

The land snail genus *Rhiostoma* Benson, 1860 from Vietnam (Gastropoda: Caenogastropoda: Cyclophoridae), with description of a new species

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ABSTRACT. A report is given on the genus *Rhiostoma* (Cyclophoridae) collected in Vietnam during recent fieldwork. Locality data, distribution in Vietnam and general distribution are given for each species, including references to previously published records. Five named species are listed, of which a new species is described, *Rhiostoma ningbien* sp. nov., from Dien Bien, North-western Vietnam.

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Наземные моллюски рода *Rhiostoma* Benson, 1860 из Вьетнама (Gastropoda: Caenogastropoda: Cyclophoridae) с описанием нового вида

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РЕЗЮМЕ. Обзор видов рода *Rhiostoma*, известных из Вьетнама. Для каждого вида приводятся иллюстрированные описания раковин, сведения о местах сбора, распространение во Вьетнаме и общем распространении, включая данные более ранних публикаций. Обзор содержит данные по пяти видам, включая описание нового вида, *Rhiostoma ningbien* sp. nov. из Дьен Бьен, северо-западный Вьетнам.

[MolluscaBase, 2020]. One of these is the *Rhiostoma* Benson, 1860, the poorly investigated group, endemic to Indochina and Peninsular Malaysia regions [Gude, 1921; Yen, 1939; Prasankok *et al.*, 2011].

Genus *Rhiostoma* is characterized by a depressed to subdiscoidal shell, in which the last whorl descends and is detached from the preceding whorl, as well as by calcareous cup-shaped operculum [Kobelt, 1902, 1908; Prasankok *et al.*, 2011].

Hitherto, *Rhiostoma* have been poorly studied in Vietnam. Dautzenberg and Fischer [1905] described *Rhiostoma morleti* from Ha Giang (Tonkin), Vietnam; Dang [2008] listed two species (*Rhiostoma simonianum* Heude, 1886 and *Rhiostoma tenerum* Menke, 1857), whereas Thach [2016, 2017, 2018] described four species of *Rhiostoma* in Vietnam, viz. *Rhiostoma abletti* Thach, 2016, *Rhiostoma christae* Thach, 2016, *Rhiostoma herosae* Thach et Huber, 2017, and *Rhiostoma ninhbinhensis* Thach et Huber, 2018. The present paper is the first to provide descriptions of Vietnamese *Rhiostoma*, with illustrations of their accessory respiratory structure system. In all, it deals with five species of *Rhiostoma* currently reported from Vietnam, one of which is new to science.

Material and methods

This study is based on material from surveys by the first author in Vietnam in 2012–2019 as well as published records. Descriptions of new species is

Introduction

Cyclophoridae Gray, 1847 is a major group of terrestrial operculate snails found across Africa, Asia, Australia, Southern Europe and various Pacific islands. Many cyclophorid groups are common and widespread, rich in species and are ecologically significant components of tropical habitats [Kobelt, 1902, 1908; Solem, 1959; Sutcharit *et al.*, 2019]. 51 genera of the cyclophorids have been recognized

based solely on conchological characters because no living individuals were found to date. Shell terminology follows Benthem Jutting [1949], Rees [1964], Sutcharit *et al.* [2014]. All measurements were taken to the nearest 0.1 mm using Vernier caliper. Shell height was measured from the apex to the lowest part of the peristome parallel to the coiling axis. Shell diameter was measured at the widest section perpendicular to the coiling axis. The counting of shell whorls (to the nearest ¼ whorl) follows the method described by Kerney and Cameron [1979: 13].

The material is deposited in the following institutions:

VNMN: Vietnam National Museum of Nature (Hanoi, Vietnam); ZMHU: Zoological Collection of Biological Museum, Hanoi University of Science (Hanoi, Vietnam).

Abbreviations: AH, aperture height; AMNH, American Museum of Natural History (New York, New York, USA); ANSP, Academy of Natural Sciences of Philadelphia, Drexel University, Philadelphia; AW, aperture width; DDS, Collection Do Duc Sang (Hanoi, Vietnam); MNHN, Muséum National d'Histoire Naturelle (Paris, France); NHMUK, Natural History Museum, London; NMW, National Museum of Wales, Cardiff; SH, shell height; SW, shell width.

