: 12A, 1J, HNUE-LS 000.04, Tan Phu district, the

forest in Cat Tien NP near Bau Chim, 11°29'13.67"N 107°22'55.05"E, 20.v.2021, Nhuong DV leg.; Dong Nai province: 12A, HNUE-LS 000.05, Vinh Cuu district, humid forest, 11°14'38.13"N - 107°03'34.13"E, Hung NV leg., v.2021; Kien Giang province: 1A, CTU-LS 013.02, Hon Dat district, Hon Me mountain, natural forest, 10°06'30.6"N - 104°53'23.7"E, alt. 83 m, 07.xii.2014, Be Hai VV leg.; Kien Giang province: 1A, CTU-LS 013.03, Ha Tien city, Thach Dong mountain, natural forest, 10°24'39.4"N - 104°28'29.4"E, alt. 25 m, 09.xii.2014, Be Hai VV leg.; Kien Giang province: 1A, CTU-LS 013.05, Hon Dat district, Hon Soc mountain, natural forest, 10°09'25.3"N - 104°54'14.2"E, alt. 60 m, 07.xii.2014, Be Hai VV leg.; Dong Nai province: 2A, VNMN-IZ 000.002.305, Vinh Cuu district, Hieu Liem commune, forest in Da Dung, 11°11'1.051"N - 106°57'32.871"E, 9.vi.2020, Thuy DD leg.; Dong Nai province: 1A, VNMN-IZ 000.002.306, Vinh Cuu district, Phu Ly commune, Bu Dang forest, 11°26'27.5"N - 107°06'08.6"E, 11.vii.2020, Thuy DD leg.

Distribution. Vietnam (Dong Nai, Kien Giang, Lam Dong) (Pall-Gergely et al., 2020), Cambodia (Schileyko, 2011).

Remarks. *Amphidromus cambojiensis* is the largest species in this genus (see Table 1). Our materials share some key characters with the original description of *Bulimus cambojiensis* by Reeve (1860) such as: shell dextral or sinistral; whorls 6–7<sup>1/2</sup>, smooth, convex; ovate aperture, with white, thick and reflected lip. However, a comparative analysis between our specimens and the original description by Reeve (1860) reveals some distinctions: there is a variation in shell colors, ranging from deep brown to violet-rose, with certain individuals displaying a milky-white or light grey interior; and slightly smaller (H 61.9–70.2 mm vs. 76 mm).

The type locality of this species remains unclarified. In 1860, Reeve described this species from Mouhot's specimens collected in the Kingdom of Cambodia without giving the exact data of the type locality. Laidlaw & Solem (1961) and Schileyko (2011) stated

that the species had been described from “60 leagues north of Saigon, in the Stiengs country or Moi”, which is in Vietnam. Therefore, further research is needed to determine the current type of locality in which country.

***Amphidromus chloris* (Reeve, 1848)\*\***

Type locality. “Eastern Islands” (West Australia).

***Amphidromus cochinchinensis* (L. Pfeiffer, 1857)\*** (Fig. 2d)

*Bulimus cochinchinensis* Pfeiffer, 1857 [1856]: 331, 332.

*Amphidromus metabletus* Möllendorff, 1900; Laidlaw & Solem, 1961: 528.

*Amphidromus metabletus insularis* Möllendorff, 1901.

*Amphidromus metabletus pachychilus* Möllendorff, 1901.

*Amphidromus cochinchinensis* Schileyko, 2011: 50; Sutcharit et al., 2015: 64, figs. 5D–E.

Type locality. Cochin China (Southern Vietnam).

Material examined. VIETNAM: Kien Giang province: 1A, HNUE-LS 000.08, Hon Dat district, Tho Son commune, Hon Me mountain, 10°06'30.6"N - 104°53'23.7"E, 7.xii.2014, Be NV leg.

