

# Triphoridae (Gastropoda) from the island of Saint Helena and Ascension Island, with the description of three new species

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## ABSTRACT

The Triphoridae (Gastropoda: Caenogastropoda: Triphoroidea) of the islands of Saint Helena and Ascension have not been thoroughly studied since the first records of this family were made by Edgar Albert Smith in 1890. Since then only five species of *Triphora* have been known from Saint Helena and since 1975 only a single species from Ascension Island. In this paper we identify three new species records for Saint Helena (*Metaxia elizabethclinghamae* spec. nov., *Nanaphora renevanwallegheimi* spec. nov. and *Inella* spec.) and four for Ascension Island (*Cosmotriphora arnoldoi* (Faber & Moolenbeek, 1991), *Inella recta* (E.A. Smith, 1890), *Triphora albanoi* spec. nov. and *Triphora* s.l. spec.). Three of the newly recorded species are described as new species.

Key words: Systematics, Gastropoda, Triphoridae, Saint Helena, Ascension Island, new records, new species, micro-mollusks.

## INTRODUCTION

The family Triphoridae is known to be highly diverse, especially in the Indo-Pacific province where estimations over a thousand species were made by Marshall (1983) and Albano et al. (2011). In the Atlantic the family is less diverse, with only 150 species known, most of them from the Caribbean (e.g. Rolán & Fernández-Garcés, 2008). Triphorids are easy to recognize among other marine gastropods by their predominantly sinistral coiling, affecting also the arrangement of organs and nervous system (Kosuge, 1966). Triphoridae are expected to have a close association with Porifera, this is

based upon their radulae morphology, the few in-situ observations (e.g. Kosuge, 1966; Marshall, 1994; Poppe, 2008), and the presence of sponge spicules their alimentary system (Nützel, 1997).

Triphoridae are understudied in many places, including the islands of Saint Helena and Ascension, even though the Atlantic has received much attention from various authors in the past decades. Fernandes & Pimenta (e.g. 2011, 2014, 2015, 2019a, 2019b, 2020) and Fernandes et al. (2013) thoroughly studied various groups of Triphoridae from Brazil. Fernandes & Rolán (1988, 1991, 1993; Rolán, 2005) studied the Triphoridae from Cape Verde and São Tomé y Príncipe. Rolán & Fernández-Garcés (1992, 1993, 1994, 1995, 2007, 2008, 2009, 2015; in addition to Rolán & Espinosa, 1994) studied the Triphoridae from various Caribbean islands, but mainly Cuba. Bouchet (e.g. 1985, 1997) studied the north-eastern Atlantic and Mediterranean species. Therefore, it could be reasonably stated that the Atlantic species have received much attention in specific areas.

The triphorids from Saint Helena have only been studied by Edgar Albert Smith (1890), in which he recorded five species of Triphoridae, while from Ascension Island there is only a single species reported (Rosewater, 1975). Therefore, it seems timely for an additional study of the triphorid fauna of Saint Helena and Ascension. With the help of various local divers we received some 800 specimens from various locations around the islands. This rich material makes it possible to improve the taxonomy of Triphoridae from Saint Helena and Ascension.

## MATERIALS AND METHODS

The following abbreviations are used for collections: AR = specimens collected by Andy Richardson; FSC = Frank Swinnen's private collection, Lommel, Belgium; JB = specimens collected by Judith Brown; LH = specimens collected by Leeann Henry; MNHN = Museum National d'Histoire

Naturelle, Paris, France; NBC = Naturalis Biodiversity Center, Leiden, the Netherlands; PW = specimens collected by Peter Wirtz; RBINS = Royal Belgian Institute of Natural Sciences, Brussels, Belgium; RMNH = Rijksmuseum van Natuurlijke Historie, Leiden, the Netherlands [former name of NBC]; SB-L = specimens collected by Sarah Browning-Lee.

Over 1,200 specimens of the FSC collection were studied and segregated into morphospecies. For every species we include previous literature records, a short diagnosis of the shell morphology, distribution, photographs and where appropriate some additional remarks. For the three new species we give a broader description. Bathymetric distribution is based upon empty shells as no live specimens have been studied. We do not provide subfamily placement for Triphoridae species with the exception of *Metaxia*. A thorough molecular study in combination with shell morphology and anatomy is necessary to establish a more supported placement of genera within subfamilies. At this point we only accept Metaxiinae as a valid subfamily, which was well established by Marshall (1977). Colour photographs were taken with a ZEISS V20 stacking microscope by the first author. SEM images were provided via the second author through the Royal Belgian Institute of Natural Sciences, where holotypes are deposited. Paratypes are deposited in NBC, MNHN, and FSC. Type material is accompanied by their inventory numbers. The material list contains all studied material from the FSC collection, every record starts with detailed locality information, depth, habitat, collector and collecting date. The last part of every record contains between brackets the number of specimens studied.

## SYSTEMATICS

### Family Triphoridae Gray, 1847

#### Subfamily Metaxiinae B.A. Marshall, 1977

#### Genus *Metaxia* Monterosato, 1884: 125

Type species: *Murex metaxa* Delle Chiaje, 1828

#### *Metaxia elizabethclinghamae* spec. nov.

Figure 1

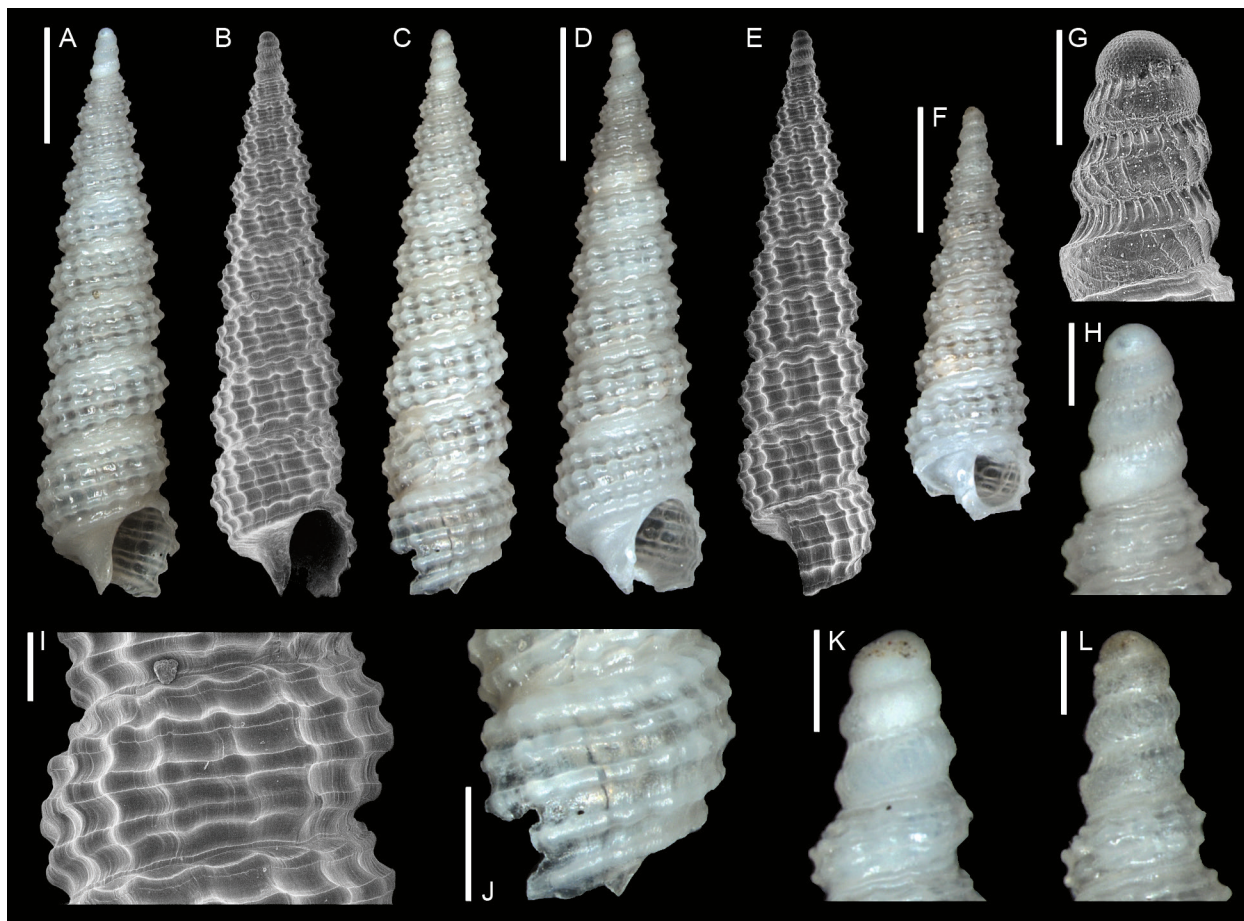
**Type material.** — **Holotype** RBINS I.G. 34360 MT.3898: Saint Helena, Black Rocks near Thompsons Valley Island, 20 m, inside cave, LH coll., 2 Oct. 2012. **SAINT HELENA: Paratypes 1 and 2** RMNH.MOL.433858, Long Ledge, 11 m, in detritus in cave, PW coll., 21 Jan. 2014. **Paratype 3** MNHN-IM-2016-5338, Egg Island, 8 m, in bedrock and boulders, LH coll., 20 Apr. 2017. **Paratype 4** MNHN-IM-2016-5339, Bens Island, 17 m, under bedrock ledge, LH coll., 16 Jun. 2016. **Paratypes 5 and**

**6** in FSC, the wreck of the Papanui, 12 m, in grit, LH coll., 17 May 2017. **Paratype 7** in FSC, Black Rocks, Flagstaff Bay, 7 m, under large boulders, JB coll., 7 Oct. 2015. **Paratypes 8 and 9** in FSC, Long Ledge, 11 m, in detritus in cave, PW coll., 21 Jan. 2014.

