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SOME CORALLIOPHILINAE FROM THE DEEP WATERS OF THE NORTH ATLANTIC OCEAN AND THE MEDITERRANEAN SEA, WITH A DESCRIPTION OF A NEW SPECIES FROM THE METEOR SEAMOUNTS AND THE REDISCOVERY OF *PSEUDOMUREX PERFECTUS*.

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ABSTRACT.

Coralliophila squamosa (Bivona E Bernardi, 1838) is compared with four species from deep waters of the North Atlantic Ocean and the Mediterranean, whose identities are analyzed through the examination of new material and the re-examination of old specimens. These species are *C. lamellosa* (Philippi, 1836), *C. ruderata* (Sturany, 1896), *C. monterosatoi* (Locard, 1897), and *C. basileus* Dautzenberg & Fischer, 1896. A new name, *C. oblita*, is given to *C. lamellosa* (Philippi, 1836), which is considered a valid species. A new species belonging to the genus *Coralliophila*, *C. meteorensis*, is described from the seamounts of the southern Azores. A photograph of the type specimen of *Pseudomurex perfectus* Fischer, 1883 provides a better understanding of this species and allows it to be distinguished from *Babelomurex sentix* (Bayer, 1971). The name *Babelomurex benoiti* (Tiberi, 1855) is also discussed in light of new data.

KEY WORDS.

Muricidae, Coralliophilinae, *Coralliophila squamosa*, *C. lamellosa*, *C. ruderata*, *C. monterosatoi*, *C. basileus*, *C. meteorensis*, *Babelomurex perfectus*, *B. benoiti*, new name, new species, deep water, Meteor Seamounts, North East Atlantic, Mediterranean Sea.

To make the text easier to understand, calls to figures in the plates of this article are capital (e.g. Pl. x, Fig. x), while citations from authors are in lower case (e.g. pl. x, fig. x).

INTRODUCTION.

Coralliophilinae from the coastal areas of the Mediterranean Sea and the North Atlantic Ocean are well known, but some deep-sea species remain poorly documented. These species are likely rare in their natural environment and are sometimes represented in collections by only a few specimens, most of which result from oceanographic campaigns. Collecting them can be challenging due to their habitat in rocky coral bottoms, which makes dredging difficult. The identity of some species, as well as the abundance of synonymies, needs to be reviewed. The contribution of new material and the re-examination of old descriptions allow for a better definition and even the rehabilitation of some species described in the 19th century, which have sometimes been forgotten.

Coral hosts. Coralliophilinae are coral parasites. Unlike other Muricidae, they lack a radula. They feed by inserting their proboscis into coral polyps, where their salivary enzymes predigest the tissues. Some species parasitize a single species of anthozoan, while others have multiple coral hosts. They may

either be permanently attached to their host or migrate from one coral to another. Depending on the species, they may be associated with scleractinians (Hexacorallia or “hard corals”), alcyonarians (Octocorallia, including gorgonians and “soft corals”), or both.

Shallow scleractinians, known as “surface corals,” live in symbiosis with microalgae called zooxanthellae. Between one meter and approximately 80–100 meters deep (in the euphotic and mesophotic zones), depending on water clarity, these algae receive sufficient light to transfer nutrients to the coral via photosynthesis. Beyond a depth of around 100 meters (in the aphotic zone), “deep” or “cold-water” scleractinian corals do not receive enough light for photosynthesis. In these zones, water temperatures are around 6°C in most oceans and approximately 12°C in the Mediterranean. These deep-water corals, as filter feeders, primarily consume zooplankton. They grow much more slowly than surface corals.

All of these corals require a hard substrate for establishment. They are particularly abundant in underwater canyons, such as those in the Strait of Sicily, and on seamounts, where currents bring large quantities of nutrients (Serrão Santos, 2012; Ferrier-Pagès, 2014). Some skeletal cnidarians can, over very long periods, contribute to the formation of substantial bioconstructions at depths greater than 300 meters. Such assemblages are widespread in the Mediterranean basin. These deep coral ecosystems in the Mediterranean were extensively explored during the R/V METEOR campaigns (Taviani *et al.*, 2005; Freiwald *et al.*, 2009).

It is difficult to determine exactly which corals house deep-water Coralliophilinae. During one of the R/V METEOR campaigns, a single specimen of *Coralliophila ruderata* (Pl. 5, Fig. 5) was collected at a depth of 500 meters on the Nameless-Urania Bank in the Strait of Sicily. Images transmitted by the ROV robot revealed the coexistence of a wide variety of cnidarians, ranging from scleractinians such as *Lophelia*, *Madrepora*, *Desmophyllum*, and antipatharians, to Octocorallia such as *Corallium* and gorgonids (Taviani *et al.*, 2009).

The protoconch of the great majority of Coralliophilinae is multispiral, suggesting a planktotrophic development. The presence of planktonic larvae, along with the diversity and wide distribution of their coral hosts, explains why some species of Coralliophilinae, such as *Emozamia richardi* (Fischer, 1882), are amphiatlantic and can also be found in the Mediterranean Sea. Bouchet & Taviani (1991) suggested that the planktonic larvae of several deep-water North Atlantic species vertically migrate beneath the surface layers. Transported by the incoming surface

currents across the Strait of Gibraltar, these larvae have the potential to colonize the Mediterranean Sea. It is also possible that transoceanic larval dispersal is facilitated by the seamounts south of the Azores, which may serve as intermediate stepping stones (Oliverio & Gofas, 2006).

MATERIALS AND METHODS.

Many of the specimens illustrated are from scientific expeditions which explored the benthic fauna of the Mediterranean Sea and North Atlantic Ocean. Some of them date back to the 19th century. As mentioned in chronological order: **TRAVAILLEUR** 1881, **TALISMAN** 1883, **HIRONDELLE** 1888, **Field Museum Bermuda Expedition** (1948), **BIAÇORES** 1971, **SEAMOUNT 1** (1987), **SEAMOUNT 2** (1993), **METEOR** 2006, **INDEMARES AVILÉS** 2011, **Planète Revisitée Guyane** (2014) and **KARUBENTHOS 2** (2015).

Very few specimens of these rarely encountered species have been sequenced. In addition, their protoconchs are often damaged, providing little information. Consequently, the distinction between these species has been made using morphological characteristics of the shells. In this analysis, the spiral sculpture pattern has proven to be a highly effective tool for interspecific distinction, particularly in *Coralliophila*. Here, we refer to the descriptive method established by Merle (2001) and Merle *et al.* (2011).