Distribution. Vietnam (Khanh Hoa, Kien Giang) (Laidlaw & Solem, 1961)

Remarks. Compared with the original description in Pfeiffer (1857), the remarks of Laidlaw & Solem (1961), and figs. 5D–E by Sutcharit et al. (2015), our specimens are identified as *Amphidromus cochinchinensis*. They share some main features including: Shell shape (conical elongated), the aperture is oblique, sublunate, and moderately thick with a reflected lip; the axis is straight. However, our specimen is larger in size (45 mm vs. 39mm) (Laidlaw & Solem, 1961) and difference in color (yellow vs white) (Sutcharit et al., 2015).

***Amphidromus comes* (L. Pfeiffer, 1861)\*** (Fig. 2e)

*Bulimus comes* L. Pfeiffer, 1861: 193.

*Cochlostyla polymorpha* Tapparone-Canefri, 1874: 82, plate 2, figs. 4a–b.

*Amphidromus comes polymorphus*-Pilsbry, 1900: 171, plate 57, figs 6–10.

*Amphidromus comes*-Pilsbry 1900: 170, plate 57, figs. 1–5; Laidlaw & Solem, 1961: 531; Schileyko, 2011: 50; Sutcharit et al., 2015: 64, Fig. 5 G–H; Inkhavilay et al., 2019: 89; Pall-Gergely et al., 2020: 51.

*Amphidromus hueae* Thach & Huber, 2016 in Thach 2016: 66, figs 38, 331–334.

*Amphidromus ngocngai* Thach, 2017: 44, figs. 446–449.

*Amphidromus vietnamensis* Thach & Huber, 2016 in Thach 2017: 48, figs. 630–635.

*Amphidromus dongnaiensis* Thach, 2018: 51, 789–793.

*Amphidromus atricallosus vovanae* Thach, 2019: 84.

Type locality. Cambodia.

Material examined. VIETNAM: Dong Nai province: 8A, 22J, HNUE-LS 000.06, Vinh Cuu district, natural forest, 11°14'38.13"N - 107°03'34.13"E, 25.v.2021, Hung NV leg.; Dong Nai province: 17A, 40T, HNUE-LS 000.07, Tan Phu district, a natural forest in Cat Tien NP, 11°27'44.56"N - 107°19'16.98"E, Nhuong DV leg., 20.v.2021; Dong Nai province: 3A, VNMN-IZ 000.002.307, Long Khanh district, Suoi Tre commune, 6.vii.2019, Tien BT leg.; Dong Nai Province: 2A, VNMN-IZ 000.002.308, Vinh Cuu district, Ma Da commune, the park near Ba Hao lake, 11°15'32.25"N - 107°4'19.774"E, 12.vi.2020, Thuy DD leg.; Kien Giang province: 1A, VNMN-IZ 000.002.319, Tho Chu Island, 21.vi.2022, Tu D.V leg.

Distribution. Vietnam (Dong Nai, Kien Giang), Laos, Thailand, Cambodia (Laidlaw & Solem, 1961; Schileyko, 2011).

Remarks. Our materials share some main characters with *Amphidromus comes* such as:

shell dextral or sinistral, solid, conical spire, oblique aperture (Pilsbry, 1900), the apex is dark (Laidlaw & Solem, 1961) (Sutcharit et al, 2015, figs. 5G–H). Nonetheless, specimens collected from Vietnam exhibit some

distinctions, including variations in shell color (including unpolished shades of yellow, brown-purple, and grayish-green), as well as uneven embryonic and post-embryonic whorls in some individuals, resembling malformations.



Figure 2. a. *Amphidromus atricallosus*, CTU-LS 012.09; b. *Amphidromus atricallosus perakensis*, CTU-LS 015.10; c. *Amphidromus cambojiensis*, HNUE-LS 000.05; d. *Amphidromus cochinchinensis*, HNUE-LS 000.08; e. *Amphidromus comes*, HNUE-LS 000.07; f. *Amphidromus ingens*, VNMN-IZ 000.002.318. Scale: 10 mm



***Amphidromus costifer* Smith, 1893\*\***

Type locality. “Montagnes boitées du Huyen de Tri-phuoc, Province Binh-dinh, An-nam” (Binh Dinh province, Vietnam).

