A new species of *Atrimitra* Dall, 1918 (Gastropoda: Mitridae) from seamounts of the recently created Nazca-Desventuradas Marine Park, Chile (#32763)

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A new species of *Atrimitra* Dall, 1918 (Gastropoda: Mitridae) from seamounts of the recently created Nazca-Desventuradas Marine Park, Chile

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We describe *Atrimitra isolata* sp. n. (Gastropoda: Mitridae), collected on the summit of seamounts in the vicinity of Desventuradas Islands, Chile insular territory. Additionally, we provide some insight into the habitat of this new species based on underwater imagery taken with a remotely operated vehicle. *Atrimitra isolata* sp. n. is morphologically related to counterparts from shallow depths on the west coast of North, Central and South America, but has no affinities with species of the family found around Easter Island, on the far western side of the Salas y Gómez ridge, or with other Indo-Pacific species. The present contribution adds to the knowledge of the poorly studied fauna of the seamounts in the eastern portion of the Sala y Gómez ridge, an area characterized by a high degree of endemism, and now protected within the large and newly created Nazca-Desventuradas Marine Park.

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Abstract

We describe *Atrimitra isolata* sp. n. (Gastropoda: Mitridae), collected on the summit of seamounts in the vicinity of Desventuradas Islands, Chile insular territory. Additionally, we provide some insight into the habitat of this new species based on underwater imagery taken with a remotely operated vehicle. *Atrimitra isolata* sp. n. is morphologically related to counterparts from shallow depths on the west coast of North, Central and South America, but has no affinities with species of the family found around Easter Island, on the far western side of the Salas y Gómez ridge, or with other Indo-Pacific species. The present contribution adds to the knowledge of the poorly studied fauna of the seamounts in the eastern portion of the Sala y Gómez ridge, an area characterized by a high degree of endemism, and now protected within the large and newly created Nazca-Desventuradas Marine Park.

Introduction

In 2015 Chile created the large Nazca-Desventuradas Marine Park (NDMP), covering 300,035 km^2 of this remote part of the SE Pacific. Comprising San Ambrosio and San Félix Islands (known as Desventuradas Islands), and the seamounts located NW of them, at the intersection of the Salas y Gómez Ridge and the Nazca Ridge, this park aims to protect the unique marine fauna inhabiting this area, recognized as a hotspot of species endemism (Fernández et al. 2014, Friedlander et al., 2016). As an example, estimated endemism of fishes, one of the few groups for which enough information exists, is about 40% (Friedlander et al., 2016). Conversely, information for invertebrates in the area is sparse, and most of the existing references are associated with studies carried out between 1973 and 1987 by the former Soviet Union, and limited to the area beyond Chilean jurisdiction east of ~83°W (Mironov and Detinova 1990, Parin et al. 1997). Even with this limited information, endemism estimations in general are outstandingly high, reaching ~46% for the benthic biota in general (Parin et al. 1997). For mollusks, this author reports, for the 22 seamounts along the Salas y Gomez and Nazca ridges explored, one species of Polyplacophora, 27 species of gastropods (most of them of the family Turridae), seven species of bivalves, and seven species of cephalopods, the latter most probably pelagic. In this, as well as in subsequent studies of mollusks of the area, no representatives of the family Mitridae have ever been mentioned. However, in the westernmost side of Salas y Gómez ridge, at Rapa Nui (Easter Island), the three species reported are *Strigatella flavocingulata* (Lamy, 1938), *Imbricariopsis punctata* (Swainson, 1821) and *Neocancilla takiisaoi* (Kuroda, 1959), all of them mentioned in the review of Osorio (2018). For continental Chile, the two species of the family reported are *Mitra orientalis* Griffith and Pidgeon, 1834 (see Marincovich 1973) and *Mitra semigranosa* Von Martens, 1897 (see Keen 1971), both for northern Chile, ~20-22°S. In the present study, we revise the Mitridae reported for the continental and insular marine jurisdictional areas of Chile and we describe a new species of *Atrimitra* collected on the summit of seamounts within the NDMP. Insight into the habitat of the new species, based on underwater imagery~~, which~~ is also provided.

Materials & Methods

Material collection and in situ observations: From October to November 2016, a multidisciplinary oceanographic cruise (CIMAR 22 "Oceanic Islands") was carried out on the research vessel *AGS61Cabo de Hornos*. The aim of the cruise was to study benthic habitat and fauna of unexplored seamounts of the Juan Fernández and Desventuradas Ecoregion (Fig. 1) (Spalding et al. 2007; ecoregion number 179). Within the newly created NDMP, six seamounts were visited and six stations were also studied around San Ambrosio and San Felix islands (i.e., Desventuradas Islands) (Fig. 1). Unless weather or sea condition precluded it, the protocol for the benthic survey consisted of a first visual observation of the study site using a ROV (Commander MK2; Mariscope Meerestechnik, Kiel, Germany) equipped with a HD Camcorder

(Panasonic SD 909) and laser pointers (10 cm apart), followed by sampling with an Agassiz trawl. The latter consisted of a metal frame with a mouth of 1.5 m × 0.5 m (width × height) fitted with a net of 12-mm mesh at the cod end, operated in10-min. hauls (bottom contact), at ~3 knots. Collected specimens were preserved in 100% ethanol. Type material as voucher specimens were deposited in the MNHNCL, SCBUCN, ANSP and CIDA, including specimens prepared for SEM analysis. Sample collection was performed under permission Res. Ext N°41/2016 from SERNAPESCA (Chile) to Universidad Católica del Norte.

The radula and protoconch were examined with a Hitachi SU3500 scanning electron microscope (SEM) at the Microscopy Laboratory of the Facultad de Ciencias del Mar, Universidad Católica del Norte, Coquimbo, Chile. A radula from an adult specimen, that was broken for this purpose, was extracted by dissection of the soft parts and cleaning in 1:50 commercial bleach. The examined protoconch was from the same specimen. The radula and the protoconch were dried in a Tousimis, Samdri-780A critical-point dryer using CO_2, mounted on bronze stubs and coated with gold in a JEOL JFC-100 evaporator. Description of the radula followed the formula proposed by Cernohorsky (1970), which uses the number of cusps on the lateral and central rachidian plates.