Systematic Part

Class GASTROPODA Cuvier, 1795
Subclass CAENOGASTROPODA Cox, 1960
Family CYCLOPHORIDAE J.E. Gray, 1847
Genus *Rhiostoma* Benson, 1860

Benson, 1860: 96.

Type species – *Rhiostoma haughtoni* Benson, 1860 by original designation.

Rhiostoma herosae Thach et Huber, 2017
(Fig. 1A)

Rhiostoma herosae Thach et Huber, 2017 in Thach, 2017: 17, figs 87–89.

Rhiostoma ninhbinhensis Thach et Huber in Thach, 2018: 17, figs 81a, 82a, 83a, 83b; Páll-Gergely *et al.*, 2020: 40.

Rhiostoma ngocngai Thach et Huber in Thach, 2018: 17, figs 81b, 82b, 83c (loc. Ninh Tan Commune, Ninh Hoa District, Khanh Hoa Province, central Vietnam), **syn. nov.**

Type locality. Ninh Binh, North Vietnam.

Type material. Holotype MNHN-IM-2000-33198 (SH 10.2 mm, SW 24.0 mm).

Other material. No material was available.

Diagnosis. *Rhiostoma herosae* is characterized by a medium-sized, depressed conical shell, with a tiny accessory respiratory structure that is curved posteriorly and its tip is not attached to last whorl.

Dimensions: SH 10.2–13.3 mm, SW 24.0–29.0 mm [Thach, 2017: 17].

Distribution. Only the type locality in North Vietnam (Ninh Binh Province) [Thach, 2017].

Remarks. The original description lacked mention of specific location in type locality. We investigated the land-snail fauna of limestone areas in Ninh Binh Province and other surrounding provinces from 2015 to 2019, but this species was not present in collected material. Based on shell morphology and distribution range, Páll-Gergely *et al.* [2020: 40] considers *Rhiostoma ninhbinhensis* Thach et Huber, 2018 as synonym of *Rhiostoma herosae* Thach et Huber, 2017.

Additionally, the holotype of the *Rhiostoma herosae* and *Rhiostoma ngocngai* Thach et Huber, 2018 are virtually identical in appearance, therefore *Rhiostoma ngocngai* is considered here a synonym of *R. herosae*.

Rhiostoma housei (Haines, 1855)
(Figs 1 B–C)

Cyclostoma housei Haines, 1855: 157, pl. 4, fig. 12–15.

Pterocyclus housei. – Pfeiffer, 1858: 29.

Rhiostoma housei. – Benson, 1860: 97; Pfeiffer, 1862: 117, pl. 12, fig. 9; Martens, 1867: 63; Fischer P., 1891: 101; Möllendorff, 1894: 152; Kobelt, Möllendorff, 1897: 115; Kobelt, 1902: 178; Fischer, Dautzenberg, 1904: 427; Kobelt, 1911: 757, 758, pl. 110, fig. 8–10, pl. 113, pl. 2; Zilch, 1956: 174; Solem, 1966: 11.

Pterocyclus (Spiraculum) housei. – Martens, 1860: 10.

Pterocyclus housei. – Reeve, 1863: *Pterocyclus* pl. 4, species 21.

Pterocyclus (Rhiostoma) housei. – Neville, 1878: 263.

Rhiostoma dalyi Blanford, 1902: 34–35, fig. 1; 1903: 281.

Type locality. Siam (Thailand).

Type material. Syntype AMNH 42923 [Boyko, Cordeiro, 2001].