***Amphidromus dautzenbergi* Fulton, 1899\*\***

Type locality. Tonkin.

***Amphidromus dohrni* (Pfeiffer, 1863)\*\***

Type locality. Cochinchina.

***Amphidromus ingens* Möllendorff, 1900\* (Fig. 2f)**

*Amphidromus ingens* Möllendorff, 1900a: 23; Zilch, 1953: 135, plate 23, fig. 25; Schileyko, 2011: 50.

*Amphidromus naggsi* Thach & Huber, 2014: 35, figs. 1–13, 15.

Type locality. “Berg Mutter und Kind” (Mother and Child Mountain - Central Vietnam).

Material examined. VIETNAM: Phu Yen province: 3A, VNMN-IZ 000.002.318, Tuy Hoa district, the forest in Hoa My Dong, 12°50'00"N - 109°12'00.9"E, 7.iv.2022, Thuy DD leg.

Distribution. Vietnam (Phu Yen, Mother and Child Mountain - Central Vietnam) (Schileyko, 2011).

Remarks. Our specimens display the main characteristics of this species, such as a thick shell with rough surface due to the grooves spread from the last whorl up to the near apex, thick lip and grey or milky nacre layer. The shell showed both dextral and sinistral coiling patterns (Möllendorff, 1900). Compared with the image of Zilch (1953), the shell shape is similar.

***Amphidromus inversus annamiticus* (Crosse & Fischer, 1863)\*(Fig. 3a)**

*Bulimus annamiticus* Crosse & Fischer, 1863: 357–359; Crosse & Fischer, 1864: 329, fig 8, pl. XII; Mabilie & Mesle, 1866: 128.

*Amphidromus annamiticus*—Morlet, 1889: 126.

*Amphidromus annamiticus* var. *roseotincta* Möllendorff, 1894: 150.

*Amphidromus inversus annamiticus*—Pilsbry, 1900: 169–170, pl. 56, figs 98–100; Laidlaw & Solem, 1961: 561, 600; Solem, 1965: 624; Schileyko, 2011: 50; Sutcharit et al., 2013: 53–57, figs. 1 A–D; Inkhvilay et al., 2019: 91, figs. 44 D, E.

*Amphidromus inversus annamiticus* var. *roseotincta*—Pilsbry, 1900: 170; Laidlaw & Solem, 1961: 561, 655–656; Solem, 1965: 624.

*Amphidromus inversus* var. *annamiticus*—Gude, 1903a: 50, 51; Abbott, 1989: 160.

*Amphidromus inversus roseotincta*—Zilch, 1953: 135, pl. 23, fig. 26.

*Amphidromus* (*Amphidromus*) *inversus annamiticus* Sutcharit & Panha, 2006: 9, figs. 3E–H.

Type locality. “in vicinio urbis Saigon et pagi Fuyen-Moth dicti” (Ho Chi Minh city).

Material examined. VIETNAM: Kien Giang province: 6A, CTU-LS 012.01, Kien Hai district, Hon Tre Island, permanent cropland, 09°58'30.5"N - 104°51'23.0"E, alt. 41 m, Be NV leg., 30.x.2013; Kien Giang province: 10A, CTU-LS 012.03, Kien Luong district, Binh An mountain, permanent cropland of *Aquilaria* sp., 10°09'49.5"N - 104°37'12.1"E, alt. 22 m, 8.xii.2014, Be Hai VV leg.; Kien Giang province: 4A, CTU-LS 012.04, Kien Hai district, Lai Son Island, permanent cropland, 09°48'10.7"N - 104°37'53.6"E, alt. 27 m, 14.x.2014, Be NV leg.; Kien Giang province: 6A, CTU-LS 012.05, Kien Hai district, An Son Island, land for short-term crops, 09°40'42.3"N - 104°21'10.8"E, alt. 270 m, Be NV leg., 17.xi.2013; An Giang province: 5A, CTU-LS 012.06, Thoai Son district, Ba The mountain, 9.ix.2014, Be Hai VV leg.; Kien Giang province: 4A, HNUE-LS 000.30, Hon Dat district, Hon Soc village, 10°09'53.0"N - 104°53'53.0"E, 8.xii.2014, Be Hai VV leg.