Nomenclature: The electronic edition of this article conforms to the requirements of the amended International Code of Zoological Nomenclature, and hence the new name contained herein is available under that Code from the electronic edition of this article (ICZN, 1999; ICZN, 2008). This published work and the nomenclatural acts it contains were registered in ZooBank (LSID: urn:lsid:zoobank.org:pub:787A4D2A-260C-49BC-B8B0-0665F2BF6108). The electronic edition of this work is available from the following digital repositories: PubMed Central, LOCKSS.

Results

Systematics account

Superfamily: Mitroidea Swainson, 1831
Family: MITRIDAE Swainson, 1831
Subfamily: Mitrinae Swainson, 1831
Genus: *Atrimitra* Dall, 1918
Type species: *Mitra idae* Melvill, 1893 by original designation

Atrimitra isolata sp. n. Sellanes and Salisbury
Figs. 2(A–H), 3(A–E), 5(C), 6

Diagnosis: Main characteristics of the shell are the small size to 26 mm, elongate-ovate shape, solid, with smooth appearance. Base color brown with some specimens tan or yellow in color.

Description: Medium sized shell up to 26 mm, solid, elongate-ovate. Protoconch of 4-5 large brown glassy bulbous whorls (Fig. 2D, 3C–D). Spire whorls convex, post nuclear whorl with numerous weak, beaded, axial ribs, with 3–4 strong, deep punctate grooves, spiral grooves bisect the axial ribs giving the first whorl a fenestrate sculpture, sculpture changes rapidly on the early whorls, axial ribs become nearly obsolete with spiral punctate grooves varying in number and spacing (Fig. 3E). Penultimate whorl with 6 to 8 spiral grooves of which 3 to 4 are deeply punctate, the axial ribs are flattened. Suture distinct but not deeply incised, body whorl with 12-14 shallow spiral grooves, half with punctations in the grooves, body whorl sculpture changes on the lower half to wide, 10-12 flat spiral cords separated by spiral grooves, the spiral cords are oblique on the fasciole. Aperture of medium width, outer lip gently rounded and smooth, interior of aperture smooth, columella with 4 columellar folds, siphonal canal short and wide, lacking a siphonal notch. Aperture length greater than half the shell length. Base color brown with some specimens tan or yellow in color. Aperture brown with a faint purple tint. Live animal (Fig. 5 C), after observations when fresh collected and images taken on seamount SF2, milky white, becoming black when fixed in ethanol. No further details of the siphon, eye stalks and foot are available due to low quality of the *in situ* images. Based on the cusp number the formula of the radula is; 15-5-15, with the lateral rachidian cusp number +/- 1 count (Fig. 3E). No specimens with intact protoconch have been found so far, in general lacking parts of the nuclear whorl (Fig. 3C–D).

Type material:

Holotype. MNHNCL 203730 (Fig. 2 A–D), L: 20.4 mm, W: 7.3, AL: 10.2; Seamount off Coast of Chile, CIMAR 22 cruise, Station SF 9, Seamount, Lat. -25.7774°, Long. -83.163°, October 27, 2016, specimen 3 of 6, C22 SSF9 A, trawled, 200 m depth.

Additional Type Material:

paratype 1 MNHNCL 203731 (Fig. 2E–F), L: 25.8, W: 9.2, AL: 13.4, same as holotype.
paratype 2 CIDA XXXX (Fig. 2G–H), L: 21.5, W: 8.1, AL: 11.4 mm, same as holotype.
paratype 3 ANSP XXXX, L: 16.1, W: 6.0, AL: 8.1, same as holotype.
paratype 4 MNHNCL 203732, L: 19.1, W: 7.0, AL: 10.8 (with predator holes in shell and Capulidae scars on the columella and aperture), same as holotype.
paratype 5: SCBUCN XXXX, L: 11.8, W: 4.9, AL: 6.7, same as holotype.
paratype 6 SCBUCN 6953, L20.4, W: 7.5, Seamount SF9.
paratype 7 SCBUCN 7029, L: 20.1, W: 7.42, Seamount SF9.
paratype 8 SCBUCN 7033, L: 22.9, W: 8.4, Seamount SF9 (with attached Capulidae, Fig. 6).
paratype 9 SCBUCN 7038, L: 19.6, W: 7.5 mm, Seamount SF5.
paratype 10 SCBUCN 6952a, L: 21.2, W: 7.5 mm, Seamount SF9.
paratype 11 SCBUCN 6952b, L: 21.7, W: 8.0, Seamount SF9.
paratype 12 SCBUCN 7031, L: 17.1, W: 7.0, Seamount SF6.
paratype 13 SCBUCN 7030 (Fig. 3A–E), L: 21.4, x 8.0, Seamount SF9.

paratype 14 SCBUCN 6946a , L:16.2, W: 6.2, Seamount SF9.
paratype 15 SCBUCN 6946b, L: 19.1, W: 7.0, Seamount SF9.
paratype 16 SCBUCN 6946c , L: 20.2, W: 7.6, Seamount SF9.
paratype 17 SCBUCN 6946d, L: 18.8, W: 7.7, Seamount SF9.
paratype 18 SCBUCN 6947a , L: 22.4, W: 8.8, Seamount SF5.
paratype 19 SCBUCN 6947b, L: 22.9, W: 8.8, Seamount SF5.
paratype 20 SCBUCN 6947c , L: 23.4, W: 9.0, Seamount SF5.

Comparative material: *Atrimitra idae*, holotype NMW 1955.158.00100, Point Loma, Lower California, USA , *Strigatella coronadoensis*, holotype SDMNH 44409-667, Southeastern end of Los Coronados Islands, Lower California, Mexico (Fig. 4A–C) , *Atrimitra semigranosa*, collected Near Arica, Parinacota Region, Chile, RAS collection (Fig 4D–F) , *Atrimitra orientalis*, Lobos de Afuera Islands, Peru, RAS collection (Fig. 4G–I) , two lots of specimens including *Atrimitra orientalis* and *Atrimitra semigranosa*, SCBUCN-7617, Caleta Los Verdes, Iquique, and SCBUCN-7618, El Ñajo, Iquique, Chile.