**Additional material.** — **SAINT HELENA. Type locality**, LH coll., 2 Oct. 2012 [3]; **type locality**, LH coll., 15 May 2017 [10]; near **Bedgellet Wreck**, inshore, 5 m, in detritus, JB coll., 7 Mar. 2014, 15°56'45.60"S, 5°45'18.00"W [1]; **Bedgellet Wreck**, 18 m, LH coll., 6 Apr. 2017 [3]; 18 m, in grit, PW coll., 12 Jan. 2014 [3]; **Benetts Point** towards Lady's Chair, 23 m, in sand, JB coll., 15 Mar. 2014 [4]; **Bens Island**, 17 m, under bedrock ledge, LH coll., 16 Jun. 2016 [4]; **Bird Island**, 12 m, in cave, in detritus, PW coll., 16 Jan. 2015 [6]; **Bird Shit** towards Banks, in detritus, JB coll., 22 Jul. 2014, 15°54'43.2"S, 5°42'32.4"W [1]; **Black Rocks**, Flagstaff Bay, 7 m, under large boulders, LH coll. [2]; 7 m, large boulders, in detritus, JB coll., 7 Oct. 2015 [1]; 7 m, large boulders, LH coll., 7 Oct. 2015 [2]; 7 m, under large boulders, JB coll., 7 Oct. 2015 [1]; **Buoys Hole**, 10 m, in grit under black coral, JB coll., 21 May 2014 [1]; **Buoys Hole/Cavalley Hole**, 15 m, at mouth of cave, LH coll., 28 Apr. 2017 [9]; **Buttermilk Point**, 11 m, near large boulders, LH coll., 4 Jul. 2015 [3]; 18 m, in bedrock shelf, LH coll., 4 Jul. 2015 [1]; **Cat Island**, 11 m, near large boulders, LH coll., 31 Oct. 2015 [6]; **Dawsons**, 90 m, dredged, LH coll., 8 Apr. 2018 [3]; **Egg Island**, 8 m, in bedrock and boulders, LH coll., 20 Apr. 2017 [12]; 29 m, in detritus, PW coll., 27 Jan. 2014 [8]; near the **Frontier Wreck**, 28 m, in detritus, PW coll., 13 Jan. 2015 [1]; **Lighter Rock**, 26 m, in grit, JB coll., 12 Jul. 2014, 15°57'18"S, 5°45'43.2"W [1]; **Long Ledge**, 10 m, inside cave, JB coll., 30 Jul. 2015 [2]; 11 m, in grit from cave, JB coll., 5 Mar. 2014, 15°56'42"S, 5°45'10.8"W [5]; 11 m, in detritus in cave, PW coll., 21 Jan. 2014 [8]; 19 m, in detritus, by diving, JB coll., 2 Apr. 2014 [1]; **Long Ledge East**, dunes amongst boulders, LH coll., 22 May 2015 [2]; 12 m, under overhang/ledge, JB coll., 22 May 2015 [1]; **Merrimens Island**, 16 m, in grit, LH coll., 16 Jul. 2016 [3]; **Merrimens Point**, 10 m, under ledge, JB & LH coll., 8 Aug. 2015 [2]; **Peaked Island**, 20 m, mouth of cave, LH coll., 9 Jul. 2016 [1]; **Red Island**, 12 m, bedrock overhangs, LH coll., 30 Dec. 2015 [16]; **Red Island**, 12 m, in grit, JB coll., 10 Jul. 2014, 15°56'24.0"S, 5°44'31.2"W [3]; between **Red Island and Long Ledge**, 12 m, in sand, JB coll., 19 Jul. 2014 [2]; **Red Rock Cove** near Cat Island, 19 m, in detritus, JB coll., 9 Mar. 2014, 15°56'42"S, 5°45'10.8"W [2]; **Romans Reef**, 9 m, in detritus, JB coll., 9 Apr. 2014 [1]; **Ruperts**, 11 m, in detritus in cave, LH coll., 25 Apr. 2017 [7]; **Ruperts Jetty**, 11 m, LH coll., 5 Oct. 2015 [3]; near the **wreck of Papanui**, 12 m, in grit, LH coll., 17 May 2017 [14]; **Youngs Valley**, 7 m, in sand, JB coll., 1 Mar. 2014, 15°55'44.4"S, 5°43'51.60"W [11].

**Type locality.** — Saint Helena, Black Rocks near Thompsons Valley Island, 20 m, inside cave.

**Etymology.** — In honour of Mrs. Elizabeth Clingham, former Marine Conservation Officer for the Saint Helena



**Figure 1.** *Metaxia elizabethclinghamae* spec. nov. A–C, G–J. Holotype, RBINS I.G. 34360 MT.3898: front (A–B), side (C), protoconch (G–H), teleoconch sculpture (I), peristome (J). D–E, K. Paratype 1, RMNH.MOL.433858: front (D), side (E), protoconch (K). F, L. Paratype 2, RMNH.MOL.433858: front (F), protoconch (L). A–F. 1 mm. G–I, K–L. 0.2 mm. J. 0.5 mm.

Government. She supported us with material from Saint Helena to study.

**Description.** — Shell elongated, slender and conical. Protoconch narrow and elongated with 3.5–4 whorls, first whorl dome shaped covered by a honeycomb-structure, remaining whorls with convex, somewhat keeled outline, predominantly axial ribs on the higher half of the whorls on the second whorl and on the very end of the protoconch (fig. G), irregularly fine spiral lines in the middle of the whorl, on the last whorl becoming more a single keel. Teleoconch of up to 9 convex whorls, and ~16 strong axial ribs on the seventh whorl, crossed by four spiral cords per whorl, the first adapical one is just located below the suture, which is a very fine line; prominent nodules formed at the crossing of axial ribs and the four spiral cords, despite the less prominent first adapical one; last whorl with smooth or slightly wavy subperipheral cord, base short and concave, aperture almost round, outer lip thin, columellar lip slightly sinusoidal. Shell translucent white. Figured shells are 3.3–4.9 mm long.

**Distribution.** — Currently known only from Saint Helena.

**Bathymetric distribution.** — 0–29 m, three specimens from a single location have been recorded from 90 m.

**Remarks.** — *Metaxia elizabethclinghamae* spec. nov. shares similarities with *Metaxia taeniolata* (Dall, 1889), *Metaxia excelsa* Faber & Moolenbeek, 1991 and *Metaxia metaxa* (Delle Chiaje, 1828) based on the multispiral protoconch. *Metaxia taeniolata* has a brown protoconch in which the lower axial riblets are equally prominent as the upper axial riblets, in addition the nucleus has a zigzag pattern instead of a honeycomb-net surface (Fernandes & Pimenta, 2011). In *M. excelsa* the shell is brown, the lower half of the protoconch is broader with prominent axial riblets, and the nucleus has a zigzag pattern as in *M. taeniolata* (Fernandes & Pimenta, 2011). *Metaxia metaxa* occurs in European waters and has a protoconch in which the nucleus and the second protoconch whorls both have a zigzag sculpture, and the protoconch is brown (e.g. Bouchet, 1985; Van der Linden, 1998). *Metaxia elizabethclinghamae* spec. nov. is a distinct species by having a honeycomb-net surface on the nucleus, its slight differences in the protoconch axial sculpture, and the complete shell being uniformly white.



**Genus *Nanaphora* Laseron, 1958: 614**

Type species: *Nanaphora torquesa* Laseron, 1958

***Nanaphora renevanwallegheми* spec. nov.**

Figure 2

**Type material.** — **Holotype** RBINS I.G. 34360 MT.3899: Saint Helena, Long Ledge, 11 m in detritus in cave. **SAINT HELENA: Paratype 1** MNHN-IM-2016-5340, Benetts Point towards Lady's Chair, 23 m depth, in sand. **Paratype 2** MNHN-IM-2016-5341, Red Island, 12 m depth, in grit, 15°56' 24.0"S, 5°44'31.2"W. **Paratype 3** RMNH.MOL.433859, Red Island, 12 m depth, bedrock overhangs. **Paratypes 4 and 5** in FSC, Cat Island, 11 m depth, near large boulders. **Paratype 6** RMNH.MOL.433860, Long Ledge East, dunes amongst boulders.

**Additional material.** — **SAINT HELENA. Long Ledge**, 11 m, in grit in cave, JB coll., 5 Mar. 2014, 15°56'42"S, 5°45' 10.8"W [1]; 11 m, in detritus in cave, PW coll., 21 Jan. 2014 [1]; between **Red Island and Long Ledge**, 12 m, in sand, JB coll., 19 Jul. 2014 [1]; **Red Island**, 12 m, bedrock overhangs, LH coll., 30 Dec. 2015 [2]; **Cat Island**, 11 m, near large boulders, LH coll., 31 Oct. 2015 [1]; **Bens Island**, 17 m, under bedrock ledge, LH coll., 16 Jun. 2016 [2]; **Egg Island**, 8 m, in bedrock and boulders, LH coll., 20 Apr. 2017 [1]; 29 m, in detritus, PW coll., 27 Jan. 2014 [2].

**Type locality.** — Saint Helena, Long Ledge, 11 m.

**Etymology.** — In honour of Rene Vanwallegheми, a friend of the second author for more than 40 years and a well-known shell collector.

**Description.** — Shell sinistral, small, cyrtoconoid or slightly ovoid, nearly rectilinear to moderately convex profile, of about 5–6 teleoconch whorls. Protoconch paucispiral of two whorls, first half whorl dome shaped and smooth, second whorl with the impression of a fine spiral cord just below the middle of the whorl, last half whorl with a transition towards the teleoconch developing two broad spiral cords. Teleoconch with three spiral cords, median spiral cord emerging near the fifth or last teleoconch whorl, reaching the same size of other cords on the last whorl, 16–18 axial ribs on the last whorl, large rounded nodules formed at the crossing of axial ribs and the spiral cords, suture with a fine sutural cord, smooth or slightly nodulous subperipheral cord, two smooth basal cords, ovate aperture, siphonal canal curved backwards/downwards, short, open or partly closed by projection of outer lip, posterior canal is a small sinus, not detached from aperture. Protoconch translucent white, teleoconch brown with nodules slightly lighter in colour. Figured shells are 2.4 and 2.5 mm long.

**Distribution.** — Currently known only from Saint Helena.

**Bathymetric distribution.** — 8–29 m.

**Remarks.** — *Nanaphora renevanwallegheми* is similar to

*Nanaphora apexcraassum* (Rolán & Fernández-Garcés, 1994) and *N. miskitorum* (Rolán & Luque, 1999).

From *N. apexcraassum*, *N. renevanwallegheми* differs in that the protoconch is white, globose and with a single keel, whereas *N. apexcraassum* has two keels and a light brown protoconch; the shell of *N. apexcraassum* is also broader. *Nanaphora miskitorum* is uniformly white and also has a distinctive protoconch with two keels and multiple axial riblets. The new species also resembles *Sagenotriphora osclausum* (Rolán & Fernández-Garcés, 1995) by its general shell shape and the posterior canal as a small sinus; *S. osclausum* is uniformly brown, and its multispiral protoconch has a very different sculpture. Based on the resemblance of *N. renevanwallegheми* with *N. apexcraassum* and *N. miskitorum*, we place our new species provisionally in the genus *Nanaphora*. Nonetheless, the generic placement of most Triphoridae species requires more in depth studies, including molecular data, to determine if the current segregation is supported.