Distribution. Vietnam (Kien Giang, An Giang), Thailand (in the South including some islands (Laidlaw & Solem, 1961; Sutcharit, 2013), Campuchia (Lower Mekong Valley) (Pilsbry, 1900).

Remarks. The specimens are identified as *Amphidromus inversus annamiticus*, sharing

some main characteristics described by Crosse & Fischer (1863) including ovate-conical shell, dark brown stripes, spirally banded with a dark purple stripe, conical spire, slightly obtuse apex, violet-blackish. When contrasted with specimens from Thailand (Sutcharit & Panha, 2006), ours exhibit distinct differences. In Vietnam, sinistral shells are significantly more common (making up about 75%); shell sizes are larger (ranging from H 48.6–51.8mm and W 26–30.2mm), whereas in Thailand, most specimens have a dextral helix; and the shell sizes range from H 32.7–51.4mm and W 19.8–28.2mm. Furthermore, the apex color in Vietnam specimens is limited to pink or black, while in Thailand (figs. 3E–H, cf. Sutcharit & Panha, 2006), it encompasses a wider spectrum of colors such as pink, ivory, purple, or white in some cases.

***Amphidromus mirandus* Bavay et Dautzenberg, 1912\*\***

Type locality. Lang-Biang, Annam

***Amphidromus leucoxanthus* (von Martens, 1864)\* (Fig. 3b)**

*Bulimus leucoxanthus* von Martens, 1864: 526; von Martens, 1867: 348–349, pl. 20, figs. 11,12.

*Amphidromus leucoxanthus*—Morlet, 1889: 127; Laidlaw & Solem, 1961: 530.

*Amphidromus perversus* var. *leucoxanthus* Fulton, 1896: 69; Laidlaw & Solem, 1961: 635–636

*Amphidromus aureus leucoxanthus* Pilsbry, 1900: 163–164, pl. 54, figs 73–79.

*Amphidromus aureus* var. *leucoxanthus* Gude, 1903: 8.

*Amphidromus atricallosus* var. *leucoxanthus* Laidlaw & Solem, 1961: 635–636; Solem, 1965: 620, pl. 1, fig. 8; Abbott, 1989: 160.

*Amphidromus (Amphidromus) atricallosus leucoxanthus* Sutcharit & Panha, 2006: 20, fig. 3P.

Type locality. Siam, location of types unknown.

Material examined. VIETNAM: Kien Giang province: 7A, CTU-LS 015.01, Kien Hai district, Lai Son Island, permanent cropland, 09°47'55.1"N - 104°37'22.9"E, alt. 33 m, 14.xi.2014, Be NV leg.; Kien Giang province: 13A, CTU-LS 015.02, Ha Tien city, Thach Dong limestone hill, inside the cave, 10°24'39.4"N - 104°28'29.4"E, alt. 23 m, 09.ix.2014, Be Hai VV leg.; Kien Giang province: 1A, CTU-LS 015.03, Hon Dat district, Hon Soc mountain, natural forest, 10°09'25.3"N - 104°54'14.2"E, alt. 60 m, 07.xii.2014, Be Hai VV leg.; Kien Giang province: 11A, CTU-LS 015.04, Kien Hai district, An Son Island, natural forest, 09°41'24.3"N - 104°21'22.9"E, alt. 50 m, 13.x.2014, Be NV leg.; Kien Giang province: 15A, CTU-LS 015.05, Kien Luong district, Binh An mountain, permanent cropland, alt. 22 m, 10°09'49.5"N - 104°37'12.1"E, 08.xii.2014, Be Hai VV leg.; Kien Giang province: 1A, CTU-LS 015.06, Kien Hai district, Hon Tre Island, permanent cropland, 09°58'30.5"N - 104°51'23.0"E, alt. 41 m, 30.x.2013, Be NV leg.; Kien Giang province: 1A, HNUE-LS.000 36, An Son district, Hon Tre island, 21.x.2020, Tung NT leg.