Type locality: Seamount SF9, Lat. -25.7774°, Long. -83.3163°, Sta. C22SSF9-A, 27 October 2016, at 200 m depth.

Distribution and habitat: Specimen samples come from the summit of three seamounts within the NDMP: SF5 (Lat. -25.4272°, Long. -81.8806°, 180 m depth), SF6 (Lat. -25.5535°, Long. -82.3963°, 176 m depth), and SF9 (Lat. -25.7774°, Long. -83.3163°, 200 m depth). ROV images suggest that the species is also present at a nearby seamount SF2 (Lat. -24.7424°, Long. -82.5226°, 280 m depth). All these seamounts are located within the NDMP.
For the three seamounts on which the species was collected, the summits of two of them (SF6 and SF9) were explored using a ROV. The summit of SF2 was surveyed with the ROV but roughness of the terrain precluded trawling. The bottom at SF6 and SF9 was dominated by coarse sand and the presence of maërl-rhodoliths (Fig. 5A and 5B, respectively), scattered rocky outcrops were also spotted at both sites. Habitat at SF2 differed by the predominance of hard substrates (Fig. 5C). Although about 20 pooled mollusc taxa were found at the three collection sites (SF5, SF6 and SF9), species that co-occurred with *A. isolata* sp. n. at all sites were *Architectonica karsteni* Rutsch, 1934 and *Chryseofusus kazdailisi* (Fraussen and Hadorn, 2000).

Etymology: From *isolatus* (Latin for isolated) in reference to the remote and isolated geographical location of the four seamounts on which the new species has been found.

Species comparisons: Compared with *Atrimitra isolata* sp. n. the holotype of *Atrimitra idae* (Melvill, 1893) (Fig. 2I), that is the type species of the genus *Atrimitra* Dall, 1918, is a much larger species recorded at 72.1 mm (Cernohorsky 1976), versus *A. isolata* sp. n. maximum recorded size of 25.8 mm. *Atrimitra idae* is covered with a thick black periostracum which obscures the sculpture and color pattern of the shell. With the periostracum partially removed *A.*

idae, is brown to tan in color. The early whorls are almost always eroded and often covered with a thick encrustation. *Strigatella (Atrimitra) coronadoensis* Baker and Spicer, 1930 (holotype, Fig. 4A–C) has been listed as a synonym of *Mitra idae* (Cernohorsky 1976), however, this has not yet been verified. The protoconch of *S. coronadoensis* has a tiny bullet-shaped, glassy white protoconch of 4-5 whorls. *Atrimitra isolata* sp. n. also has a protoconch of 4-5 whorls but these are large brown, glassy and bulbous. Unlike *A. idae*, the new species has a thin, nearly transparent periostracum, and the sculpture can be seen through it. Sculpture also differs from *A. idae*, which is ornamented with fine, spiral grooves, unevenly spaced on the early whorls, with strong axial grooves and growth lines giving the shell a fenestrate appearance. The spiral grooves grow wider on the body whorl and the spiral cords also grow wider on the upper body whorl. The spiral cords are more uniform in size on the lower body whorl and not bisected with as many axial grooves or growth lines. *Atrimitra isolata* sp. n. is sculptured with widely spaced punctate spiral grooves with fine spiral grooves, usually not punctate that alternate with the deeper punctate grooves. The early whorls are ornamented with shallow axial grooves which form close-set axial ribs. The axial ribs widen and flatten on later whorls. This smoothes the sculpture and makes the shells slippery. The two species live in entirely different habitats, while *Atrimitra idae* can be found at scuba depths and in subtidal habitats such as rocks and rubble, the new species lives at depths between 180 to 280 meters on seamounts associated with rocky bottoms. Two other Mitridae species have been reported from Chile (Cernohorsky 1976), both formerly in the genus *Mitra* but now placed in *Atrimitra* (Fedosov et al., 2018). Both *Atrimitra semigranosa* (von Martens, 1897) (Fig. 4D–F) and *Atrimitra orientalis* (Griffith and Pidgeon, 1834) (Fig. 4G–I), are found in intertidal and subtidal zones associated with rocks, gravel and sand. *Atrimitra semigranosa* can be easily separated from this new species by the pustulate early whorls, and larger size, up to 46 mm. The shell of *A. semigranosa* is covered with a dark-brown periostracum, underneath the shell is brown with the early whorls beaded and light brown in color. The beads become obsolete on later whorls with the shell sculptured with spiral cords that are separated by shallow spiral grooves and bisected by axial grooves, giving the mid-whorls a clathrate appearance, the body whorl is ornamented with very fine, close-set spiral grooves which grow larger toward the base of the shell. *Atrimitra orientalis* is covered with a thick black periostracum and has a much smoother and larger shell, up to 72 mm, that is gray or light brown in color under the periostracum.

Discussion

Atrimitra isolata sp. n. is one of only a few Mitridae reported from Chilean waters. The new species is isolated from the mainland and seems to be endemic to the Nazca Plate, where it lives in deep water and associated with seamounts. The recent publication by Fedosov et al 2018 defining the phylogeny of the Mitridae has indicated that the genus *Atrimitra* Dall, 1918 is represented by several Mitridae species living along the western coasts of North, Central and South America. We have chosen to include this new species in *Atrimitra* based on the very fine

sculpture of the shell. However, further research including molecular analysis is still needed to place species within the *Atrimitra* and *Isara* generic units (Fedosov et al., 2018). A relevant feature for the taxonomy of Mitridae is the number of cusps that the central rachidian plate of the radula has. Although the radula has been frequently studied in some species, such as *Atrimitra idae*, only drawings of the radula have been published (Fedosov et al., 2018). The non-existence of SEM photos and the little detail presented by the drawings of the radula caused confusion in the cusp formula. Radula of *A. idae* drawings show a formula of 28-6-28 or 28-7-28, with the lateral rachidian plates cusp number +/- 3 counts (due to drawing quality). The central rachidian plate in Mitridae often shows two types of formula. The first type presents an even-numbered set of cusps, where each side of the central rachidian plate has the same number and size of cusps (R A Salisbury, pers. obs.). The second type presents a longer central cusp with shorter lateral cusps on each side. This type has an odd number of cusps and *A. isolata* sp. n. is an example of this central rachidian type which has 5 cusps. However, there are not enough SEM images of radulae of this type (see Fedosov et al., 2018) to make any decisions as to how important the cusp count is on the central rachidian plate.