**Genus *Cosmotriphora* Olsson & Harbison, 1953: 295**

Type species: *Cerithium melanura* C.B. Adams, 1850

***Cosmotriphora arnoldoi* Faber & Moolenbeek, 1991**

Figure 3

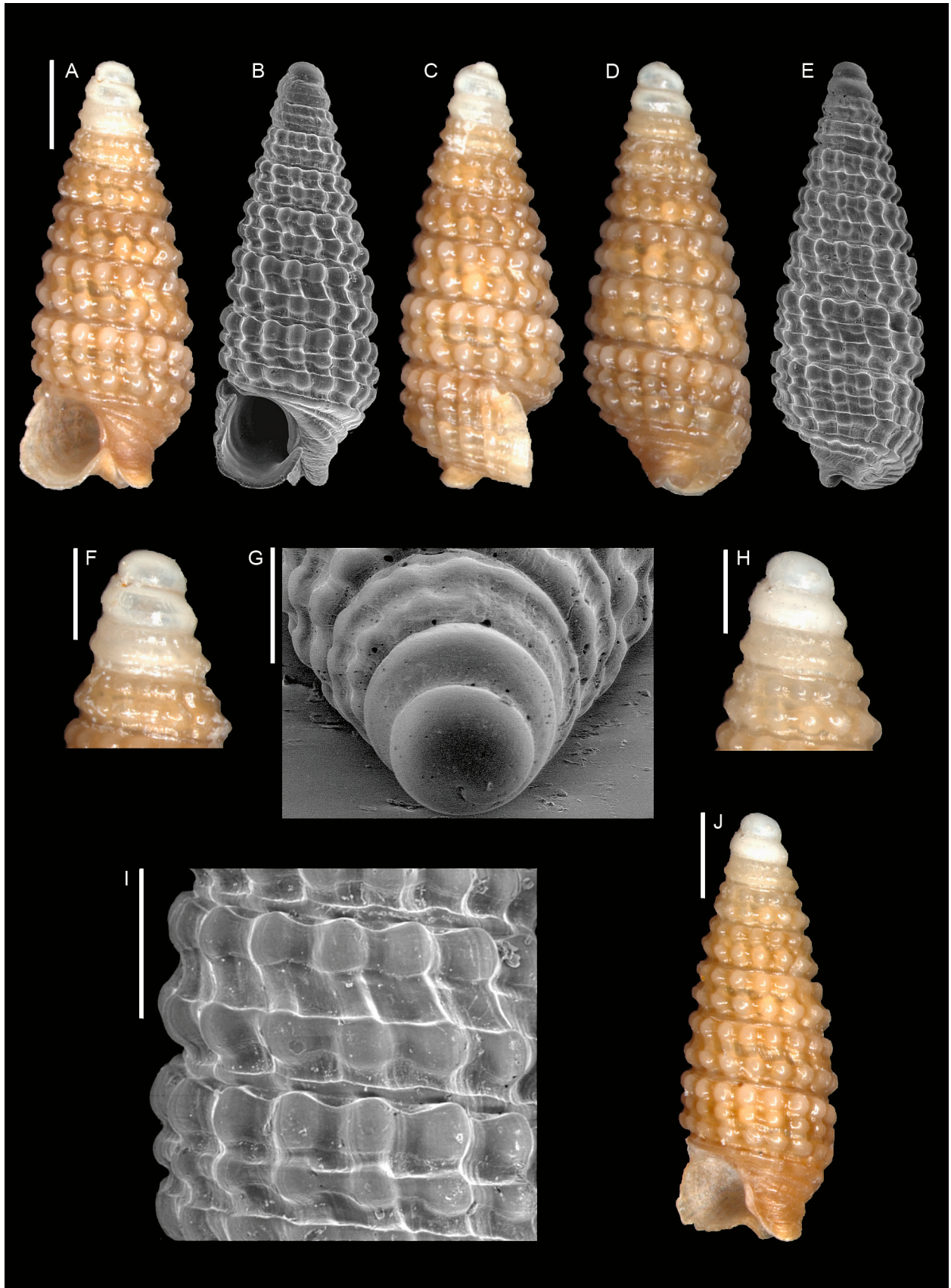
*Triphora* sp. D — Rice & Kornicker, 1962: 120, pl. 2, fig. 17.

*Cosmotriphora arnoldoi* Faber & Moolenbeek, 1991: 81, figs 1–2. — Rolán & Fernández-Garcés, 1994: 20, figs 12–15; Rolán & Fernández-Garcés, 2007: 14, table 1; Lee, 2009: 88, fig. 428; Rosenberg et al., 2009: 645; Diaz & Miloslavich, 2010: table S6; Garcia & Lee, 2011; Fernandes et al., 2013: 4–5, figs 2, 18, 29; Fernandes & Pimenta, 2020: 140–141, fig. 87.

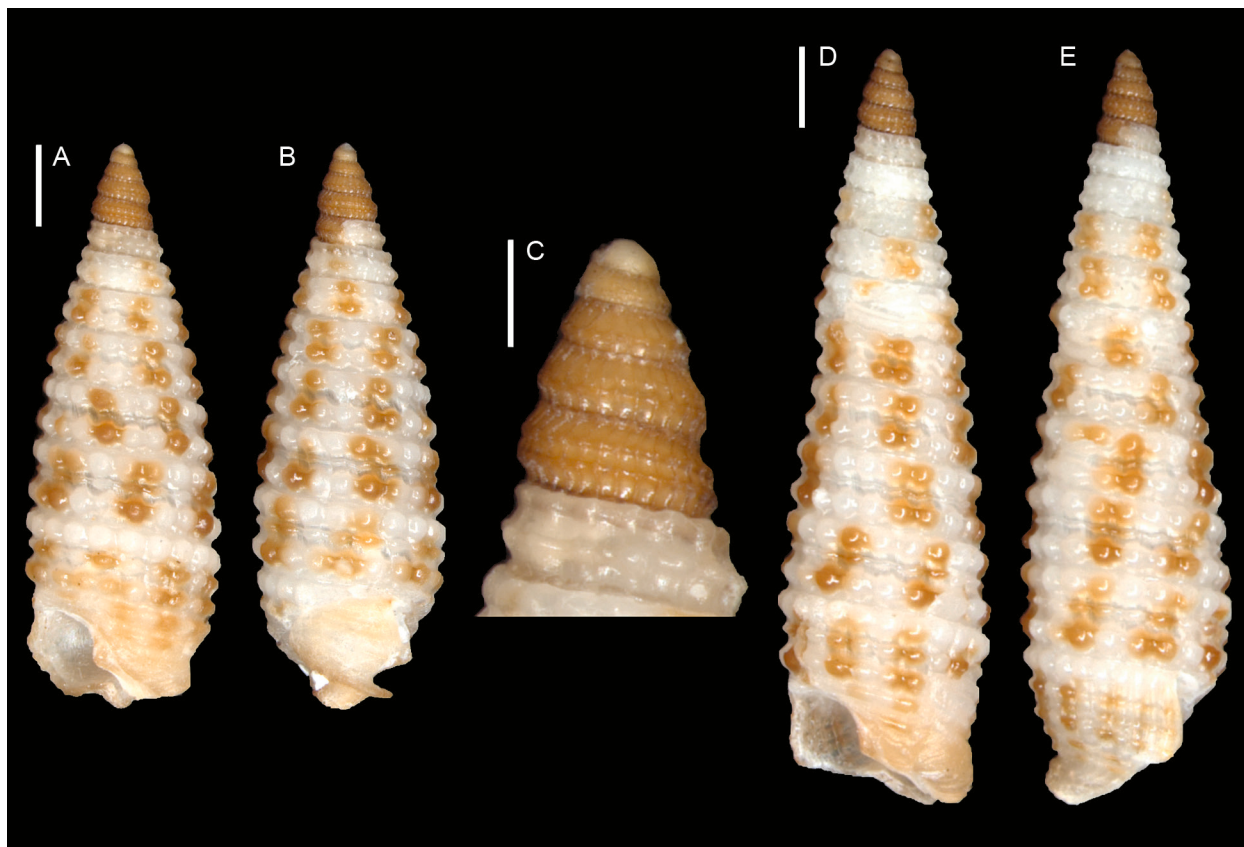
**Description.** — Multispiral protoconch of about 5–5.5 whorls, two spiral keels on the lower whorls and multiple axial riblets. Teleoconch of about 7–10 whorls. First and third spiral cords appear first, on the fifth to seventh whorl the second spiral cord appears, first and third spiral cord more prominent, sutural thread hardly visible, base with subperipheral cord and one additional basal spiral cord, siphonal canal closed, peristome with supranumerical cords, but damaged in most specimens. Protoconch brown, teleoconch white with irregular brown spots, last whorl with more regularly spaced spots and the first spiral cord white, the base light brown. Figured shells are 3.5 and 4.6 mm in length.

**Material examined.** — **ASCENSION ISLAND. Boatswain Bird Island**, 33 m, close to reef below bird colony, SB-L & JB coll., 22 Jan. 2017 [1]; 35 m, near rocky reef, beneath bird colony, SB-L & JB coll., 16 Apr. 2016 [1]; **English Bay**, 9 m, below





**Figure 2.** *Nanaphora renevanwalleghemi* spec. nov. A–G, I. Holotype, RBINS I.G. 34360 MT.3899: front (A–B), side (C), back (D–E), protoconch (F, G), teleoconch sculpture (I). H, J. Paratype 1, MNHN-IM-2016-5340: protoconch (H), front (J). A–E, J. 0.5 mm. F, H–I. 0.3 mm. G. 0.2 mm.



**Figure 3.** *Cosmotriphora arnoldoi* Faber & Moolenbeek, 1991. A–C. Ascension Island, Red Rock, 14 m depth, in detritus: front (A), side (B), protoconch (C). D–E. Ascension Island, North Point Reef, 25 m, bottom of reef wall: front (D), side (E). A–B, D–E. 0.5 mm. C. 0.2 mm.

big arches, PW coll., 11 Nov. 2015 [1]; **Georgetown**, station 1, 80 m, in Van Veen grab fishing vessel Extractor, AR coll., 21 Feb. 2018 [4]; station 2, 130 m, fishing vessel Extractor, AR coll., 21 Feb. 2018 [7]; station 3, 130 m, in Van Veen grab fishing vessel Extractor, AR coll., 21 Feb. 2018 [3]; station 4, 60 m, in Van Veen grab fishing vessel Extractor, AR coll., 21 Feb. 2018 [2]; **Grattan Seamount**, south of Ascension Island, 90–100 m, Van Veen grab, in grit, AR coll., 25 Jan. 2018 [2]; **North Point Reef**, 25 m, bottom of reef wall, SB-L & JB coll., 21 Aug. 2016 [1]; **Red Rock**, 14 m, in detritus, PW coll., 9 Feb. 2014 [1]; 27 m, sandy floor next to rocky reef, SB-L & JB coll., 17 Dec. 2016 [1]; **SW of the Island**, 150 m, in Van Veen grab, AR coll., on fishing vessel Extractor [2]; “**Triangles**”, 15 m, in small cave ledge, PW coll., 19 Jul. 2015 [2].