A good example is the spiral sculpture of *C. meyendorffii* (Calcara, 1845). This coastal species is particularly interesting due to its polymorphism. It is widespread throughout the Mediterranean Sea, as well as the Atlantic Ocean, from Galicia in the north and along the entire West African coast to Namibia in the south, extending to the Azores and even the Caribbean region. Significant variations in shape, size, and spire height have been observed. Among the different morphs of *C. meyendorffii*, the pattern of spiral sculpture—specifically the shape and distribution of the cords—has proven to be remarkably consistent. This distinctive feature makes the species easily identifiable. The consistency across all its forms has been confirmed by molecular analyses [Oliverio & Mariottini (2001)].

The evolution of the spiral sculpture during the final stages of shell growth is noteworthy. In some species, such as *Coralliophila meyendorffii* and *C. squamosa*, the sequence of primary cords (which appear first) and secondary cords (which appear later) remains perfectly regular throughout development, maintaining a pattern of wide primary cords alternating with narrower secondary cords until the adult shell stage. However, in other Coralliophilinae, some secondary cords tend to hypertrophy in the final whorls of the shell, becoming as large as the primary cords. This hypertrophy complicates the interpretation of sequence patterns and makes identifying primary cords difficult, particularly in the absence of juvenile specimens.

ABBREVIATIONS

The terminology used is given below.

P: primary cord (cord appearing first)

IP: primary infrasutural cord

P1: shoulder cord

P2-P6: primary cords of the convex part of the teleoconch whorl

ADP: adapical primary canal cord

MP: median primary cord of the siphonal canal

ABP: primary abapical cord of the siphonal canal

EAB1: extreme abapical primary cord of the siphonal canal

s: secondary cord (cord appearing second)

adis: secondary adapical cord of the infrasutural ramp

abis: abapical secondary cord of the infrasutural ramp

s1-s6: secondary cords of the convex part of the teleoconch whorl

ads: adapical secondary cord of siphonal canal

abs: abapical secondary cord of the siphonal canal

t: tertiary cords (cords appearing third)

D1-D6: D1-D6 : internal denticles of the outer lip

OTHER ABBREVIATIONS AND CONSERVATION OF SPECIMENS

H: Height

W: Width

FMNH: Field Museum of Natural History, Chicago; Illinois, USA

IRSNB: Royal Belgian Institute of Natural Sciences, Brussels, Belgium.

MNHN: Muséum national d'Histoire naturelle, Paris, France.

MOM: Oceanographic Museum of Monaco.

NHMW: Naturhistorisches Museum Wien, Austria.

USNM: National Museum of Natural History, Smithsonian Institution, Washington, USA.

BG: Bernard Garrigues coll.

DL: Dominique Lamy coll.

FN: Frank Nolf coll.

JLD: Jean-Louis Deleamarre coll.

PR: Paolo Russo coll.

PRY: Peter Ryall coll.

SYSTEMATICS

Superfamily Muricoidea Rafinesque, 1815

Family Muricidae Rafinesque, 1815

Subfamily Coralliophilinae Chenu, 1859

Genus *Coralliophila* H. Adams, & A. Adams, 1853

Type species: *Murex neritoideus* Gmelin, 1791 accepted as *Coralliophila violacea* (Kiener, 1836) by subsequent designation.

***Coralliophila squamosa* (BIVONA E BERNARDI, 1838)**

Pl. 1, Figs 1, 2, 5, 6, 8, 9; Pl. 2, Figs 1-14; Pl. 3, Figs 1-12

Murex alucoides Blainville, 1829, p. 128, n°4, pl. 5B, fig. 1 (Pl. 1, Fig. 1) (syn. *Murex alucoides* Olivi, 1792 = *Cerithium vulgatum* Bruguière, 1792)

Fusus squamosus Bivona E Bernardi, 1838, p. 320-321 (= *Babelomurex benoiti* Tiberi, 1855) (Pl. 1, Fig. 4, 10, 11; Pl. 13, Fig. 2).

Fusus squamulosus R. A. Philippi, 1836, p. 204, pl. 11, fig. 31 (Pl. 1, Fig. 2), (syn. *Fusus squamulosus* Deshayes, 1835); Tryon (1880): pl. 66, fig. 385

Coralliophila meyendorffii form *lamellosa* (Calcara, 1845)—Abbott & Dance: 1982, p. 155.

Fusus squamulosus Philippi—Reeve (1846), pl. 35, fig. 184; Aradas & Benoit (1870), p. 269, pl. 5, fig. 10.

Coralliophila squamulosa Philippi—Kobelt (1887), pl. 8, fig. 15.

Coralliophila lamellosa Jan—Kobelt (1887), pl. 8, figs 2 et 3 (only) (Pl. 1, Fig. 5).

Fusus craticulatus Brocchi var. *pianosana* Sturany, 1896, p. 25, pl. 2, figs 40–41 (Pl. 5, Fig. 1, only 40 and 41), [syn. *Fusus craticulatus* (Linnaeus, 1758) sensu Brocchi, 1814 = *Hadriana craticulata* Bucquoy & Dautzenberg, 1882].

Pseudomurex aluoides—Locard (1897: 312); Paetel (1888), p. 284; Pallary (1900), p. 284.

Pseudomurex (*Fusomurex*) *aluoides*, Blainville—Coen : 1922, p. 69, fig. 3 (Pl. 1, Fig. 6).

Coralliophila aluoides curta Settepassi, 1977, fig. 46 (invalid, publication not using binominal nomenclature, ICZN art. 11.4). not available, published in a work which does not consistently use binominal nomenclature (ICZN art. 11.4)

Coralliophila aluoides modesta Settepassi, 1977, fig. 45 (invalid, publication not using binominal nomenclature, ICZN art. 11.4).

Coralliophila aluoides squamulata Settepassi, 1977, fig. 49 (invalid, publication not using binominal nomenclature, ICZN art. 11.4). not available, published in a work which does not consistently use binominal nomenclature (ICZN art. 11.4)

Coralliophila lamellosa elongata Settepassi, 1977, pl. 1, fig. 6 (invalid, publication not using binominal nomenclature, ICZN art. 11.4). not available, published in a work which does not consistently use binominal nomenclature (ICZN art. 11.4)

Coralliophila lamellosa inflata Settepassi, 1977, pl. 1, fig. 5 (invalid, publication not using binominal nomenclature, ICZN art. 11.4). not available, published in a work which does not consistently use binominal nomenclature (ICZN art. 11.4)

Coralliophila (*Hirtomurex*) *turris* Monterosato, pl. 1, figs 4A–D (invalid, publication not using binominal nomenclature, ICZN art. 11.4). not available, published in a work which does not consistently use binominal nomenclature (ICZN art. 11.4) junior homonym of *Fusus squamulosus* Deshayes, 1835 Invalid: junior homonym of *Murex aluoides* Olivi, 1792 [Cerithiidae]

Ocenebrina ruderata pianosana Settepassi, 1977 (invalid, publication not using binominal nomenclature, ICZN art. 11.4). *Coralliophila* (*Hirtomurex*) *lamellosa* Philippi— Settepassi (1977), pl. 1, figs 2 A–C

Coralliophila (*Hirtomurex*) *lamellosa* forme *distorta* Settepassi, 1977, pl. 3, figs A–B (invalid, publication not using binominal nomenclature, ICZN art. 11.4).