Some specimens show drill holes perhaps from Muricidae, Naticidae or other predators. Live and dead shells are sometimes covered with scars from a Capulidae species attached to the shell (Fig. 6). This capulid is also found attached to spines of the urchin *Stereocidaris nascaensis* (JM Tapia pers. obs.), suggesting that the relationship with *A. isolata* sp. n. is just an opportunistic commensalism. Regarding potential food sources of *A. isolata* sp. n., it has been observed that rhodoliths recovered from SF6 and SF9 seamounts were profusely bored by sipunculans of the genus *Aspidosiphon* (JM Tapia, pers. obs.). Sipunculans have been often reported as a prey for Mitridae (Ponder 1998). Further details of the habitat and ecologic aspects of these seamounts can be found in Easton et al. (2019).

Finally, it is interesting to note that species of the family Mitridae found around Easter Island, *Strigatella flavocingulata* (Lamy, 1938), *Imbricariopsis punctata* (Swainson 1821) and *Neocancilla takiisaoi* (Kuroda, 1959), reviewed in Osorio (2018), on the far western side of the Salas y Gómez ridge, are all Indo-Pacific species, with ranges across the Indian and Pacific Ocean. The new species has no affinities with them and available evidence suggests that it is found only on these seamounts, whose fauna is characterized by the high levels of endemism (Friedlander et al., 2016).

Conclusions

We describe *Atrimitra isolata* sp. n. from seamounts of the eastern portion of the Salas y Gómez ridge. Although the area is still poorly studied, the new species seems to be endemic of this portion of the Nazca Plate. The new species is related to eastern Pacific taxa and not to other central Pacific or Indic Ocean counterparts. Further molecular analysis research is still needed to properly place the new species within the *Atrimitra* and *Isara* generic units. The present contribution adds to the knowledge of the fauna of seamounts of the Salas y Gómez and Nazca

ridges, an area known by its high levels of endemism, and part of which is now protected within the large and newly created NDMP.

Abbreviations

AL	Aperture length (mm).
ANSP	Academy of Natural Sciences of Drexel University, Philadelphia, USA.
CIDA	Orma J. Smith Museum of Natural History, The College of Idaho, USA.
L	Length (mm).
MNHNCL	Museo Nacional de Historia Natural, Chile.
NDMP	Nazca Desventuradas Marine Park.
NMW	National Museum of Wales, Cardiff
RAS	Richard A. Salisbury
ROV	Remotely operated underwater vehicle.
SCBUCN	Sala de Colecciones Biológicas de la Universidad Católica del Norte, Chile.
SDMNH	San Diego Museum of Natural History, San Diego, USA.
W	Width (mm).

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Figure 1(on next page)

Map of the study area

Study area comprising Desventuradas Islands and seamounts from Salas y Gómez, Nazca Ridge and Juan Fernández Archipelago. Gray triangles: sampled points during CIMAR 22 cruise. Red triangles: seamounts (SF5, SF6 and SF9) where *Atrimitra isolata* sp. n. was collected. Red circle: seamount SF2, in which *Atrimitra isolata* sp. n. was observed *in situ*. The pink areas represent marine protected areas (MPAs). NDMP=Nazca-Desventuradas Marine Park, EEZ= Exclusive economic zone. Credits for the map: A. Mecho.