**Distribution.** — Ascension Island (this study), Bahamas, Bonaire (type loc.), Brazil, Cuba, Gulf of Mexico, Mexico, Puerto Rico, United States: Florida, Louisiana and Texas. See Fernandes & Pimenta (2020) for a detailed map.

**Bathymetric distribution.** — 9–150 m.

**Remarks.** — *Cosmotriphora arnoldoi* is very similar to the eastern Atlantic–Mediterranean species *Ionthoglossa pseudocanarica* (Bouchet, 1985), even though they are placed in two completely different genera. Soft tissue studies may provide information to clarify if these two species

are congeneric. The occurrence of this species at Ascension Island may show that the two species might have diverged millions of years ago with the gradual expanse of the Atlantic, similar to the case of *Cosmotriphora melanura* (C.B. Adams, 1850) (Fernandes & Pimenta, 2020).

#### Genus *Inella* Bayle, 1879: 35

Type species: *Triphoris (Ino) gigas* Hinds, 1843

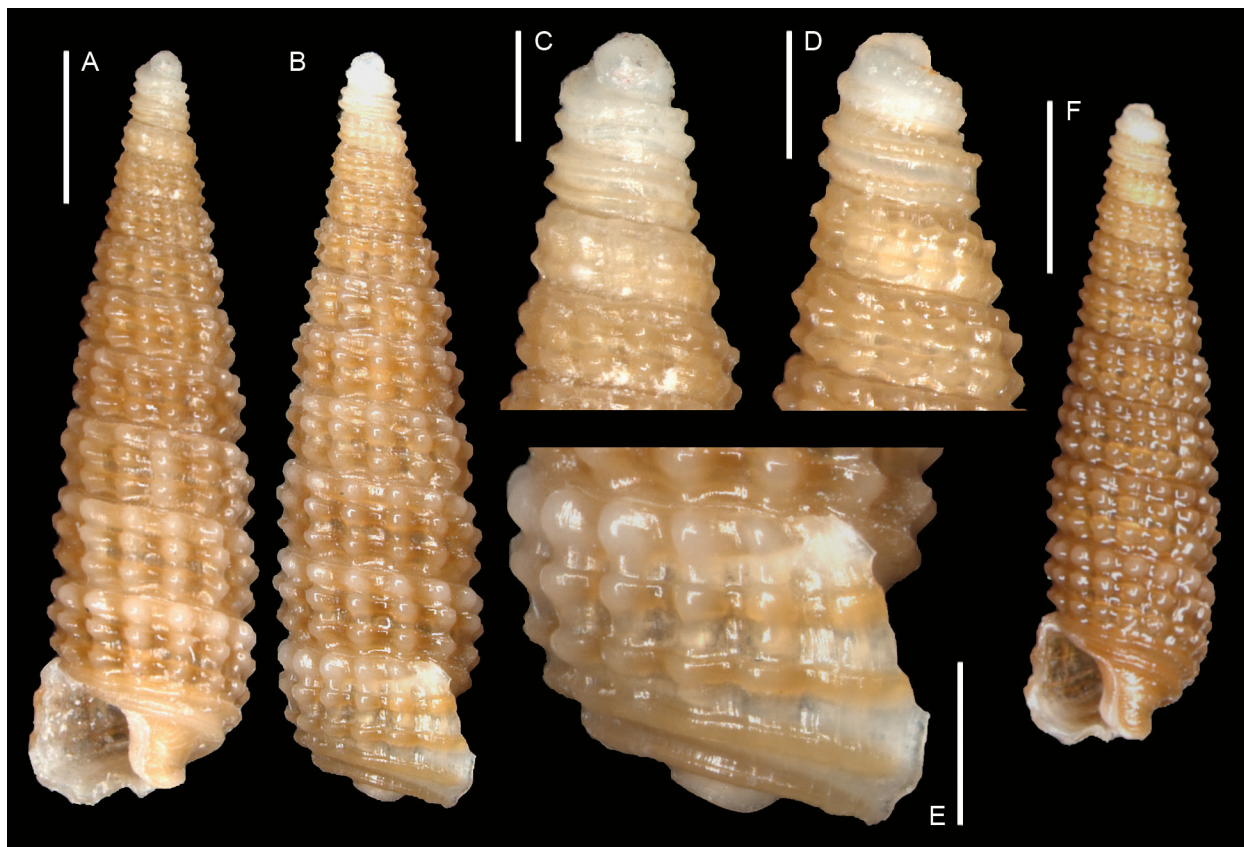
#### *Inella recta* (E.A. Smith, 1890) comb. nov.

Figure 4

*Triphoris recta* E.A. Smith, 1890: 292, pl. 24, fig. 3.

**Description.** — Paucispiral protoconch of about 2.5 whorls, two spiral keels which are interrupted frequently by impressions. Teleoconch of about 8–9 whorls. All three spiral cords appear simultaneously, the first starting less prominent, sutural thread hardly visible, base with smooth subperipheral cord and one additional smooth basal spiral cords, siphonal canal open, posterior sinus absent, peristome without supranumerical cords. Protoconch white, last





**Figure 4.** *Inella recta* (E.A. Smith, 1890). A–C, E. Saint Helena, Buoy hole, 10 m depth, in grit under black coral, adult specimen: front (A), side (B), protoconch (C), peristome (E). D, F. Saint Helena, Black Rocks, Flagstaff Bay, 7 m depth, large boulders, in detritus: protoconch (D), front (F). A–B, F. 1 mm. C–D. 0.3 mm. E. 0.5 mm.

whorl light brown, teleoconch brown with on the first spiral cord on the lower whorls lighter coloured tubercles, base light brown. Figured shells are 4.9 and 3.7 mm long.

**Material examined.** — **ASCENSION ISLAND.** **Georgetown**, station 2, 130 m, fishing vessel Extractor, AR coll., 21 Feb. 2018 [4]; station 3, 130 m, in Van Veen grab fishing vessel Extractor, AR coll., 21 Feb. 2018 [8]. **SAINT HELENA.** **Bedgelliet Wreck**, 5 m, in detritus, JB coll., 7 Mar. 2014, 15°56'45.60"S, 5°45'18.00"W [1]; 18 m, in grit, PW coll., 12 Jan. 2014 [3]; 18 m, LH coll., 6 Apr. 2017 [1]; **Benetts Point** towards Lady's Chair, 23 m, in sand, JB coll., 15 Mar. 2014 [2]; **Bens Island**, 17 m, under bedrock ledge, LH coll., 16 Jun. 2016 [2]; **Bird Island**, 12 m, in cave, in detritus, PW coll., 16 Jan. 2015 [15]; **Black Rocks**, Flagstaff Bay, 7 m, under large boulders, LH coll. [2]; 7 m, large boulders, in detritus, JB coll., 7 Oct. 2015 [3]; **Black Rocks** near Thompsons Valley Island, 20 m, inside cave, LH coll., 2 Oct. 2012 [2]; 20 m, inside cave, LH coll., 15 May 2017 [3]; **Buoys Hole**, 10 m, in grit under black coral, JB coll., 21 May 2014 [1]; **Buoys Hole/Cat Island**, 11 m, near large boulders, LH coll., 31 Oct. 2015 [25]; **Cavalley Hole**, 15 m, at mouth of cave, LH coll., 28 Apr. 2017 [5]; **Buttermilk Point**, 11 m, near large boulders, LH coll., 4 Jul. 2015 [1]; **Dawsons**, 90 m, dredged, LH coll., 8 Apr. 2018 [>100]; **Devils Eyes East**, 14 m, between large boulders,

LH coll., 24 May 2015 [5]; **Egg Island**, 8 m, in bedrock and boulders, LH coll., 20 Apr. 2017 [7]; 29 m, in detritus, PW coll., 27 Jan. 2014 [7]; close to **Jamestown**, at the base of Papanui Wreck, 11 m, LH coll., 10 Jul. 2016 [2]; **Long Ledge**, 10 m, inside cave, JB coll., 30 Jul. 2015 [4]; 11 m, in detritus in cave, PW coll., 21 Jan. 2014 [9]; 11 m, in grit in cave, JB coll., 5 Mar. 2014, 15°56'42"S, 5°45'10.8"W [7]; **Long Ledge East**, 12 m, under ledge, JB coll., 22 May 2015 [1]; dunes amongst boulders, LH coll., 22 May 2015 [8]; **Lot's Wife Ponds**, 1 m, in grit, JB coll., 20 Jul. 2014, 16°00'50.4"S, 5°43'33.6"W [3]; **Merrimens Island**, 16 m, in grit, LH coll., 16 Jul. 2016 [1]; **Merrimens Point**, 10 m, under ledge, JB & LH coll., 8 Aug. 2015 [1]; **Peaked Island**, 20 m, mouth of cave, LH coll., 9 Jul. 2016 [1]; **Red Island**, 12 m, bedrock overhangs, LH coll., 30 Dec. 2015 [2]; 12 m, in grit, JB coll., 10 Jul. 2014, 15°56'24.0"S, 5°44'31.2"W [1]; between **Red Island and Long Ledge**, 12 m, in sand, JB coll., 19 Jul. 2014 [1]; **Red Rock Cove** near Cat Island, 19 m, in detritus, JB coll., 9 Mar. 2014, 15°56'42"S, 5°45'10.8"W [1]; **Ruperts**, 11 m, in detritus in cave, LH coll., 25 Apr. 2017 [1]; at the **wreck Papanui**, 12 m, in grit, LH coll., 17 May 2017 [1].

**Distribution.** — Currently known only from Ascension Island and Saint Helena.

**Bathymetric distribution.** — 0–130 m.



**Remarks.** — Type specimens of *Inella recta* were not found in NHMUK (Albano et al., 2019: 252). However, the description states clearly that the protoconch has “two strong spiral keels on each whorl”; therefore, we agree that these specimens match the description of *I. recta*. It is rather closely related to *Inella apexbilarata* Rolán & Fernández-Garcés, 2008 from the western side of the Atlantic, *I. apexbilarata* is more fusiform, elongated and the adapical spiral cord is equal to the median and abapical spiral cords. Based on the similarities with *I. apexbilarata* we place this species in *Inella*.

***Inella* spec.**

Figure 5

**Description.** — Paucispiral protoconch of about 2 whorls, faint axial riblets. Teleoconch of at least 10 whorls. All three spiral cords appear simultaneously, and they are rather similar in size. Protoconch white, teleoconch white. The figured shell is 4.7 mm long.

**Material examined.** — SAINT HELENA. Dawsons, 90 m depth, dredged, LH, 8 Apr. 2018 [2].

**Distribution.** — Currently known only from Saint Helena.

**Bathymetric distribution.** — 90 m.

**Remarks.** — Based on the condition of the two specimens we refrain from describing this species, even though it is completely distinct from all species known from Saint Helena and Ascension Island. It is likely a new species, but a description should be based on complete specimens and not on fragments like these.