Coralliophila (*Hirtomurex*) *lamellosa longi-cauda* Settepassi, 1977, pl. 6, figs 43 A, B, C (invalid, publication not using binominal nomenclature, ICZN art. 11.4). not available, published in a work which does not consistently use binominal nomenclature (ICZN art. 11.4)

Hirtomurex longicauda Settepassi, 1971—Kosuge & Suzuki: 1985, p. 26, pl. 23, fig. 4; pl. 44, fig. 10 (Pl. 1, Fig. 8).

Hirtomurex squamosus— Russo: 2020, p. 17, figs. 11 A–I; Oliverio (2008), p. 518; Oliverio (2009), p. 779; Houart: 2018, p. 6, fig. 21D; Landau *et al.* (2019); Nocella *et al.* (2024).

Coralliophila squamosa— Bouchet & Waren: 1985, p. 153, fig. 357 (not 358–359 = *Coralliophila monterosatoi* ?; not 361 = *C. ruderata*; not 360 = *C. lamellosa*; Poppe & Goto: 1991, p. 142, pl. 27, figs 3–4; Giorganni (1992), p. 72,73; Gofas *et al.*: 2001, p. 192; Giannuzzi-Savelli *et al.*: 2003, p. 126–129, figs 237–243; Gracia *et al.*: 2004, p. 58, fig. 34; Mariottini *et al.*, 2005, p. 112, 113, figs 9–10; Oliverio & Gofas: 2006, p. 209, fig. 3; Peñas *et al.*, 2006, p. 41, 116; Robin, 2008, p. 290, fig. 11; Taviani *et al.* (2009), p. 10; Nolf & Kreps (2009), p.4, figs 232–235; Segers *et al.* : 2009, p. 464, pl. 38, fig. 10; Gofas *et al.*: 2011, p. 286; Scaperrotta *et al.*: 2016, p. 158; Garrigues *et al.*: 2022, p. 16, pl. 24, figs 1–3 et 5–6 (fig. 4 seulement = *C. ruderata*).

Not *Murex squamosus* Broderip in Broderip & G.B. Sowerby I, 1833(= *Xanthochorus cassidiformis* (Blainville, 1832)— Houart (2024), p. 114.

Not *Fusus squamosus*—Sowerby II (1834), fig. 27[=*Xanthochorus cassidiformis* (Blainville, 1832)].

Not *Coralliophila* (*Pseudomurex*) *squamosa* (Broderip, 1833)—Keen (1971), p. 545, fig. 1067 [= *Xanthochorus cassidiformis* (Blainville, 1832)].

Not *Coralliophila lamellosa*—Bayer: 1971, p. 192, fig. 51(= *Coralliophila lintoni* (Verrill & Smith, 1882).

Not *Coralliophila squamosa*—Gracia *et al.*:2004, p. 58, fig. 34 (= *Coralliophila salebrosa* H. & A. Adams, 1863); Yidi-Daccarett & Sarmiento-Bossio: 2011, p. 273, fig. 607 (= *Coralliophila lintoni* (Verrill & Smith, 1882).

Not “*Coralliophila*” *squamosa* (morphotype *runderatus*)—Taviani *et al.*: 2009, p. 110, figs 13–14 (= *Coralliophila ruderata* (Sturany, 1896).

TYPE MATERIAL. Neotype (MNHN IM-2000-20004) (Bouchet & Warén, 1985) (Pl. 1, Fig. 9; Pl. 2, Fig. 1).

TYPE LOCALITY. *Fusus squamosus*: Palermo and Messina seas, Sicily; neotype: Corsica, France.

DISTRIBUTION. Known from the Mediterranean Sea, mainly from its central western part, and from the eastern Atlantic Ocean, from South of La Rochelle (Bay of Biscay) to Nouakchott (Mauritania), between 60 and 150 m deep (Houart *et al.*, 2025). Preferred depth is between 80 and 100 m, but several specimens have been dredged at 350 m deep from the Golfe du Lion (MNHN, 42° 09.4' N, 3° 22.5' E, IFREMER/DEPRO 96, rec. F. Galgani) (Pl. 2, Figs 10-11).

HOST CORALS. Mediterranean Sea, *Coralliophila squamosa* is often associated with *Anemonia sulcata* (Pennant, 1777)—Poppe & Goto: 1991, p.143.

DESCRIPTION. Six whorls fusiform-shaped teleoconch. H: 30-40 mm, D: 15-20 mm. Multispiral protoconch of 3.5 whorls with a strong spiral cord and numerous axial ribs. High spire. Apical angle from 43° to 50°. Impressed suture. Convex infrasutural ramp. Convex part of the whorl inflated. Axial sculpture of 8 to 10 foliaceous ribs from first to last whorl of teleoconch. Spiral sculpture of wide, protruded and regularly arranged primary cords with imbricated scale sculpture. From first to fifth whorl, hypertrophied P1 with small shoulder spine. On last whorl, primary cords roughly equivalent in IP, P1-P6, smaller secondary cords interspersed between the primaries. On siphonal canal, ADP, MP, ABP and sometimes EAB1 are well expressed. Siphonal canal straight, long and open, rather narrow. Subcircular aperture constricted at origin of the siphonal canal. Columellar lip adherent. Edge of outer lip crenulated and sharp, smooth on inner side. Deep and narrow pseudumbilicus. Cream or pale brown ground color, white aperture. Operculum D-shaped with subapical nucleus on lower right, reddish-brown or dark brown.

The variability of *Coralliophila squamosa* is illustrated plates 2 and 3. Most of them have a fusiform shell with a subcircular aperture, constricted at the origin of a long and straight siphonal canal. The spiral sculpture, clearly visible in all specimens, with broad, prominent, scaly primary cords alternating with fine secondary cords, is constant.

Some rare specimens, with a clearly recognizable sculpture, are biconical (Pl. 3, Figs. 10-12) or even globular (Pl. 3, Fig. 11).