Distribution. Vietnam (Kien Giang), Eastern Thailand, and maybe Cambodia (Laidlaw & Solem, 1961). According to Sutcharit & Panha (2006), this species is distributed in the Chachoengsao, Chonburi and Chantaburi provinces of Thailand.

Remarks. Our specimens agree with descriptions of *Bulimus leucoxanthus* by Martens (1864) such as conical-elongated shell, lightly striated, glossy, citrine, apex white, sutura appressed, aperture rounded, thickened and white parietal callus. We found both dextral and sinistral shells of this species in Vietnam. In contrast to the specimens in Thailand, our specimens lack a white band under the suture (compared to the presence of the white band under the suture observed in samples from Chonburi, cf. Sutcharit et al., 2006).

***Amphidromus mouhoti* (Pfeiffer, 1861)\***  
(Fig. 3c)

*Bulimus mouhoti* Pfeiffer, 1861: 194; Fischer, 1891: 32; Fulton, 1868: 88; Laidlaw & Solem, 1961: 524.

*Amphidromus mouhoti*—Schileyko, 2011: 51; Sutcharit et al., 2015: 82, fig 11E; Barna Páll-Gergely, 2020: 53.

Type locality. Siam (Thailand).

Material examined. VIETNAM: Dong Nai province: 1A, VNMN-IZ 000.002.315, Long Khanh district, Suoi Tre commune, shrubs in the fruit garden, vii.2019, Tien BT leg.; Dong Nai province: 1A, VNMN-IZ 000.002.316, Vinh Cuu district, Ma Da commune, forest near Ba Hao lake, 11°15'43.71"N - 107°05'26.91"E, vi.2020, Thuy DD leg.; Quang Binh province: 2A, VNMN-IZ 000.002.317, Phong Nha - Ke Bang NP, entrance to En Cave, 17°26'03.7"N - 106°17'58.3"E, alt. 214 m, 30.v.2022, Thuy DD leg.

Distribution. Vietnam (Quang Binh, Dong Nai), Thailand, Cambodia (Schileyko, 2011).

Remarks. Pfeiffer (1861) did not include illustrations in the species description, making identification challenging. Nonetheless, cross-referencing with the figure of this species in NHMUK (Sutcharit et al., 2015) may aid in identification, despite potential differences in size. Specimens from Vietnam share the main characteristics of this species such as flat or slightly swollen whorls, a sublunate aperture, purplish or pink lips, a pointed apex, and a light-yellow band parallel to the suture (Pfeiffer, 1861). However, our specimens have variation in coloration, ranging from light yellow transitioning to white at the apex. Notably, Phong Nha-Ke Bang specimens lack a green groove in the last whorl, while Dong Nai specimens exhibit green or grey grooves.

***Amphidromus perversus* (Linnaeus, 1758)\*\***

Type locality. unknown

***Amphidromus perversus natunensis* Fulton, 1896\*** (Fig. 3d)

*Amphidromus perversus natunensis* Fulton, 1896: 69; Laidlaw & Solem, 1961:

536–537, 643, fig. 19; Sutcharit et al., 2015: 82, figs. 11H–I.

*Amphidromus aureus natunensis* Pilsbry, 1900: 162–163, pl. 55, figs. 87–90.

*Amphidromus (Amphidromus) perversus natunensis*—Sutcharit & Panha, 2006: 6, figs. 3A, B.

Type locality. Natuna Island, Indonesia.

Material examined. VIETNAM: Kien Giang province, 5A, CTU-LS 015.11, Kien Hai district, Lai Son Island, 09°47'55.0"N - 104°37'22.9"E, 14.xi.2013, Be Hai VV leg.; Kien Giang province, 17A, CTU-LS 015.12, Kien Luong district, Binh An limestone hill, 10°09'49.5"N - 104°37'12.1"E, 8.xii.2014, Be NV leg.; Ba Ria-Vung Tau province, 1A, VNMN-IZ 000.002.309, Con Dao island, 8°42'31.313"N - 106°35'49.445"E, 18.v.2022, Tu DV leg.