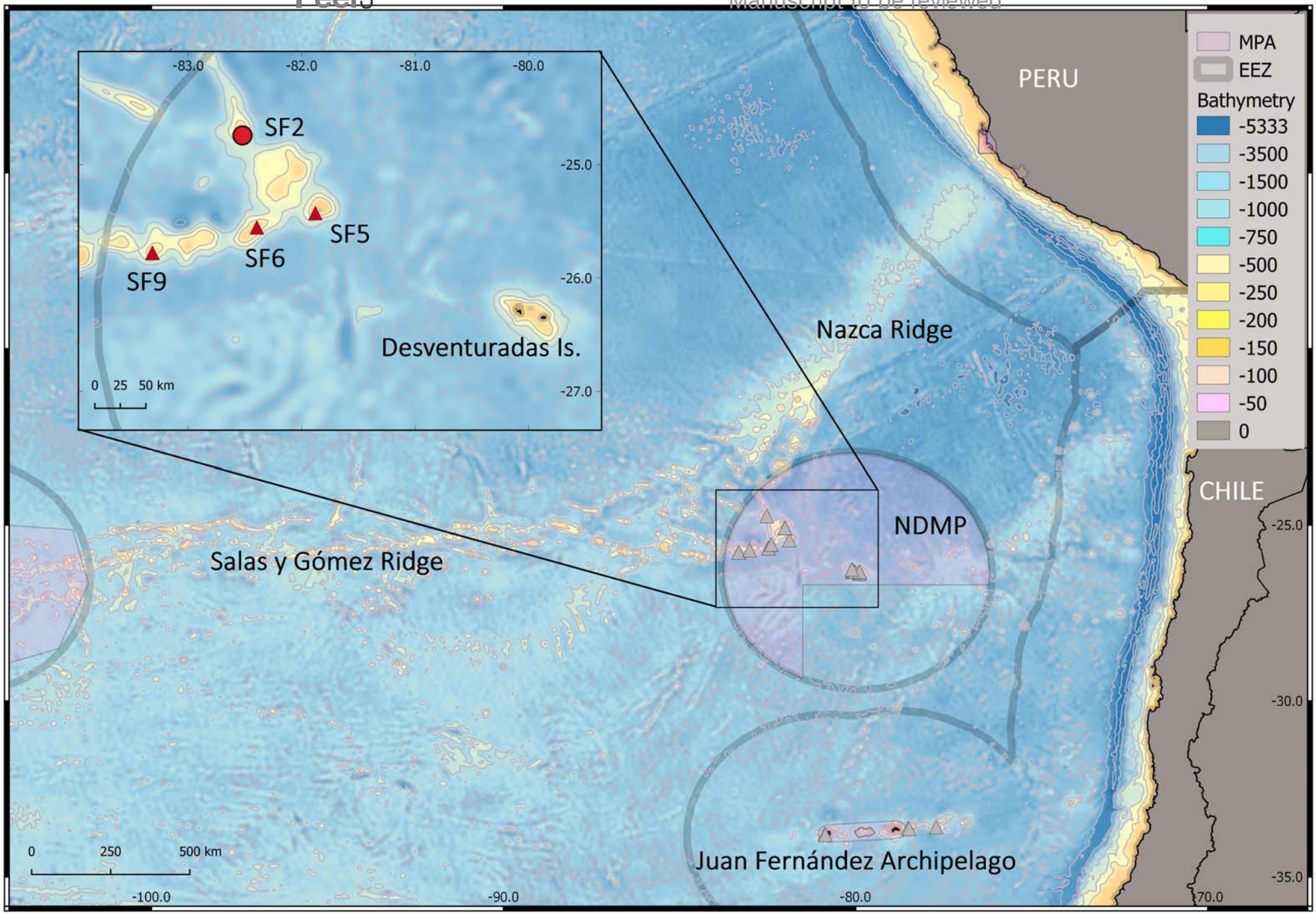

-83.0
-82.0
-81.0
-80.0
-25.0
-26.0
-27.0
SF2
SF5
SF6
SF9
Desventuradas Is.
0 25 50 km
PERU
Nazca Ridge
NDMP
Salas y Gómez Ridge
CHILE
Juan Fernández Archipelago
0 250 500 km
-100.0
-90.0
-80.0
70.0
-25.0
-30.0
-35.0
MPA
EEZ
Bathymetry
-5333
-3500
-1500
-1000
-750
-500
-250
-200
-150
-100
-50
0

Figure 2(on next page)

Atrimitra isolata sp. n. type material

Atrimitra isolata sp. n. (A–D) holotype MNHNCL 203730, Seamount SF 9 off Chile, Lat. -25.7774°, Long. -83.163°, 200 m depth , (E–F) paratype 1 MNHNCL 203731, same as holotype , (G–H) paratype 2 CIDA XXXX, same as holotype , *Atrimitra idae* (I) holotype NMW 1955.158.00100, Point Loma, Baja California, USA. A: abapertural view, B: apertural view, C: side view, D: view of the protoconch and first whorls, E: abapertural view, F: apertural view, G: abapertural view, H: apertural view, I: apertural view.

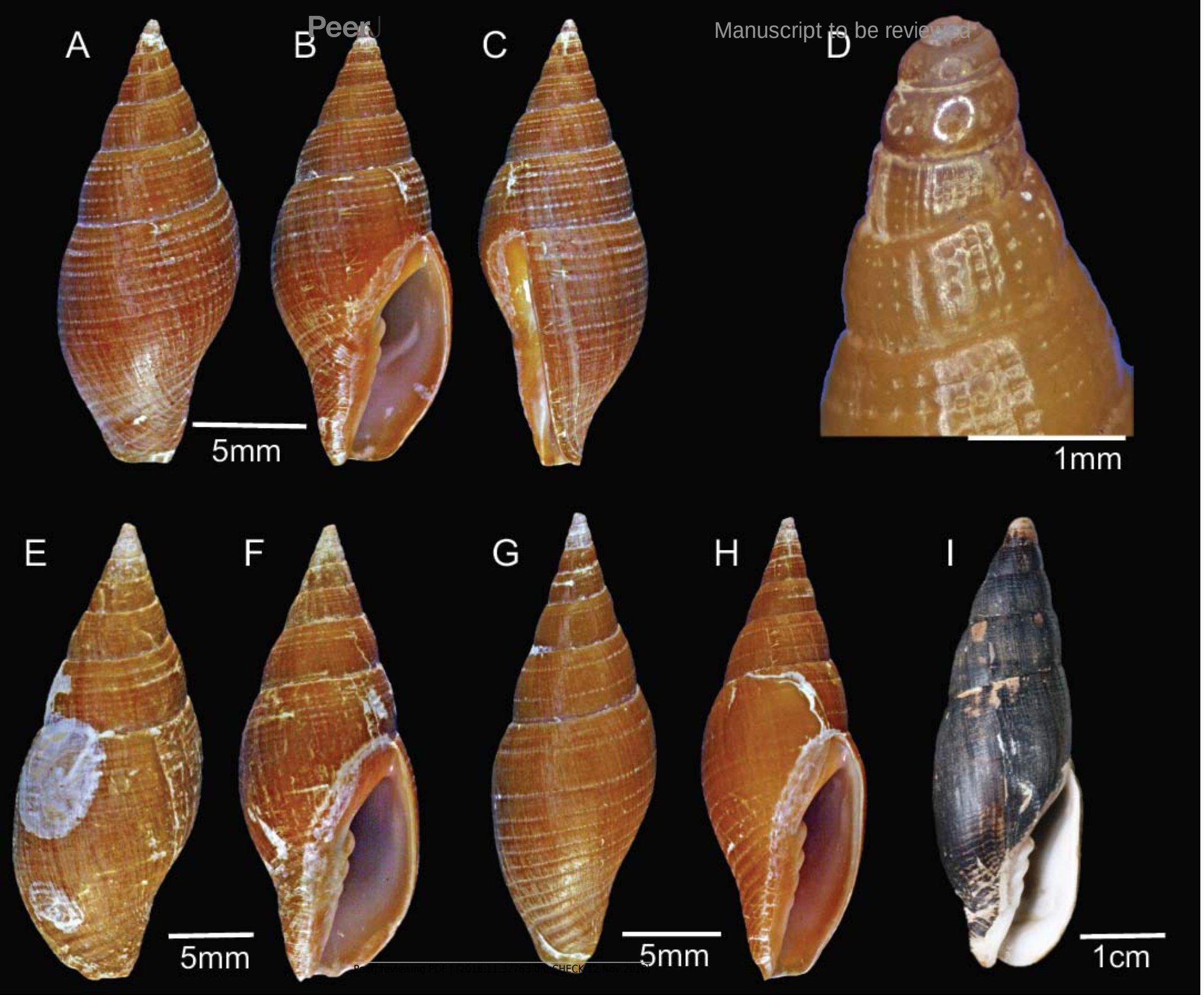
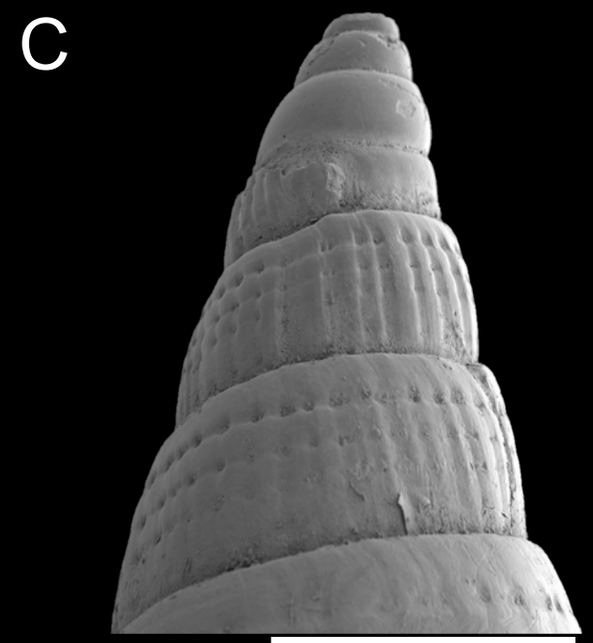