DISCUSSION. The species studied, under its most recent name *Coralliophila squamosa* (Bivona E Bernardi, 1838), had a complicated taxonomic history justifying an extensive list of synonyms. The main problem is undoubtedly that, since the end of the 19th century, this species has been confused with *Fusus lamellosus* Philippi, 1836. An explanatory plate (Pl. 1) is provided for a better understanding. On this plate, the relationships between the various taxa are represented by lines. Continuous lines connect specimens belonging to the same species, while lines interrupted by “not” show different species.

Blainville (1829) described “*Murex chenillé*” (*Murex aluoides*) (Pl. 1, Fig. 1) which is unambiguously *Coralliophila squamosa* as is known today, but is a junior homonym of the Cerithiidae *Murex aluoides* Olivi, 1792 = *Cerithium vulgatum* Bruguière, 1792.

Broderip (1833) named *Murex squamosus*, a species from Payta in northern Peru, which turned out to be a synonym of

an Ocenebrinae: *Xanthochorus cassidiformis* (Blainville, 1832) [Houart (2024), p. 114].

Philippi (1836) designated *Fusus squamulosus* a small specimen from Palermo, Sicily (H: 18.7 mm, D: 8.8 mm) (Pl. 1, Fig. 2). The illustrated shell, with an incompletely formed aperture, is probably a juvenile of *Coralliophila squamosa* in its most recent name. He clearly distinguished it from *Fusus lamellosus*, which he described in the same paper, based on Jan’s work (Pl. 1, Fig. 3; Pl. 4, Fig. 1). However, Philippi’s name is a junior homonym of *Fusus squamulosus* Deshayes, 1835.

The reprinting of Bivona’s plates (1838) by van Gemert (2023) is a surprise. The species described by Bivona as *Fusus squamosus* is not a *Coralliophila* but a *Babelomurex* (Pl. 1, Fig. 4). This question the name *squamosa*. The illustration of Bivona reminds an elongated form of *B. benoiti* (Tiberi, 1855), a species occurring in the same area (Pl. 1, Figs 1 and 11; Pl. 13, Figs 2, 3, 6 and 9).

Kobelt (1887) illustrated three specimens under the name *Coralliophila lamellosa*. Illustrations 2 and 3 would especially suggest *C. squamosa* under its most recent name, characterized by its broad, scaly primary cords alternating with fine secondary cords (Pl. 1, Fig. 5). Confusion between the two species had already begun.

Sturany (1896) introduced the name *pianosana* for a variety of an Ocenebrinae: *Fusus craticulatus* Brocchi, 1814 [= *Gracilipurpura craticulata* (Bucquoy & Dautzenberg, 1882)] collected in the Adriatic Sea (103 m) during the POLA campaign (Albano *et al.*, 2018). The 31.5 mm specimen of *Fusus craticulatus* var. *pianosana* Sturany, 1896, illustrated by Sturany (Pl. 5, Fig. 1, nos. 40 and 41 only) has the particularity of having retained the antepenultimate siphonal canal. However characteristics of the described specimen (wide primary cords, subcircular opening marked by a constriction at the start of a fairly long siphonal canal) place it well within the variability of *Coralliophila squamosa*.

Locard (1897) studied specimens collected during the scientific campaign **TALISMAN** 1883. This author synonymized *Fusus lamellosus* Philippi to *Pseudomurex aluoides* Blainville, referring to the microsculpture of interlocking scales on the shell “which is only perceptible in fresh specimens”. It should be pointed out that both species have squamous microsculpture but are differentiated by their spiral sculpture (see Cohen below). Locard (1897) located the species throughout the western Mediterranean Sea and from the Bay of Biscay between 58 and 146 m deep. For this author, specimens dredged during the **TALISMAN** 1883 expedition from western Morocco (550 m) (Photo 2) and western Sudan (?) (355 and 640 m) are conspecific.

Coen (1922) divided the genus *Pseudomurex* into four subgenera: *Babelomurex* (type species: *P. babelis* = *cariniferus*), *Fusomurex* (type species: *P. aluoides* = *squamosa*), *Hirtomurex* (type species: *P. lamellosus*) and *Latiromurex* (type species: *meyendorffii*). He clearly states that *Fusomurex* have a high spire, alternating wide spiral cords (primary) with narrower cords (secondary) and a long siphonal canal (Pl. 1, Fig. 6). This corresponds well to *P. aluoides* or *Coralliophila squamosa*

under its most recent name. According to Coen, the subgenus *Hirtomurex* is differentiated by equivalent, non-alternating, scaly spiral cords that give to the entire shell of *C. lamellosa* a rough appearance (Pl. 1, Fig. 7; Pl. 4, Fig. 3). Moreover, the shape of both shells is similar. Coen has well defined differences between *C. squamosa* (= *alucoides*) and *C. lamellosa*. But, as these two species have been regularly confused, *C. squamosa* has been commonly accepted as the type species of the genus *Hirtomurex* in place of *C. lamellosa*. The two specimens illustrated by Coen come from the Naples region.

The inclusion of *Coralliophila squamosa* into the genus *Hirtomurex* Coen, 1922 is therefore questionable. However is not the same thing for *C. lamellosa*. The sculpture of this species is closer to that of the Atlantic *Coralliophila* than to all the other species included in the genus *Hirtomurex*, which are Indo-Pacific and form a homogeneous group. It therefore seems reasonable to keep *C. lamellosa* into the genus *Coralliophila*. The same applies to *C. squamosa* under its most recent name, a species that also has a quite different sculpture from that of the Indo-Pacific *Hirtomurex*.

Settepassi (1977) described several different forms within this species group. However these taxa published in a work that does not respect binominal nomenclature are not validated (ICZ, art. 11.4). In 1971, he introduced the name *Coralliophila (Hirtomurex) lamellosa longicauda*, pl. 6, figs 43 A, B, C, which correctly represents the species whose most recent name is *Coralliophila squamosa*. However, an epithet appearing after a binomial denotes an infra-subspecific rank which “qualifies a name of lower rank than that of a subspecies, and names of infra-subspecific entities published after 1961 are not taken into account by the code (Art. 1.3.4)” and become unavailable.

Kosuge & Suzuki (1985) used *Hirtomurex longicauda* Settepassi, 1971 as a valid specimen. They accompanied it with a brief description of this species and two illustrations (pl. 23, fig. 4 and pl. 44, fig. 10) (here Pl. 1, Fig. 8; photo x1). Description (“fusiform shell and elongate, broad siphonal canal”) and illustrations correspond to *Murex alucoides* Blainville or *Coralliophila squamosa* in its most recent name.