Distribution. Vietnam (Kien Giang, Con Dao island), Indonesia (Great Natuna Islands) (Fulton, 1896; Pilsbry 1900; Laidlaw & Solem, 1961).

Remarks. Our materials have some main feature of *Amphidromus perversus natunensis* such as a large shell, depressed at the sutural area (Fulton, 1896); whorls quite flattened; the apex acute, whitish; aperture broad, ovate; peristome white, slightly thickened, folded, expanded (Sutcharit et al., 2015: figs. 11H–I). Nonetheless, the shell coloration in our specimens is diverse, showcasing alternating brown and yellow stripes. This color pattern is observed only from the 4<sup>th</sup> whorl to the last. As we move from the 4<sup>th</sup> whorl towards the apex, the predominant hues are light yellow or white. The brown band beneath the suture is discontinuous and frequently interrupted.

***Amphidromus placostylus* Möllendorff, 1900\*\***

Type locality. “Phuc-son” (Central Vietnam).

***Amphidromus rhodostylus* Möllendorff, 1901\*\***

Type locality. “Pharang, Süd-Annam” (Phan Rang, Central Vietnam).

*Amphidromus roseolabiatus* Fulton, 1896\*  
(Fig. 3e)

*Amphidromus roseolabiatus* Fulton, 1896:  
89; Pilsbry, 1900: 188, pl. 60, fig 36; Laidlaw

& Solem, 1961: 527; Schileyko, 2011: 51;  
Sutcharit et al., 2015: 88, figs. 13j–k;  
Inkhavilay et al., 2017: 3–10; Inkhavilay et  
al., 2019: 94, fig 45D–F, 58A; Páll-Gergely et  
al., 2020: 54.



Figure 3. a. *Amphidromus inversus annamiticus*, CTU-LS 012.01; b. *Amphidromus leucoxanthus*, CTU-LS 015.02; c. *Amphidromus mouhoti*, VNMN-IZ 000.002.316; d. *Amphidromus perversus natunensis*, CTU-LS 015.02; e. *Amphidromus roseolabiatus*, VNMN-IZ 000.002.314; f. *Amphidromus areolatus*, HNUE-LS 000.10. Scale 10 mm

Type locality. Siam (Thailand).

Material examined. VIETNAM: Quang Binh province, 8A, VNMN-IZ 000.002.314, Phong Nha - Ke Bang NP, entrance to En Cave, alt. 214 m, 17°26'03.7"N - 106°17'58.3"E, 30.v.2022, Thuy DD leg.; Ninh Binh province, 1A, ZMB/Moll 269876, Cuc Phuong NP, the way near Mac Lake, 20°15'13.7"N - 105°42'37.4"E, 04.v.2019, Sulikowska-Drozdz and D., Thuy DD leg.

Distribution. Vietnam (Phong Nha - Ke Bang NP, Cuc Phuong NP), Laos (Khammouan, Bolikhamxay, Luang Phrabang, and Vientiane), Thailand (Inkhavilay et al., 2017).

Remarks. Our samples were identified as *Amphidromus roseolabiatatus* based on some main characteristics including ovate-conic shell, moderately umbilicated, whorls slightly convex, the lip and columella are pink and expanded, with the lip somewhat reflected, while the interior of the aperture is white (Fulton, 1896). Compared with Lao's specimens, our materials have some differences: The size of our specimens are approximately 37 mm in height and 20.6 mm in width, while the shell dimension in Laos varies greatly (H 26.6–37.5 mm, W 12.9–20.2 mm) (Inkhavilay et al., 2017); in addition, the colour of our shell surface is not green as the specimens in Laos (Sutcharit et al., 2015, figs. 13j–k; Inkhavilay et al., 2019, figs. 45D–F), it is light yellow.

#### Subgenus *Syndromus* Pilsbry, 1900

*Amphidromus* (*Syndromus*) Pilsbry, 1900: 184.