Other material. Dien Bien Province, Dien Bien District, Na U Commune, near Con Cang Preschool, Exposed limestone with little soil and vegetation of herbs, 21°11.59'N, 102°56.11'E, 733 m, coll. D.S. Do and V.L.C. Chu Lau, 08.12.2018, ZMHU/04; Dien Bien Province, Dien Bien District, Na U Commune, near Tay Trang international border gate belongs to the Vietnam – Laos border region, Exposed limestone with little soil and vegetation of herbs, 21°12.55'N, 102°54.33'E, 814 m, coll. D.S. Do and V.L.C. Chu Lau, 08.12.2018, DDS/1; Hoa Binh Province, Lac Son District, An

FIG. 1 (following page). Shells (apertural view, dorsal view, ventral view, and side view) and operculum (outer surface, inner surface, and side view) of *Rhiostoma* spp. in Vietnam: **A.** *Rhiostoma herosae* Thach et Huber, 2017, holotype MNHN-IM-2000-33198 (downloaded from the website of the MNHN). **B–C.** *Rhiostoma housei* (Haines, 1855) from Dien Bien, Vietnam, ZMHU/04. **D–F.** *Rhiostoma marioni* (Ancy, 1898), **D.** Syntype NMW 1955.158.24090 (downloaded from the website of the NMW), **E–F.** ZMHU/10, from Muong Bu, Muong La, Son La, Vietnam. **G–K.** *Rhiostoma morleti* Dautzenberg et Fischer, 1905, **G.** Syntype MNHN-IM-2000-20961, **J.** Syntype MNHN-IM-2000-33837, **K.** Syntype MNHN-IM-2000-33838 (downloaded from the website of the MNHN), **H–I.** ZMHU/02, from Vi Xuyen, Ha Giang, Vietnam.