However, Settepassi’s name was not available (invalid, publication not using binominal nomenclature, ICZN art. 11.4). In addition, they inadvertently indicated that they were using a new name for *Fusus lamellosus* Philippi, 1836. But *Murex alucoides* Blainville and *Fusus lamellosus* Philippi are two different species. In so doing, they have wrongly used a name previously established to designate another species, following a misidentification (Art. 49). It would therefore appear that the name *Hirtomurex longicauda* Kosuge & Suzuki, 1985 cannot be validated.

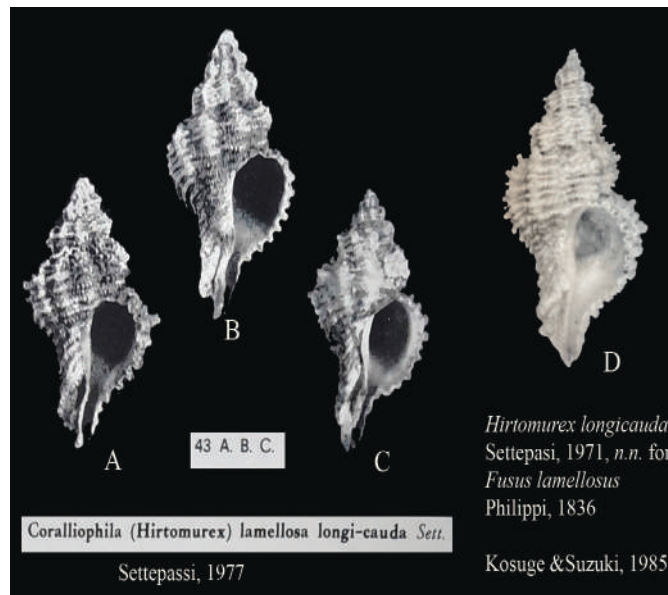


Photo 1

Illustrations by Settepassi (A-C) and Kosuge & Suzuki (D)

In the same year (1985), Bouchet & Warren created a neotype for *Fusus squamosus* Bivona, 1838 (Pl. 1, Fig. 9; Pl. 2, Fig. 1). Article 23.9.1.2 of the International Code of Nomenclature states that “the predominant usage must be maintained if an older synonym or homonym has not been applied as a valid name after 1899 (Art. 23.9.1.1) and a more recent synonym has been used for a particular nominal taxon, as its presumed valid name, in at least 25 works, published by at least 10 authors in the immediately preceding 50 years, and covering a period of at least 10 years”. In the present case, the oldest name for the species concerned is *Murex alucoides* Blainville, 1829, rendered invalid by homonymy. The more recent synonym regularly cited is *Coralliophila squamosa* (Bivona E Bernardi, 1838). It would appear that this nominal taxon meets the conditions set out in Art. 23.9.2. Until proven otherwise, no older synonym or homonym has been applied as a valid name since 1899 and Art. 23.9.1.1 is applicable. The epithet *squamosa* has indeed been cited in at least 25 works, by at least 10 authors over the last 50 years and covering a period of at least 10 years. The most recent name, *Coralliophila squamosa*, is valid and can be qualified as a “nomen protectum”.

In this work, *Coralliophila squamosa* is what we might call the “reference species”. Due to certain similarities and the lack of available material, several of the deep-sea species studied below have been considered conspecific. In the absence of sequencing, they can be distinguished by studying the main conchyliological characters, in particular the spiral sculpture. The following species will be compared with *Coralliophila squamosa*: *C. lamellosa* from southern Corsica to the Strait of Sicily and the northeast Atlantic (between 100 and 1000 m deep), *C. monterosatoi* (Locard, 1897) from the southern Bay of Biscay and mid-Atlantic seamounts (between 600 and 1200 m deep), *C. ruderata* (Sturany, 1896) from Sardinia and the Strait of Sicily (between 100 and 600 m deep) and *C. basileus* (Dautzenberg & H. Fischer, 1896) from the southern Azores seamounts (between 310 and 1300 m deep). To this list should be added two closely related species from the western Atlantic: *C. lintoni* (Verrill & Smith, 1882) from Massachusetts, Florida,

Yucatan, Colombia and Guadeloupe (between 115 and 600 m deep) and *C. profundicola* Haas, 1949 from Bermuda, St Martin, Guadeloupe, Colombia and French Guiana (between 115 and 350 m deep, 3000 m for a dead specimen). The identity of the latter two species was studied in Garrigues *et al.*, (2022).

As mentioned above, *Coralliophila lamellosa* (Pl. 4, Figs 1-12) has regularly been confused with *C. squamosa*. However, when comparing the shells of these two species, some notable differences emerge. *Coralliophila squamosa* is more fusiform, with a smaller aperture, subcircular rather than oval, and marked by a narrowing at the start of a longer, straight siphonal canal. The spiral sculpture shows a clear difference; the primary cords are clearly wider and more scaly in *C. squamosa*, compared with the thin sculpture of *C. lamellosa*.

Coralliophila squamosa differs from the few known specimens of *C. ruderata* (Pl. 5, Figs 1-6) in having a rounded shoulder with a convex infrasutural ramp. In comparison, *C. ruderata* has an angular shoulder and a flatter ramp. Whereas in *C. squamosa* the last whorl is more convex and the aperture is subcircular, marked by a constriction at the base of the siphonal canal, in *C. ruderata* the aperture is oval, connected obliquely with the canal. The axial ribs number ranged from 8 to 10 in *C. squamosa* and only from 6 to 7 in *C. ruderata*. A major difference between the two species is probably observed from their spiral sculptures, which in *C. squamosa* consists of broad, erected, highly scaly primary cords alternate regularly with thin secondary cords, whereas in *C. ruderata* the primaries cords are finer, less scaly on the last whorl, and roughly equivalent to some of the secondaries cords.

Compared with *Coralliophila monterosatoi* (Pl. 6, Figs. 1-10), *C. squamosa* has a wider last whorl and a smaller, more circular aperture. This aperture is narrowed at its junction with the siphonal canal, whereas this junction is oblique in *C. monterosatoi*. The spiral sculpture characteristic of *C. squamosa*, with very prominent, scaly primary cords, is less prominent and smoother in *C. monterosatoi*.

Coralliophila squamosa can be distinguished from *C. basileus* (Pl. 7, Figs. 1-5) by its less stocky shape, a higher spire and a more rounded shoulder, closest to the suture. In *C. squamosa*, the aperture is smaller, marked by a constriction at its junction with the siphonal canal. The infrasutural ramp is convex, whereas in *C. basileus* it is almost flat. The prominent axial ribs, numbering 8 to 10 in *C. squamosa*, are distinctly blurred and between 15 and 17 in *C. basileus*. The spiral sculpture of the two species is also different: in *C. squamosa*, very squamous, wide primary cords alternate regularly with finer secondaries, whereas in *C. basileus*, particularly on the last whorls, primary and narrow secondary cords tend to be of equivalent size.