Type species. *Helix contraria* Müller, 1774 by subsequent designation in Zilch (1960: 623).

#### *Amphidromus areolatus* Pfeiffer, 1861\* (Fig. 3f)

*Bulimus areolatus* L. Pfeiffer, 1861: 194.

*Amphidromus areolatus*—Sutcharit et al., 2015: 58, fig. 3j–k; Inkhavilay et al., 2019: 88, fig. 42, D; Páll-Gergely et al., 2020: 49.

*Amphidromus* (*Syndromus*) *areolatus* Inkhavilay et al., 2017: 28, fig. 10C.

Type locality. Siam [Thailand].

Material examined. VIETNAM: Tay Ninh province, 1A, HNUE-LS 000.10, Tan Bien district, Tan Lap commune, 11°44'02.14"N - 106°03'07.84"E, 25.vii.2010, Nhuong DV leg.

Distribution. Vietnam (Tay Ninh), Laos, Thailand (Sutcharit et al., 2017).

Remarks. Our specimen agrees with the description of *Bulimus areolatus* by Pfeiffer (1861) including thin and ovate-conical shell; brown conical spire; whorls slightly convex; columella slightly twisted; aperture oblique; peristome thin, slightly expanded.

#### *Amphidromus flavus* (Pfeiffer, 1861)\*\*

Type locality. Siam (Thailand).

#### *Amphidromus fultoni* (Ancey, 1897)\*\*

Type locality. Cochinchina.

#### *Amphidromus semitessellatus* (Morlet, 1885)\*\*

Type locality. “Les montagnes qui bordent le grand fleuve au delà de Stung-Treng. Les forêts et les montagnes de Kampot à Compong-Som” (Cambodia)

#### *Amphidromus smithii* Fulton, 1896\* (Fig. 4a)

*Amphidromus smithii*—Fulton, 1896: 88, Pl. VII, figs. 12, 12a; Möllendorff, 1900: 132; Schileyko, 2011: 51; Sutcharit et al., 2015: 91, figs. 14 I, J; Páll-Gergely et al., 2020: 55.

*Amphidromus smithii ventrosulus* Möllendorff, 1900: 132.

*Amphidromus* (*Amphidromus*) *norikowasoei* Thach & Huber, 2017a.

*Amphidromus tedbaeri* Thach, 2017b: 37, figs. 18–20.

*Amphidromus baerorum* Thach, 2017c: 297, figs. 6–9.

*Amphidromus christabaerae* Thach, 2017c: 296, figs. 1–4.

*Amphidromus steveni* Thach, 2017b: 37, figs. 18–20.

*Amphidromus eboricolour* Thach, 2018a: 51, figs. 795–798.

*Amphidromus davidmonsecouri* Thach, 2018a: 50, figs. 803–807.



Figure 4. a. *Amphidromus smithii*, VNMN-IZ 000.002.311; b. *Amphidromus zebrinus*, HNUE-LS 000.11. Scale 10 mm

*Amphidromus gittenbergeri* Thach & Huber, 2018a: 53, figs. 670–675.

*Amphidromus noriokowasoei* Thach, 2018a: figs. 810–811.

*Amphidromus semicinereus* Thach, 2018a: 62, figs. 603–606.

Type locality. Phuc Son, Annam (Central Vietnam).

Material examined. VIETNAM: Dong Nai province, 1A, 3J, HNUE-LS 000.12, Vinh Cuu district, forest in Sub-area No.93 in Dong Nai Culture and Nature Reserve, 11°16'19.39"N - 107°04'34.24"E, 22.v.2010, Nhuong DV leg.; Dong Nai province, 1A, 1J, VNMN-IZ 000.002.310, Vinh Cuu district, Ma Da commune, forest near Ba Hao lake, 11°15'43.71"N - 107°05'26.91"E, vi.2020, Thuy DD leg.; Dong Nai province, 1A, VNMN-IZ 000.002.311, Vinh Cuu district, Hieu Liem commune, forest in Da Dung, 11°11'1.051"N - 106°57'32.871"E, 9.vi.2020, Thuy DD leg.; Dong Nai province, 1A, VNMN-IZ 000.002.312, Vinh Cuu district, Phu Ly commune, 11°23'3.932"N - 107°3'42.178"E, 8.vi.2020, Thuy DD leg.; Dong Nai province, 1A, VNMN-IZ 000.002.313, Vinh Cuu district, Phu Ly commune, Bu Dang forest,

11°26'27.5"N - 107°06'08.6"E, 11.vi.2020, Thuy DD leg.