Photographs by: T.S. Nguyen and D.S. Do

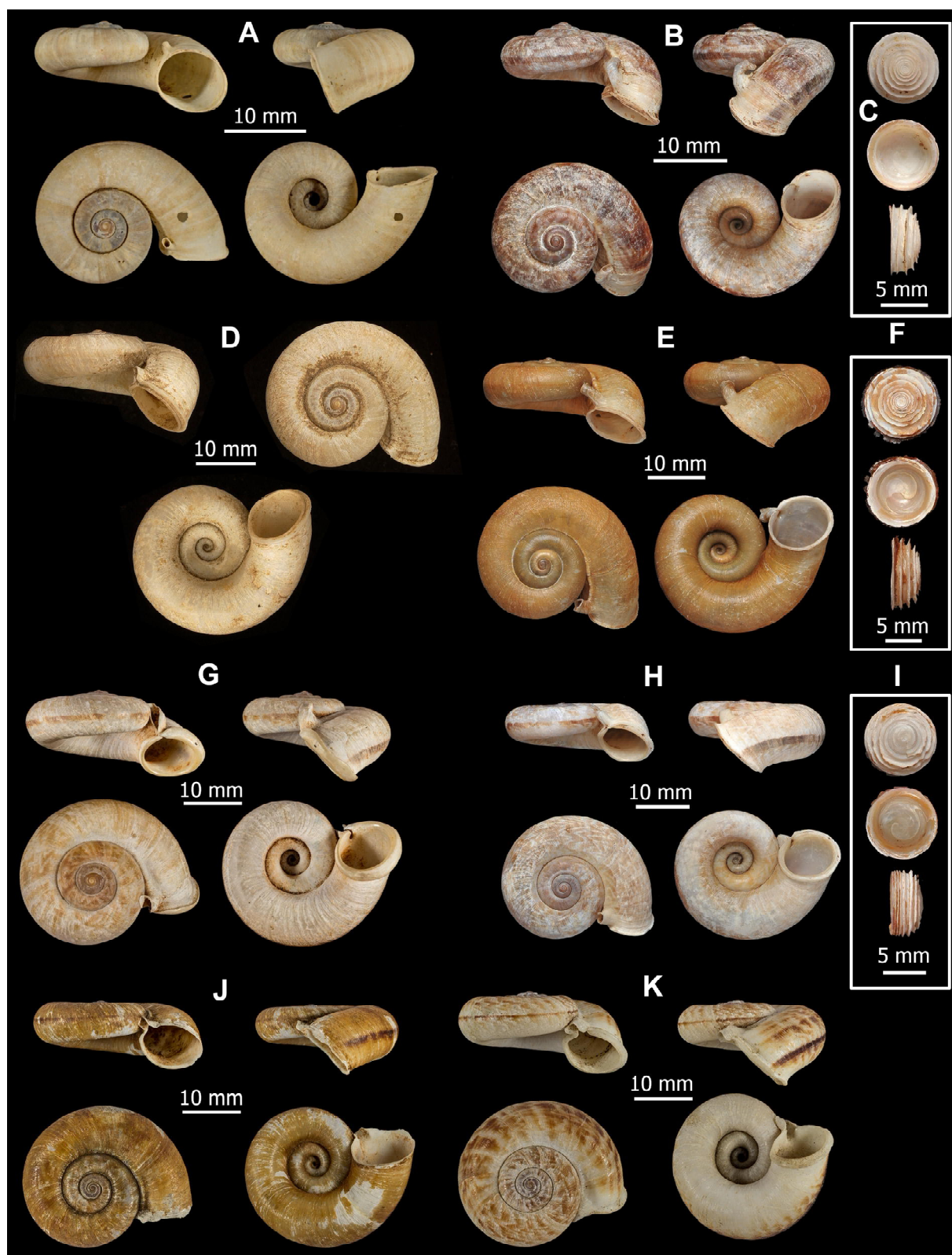


РИС. 1. Раковины (виды со стороны устья, с дорсальной стороны, с вентральной стороны и сбоку) и крышечки (наружная поверхность, внутренняя поверхность, вид сбоку) *Rhiostoma* spp. из Вьетнама. **A.** *Rhiostoma herosae* Thach et Huber, 2017, голотип MNHN-IM-2000-33198 (с сайта MNHN). **B–C.** *Rhiostoma housei* (Haines, 1855), Дьен Бьен, Вьетнам, ZMHU/04. **D–F.** *Rhiostoma marioni* (Ancey, 1898), **D.** Синтип NMW 1955.158.24090 (с сайта NMW), **E–F.** ZMHU/10, Муонг Бу, Муонг Ла, Сон Ла, Вьетнам. **G–K.** *Rhiostoma morleti* Dautzenberg et Fischer, 1905, **G.** Синтип MNHN-IM-2000-20961, **J.** Синтип MNHN-IM-2000-33837, **K.** Синтип MNHN-IM-2000-33838 (с сайта MNHN), **H–I.** ZMHU/02, Ви Куен, Ха Джанг, Вьетнам.

Фото Т.С. Нгуен, Д.С. До.

Nghia Commune, Limestone outcrops in primary forest, 20°24.24'N, 105°30.21'E, coll. T.Q. Bui, 16.04.2014, DDS/1; Son La Province, Quynh Nhai District, Chieng Khoang Commune, Na Pat Village, Sparsely vegetated limestone rock, 21°33.4'N, 103°41.30'E, 407 m, coll. D.S. Do, 13.08.2013, DDS/9; Son La Province, Son La City, Chieng Xom Commune, Cao Pha Pass, Limestone outcrops in thick clayey soil, 21°21.42'N, 103°58.03'E, 832 m, coll. D.S. Do, 17.08.2013, DDS/7; Son La Province, Mai Son District, Co Noi Commune, Lech Village, Limestone cliff with woody regrowth, 21°07.33'N, 104°09.22'E, 669 m, coll. D.S. Do and T.N. Phung, 18.11.2013; Son La Province, Son La City, Chieng An Commune, Son La Pass, Limestone outcrops in thick clayey soil, 21°19.40'N, 103°53.12'E, 765 m, coll. D.S. Do, 22.04.2015, DDS/5.

Diagnosis. *Rhiostoma housei* is characterized by a conical shell, with an elevated spire, and a long tubular shape of accessory respiratory structure that is curved posteriorly, its tip usually attached to last whorl.

Dimensions: SH 12.0–17.0 mm, SW 22.3–37.8 mm (n = 29).

Distribution. In Vietnam, this species is known from Son La, Dien Bien and Hoa Binh Provinces. Elsewhere, in Thailand, Laos and Cambodia [Haines, 1855; Fischer P., 1891; Fischer, Dautzenberg, 1904; Zilch, 1956: 174].

Remarks. The shells of *Rhiostoma housei* are very variable, especially between populations. Some populations, especially in the border region of North-western Vietnam (Dien Bien Province) and North Laos, are characterized by medium-sized shell with elevated spire. The populations from Son La and Hoa Binh Provinces, are characterized by a large-sized depressed conical shell, a long tubular of accessory respiratory structure.