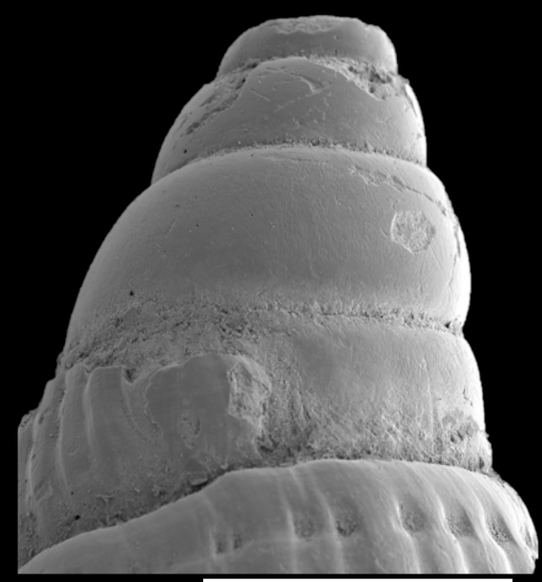
Figure 3(on next page)

Atrimitra isolata sp. n. paratype 13, radula and protoconch SEMs

Atrimitra isolata sp. n. (A–E) paratype 13 SCBUCN 7030, Seamount SF9 off Chile, Lat. -25.7774°, Long. -83.3163°, 200 m depth. A: abapertural view, B: apertural view, C: SEM of the radula, D: SEM side view of the protoconch, E: SEM side view of the first whorls, showing details of the fenestrate sculpture and axial ribs.


A
B
5mm


C
1mm


D
500µm

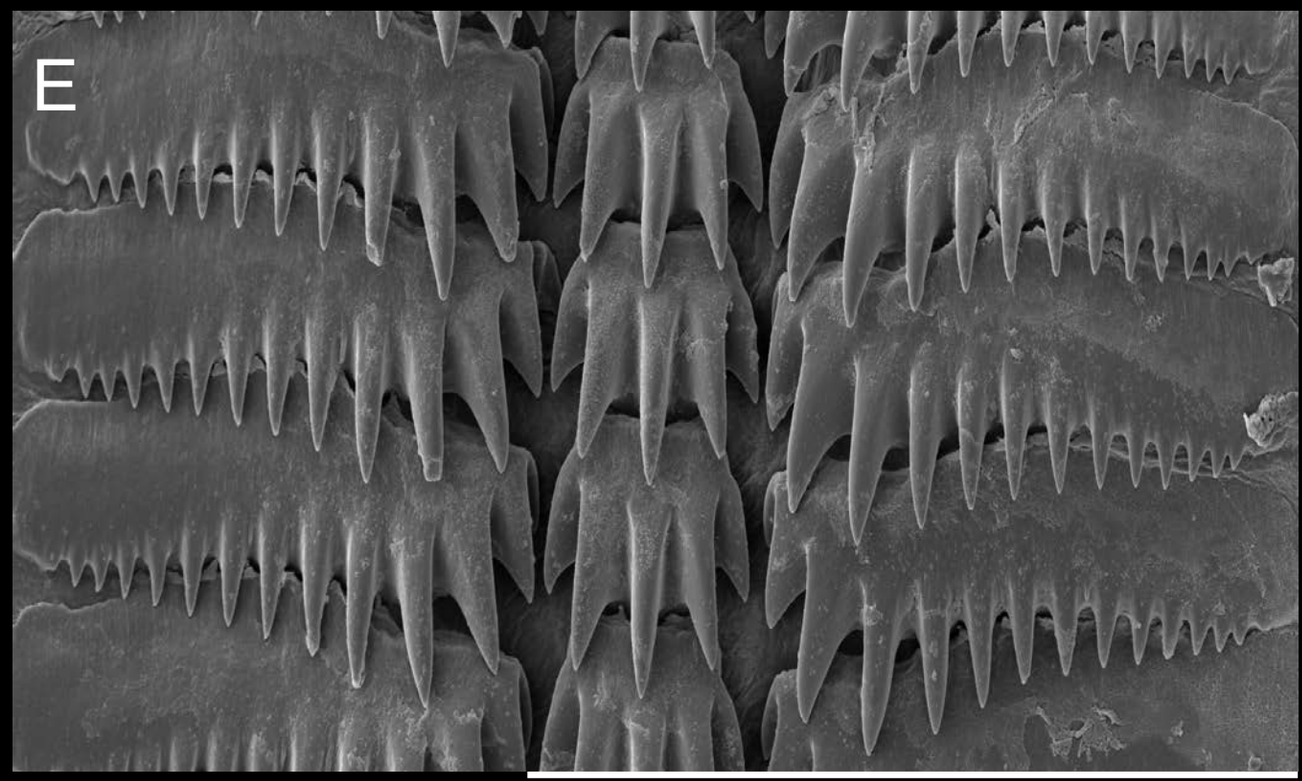

E
200µm

Figure 4(on next page)