Distribution. Vietnam (Dong Nai).

Remarks. The examined specimens have a weathered stratum corneum, such that the patterns on the shell are not clear. However, they appear like the type specimens shown in Sutcharit et al. (2015) in shell shape, aperture, and lip color. Especially, the periostracum of the shell is very thin and easy to peel off.

***Amphidromus ventrosulus* Möllendorff, 1900\*\***

Type locality. “Phuc-son, Annam” (Central Vietnam).

***Amphidromus zebrinus* (Pfeiffer, 1861)\*** (Fig. 4b)

*Bulimus zebrinus* Pfeiffer, 1861: 194.

*Amphidromus* (*Syndromus*) *zebrinus*-Laidlaw & Solem, 1961: 564.

*Syndromus zebrinus* Schileyko, 2011: 52.

*Amphidromus zebrinus* Sutcharit et al., 2015: 95, fig. 15-K; Inkhavilay et al., 2019: 95.

Type locality. Siam.

Material examined. VIETNAM, Dong Nai province, 2A, HNUE-LS 000.11, Tan Phu district, Cat Tien Forest, on the way to Bau Sau, 11°27'34.84"N - 107°21'17.43"E, alt. 156 m, 20 May 2021, Nhuong DV leg.

Distribution. Vietnam (Dong Nai, near Binh Dinh, Annam), Laos, Thailand (Schileyko, 2011).

Remarks. The examined specimens share some features with descriptions of *Amphidromus zebrinus* (Pfeiffer, 1861) such as sinistral and conical shell, whorls slightly convex, oblique aperture; simple peristome, moderately expanded.

## DISCUSSION

*Amphidromus* species exhibits remarkable shell morphology diversity. While Thach et al. (2016–2023) have recently published around 140 new taxa from Vietnam, 72 of them have been recognized as synonyms of existing species through combined analysis of morphology and molecular data, such as *Amphidromus thanhhoaensis* Thach & Huber, 2016 = *Aegistohadra roemeri* (Pfeiffer, 1863), and *Amphidromus pankowskiae* Thach, 2020 = *Amphidromus cruentatus* (Morelet, 1875) (Jirapatrasilp et al., 2022; Lee et al., 2022). Given the complexity of these findings, a comprehensive review is essential. Consequently, our study minimally refers to Thach's publications. A comprehensive approach integrating molecular and morphology data is necessary to stabilize the taxonomy of *Amphidromus* species.

Comparatively, Vietnam's *Amphidromus* species count is notable against other nations such as Laos (20 species) (Inkhavilay et al., 2019), Thailand (22 species) (Laidlaw & Solem, 1961; Sutcharit & Panha, 2006), and China (6 species) (Wang & Chen, 2021). Schileyko (2011) reported 23 species in Vietnam. However, our study did not collect specimens of thirteen species due to limitations in survey coverage, notably in Vietnam's central regions. This underscores the necessity for broader sampling to reflect the full spectrum of species diversity.

## CONCLUSION

Over the past nearly 15 years, surveys across all three regions of Vietnam have recorded 14 species of *Amphidromus*. In conjunction with Schileyko's (2011) synthesis of 23 species, the current count of *Amphidromus* species in Vietnam has risen to 27, adding 4 species to the Vietnamese fauna: *A. atricallosus perakensis*, *A. leucoxanthus*, *A. perversus natunensis*, and *A. areolabiatus*. This publication provides comprehensive data and illustrations of the 14 collected species. Additionally, it contributes good collections to museums in Vietnam, facilitating easier access to specimens for future research endeavors.

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