Rhiostoma marioni (Ancey, 1898) (Figs 1 D–F)

Pterocyclos marioni Ancey, 1898: 137, pl. 9, fig. f.

Pterocyclos marioni. – Kobelt, 1911: 757 (as synonym of *Rhiostoma housei*).

Rhiostoma abletti Thach, 2016: 37, figs 53, 122–124; Sutcharit *et al.*, 2019: 5, fig. 1A.

Rhiostoma christae Thach, 2016: 38, figs 51, 130–133; Sutcharit *et al.*, 2019: 17, fig. 3L.

Rhiostoma marioni. – Inkhavilay *et al.*, 2019: 22, fig. 11A–B.

Type locality. Luang-Prabang, Laos and Mont Hou, Tonkin.

Type material. Syntype NMW 1955.158.24090, NHMUK 20160307, holotype of *Rhiostoma abletti* Thach, 2016, NHMUK 20160306, holotype of *Rhiostoma christae* Thach, 2016.

Other material. Lai Chau Province, Phong Tho District, Khong Lao Commune, sparsely vegetated limestone rocks, 22°35.20'N, 103°23.52'E, 889 m, coll. D.S. Do, 14.07.2015, ZMHU/7; Son La Province, Son La City, Chieng Ngan Commune, Khoang Village, 21°19.28'N, 103°58.55'E, 566 m, limestone hill with regrowth, coll. T.T. Nguyen, 26.10.2013, DDS/15, ZMHU/3; Son La Province, Muong La District,

Muong Bu Commune, Entrance of the Tham Bo Cave, Limestone slope with woody regrowth, 21°24.05'N, 104°06.13'E, 715 m, coll. D.S. Do and N.C. Bui, 27.10.2012, ZMHU/3, DDS/13; Son La Province, Muong La District, Chieng Cong Commune, Mao Village, Limestone hill with depleted primary forest, 21°26.46'N, 104°13.51'E, 1572 m, coll. D.S. Do, 06.12.2013, DDS/8; Son La Province, Thuan Chau District, Bon Phang Commune, Dom Huon Village, Limestone hills with sparsely vegetated, 21°22.234'N, 103°46.190'E, 605 m, coll. D.S. Do and T.D. Luong, 02.11.2013, DDS/12; Son La Province, Thuan Chau District, Co Ma Commune, Copia Nature Reserve, Steep limestone slope with dense disturbed vegetation, 21°21.26'N, 103°31.18'E, 1246 m, coll. D.S. Do and T.H. Nguyen, 08.06.2013, HNUE-OC 096; Son La Province, Yen Chau District, Yen Son Commune, Chi Day Cave, Primary forest on limestone, 21°08.30'N, 104°10.29'E, 815 m, coll. D.S. Do and X.H. Nguyen, 02.09.2017, DDS/1; Dien Bien Province, Tuan Giao District, Chieng Dong Commune, Po Village, Pu Hong Cay Mountain, near Tham Pua Cave, Sparsely vegetated limestone rock, 21°29.44'N, 103°22.27'E, 511 m, leg. V.N. Do and X.H. Nguyen, 09.04.2017, DDS/3; Dien Bien Province, Dien Bien District, Na U Commune, Con Cang Commune, near Con Cang Preschool, Exposed limestone with little soil and vegetation of herbs, 21°11.59'N, 102°56.11'E, 733 m, coll. D.S. Do and V.L.C. Chu Lau, 08.12.2018, DDS/6; Lao Cai Province, Bat Xat District, Ban Xeo Commune, Can Ty Village, 22°31.42'N, 103°45.09'E, 775 m, coll. D.S. Do, 13.09.2018, ZMHU/11.

Diagnosis. *Rhiostoma marioni* is characterized by a large-sized, brownish-corneous, depressed conical shell, a depressed spire with less brownish zigzag pattern, and a long tubular shape of accessory respiratory structure.

Dimensions: SH 12.0–16.8, WS 24.2–32.0 mm (n = 30).

Distribution. North-western Vietnam (Lai Chau, Lao Cai, Son La and Dien Bien Provinces) and Laos (Luang-Prabang, Xayaboury).