Coralliophila lintoni (Pl. 10, Figs 1-6) has already been confused with *C. squamosa*. Although most known specimens of *C. lintoni* are also fusiform, *C. squamosa* does not have the angular shoulder with a fairly flat infrasutural ramp of *C. lintoni*, but a rounded shoulder with a convex infrasutural ramp (Garrigues *et al.* 2022). The primary cords of *C. squamosa* are also wider, more prominent and scaly.

Coralliophila squamosa can be also distinguished from *C.*

profundicola (Pl. 10, Figs. 7-12) by a higher spire, a more recessed suture and a subcircular aperture with a constriction at the origin of the siphonal canal. The spiral sculpture of *C. squamosa* is much more prominent, with wide, scaly primary cords.

***Coralliophila oblita* n. n. for *Fusus lamellosus* Philippi, 1836**
Pl. 1, Figs 3, 7 et 8 ; Pl. 4, Figs 1–12

Fusus lamellosus Philippi, 1836 according to Jan (p. 204, pl. 11, fig. 30) (Pl. 4, Fig. 1) ; junior homonym of *Fusus lamellosus* Borson, 1821.

Pseudomurex lamellosus—Monterosato (1878), p. 102 (= *Murex bracteatus* var 1 Brocchi † ; = *M. rotifer* var 2 Bronn, 1831† ; = *M. laceratus* var 3 Deshayes, 1856 ; = *Fusus babelis* Requier, 1848, = *M. benoiti* Tiberi, 1855 ; = *M. tectum-sinense* Deshayes, 1856 ; = *M. spinulosus* Costa, 1861 ; = *Pyrula panormitana* var 5 Monterosato , 1869 ; = *Purpura brevis* Blainville, 1832 ; = *Pyrula squamulata* Philippi, 1836 ; = *P. santangeli* et *P. borbonica* Maravigna).

Pseudomurex bracteatus var. *lamellosus* Philippi—Tryon: 1880, p. 210, fig. 378 (Pl. 4, Fig. 2); (not fig. 385 = *Fusus squamulosus* Philippi).

Pseudomurex (Hirtomurex) lamellosus Philippi—Coen : 1922, p. 69, fig. 4 (Pl. 4, Fig. 3).

Coralliophila squamosa Bouchet & Warén, 1985: 155, fig. 360 (Pl. 4, Fig. 4).

Not *Fusus lamellosus* Philippi—Abbott (1974) = *Coralliophila aberrans* (C.B. Adams, 1850).

Coralliophila lamellosa—Kobelt (1887), p. 41, n°2, pl. 8, fig. 1; not figs 2-3 (Pl. 1, Fig. 5) (= *C. squamosa*); Kobelt (1888), p. 13. Not *Coralliophila meyendorffii* form *lamellosa* (Calcara, 1845)—Abbott & Dance (1982): p.155 [= *C. squamosa* (Calcara, 1845)]. Not *Coralliophila lamellosa*—Bayer (1971), p. 193, fig. 51(= *C. lintoni*)

TYPE MATERIAL. Holotype MNHN IM-2023-2867, H= 31.5 mm, paratype MNHN IM-2023-2866, H: 38.2 mm, one paratype BG.

TYPE LOCALITY. North West Spain, North-East Atlantic , 41° 26 N, 09° 12 W, THALASSA stn.Y383, 420 m deep.

DISTRIBUTION The habitat of this species is located in the Northeast Atlantic, South of the Bay of Biscay and Northwest of Spain and western Morocco, between 160 and 640 m deep. In the Mediterranean Sea, South of Corsica, around Sardinia and Sicily, between 100 and 1000 m deep.

DESCRIPTION. Wide, subfusiform teleoconch with seven to eight convex whorls. H: 30 to 40 mm. Multispiral protoconch of just over three whorls. Apical angle 45° to 50°. Height of aperture and siphonal canal equivalent to that of the spire. Impressed suture. Convex infrasutural ramp. Convex part of the whorl inflated. Axial sculpture of 8 to 10 rounded, protruding ribs from first to last whorl of the teleoconch. Spiral sculpture of thin, regularly arranged squamous primary and secondary

cords and a few tertiaries; on first two whorls, IP, P1 and P2 are present, with a small cord spine in P1; secondary cords gradually appear from the third whorl. On last whorl: on infrasutural ramp, SP, adis, IP and abis; on convex part of the whorl, P1 to P6 and slightly smaller s1 to s6 interspersed between the primary cords; on siphonal canal, ADP, MP and ABP are fairly wide. Oval aperture connecting obliquely with the siphonal canal. Columellar lip adherent. Edge of outer lip crenulated and sharp, smooth on inner side. Siphonal canal rather wide, straight, short and slightly deviated to the left. Pseudumbilicus deep. Microsculpture rough. Operculum unknown. Background color and aperture whitish, cream or light brown.

The morphology of this species is fairly constant and the “rough” character defined by Coen (1922) is well present. Some variations can be observed in the number of axial ribs, 10 in Philippi’s description and 8 in most of the specimens examined. The apical angle can vary between 45° and 50° (see Pl. 4, Figs. 9 and 10).

DISCUSSION. The identity of the specimen (Pl. 4, Fig. 6) collected by a local fisherman at a depth of 1000 m in Capo Teulada, southern Sardinia, has been the subject of much research. There is no doubt that it belongs to the genus *Coralliophila*, its morphology and sculpture is distinguishable from most of the species commonly identified in this area. On the other hand, it bore similarities to illustrations of a “forgotten” species commonly synonymized with *C. squamosa*: *Fusus lamellosus* Philippi, 1836 (p. 204, pl. 11, fig. 30) (here Pl. 4, Fig. 1).

The shared history of *Coralliophila lamellosa* and *C. squamosa* has been detailed in the section dedicated to *C. squamosa*. In his description of *Fusus lamellosus*, Philippi (1836) described a broad, oval shell measuring 39 mm long by 22 mm wide, with dense, imbricated, scaly sculpture and an oval aperture whose base gradually opens into a short, oblique, open canal (Pl. 4, Figs 1-2). He also differentiated this species from *Fusus squamulosus* (= *C. squamosa*).

Monterosato (1878) published a catalog of the Mediterranean conchological fauna. *Pseudomurex lamellosus* is synonymized with an impressive list of various species. A conspecificity between *Pyrula panormitana* (= *Coralliophila panormitana*) and *Fusus babelis* (= *B. cariniferus*) seems difficult to envisage. However, the author may have wanted to group these taxa in a supra-specific rank.