**Genus *Triphora* de Blainville, 1828: 344**

Type species: *Triphora gemmata* de Blainville, 1828

***Triphora albanoi* spec. nov**

Figure 6

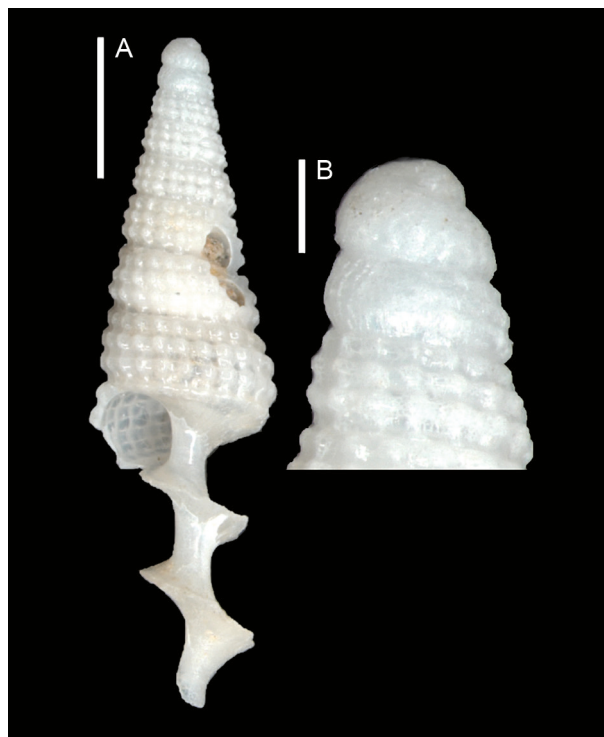
**Type material.** — Holotype RBINS I.G. 34360 MT.3900, Ascension Island, Boatswain Bird Island, 13 m, 07°53'09.2"S, 14°18'50.0"W, rocky reef.

**Additional material.** — ASCENSION ISLAND. Catherine Point, Arches, Georgetown, 23 m, under rocks, SB-L & JB coll., 27 Mar. 2016 [1].

**Type locality.** — Ascension Island, Boatswain Bird Island, 13 m, 07°53'09.2"S, 14°18'50.0"W, rocky reef.

**Etymology.** — In honour of Dr Paolo G. Albano, who was the first author's supervisor during his Master Internship in Vienna in 2015. This internship was the start of a great cooperation in order to study the Indo-Pacific Triphoridae, which is ongoing.

**Description.** — Shell sinistral, small, cyrtoconoid to slightly ovoid, moderate convex profile, of about 5 whorls. Protoconch paucispiral first whorl with the impression of a



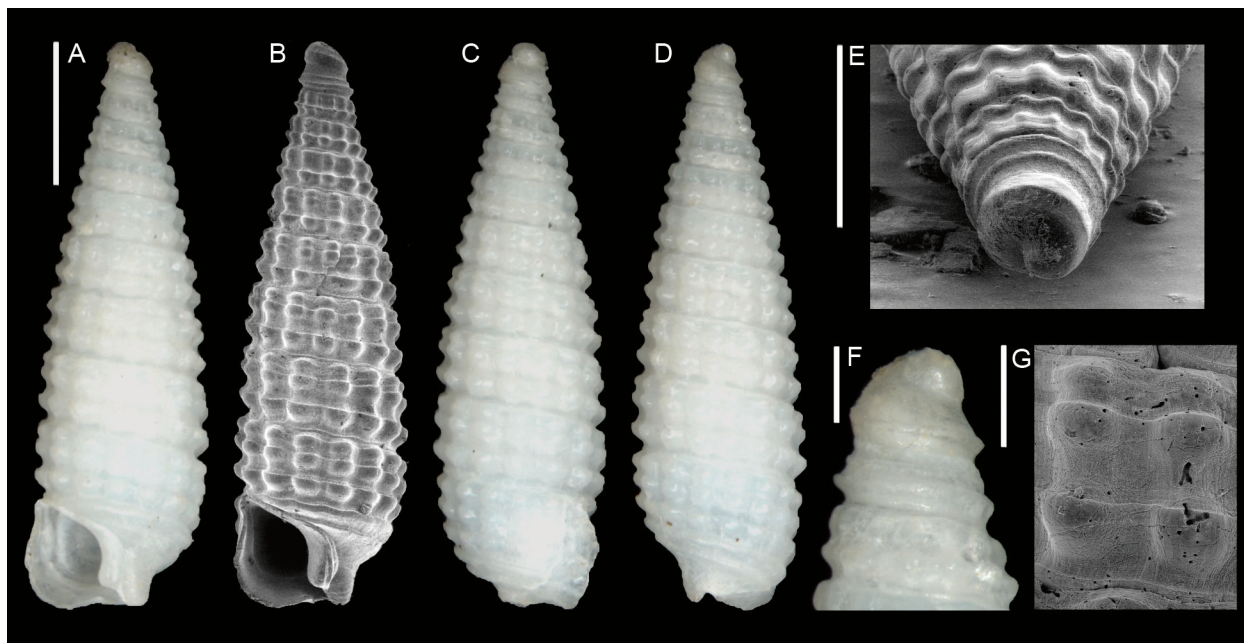
**Figure 5.** *Inella* sp. A–B. Saint Helena, Dawsons, 90 m depth, dredged: front (A), protoconch (B). A. 1 mm. B. 0.2 mm.

faint spiral thread halfway down the whorl, second whorl with two spiral keels of which the upper one is on the middle of the whorl, the lower keel is more prominent, teleoconch with three spiral cords, median spiral cord emerging from the upper spiral cord near the fourth to fifth whorl of the shell, reaching the same size of other cords on the last whorl, ~16 axial ribs on the last whorl, large elongated nodules formed at the crossing of axial ribs and the spiral cords, suture with a fine sutural cord, smooth or slightly wavy subperipheral cord, one faint smooth basal cord, ovate aperture, siphonal canal curved backwards/downwards, short, open, posterior canal is a very small notch. Protoconch and teleoconch of a uniform white colour. The figured shell is 3.9 mm long.

**Distribution.** — Currently known only from Ascension Island.

**Bathymetric distribution.** — 13–23 m.

**Remarks.** — The protoconch morphology of this species shows some similarity to that of *Triphora portoricensis* Rolán & Redfern, 2008 however *T. albanoi* does not show axial microsculpture on the protoconch and does not have a late median spiral cord as in *T. portoricensis*. The fusion of spiral 1 and 2 in the early teleoconch whorls is unusual in Triphoridae but has been observed in some *Cerithiopsis* species, such as *C. fusiformis* (C.B. Adams, 1850) and *C. aimen* Rolán & Espinosa, 1996. *Triphora albanoi* probably belongs to an as yet undescribed genus. Smith (1890: 291) reported *Triforis melanura* (= *Cosmotriphora melanura* (C.B. Adams, 1850)) from Saint Helena as



**Figure 6.** *Triphora albanoi* spec. nov. A–G. Holotype, RBINS I.G. 34360 MT.3900: front (A–B), side (C), back (D), protoconch (E–F), teleoconch sculpture (G). A–D. 1 mm. E. 0.5 mm. F–G. 0.2 mm.

the only white species encountered, however he clearly states that the apical whorls are brown. Therefore it is not possible that Smith's (1890) record of *T. melanura* was a misidentification of *T. albanoi*. In addition we did not find *C. melanura* from Ascension Island.

#### *Triphora atlantica* E.A. Smith, 1890

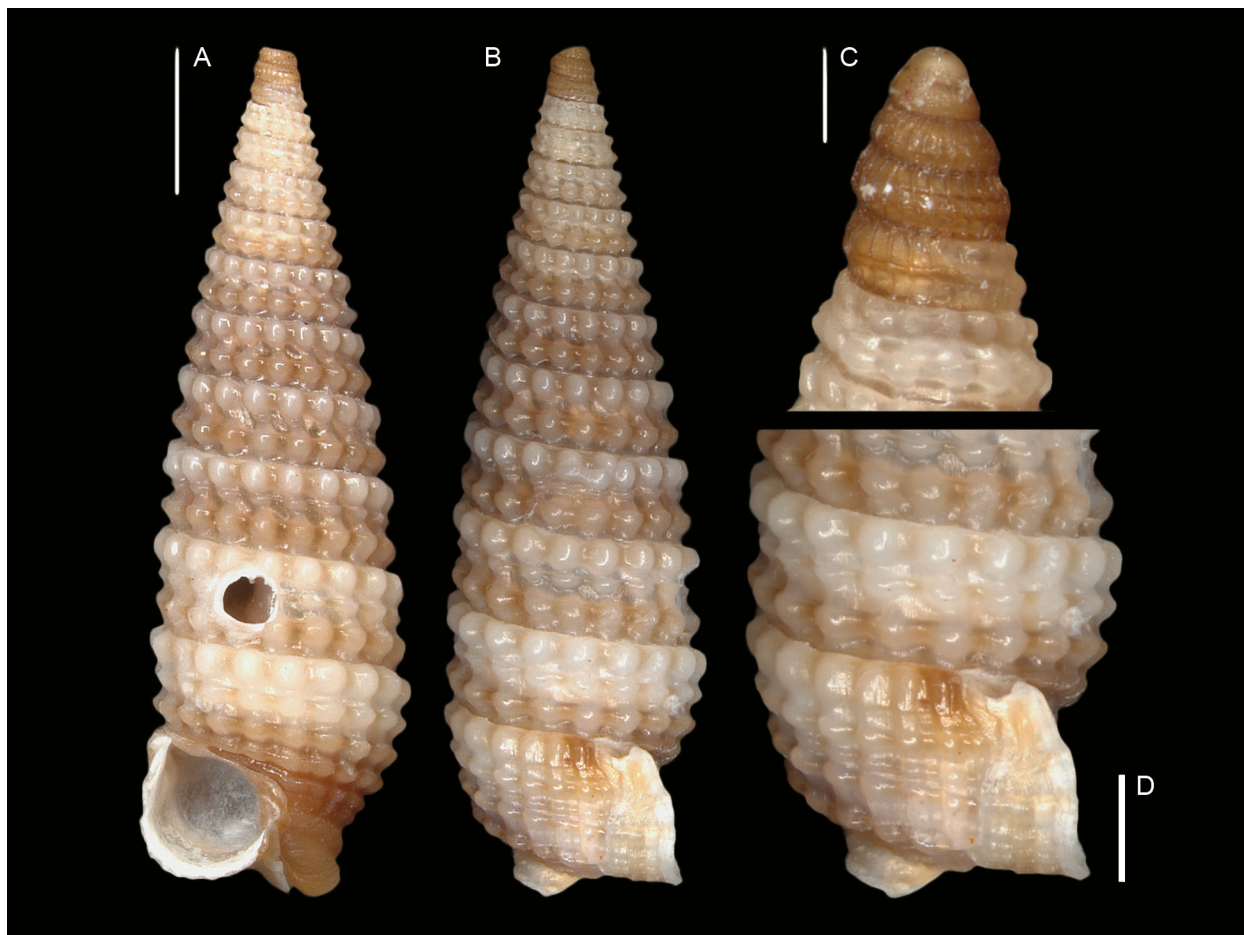
Figure 7

*Triforis atlantica* E.A. Smith, 1890: 292, pl. 21, fig. 26; Albano et al., 2019: 254, 256, fig. 80. *Triphora atlantica* E.A. Smith, 1890 — Rolán & Fernández-Garcés, 2008: 146, fig. 25A–I; Lee 2009: 92, fig. 442. Garcia & Lee, 2011; Fernandes et al., 2013: 15, figs 15, 26, 36; Fernandes & Pimenta, 2020: 163–166, fig. 95.