Remarks. A new record for North-western Vietnam. Known from Lai Chau, Son La, Dien Bien and Lao Cai Provinces. This species is most similar to *Rhiostoma morleti*, differing in being smaller, and having a spire with less brownish zigzag pattern. *Rhiostoma marioni* is a widely distributed species that has several local morphologically distinct forms. Therefore, further research based on anatomical and radula characteristics or molecular analyses will be needed to answer questions regarding the intraspecific diversity of this species.

Rhiostoma morleti Dautzenberg et Fischer, 1905 (Figs 1 G–K)

Rhiostoma morleti Dautzenberg, Fischer, 1905: 429, pl. X, fig. 1–4; Kobelt, 1911: 755, pl. 110, figs 1–4; Thach, 2016: 38, figs 125, 126; Inkhavilay *et al.*, 2019: 23, figs 11 C–D. *Pterocycclus planorbulus* Morlet, 1891: 247 (loc. Long-son). ? *Pterocycclus planorbulus*. – Fischer, Dautzenberg, 1904: 430.

Type locality. Luang-Prabang, Laos; Ha Giang, Tonkin (Vietnam).

Type material. Syntype MNHN-IM-2000-20961.

Other material. Ha Giang Province, Vi Xuyen District, Tung Ba Commune, Limestone with little soil and vegetation of herbs, 22°53.11'N, 105°05.41'E, 633 m, coll. V.B. Vu, 16.03.2018, ZMHU/2; Son La Province, Yen Chau District, Yen Son Commune, Chi Day Cave, Primary forest on limestone, 21°08.30'N, 104°10.29'E, 815 m, coll. D.S. Do and N.C. Bui, 02.09.2012, DDS/11; Son La Province, Son La City, Chieng Co Commune, Hom Village, Exposed limestone with little soil and vegetation of herbs, 21°20.13'N, 103°52.10'E, 645 m, coll. D.S. Do and N.C. Bui, 21.10.2012, DDS/3; Son La Province, Mai Son District, Co Noi Commune, Nhap Village, Limestone cliff with woody regrowth, 21°07.39'N, 104°09.27'E, 721 m, coll. D.S. Do and T.N. Phung, 18 November 2013, DDS/4; Son La Province, Quynh Nhai District, Chieng Khoang Commune, Na Hoi Village, Sparsely vegetated limestone rock, 21°33.20'N, 103°41.7'E, 376 m, coll. D.S. Do, 15.08.2013, DDS/14; Son La Province, Bac Yen District, Ta Khoa Commune, Sap Viet Village, Limestone outcrops with little soil and vegetation, 21°08.42'N, 104°25.03'E, 165 m, coll. D.S. Do, 13.07.2014, DDS/9; Son La Province, Phu Yen District, Muong Do Commune, Lan Village, Primary forest on limestone, 21°11.46'N, 104°47.6'E, 674 m, coll. D.S. Do, 12.07.2014; Son La Province, Van Ho District, Suoi Bang Commune, left side of the road to Tang Me Cave, Steep limestone slope with disturbed forest, 20°58.55'N, 104°48.37'E, 745 m, coll. D.S. Do and T.B. Nguyen, 12.05.2017, DDS/21; Dien Bien Province, Muong Cha District, Nam Nen Commune, Huoi Do Village, Exposed limestone with little soil and vegetation of herbs, 21°50.19'N, 103°16.21'E, 814 m, coll. V.T. Sin and D.S. Do, 19.10.2014, DDS/5; Dien Bien Province, Tuan Giao District, Chieng Dong Commune, Banh Village, Sparsely vegetated limestone rock, 21°29.33'N, 103°21.15'E, 536 m, coll. D.S. Do and X.H. Nguyen, 10.04.2017, DDS/3; Dien Bien Province, Tuan Giao District, Pu Nhung Commune, Phieng Pi Village, Steep limestone slope with disturbed forest, 21°42.26'N, 103°27.37'E, 804 m, coll. D.S. Do, 15.07.2013; Lai Chau Province, Than Uyen District, Than Uyen Town, Long Von Village, Small isolated limestone hill, 21°58.7'N, 103°44.11'E, 725 m, coll. D.S. Do and X.H. Nguyen, 11.03.2018, DDS/2; Lai Chau Province, Than Uyen District, Muong Kim Commune, Chieng Ban Village, Small isolated limestone hill, 21°42.7'N, 103°43.35'E, 699 m, coll. D.S. Do, 12.03.2018, DDS/3, ZMHU/3; Lai Chau Province, Phong Tho District, Nam Xe Commune, Nam Xe Village, Primary forest on limestone, 22°32.56'N, 103°28.29'E, 703 m, coll. D.S. Do, 15.07.2015, DDS/4; Vietnam, Lai Chau Province, Muong Te District, Kan Ho Commune, Si Thau Chai Village, 22°17.546'N, 102°47.387'E, 812 m, coll. D.S. Do, 16.09.2015, DDS/3; Vietnam, Lai Chau Province, Than Uyen District, Than Uyen Town, Long Von Village, Small isolated limestone hill, 21°58.7'N, 103°44.11'E, 725 m, coll. D.S. Do, 11.03.2018, DDS/6; Yen Bai Province, Van Chan District, Thuong Bang La Commune, Lung Lo Pass, Primary forest on limestone, coll. D.S. Do and T.B. Nguyen, 13.05.2017, DDS/3, ZMHU/3; Yen Bai Province, Mu Cang Chai District, Khao Mang Commune, Limestone hill with degraded regrowth, 21°53.17'N, 104°03.29'E, 851 m, coll. D.S. Do and X.H. Nguyen, 11.03.2018, DDS/6.