Comparative species

Comparative species. (A–C) *Strigatella coronadoensis*, holotype SDMNH 44409-667, southeastern end of Los Coronados Islands, Baja California, Mexico, (D–F) *Atrimitra semigranosa* Arica, Parinacota Region, Chile, RAS collection, (G–I) *Atrimitra orientalis* Lobos de Afuera Islands, Peru, RAS collection. A: abapertural view, B: apertural view, C: side view, D: abapertural view, E: apertural view, F: side view, G: abapertural view, H: apertural view, I: side view.

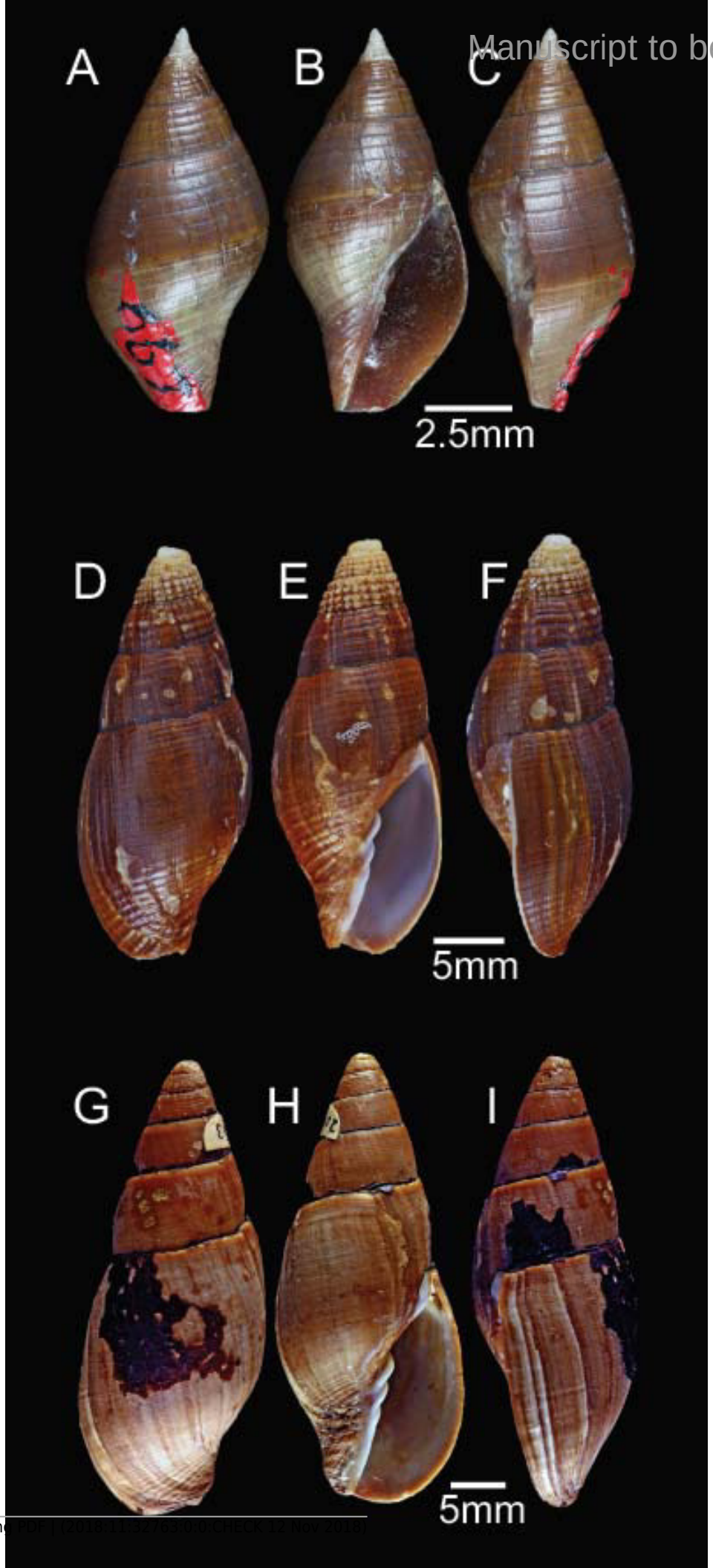
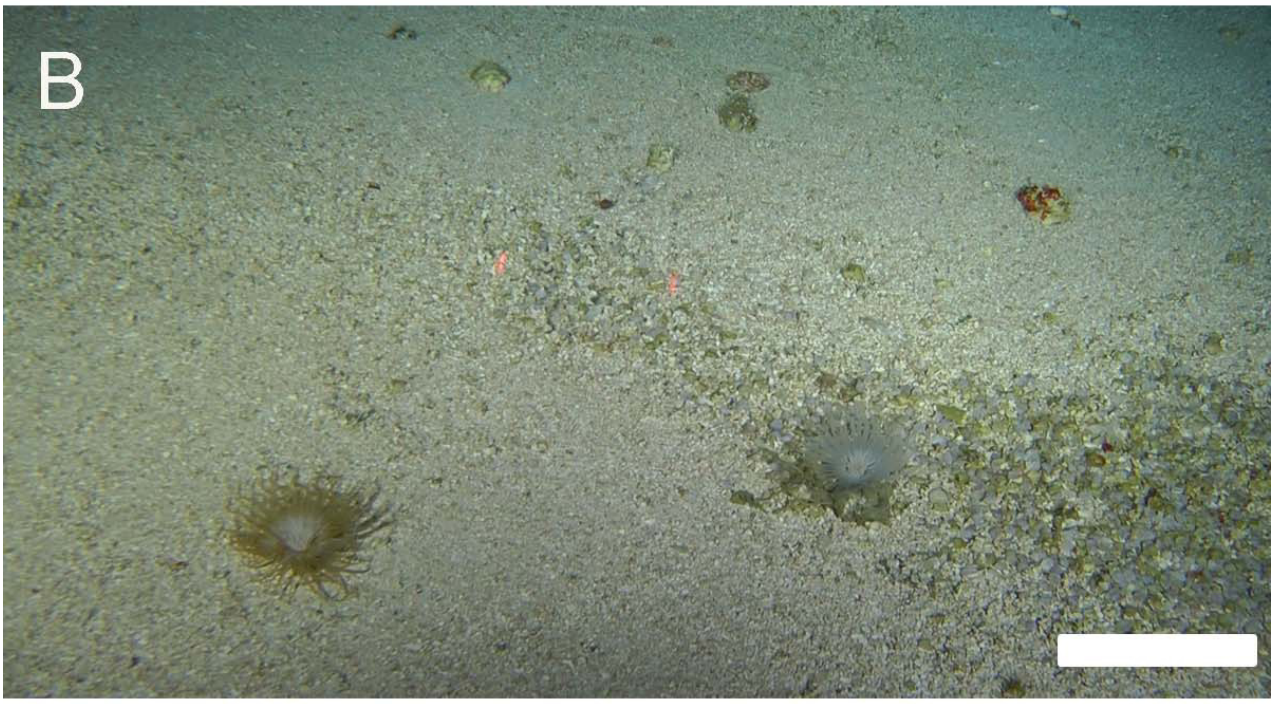