**Description.** — Multispiral protoconch of about 4.5–5 whorls, two spiral keels but on the last whorl only one remains, multiple axial riblets. Teleoconch of about 10 whorls. First and third spiral cords appear first, on the eighth whorl the second spiral cord appears, first and third spiral cord more prominent, sutural thread hardly visible, base with subperipheral spiral cord and two additional basal spiral cords of which the last is faintly visible, siphonal canal closed, peristome with supranumerical cords, posterior sinus deep. Protoconch brown, teleoconch, cream to light brown, first spiral cord white to light brown, third spiral cord darker, between the tubercles light brown, base brown. The figured shell is 5.6 mm long.

**Material examined.** — SAINT HELENA. Approaching

Youngs Valley, 7 m, in sand, in detritus, JB coll., 1 Mar. 2014, 15°55'44.4"S, 5°43'51.60"W [1]; **Bedgellet Wreck**, 18 m, LH coll., 6 Apr. 2017 [2]; **Bens Island**, 17 m, under bedrock ledge, LH coll., 16 Jun. 2016 [11]; **Bird Shit towards Banks**, in detritus, JB coll., 22 Jul. 2014, 15°54'43.2"S, 5°42'32.4"W [1]; **Black Rocks**, Flagstaff Bay, 7 m, under large boulders, JB coll., 7 Oct. 2015 [3]; **Black Rocks near Thompsons Valley Island**, 20 m, inside cave, LH coll., 2 Oct. 2012 [5]; 20 m, inside cave, LH coll., 15 May 2017 [5]; far side (the opposite side), **Buoys Hole**, 10 m, in grit under black coral, JB coll., 21 May 2014 [1]; **Buoys Hole/Cavalley Hole**, 15 m, at mouth of cave, LH coll., 28 Apr. 2017 [7]; **Buttermilk Point**, 11 m, near large boulders, LH coll., 4 Jul. 2015 [1]; 8 m, in bedrock shelf, LH coll., 4 Jul. 2015 [2]; **Cat Island**, 11 m, near large boulders, LH coll., 31 Oct. 2015 [4]; **Egg Island**, 8 m, bedrock & boulders, LH coll., 20 Apr. 2017 [7]; 8 m, in detritus, JB coll., 15°58'15.6"S, 5°46'15.60"W [1]; 29 m, in detritus, PW coll., 27 Jan. 2014 [3]; **Horse Pasture Point**, 16 m, bedrock ledge, LH coll., 25 Jun. 2016 [1]; **Long Ledge**, 10 m, inside cave, JB coll., 30 Jul. 2015 [1]; 11 m, in detritus in cave, PW coll., 21 Jan. 2014 [8]; 11 m, in grit from cave, JB coll., 5 Mar. 2014, 15°56'42"S, 5°45'10.8"W [1]; **Long Ledge East**, 12 m, under overhang / ledge, JB coll., 22 May 2015 [3]; **Merrimens Island**, 16 m, in grit, LH coll., 16 Jul. 2016 [7]; **Peaked Island**, 20 m, mouth of cave, LH coll., 9 Jul. 2016 [1]; **Red Island**, 12 m, bedrock overhangs, LH coll., 30 Dec. 2015 [3]; 12 m, in grit, JB coll., 10 Jul. 2014, 15°56'24.0"S, 5°44'31.2"W [1]; between **Red Island and Long Ledge**, 12 m, in sand, JB coll., 19 Jul. 2014 [1]; **Red Rock Cove** near Cat Island, 19 m, in detritus, JB coll., 9 Mar. 2014, 15°56'42"S, 5°45'10.8"W [1]; **Ruperts**, 11 m, in detritus



**Figure 7.** *Triphora atlantica* E.A. Smith, 1890. **A–B, D.** Saint Helena, Long Ledge, 11 m depth, in detritus in cave: front (**A**), side (**B**), peristome (**D**). **C.** Saint Helena, Long Ledge, 11 m depth, in detritus in cave: protoconch (**C**). **A–B.** 1 mm. **C.** 0.2 mm. **D.** 0.5 mm.

in cave, LH coll., 25 Apr. 2017 [10]; **Ruperts Bay**, 11 m, bedrock & boulders, LH coll., 2 May 2018 [2].

**Distribution.** — Brazil, Puerto Rico, Saint Helena (type locality), United States: Florida and Louisiana. See Fernandes & Pimenta (2020) for a detailed map.

**Bathymetric distribution.** — 0–29 m.

**Remarks.** — A lectotype was designated by Rolán & Fernández-Garcés (2008), and it and a paralectotype were figured by Albano et al. (2019).

#### *Triphora bathyraphe* E.A. Smith, 1890

Figure 8

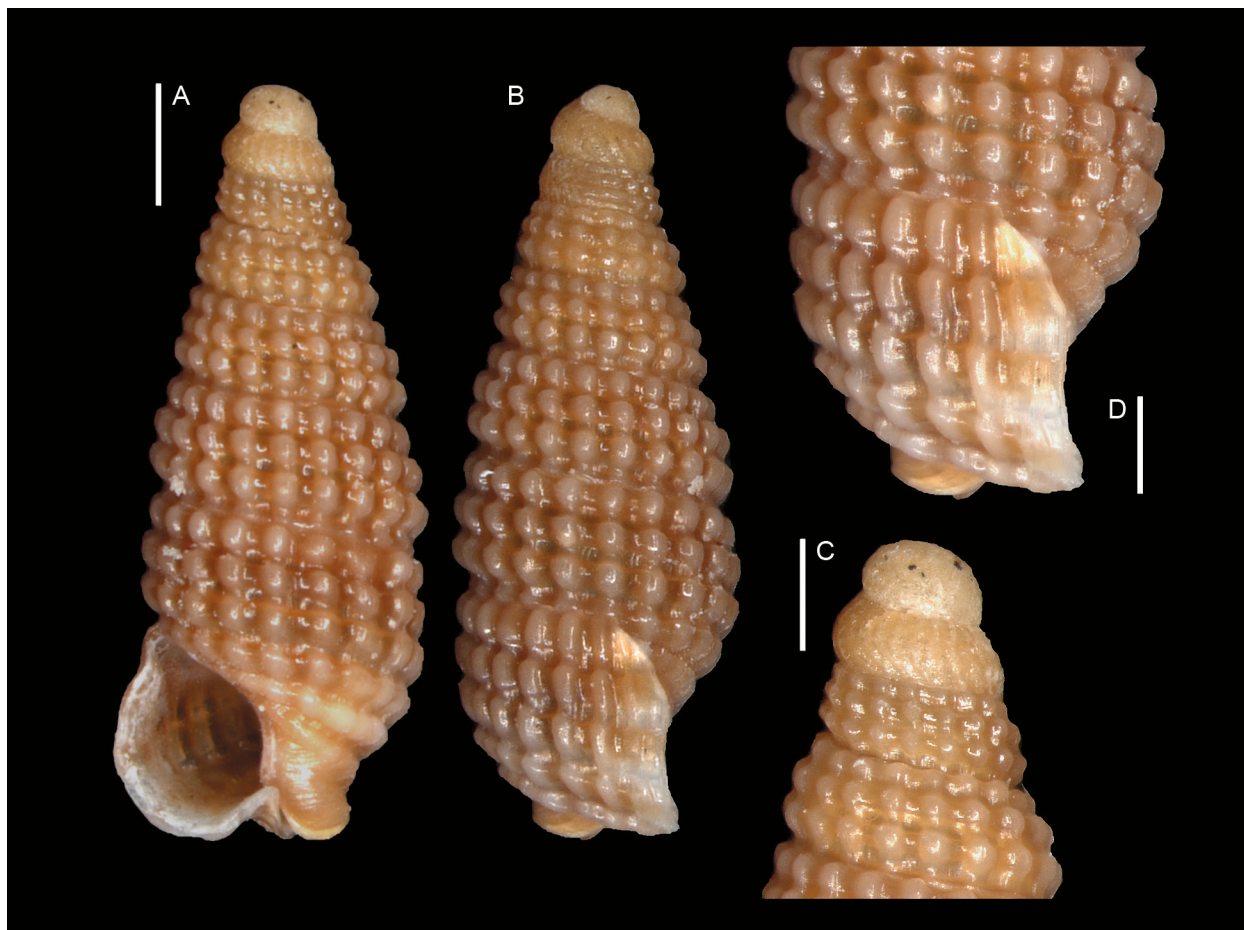
*Trifora bathyraphe* E.A. Smith, 1890: 292, pl. 24, fig. 4 — Albano et al., 2019: 256, fig. 81.

**Description.** — Paucispiral protoconch of about 1.5–2 whorls, faint axial ribs present. Teleoconch of about 5 whorls. All three spiral cords appear simultaneously, the first starting slightly less prominent, sutural thread hardly visible, base with subperipheral spiral cord and two additional spiral cords of which the subperipheral cord bears tubercles and

the lower two additional spiral cords remain rather smooth, siphonal canal closed, peristome without supranumerical cords, posterior sinus shallow to absent. Protoconch light brown, teleoconch, light brown, tubercles lighter of colour. Figured shell is 2.25 mm long.