Diagnosis. *Rhiostoma morleti* is characterized by a large-sized, strongly depressed conical shell, a wide umbilicus, and a short, stout tubular shapes

and expanded at the base accessory respiratory structure.

Dimensions: SH 12.0–16.2, WS 29.0–34.3 mm (n = 30).

Distribution. North Vietnam (Ha Giang, Son La, Dien Bien, Lai Chau and Yen Bai Provinces) and Laos (Bolikhamsay, Luang-Prabang).

Remark. This species is very variable. *Rhiostoma morleti* resembles *R. marioni*, from which it differs in the larger (WS 29.0–33.8 mm vs 24.2–32.0 mm in *R. marioni*), lower conical shell (HS/WS: 0.41–0.44 vs 0.45–0.49 in *R. marioni*), and in having the tubular shape of accessory respiratory structure. The characters distinguishing *R. morleti* from *R. herosae* are the larger shell with strongly depressed spire, the less detached last whorl from the penultimate one.

Rhiostoma ninhbien sp. nov.

(Figs 2 A–C, 3)

Zoobank registration: urn:lsid:zoobank.org:act:ED4A908E-5F8E-459B-A6E5-5B26A14FB310

Type material. Holotype VNMN_IZ 000.000.177 (SH 11.7 mm, SW 22.9 mm, Fig. 2 A–B), Vietnam, Dien Bien Province, Dien Bien District, Na U Commune, near Tay Trang international border gate belongs to the Vietnam - Laos border region, Exposed limestone with little soil and vegetation of herbs, 21°12.55'N, 102°54.33'E, 814 m, coll. D.S. Do, 08.12.2018. Paratypes ZMHU.MOL 002 (6 shells), locality and date same as of holotype.

Diagnosis. *Rhiostoma ninhbien* sp. nov. is characterized by a medium-sized, conical shell, with elevated spire, and a short tubular shape of accessory respiratory structure that is directed towards the apex, its tip usually attached to penultimate whorl.

Description. Shell dextral, depressed, widely umbilicate, height 11.7–13.7 mm, width 22.8–25.4 mm, thin, spire little raised; whorls 4³/₄–5, the last whorl rounded, partly detached from the penultimate one; suture wide; protoconch almost smooth; teleoconch with irregular wrinkles. Shell surface glossy, with thin growth lines; background color pale brown, dorsal side with broad dark brown z-shaped or brown zigzag pattern; peripheral band broad, dark brownish; ventral side colour monochrome yellow, pale brown or with brown zigzag pattern. Aperture rounded with white to pale yellow lip. Peristome double, expanded, reflexed and slightly thickened. Accessory respiratory structure channel-like to short tubular shaped and situated a little distance (ca. 3.0–3.7 mm) from the peristome, the distal end is directed towards the apex. Operculum calcareous, slightly concave inside and with multiple lamellate outside.