In his study of specimens collected during the scientific exploration **TALISMAN** 1883, Locard (1897) confused *Fusus lamellosus* Philippi with *Pseudomurex aluoides* Blainville. He referred to the squamous microsculpture of the shell, which is only perceptible “in fresh specimens”, and located the species throughout the western Mediterranean Sea and in the Bay of Biscay between 58 and 146 m deep. However, it does not specifically mention the six specimens dredged from a depth of 640 m in western Morocco. Material from the **TALISMAN** expedition (stn DR63) deposited at MNHN (MNHN IM-2023-3990) has been examined. They have a homogeneous morphology that brings them close to *F. lamellosus* but differentiates them from *P. aluoides* (*Coralliophila squamosa*). The best preserved protoconchs have at least three whorls and the number of axial ribs varies between 7 and 10. Moreover, the

depth of 640 m corresponds well to the habitat of *F. lamellosus*. Coen (1922) clearly differentiated *Coralliophila lamellosa* from *C. squamosa* and classified them in two different subgenera: *Hirtomurex* for *C. lamellosa* and *Fusomurex* for *C. squamosa*. According to Coen, the shell of *C. lamellosa*, the type species of the subgenus *Hirtomurex*, was similar in shape to that of *Fusomurex*, but was distinguished by equivalent, non-alternating spiral cords intersecting shallow, scaly longitudinal ribs, which gave the entire shell of *C. lamellosa* a rough appearance (Pl. 1, Fig. 7; Pl. 4, Fig. 3). In comparison, in *Fusomurex* (*P. aluoides*) (Pl. 1, Fig. 6), large cords alternate with smaller ones.

As explained above, Kosuge & Suzuki (1985) validated *Hirtomurex longicauda* Settepassi, 1971, but as a new name for *Fusus lamellosus* Philippi, 1836. The specimen illustrated is undoubtedly *C. squamosa* as currently known (Pl. 1; Fig. 8), but this species is different from *F. lamellosus*. The validity of this taxon has already been discussed.

As *Fusus lamellosus* Philippi, 1836 is a junior homonym of *Fusus lamellosus* Borson, 1821, a new replacement name is created in this work to designate this species: *Coralliophila oblita* n.n. In the absence of a name-bearing type for *F. lamellosus* Philippi, they are designated in this work.

Bouchet & Waren (1985) illustrated on p. 155, fig. 360 a specimen from the **THALASSA** campaign in the North-East Atlantic. This picture shows clear similarities with the Philippi (1836) illustration (Pl. 1, Fig. 3; Pl. 4, Fig. 1), as well as with the specimen collected in Sardinia and illustrated on Pl. 4, Fig. 6. Access to MNHN material collected during this campaign has enabled us to illustrate four specimens relating to this species (Pl. 4, Figs 4, 5, 7 and 8). Specimens illustrated on Pl. 4, Figs. 4 and 5 are chosen as the holotype and paratype of *Coralliophila oblita* n.n.

Coralliophila oblita n.n. has already been confused with *C. squamosa* as mentioned above. This last species occurs throughout the central western Mediterranean Sea and in the eastern Atlantic Ocean, between 60 and 150 m deep. It will also be compared with *C. ruderata*, whose few known specimens originate from an area between southern Corsica and the Strait of Sicily, at depths of between 100 and 600 m.

Coralliophila oblita n.n. differs from *C. squamosa* (Pl. 1, Figs 1, 2, 5, 6, 8, 9; Pl. 2, Figs 1-14; Pl. 3, Figs 1-12) in having a lower spire, a more globular shape and a wider aperture extending obliquely towards the siphonal canal, without the marked narrowing seen in *C. squamosa*. The siphonal canal of *C. oblita* n.n. is shorter and inclined to the left. Their spiral sculptures are different: *C. oblita* n.n.’s primary cords are narrower, almost identical to the secondaries cords, and markedly less scaly. In addition, *C. oblita* n.n. is larger on average, with a wider last whorl. This species live in deep waters, whereas *C. squamosa* is a coastal species. Compared with *Coralliophila ruderata* (Pl. 5, Figs. 1-6), which may occur in the same areas, *C. oblita* n.n. has a more convex last whorl with a rounded shoulder that is much less angular. The infrasutural ramp is convex in *C. oblita* n.n., whereas it is rather flat in *C. ruderata*. In addition, the aperture of *C. oblita* n.n. is wider, with a shorter siphonal canal.

To be complete about *Coralliophila oblita* n.n., we must differentiate this poorly known species from two West Atlantic Coralliophilinae: *C. lintoni* (Pl. 10, Figs 1-6) and *C. profundicola* Haas, 1949 (Pl. 10, Figs 7-12). *Coralliophila oblita* n.n. can be distinguished from *C. lintoni* by a more rounded shoulder without hypertrophy of P1, a non-tabular infrasutural ramp, a wider aperture and larger size. Compared with *C. profundicola*, *C. oblita* n.n. is stockier, with more convex whorls. In *C. profundicola*, the larger shell diameter is offset towards the apex, corresponding to a more oval opening.

ETHYMOLOGIE. From Latin *oblitus*: forgotten.



Photo 2

Four of the six specimens dredged during the **TALISMAN** 1883 expedition in western Morocco in 640 m depth (H: 24-30 mm) (scale-bar: 0.5 mm).

***Coralliophila ruderata* (Sturany, 1896 in Monterosato)**

Pl. 5, Figs 1–6

Pseudomurex ruderatus Sturany, 1896 in Monterosato ms.
Coralliophila squamosa (Bivona, 1838)—Bouchet & Warén, 1985: 153, fig. 361 (syntype of *Pseudomurex ruderatus*).

? *Coralliophila squamosa* (Oliverio & Gofas, 2006: 209, fig. 3).
“*Coralliophila*” *squamosa* (morphotype *runderatus*) (Taviani et al., 2009: 19, fig. 13–15, 17).

Hirtomurex ruderatus (Russo, 2020: 19, fig. 13A-L).

Coralliophila ruderata (Garrigues et al, 2022: 16, pl. 24, figs 7-10) (pl. 24, fig. 4 only = not *C. squamosa*).

TYPE MATERIAL. Two syntypes (NHMW 2822a-b).

TYPE LOCALITY. Corsica, France.

DISTRIBUTION. The few known specimens come from Corsica, southern Sardinia and the Strait of Sicily, between 100 and 600 m depth.