**Material examined.** — **SAINT HELENA.** **Bens Island**, 17 m, under bedrock ledge, LH coll., 16 Jun. 2016 [2]; **Black Rocks**, Flagstaff Bay, 7 m, large boulders, in detritus, JB coll., 7 Oct. 2015 [1]; **Black Rocks** near Thompsons Valley Island, 20 m, inside cave, LH coll., 2 Oct. 2012 [2]; **Buoys Hole/Cavalley Hole**, 15 m, at mouth of cave, LH coll., 28 Apr. 2017 [1]; **Cat Island**, 11 m, near large boulders, LH coll., 31 Oct. 2015 [2]; **Egg Island**, 8 m, bedrock & boulders, LH coll., 20 Apr. 2017 [2]; far side (the opposite side), **Egg Island**, 8 m, in detritus, JB coll., 15°58'15.6"S, 5°46'15.60"W [1]; **Horse Pasture Point**, 16 m, bedrock ledge, LH coll., 25 Jun. 2016 [1]; **Long Ledge**, 11 m, in detritus in cave, PW coll., 21 Jan. 2014 [1]; 11 m, in grit from cave, JB coll., 5 Mar. 2014, 15°56'42"S, 5°45'10.8"W [1]; **Peaked Island**, 20 m, mouth of cave, LH coll., 9 Jul. 2016 [1]; **Red Island**, 12 m, bedrock overhangs, LH coll., 30 Dec. 2015 [1]; near the **wreck of Papanui**, 12 m, in grit, LH coll., 17 May 2017 [2].





**Figure 8.** *Triphora bathyraphe* E.A. Smith, 1890. A–D. Saint Helena, Long Ledge, 11 m depth, in grit from cave, 15°56'42"S, 5°45'10.8"W: front (A), side (B), protoconch (C), peristome (D). A–B. 0.5 mm. C–D. 0.3 mm.

**Distribution.** — Endemic to Saint Helena.

**Bathymetric distribution.** — 7–20 m.

**Remarks.** — A syntype was figured by Albano et al. (2019). The syntype is a rather large specimen (reaching 5 mm long) whereas specimens in the present study are smaller.

#### *Triphora* s.l. spec.

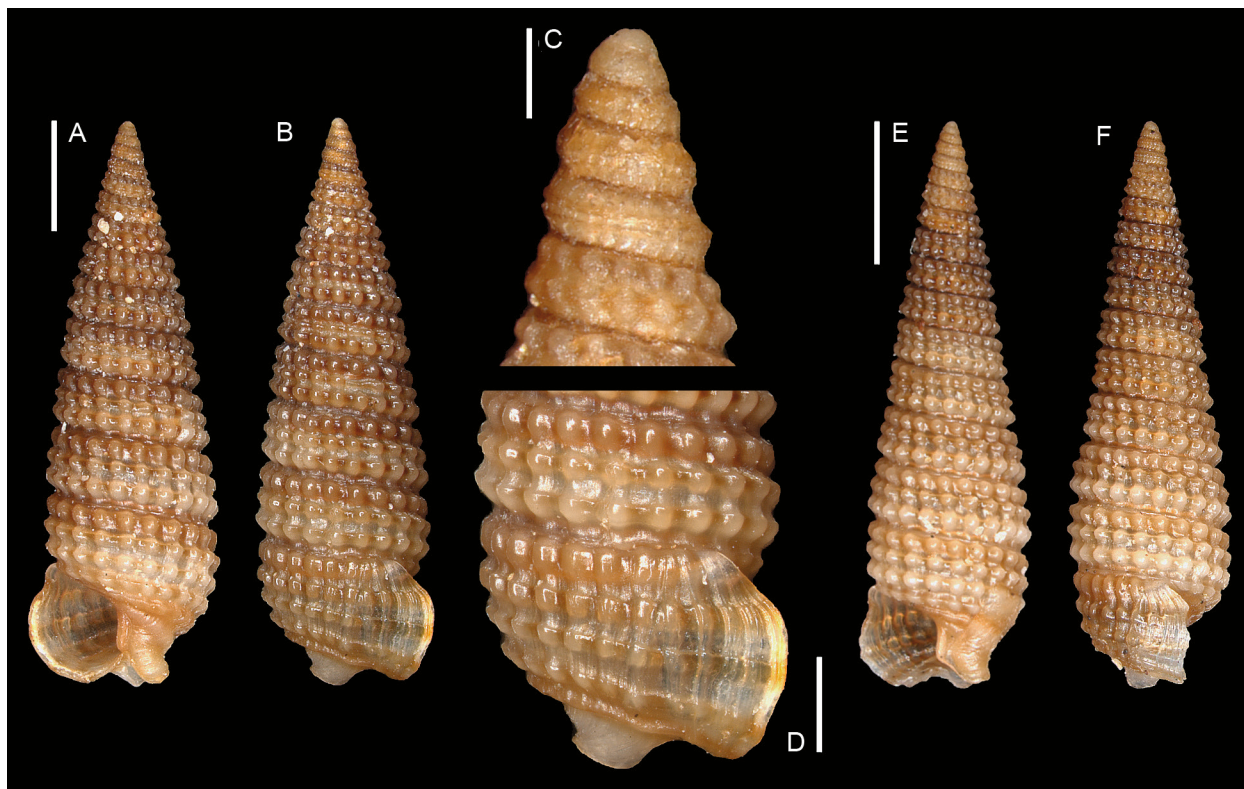
Figure 9

*Triforis perversa* (Linnaeus, 1758) [sic] — E.A. Smith, 1890: 291.

**Description.** — Multispiral protoconch of about 4.5–5 whorls, two spiral keels, multiple axial riblets. Teleoconch of about 9–11 whorls. First and third spiral cords appear first, on the fifth to sixth whorl the second spiral cord appears, first and third spiral cords more prominent, sutural thread thin, base with subperipheral spiral cord and two additional spiral cords of which the last is faintly visible, subperipheral spiral cord bears tubercles while the lower two basal spiral cords appear to remain rather smooth, siphonal canal closed, peristome without supranumerical cords, posterior sinus

shallow to absent. Protoconch brown, teleoconch cream to light brown, first spiral cord can be darker than the lower spiral cords, tubercles lighter in colour than the background, base brown. Figured shells are 5.1 and 3.9 mm in length.

**Material examined.** — ASCENSION ISLAND. “Pan Am”, 20 m, near black coral overhang, PW coll., 18 Jul. 2015 [14]; “Triangles”, 15 m, in small cave/overhanging, PW coll., 19 Jul. 2015 [5]; Bates Point, 13 m, SB-L & JB coll., 17 Apr. 2015 [1]; Boatswain Bird Island, all collected by SB-L & JB; 11 m, rock reef below seabird colony, 26 Feb. 2017 [7]; 13 m, rocky reef, 20 Aug. 2016 [1]; 23 m, on rocky reef, 7 Feb. 2016 [1]; 25 m, rock ledge, directly below bird colony, in green algae, 20 Aug. 2016 [1]; 27 m, next to reef, 30 Apr. 2017 [1]; 28 m, rocky reef, coll., 25 Mar. 2016 [1]; 33 m, close to reef below bird colony, coll., 22 Jan. 2017 [4]; 33 m, next to rocky reef, underneath bird colony, 12 Feb. 2017 [6]; 34 m, close to the edge of rocky reef, in detritus, 26 Feb. 2017 [1]; 35 m, near rocky reef, beneath bird colony, 16 Apr. 2016 [2]; Bomo Lava Field, near Derby Wreck area, 10 m, SB-L coll., 4 Jun. 2016 [1]; Boys Tower, 18 m, SB-L coll., 1 May 2016 [2]; Catherine Point Arches, Georgetown, 23 m, under rocks, SB-L & JB coll., 27 Mar. 2016 [2]; China Wreck, off Georgetown, 27 m,



**Figure 9.** *Triphora* s.l. sp. A–B, D. Saint Helena, close to Jamestown, at the base of Papanui Wreck, 11 m depth, specimen 1: front (A), side (B), peristome (D). C, E–F. Saint Helena, close to Jamestown, at the base of Papanui Wreck, 11 m depth, specimen 2: protoconch (C), front (E), side (F). A–B, E–F. 1 mm. C. 0.2 mm. D. 0.5 mm.

sandy floor next to wreck, 25 Jun. 2016 [2]; **Clarence Bay Arches**, 24 m, sandy next to rocky reef, SB-L & JB coll., 16 Oct. 2016 [2]; 29 m, in grit, sand floor/reef, SB-L & JB coll., 6 Feb. 2016 [2]; **Derby Wreck**, 7 m, rocky reef below small outcrop of rocks close to wreck, fine sand, JB & SB-L coll., 27 Sep. 2015 [1]; 7 m, rocky reef, SB-L & JB coll., 4 Jun. 2016 [1]; 7 m, under metal plate of Wreck, pile of coarse sand, SB-L & JB coll., 27 Sep. 2015 [3]; **Derby Wreck Arches**, 10 m, under large arche, SB-L coll., 8 Nov. 2015 [5]; **Eddies Gullies**, in small cave, 10 m, SB-L coll., 7 Nov. 2015 [1], under large rock, 16 m depth, in detritus, SB-L & JB coll., 7 Nov. 2015 [3]; under ledge, 19 m, SB-L coll., 7 Nov. 2015 [1]; **English Bay**, 9 m, below big arches, PW coll., 11 Nov. 2015 [8]; 9 m, in grit, PW coll., 16 Jul. 2015 [4]; 10 m, sandy occasional rocky patches, SB-L & JB coll., 19 Jun. 2016 [3]; 12 m, in dived grit, PW coll., 5 Feb. 2014 [16]; **Georgetown**, in tidal pool, PW coll., Feb. 2014 [1]; station 1, 80 m, in Van Veen grab fishing vessel Extractor, AR coll., 21 Feb. 2018 [3]; station 4, 60 m, in Van Veen grab fishing vessel Extractor, AR coll., 21 Feb. 2018 [2]; **Horse Shoe Reef**, 14 m, under ledge, SB-L & JB coll., 6 Mar. 2016 [2]; 23 m, SB-L & JB coll., 23 Oct. 2016 [2]; 28 m, SB-L & JB coll., 6 Mar. 2016 [2]; **Jimmys Reef**, 22 m, in sand under rocks, SB-L & JB coll., 22 Nov. 2015 [1]; **Ladies Loo**, 17 m, in grit, SB-L & JB coll., 24 Jan. 2016 [5]; 18 m, reef ledges, SB-L & JB coll., 12 Jun. 2016 [14]; worm castes, 21 m, close to

reef, SB-L & JB coll., 21 Feb. 2016 [2]; reef next to **Lava Tunnel**, English Bay, 8 m, in grit, PW coll., 8 Feb. 2014 [10]; English Bay, 9 m, PW coll., 7 Nov. 2015 [5]; **Lions Mane**, 14 m, rocky reef, SB-L & JB coll., 18 Dec. 2016 [4]; **Lions Mane Reef**, 23 m, on near rife site, SB-L coll., 25 Dec. 2016 [1]; 29 m, next to rocky reef, SB-L & JB coll., 17 Apr. 2017 [2]; **Long Beach Reef**, 6 m, rocky reef, sandy hollow, SB-L & JB coll., 17 Oct. 2015 [1]; **North East Point**, 24 m, next to rocky reef, SB-L & JB coll., 4 Dec. 2016 [3]; **North Point**, 23 m, sandy next to steep rock reef face, SB-L & JB coll., 11 Mar. 2017 [14]; **North Point Reef**, 25 m, bottom of reef wall, SB-L & JB coll., 21 Aug. 2016 [1]; **One Hook**, 10 m, in grit, PW coll., 25 Apr. 2015 [10]; **One Hook**, 17 m, in detritus, PW coll., 25 Apr. 2015 [1]; 19 m, in detritus, PW coll., 14 Nov. 2015 [4]; 20 m, 1 m on rock reef on broken coral/sandy, SB-L & JB coll., 5 Jun. 2016 [2]; 18 m, sea bed, rock reef, bottom of large rock face, SB-L & JB coll., 4 Oct. 2015 [1]; 19 m, rocky reef underneath rocky ledge, SB-L coll., 4 Oct. 2015 [1]; **One Hook Bay**, 20 m, in grit, rocky reef, underneath rock ledge, SB-L coll., 4 Nov. 2015 [2]; **Pyramid Point**, 20 m, below boulder, PW coll., 22 Jul. 2015 [1]; **Red Rock**, 11 m, rocky reef, SB-L & JB coll., 28 Aug. 2016 [2]; 12 m, below big arch, PW coll., Jul. 2015 [4]; 14 m, in detritus, PW coll., 9 Feb. 2014 [13]; 14 m, small sandy ledges in extensive rocky reef, SB-L & JB coll., 18 Jun. 2016 [3]; 22 m, rocky reef, SB-L coll., 8 Oct. 2016 [4];