Figure 5(on next page)

ROV images of the habitat

Images taken with a ROV at the sites where *Atrimitra isolata* sp. n. was spotted within the Nazca-Desventuradas Marine Park. A: summit of seamount SF6, 175 m depth, regular continuous homogeneous bottom with little relief , coarse sand dominated by sea pens (*Protoptilum* sp.), sea anemones (*Hormathia* sp. and Cerianthidae) and echinoids (*Stereocidaris nascaensis*), B: summit of seamount SF9, 200 m depth, regular continuous homogeneous bottom with little relief , coarse sand and maërl-rhodoliths, dominated by sponges and sea anemones (*Hormathia* sp. and Cerianthidae), C: live specimen of *Atrimitra isolata* sp. n. on the summit of seamount SF2, 280 m depth, irregular rock bottom with structures fractured, faulted and folded, dominated by sea pens (*Scleroptilum* sp.) and hydrozoans (*Stylaster marenzelleri*). Scale bars = 10 cm. Image credits: Matthias Gorny, OCEANA.



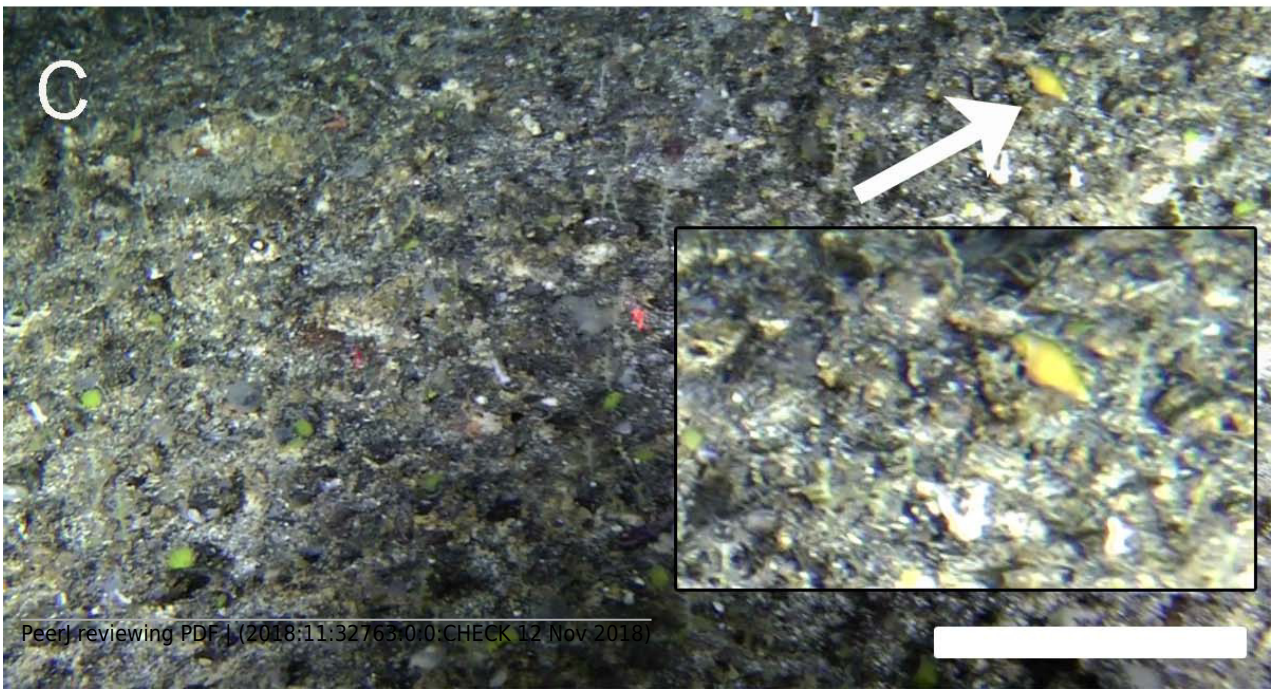


Figure 6(on next page)

Atrimitra isolata sp. n. with commensal Capulidae

Individual of the family Capulidae still attached to the shell of *Atrimitra isolata* sp. n., paratype 8 SCBUCN 7033.


0.5 mm