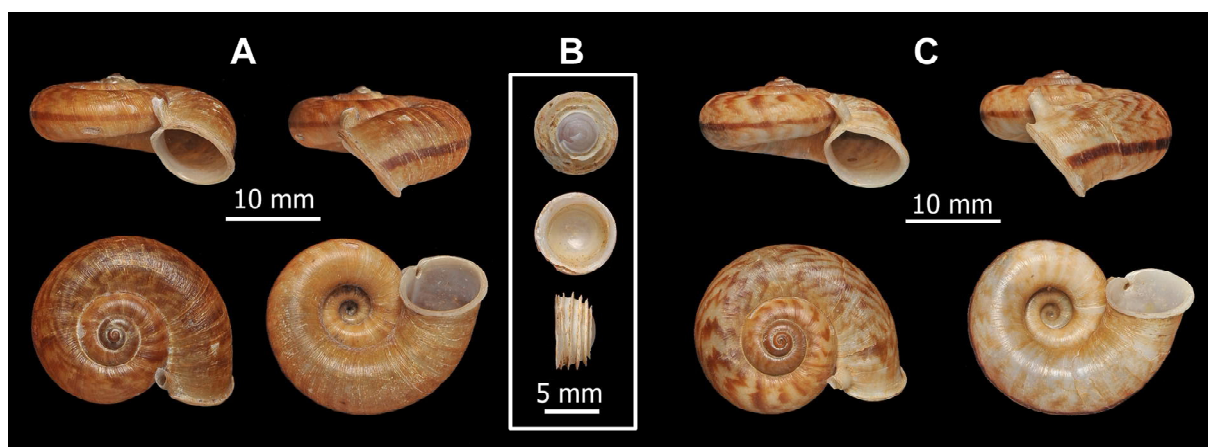


FIG. 2. Shells (apertural view, dorsal view, ventral view, and side view) and operculum (outer surface, inner surface, and side view) of *Rhioostoma ninhbien* sp. nov. A–B. Holotype VNMN_IZ 000.000.177. C. Paratype ZMHU.MOL 002. Photographs by: T.S. Nguyen and D.S. Do.

РИС. 2. Раковины (виды со стороны устья, с дорсальной стороны, с вентральной стороны и сбоку) и крышечки (наружная поверхность, внутренняя поверхность, вид сбоку) *Rhioostoma ninhbien* sp. nov. A–B. Голотип VNMN_IZ 000.000.177. C. Паратип ZMHU.MOL 002. Фото Т.С. Нгуен, Д.С. До.

Measurements (in mm). SH = 11.7–13.7; SW = 22.8–25.4; SH/SW = 0.51–0.54 (n = 7).

Distribution. Only the type locality (Fig. 3).

Etymology. The species is named after its distribution in the Dien Bien Province, North-western Vietnam, derived from the ancient name Ninh Bien (used as a noun in apposition).

Remarks. This new species differs from *Rhioostoma morleti* Dautzenberg et Fischer, 1905 in having a smaller shell, a tubular shaped accessory respiratory structure with its distal end directed towards the apex, an upper part of apertural lip only slightly expanded, and a pale brown to dark brown shell colour. It differs from *Rhioostoma marioni* (Ancey, 1898) in having a smaller shell, a higher

spire, and a broad, dark brown peripheral band. The characters distinguishing *Rhioostoma ninhbien* sp. nov. from *Rhioostoma herosae* Thach et Huber, 2017 and *Rhioostoma housei* (Haines, 1855) are the smaller shell with slightly raised spire, the less detached last whorl from the penultimate one.

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FIG. 3. Map showing the type locality of *Rhioostoma ninhbien* sp. nov., from Dien Bien Province, Vietnam (star)

РИС. 3. Типовое местонахождение *Rhioostoma ninhbien* sp. nov., провинция Дьен Бьен, Вьетнам (звездочка).

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