27 m, sandy floor next to rocky reef, SB-L & JB coll., 17 Dec. 2016 [2]; 30 m, in detritus, PW coll., 20 Jul. 2015 [6]; 30 m, sandy next to rocky reef, SB-L & JB coll., 22 Oct. 2016 [5]; **Sudan Wreck Reef**, 9 m, large, high walled gully, bottom of gully wall, SB-L coll., 10 Oct. 2015 [1]; **Sudan Wiggan Pier**, 13 m, rocky reef, under rocks, JB & SB-L coll., 1 Feb. 2016 [1]; **SW of the Island**, 150 m, met Van Veen grab, AR coll., on fishing vessel Extractor [1]; **Triangles Reef**, 18 m, rocky reefs under rocks and in green seaweed, SB-L & JB coll., 6 Aug. 2016 [1]; **White Island**, 18 m, rocky reef, under boulders and in sand pockets on reef site, SB-L & JB coll., 6 Feb. 2017 [4]; Small Island, bird breeding island, 27 m, on sandy near rocky reef, SB-L coll., 10 Dec. 2016 [2]; **White Rock Island**, 14 m, sandy ledge on rocky reef, SB-L & JB coll., 10 Dec. 2016 [2]; **Wigan Pier**, 11 m, night dive, sandy near reef, collected in wave channels, SB-L & JB coll., 31 Dec. 2016 [1]; **Wreck Reef**, 9 m, underneath large overhanging rocky ledge, SB-L coll., 10 Oct. 2015 [1]. **SAIN'T HELENA. Approaching Youngs Valley**, 7 m, in sand, in detritus, JB coll., 1 Mar. 2014, 15°55'44.4"S, 5°43'51.60"W [34]; **Bedgellet Wreck**, 5 m, in detritus, JB coll., 7 Mar. 2014, 15°56'45.60"S, 5°45'18.00"W [3]; 18 m, in grit, PW coll., 12 Jan. 2014 [4]; 18 m, LH coll., 6 Apr. 2017 [5]; **Benetts Point** towards Lady's Chair, 23 m, in sand, JB coll., 15 Mar. 2014 [7]; **Bens Island**, 17 m, under bedrock ledge, LH coll., 16 Jun. 2016 [5]; **Billy May's Revenge**, 12 m, in detritus, JB coll., 12 Apr. 2014 [6]; **Bird Island**, 12 m, in cave, in detritus, PW coll., 16 Jan. 2015 [1]; **Bird Shit towards Banks**, in detritus, JB coll., 22 Jul. 2014, 15°54'43.2"S, 5°42'32.4"W [5]; **Black Rocks**, Flagstaff Bay, 7 m, large boulders, LH coll., 7 Oct. 2015 [3]; 7 m, large boulders, in detritus, JB coll., 7 Oct. 2015 [5]; 7 m, under large boulders, JB coll., 7 Oct. 2015 [7]; 7 m, under large boulders, LH coll. [1]; near Thompsons Valley Island, 20 m, inside cave, LH coll., 2 Oct. 2012 [3]; near Thompsons Valley, 20 m, inside cave, LH coll., 15 May 2017 [5]; **Buoys Hole**, 10 m, in grit under black coral, JB coll., 21 May 2014 [8]; **Buoys Hole/Cavalley Hole**, 15 m, at mouth of cave, LH coll., 28 Apr. 2017 [29]; **Buttermilk Point**, 11 m, near large boulders, LH coll., 4 Jul. 2015 [7]; 18 m, in bedrock shelf, LH coll., 4 Jul. 2015 [4]; **Cat Island**, 11 m, near large boulders, LH coll., 31 Oct. 2015 [17]; **Dawsons**, 90 m, dredged, LH coll., 8 Apr. 2018 [3]; **Devils Eyes East**, 14 m, between large boulders, LH coll., 24 May 2015 [3]; **Egg Island**, 8 m, bedrock & boulders, LH coll., 20 Apr. 2017 [5]; 29 m, in detritus, PW coll., 27 Jan. 2014 [22]; near the **Frontier Wreck**, 28 m, in detritus, PW coll., 13 Jan. 2015 [20]; **Horse Pasture Point**, 16 m, bedrock ledge, LH coll., 25 Jun. 2016 [3]; **Lighter Rock**, 26 m, in grit, JB coll., 12 Jul. 2014, 15°57'18"S, 5°45'43.2"W [2]; **Long Ledge**, 10 m, inside cave, JB coll., 30 Jul. 2015 [1]; 11 m, in detritus in cave, PW coll., 21 Jan. 2014 [11]; 11 m, in grit from cave, JB coll., 5 Mar. 2014, 15°56'42"S, 5°45'10.8"W [11]; 19 m, in detritus, by diving, JB coll., 2 Apr. 2014 [19]; **Long Ledge East**, 12 m, under ledge, JB coll., 22 May 2015 [6]; dunes amongst boulders, LH coll., 22 May 2015 [12]; **Merrimens**

**Island**, 16 m, in grit, LH coll., 16 Jul. 2016 [16]; close to Jamestown, at the base of **Papanui Wreck**, 11 m, LH coll., 10 Jul. 2016 [28]; **Peaked Island**, 20 m, mouth of cave, LH coll., 9 Jul. 2016 [4]; **Red Island**, 12 m, bedrock overhangs, LH coll., 30 Dec. 2015 [11]; 12 m, in grit, JB coll., 10 Jul. 2014, 15°56'24.0"S, 5°44'31.2"W [7]; between **Red Island** and **Long Ledge**, 12 m, in sand, JB coll., 19 Jul. 2014 [1]; **Red Rock Cove** near Cat Island, 19 m, in detritus, JB coll., 9 Mar. 2014, 15°56'42"S, 5°45'10.8"W [3]; **Romans Reef**, 9 m, in detritus, JB coll., 9 Apr. 2014 [6]; **Ruperts**, 11 m, in detritus in cave, LH coll., 25 Apr. 2017 [21]; **Ruperts Bay**, 11 m, bedrock & boulders, LH coll., 2 May 2018 [7]; at the wreck **Papanui**, 12 m, in grit, LH coll., 17 May 2017 [17].

**Distribution.** — Currently known only from Ascension Island and Saint Helena.

**Bathymetric distribution.** — 0–150 m.

**Remarks.** — Smith's (1890: 291) description of *Triforis perversa* (= *Monophorus perversus*) from Saint Helena included: "the minute bead-like granules are pale in colour, and contrast strongly with the rich brown dots between them. The central row of granules on the penultimate and preceding volutions is almost as large as the others in the majority of the specimens". These sculptural and colour patterns do not match shells in our studied material and are not *Monophorus perversus* (Linnaeus, 1758). It is likely that this group contains cryptic species and should be thoroughly analysed and compared with various species of *Marshallora*, *Monophorus* and *Similiphora* from the East Atlantic and Mediterranean. Detailed SEM images, radulae and molecular data are required to determine in which genus this species should be placed. At this point we are unable to assign this species to one of these genera and therefore provisionally place it in *Triphora* s.l.

## DISCUSSION

Since 1890, Edgar Albert Smith was the sole author to have reported Triphoridae species from Saint Helena, listing five species of which three were described as new. We are able to confirm his species list, with the exception of *Triforis melanura* (= *Cosmotriphora melanura*) (Smith 1890: 291). His description of *C. melanura* is distinct from any of the species found by us. We can include *Metaxia elizabethclinghamae* spec. nov., *Nanaphora renevanwallegghemi* spec. nov. and *Inella* spec. as new records to Saint Helena (Table 1).

Rosewater (1975: 12) was the only one to record a species of Triphoridae from Ascension Island, but he did not illustrate it. He recorded *Triphora grimaldii* Dautzenberg & H. Fischer, 1906, which is currently accepted as a junior synonym of *Cosmotriphora melanura* (C.B. Adams, 1850), despite the doubts of Fernandes & Pimenta (2020). We cannot confirm this record from Ascension Island. On the other hand, we now include four records for Ascension Island:



**Table 1.** Number of specimens found per island. In boldface the species that were reported by Edgar Albert Smith in 189.

| Species                                       | Ascension Island | Saint Helena |
|---|------------------|--------------|
| <i>Metaxia elizabethclinghamae</i> spec. nov. | 0                | 180          |
| <i>Nanaphora renevanwalleghe</i> spec. nov.   | 0                | 18           |
| <i>Cosmotriphora arnoldoi</i>                 | 28               | 0            |
| <i>Cosmotriphora melanura</i>                 | 0                | 0            |
| <i>Inella recta</i>                           | 12               | ~245         |
| <i>Inella</i> sp.                             | 0                | 2            |
| <i>Triphora albanoi</i> spec. nov.            | 2                | 0            |
| <i>Triphora atlantica</i>                     | 0                | 94           |
| <i>Triphora bathyraphe</i>                    | 0                | 18           |
| <i>Triphora</i> s.l. sp.                      | 241              | 408          |

*Cosmotriphora arnoldoi* (Faber & Moolenbeek, 1991), *Inella recta* (E.A. Smith, 1890), *Triphora* s.l. spec. and *Triphora albanoi* spec. nov.

From the studied material three new species of Triphoridae were recovered. Furthermore it was revealed that two species (*I. recta* and *Triphora* s.l. spec.) are present at both Saint Helena and Ascension Island. Saint Helena and Ascension still hide some mysteries, at least *Triphora* s.l. spec. and *Inella* spec. are two species that require further study and might result in additional new species.

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