DESCRIPTION. Fusiform teleoconch with 6 to 7 whorls. Adult size between 26 and 44 mm. Protoconch unknown. Apical angle 46° to 50. Standard suture. Carinated shoulder. Infrasutural

ramp tabulated. Axial sculpture of 6 to 7 rounded ribs from first to last whorl. Spiral sculpture of squamous primary and secondary cords; on infrasutural ramp adp, IP and abp roughly equivalent; at shoulder P1 prominent; on convex part of the whorl, P2, s2, P3, s3, P4 and P5 roughly equivalent, s1, s4 and s5 smaller; on siphonal canal ADP, MP and ABP well marked. Oval aperture with adherent, smooth columellar lip. External lip flared and crenulated, smooth internally, extending obliquely with siphonal canal. Siphonal canal wide and straight. Fasciole bordering a narrow pseudumbilicus. Light brown to whitish background color. Bright white aperture. D-shaped, orange-colored operculum.

DISCUSSION. The Naturhistorisches Museum in Vienna, Austria (NHMW) houses an important collection of Monterosato, which was a fundamental reference for Sturany in identifying his material. Some of the names on the labels had never been formally described by Monterosato. They were made available by Sturany following redescrptions and illustrations. Such is the case for *Pseudomurex ruderatus* (Albano et al., 2018).

Coralliophila ruderata, a poorly known species, has regularly been synonymized with *C. squamosa*. Sturany (1896) perfectly illustrated its spiral sculpture, the main difference between *Pseudomurex ruderatus* (Pl. 5, Fig. 1, no. 42-43) and *Fusus craticulatus* var. *pianosana* Brocchi [= *Coralliophila squamosa* (Bivona e Bernardi, 1838)] (Pl. 5, Fig. 1, no. 40-41). The primary cords of *C. ruderata* are narrow and spaced out, with a relative hypertrophy of s2 and s3, equivalent to the primaries cords (Pl. 5, Fig. 3c), whereas in *C. squamosa* the sculpture consists of wide, very scaly primary cords that regularly alternate with much finer secondaries (Pl. 2, Fig. 7d). This type of sculpture is quite constant in *C. squamosa*. *Coralliophila. ruderata* is also distinguished from *C. squamosa* by a more carinated shoulder bordering a flatter infrasutural ramp, a more oval aperture and a wider, shorter siphonal canal. In *C. ruderata*, the junction between the aperture and the siphonal canal is wide and oblique, without the constriction which is usual in *C. squamosa*. In addition, the two species occur at different depths (100 to 600 m deep for *C. ruderata*, compared to 60 to 150 m deep for *C. squamosa*). The illustrated specimen (Pl. 5, Fig. 4) from the MNHN's old collections has all the distinctive features of *C. ruderata*. Unfortunately, the unique information on the label is very vague: “*Fusus lamellosus* Philippi, Mer Méditerranée, D.” without any further details. The “D.” signature could be Dautzenberg's.

Taviani et al. (2009) illustrated a single living specimen (Pl. 5, Fig. 5) collected in the Strait of Sicily, at a depth of 500 m. They identified it, with doubts, as “*Pseudomurex ruderatus*, a possible deep-sea morphotype of the variable *Coralliophila squamosa*”. In his study of Mediterranean Coralliophilinae, Russo (2020) proposed the validity of *Coralliophila ruderata*, which he classified into the genus *Hirtomurex* due to its similarities to *H. squamosus*.

Coralliophila ruderata shares with *C. lintoni* (Pl.10, Figs 1-6) a keeled shoulder and a relatively flat infrasutural ramp. However, *C. ruderata* has a less biconical shape, fewer axial ribs (6 to 7 instead of 9 to 10), a less prominent primary cord at P1 and a much larger size (26 to 44 mm instead of 15 to 27 mm).

***Coralliophila monterosatoi* (Locard, 1897)**

Pl. 6, Figs 1-10

Pseudomurex monterosatoi Locard, 1897*Coralliophila squamosa* Bouchet & Warén, 1985 : 153, pl. fig. 358, 359.*Coralliophila monterosatoi* – Kosuge & Suzuki, 1985 : 36, pl. 49, fig. 3 ; Rios & Gofas, 2022: 455, figs A-D ((Pl. 6, Fig. 4).*Coralliophila* sp. 3—Oliverio & Gofas (2006): p. 226 (Pl. 6, Fig. 9).*Coralliophila basileus* (Dautzenberg & H. Fischer, 1896) – Garrigues *et al*, 2022 : 15, pl. 23, figs 2 (only).*Pseudomurex monterosatoi*— Garrigues *et al*, 2022: 15, pl. 23, 8-9.*Coralliophila* sp. – Garrigues *et al*, 2022 : pl. 23, figs 10-11 (Pl. 6, Figs 9-10).Non Kosuge & Suzuki, 1985: 36, pl. 50, fig. 5 = *Coralliophila profundicola* Haas, 1849**TYPE MATERIAL.** Two syntypes (MNHN IM-2000-792, 793) (Pl. 6, Figs 1-2).**TYPE LOCALITY.** South Gascogne 44°07'N 05°35'W, expedition TRAVAILLEUR 1882, stn DR02, 564 m.**DISTRIBUTION.** Avilés Canyon, Bay of Biscay; South of Sao Miguel, Azores, Irving Bank (SEAMOUNT 2); South Bretagne, between 600 and 1200 m depth.

DESCRIPTION. Fusiform teleoconch of six whorls. H: 18-50 mm. Multispiral protoconch of 3.5 whorls. High spire. Apical angle from 44° to 50°. Standard suture. Tabulate infrasutural ramp. Angular shoulder. Last whorl equal to ¾ of total height. Spire height slightly less than the addition of aperture and siphonal canal (7.5/10). Maximum diameter about halfway up the shell height. Axial sculpture of 9 to 10 rounded ribs from first to last whorl of teleoconch. Spiral sculpture of primary cords that are not very erected, rounded, rather wide, regularly arranged and alternating with smaller secondary cords; presence of tertiary cords; at the shoulder P1 protruding with small triangular spine at intersection with axial ribs; on convex part of the whorl P2 to P6 of decreasing importance and s1 to s6; on siphonal canal, ADP, MP, ABP well expressed. Wide, straight, open siphonal canal. Pyriform aperture. Columellar lip adherent. Edge of outer lip crenulated, slightly sharp, smooth on inner side. Outer lip extended obliquely by siphonal canal. Fasciole bordering a narrow pseudumbilicus. Scaly microsculpture. Background color cream, grayish or pale brown, opening white. Operculum unknown.

The two syntypes of *Coralliophila monterosatoi* (Pl. 2, Figs 1-2) are quite different. The first one (Pl. 6, Fig. 1) shows a widening of the outer lip of the aperture that is absent in the other syntype (Pl. 6, Fig. 2). This difference may be due to a sexual dimorphism in *Coralliophila*. In females, this enlargement serves to house the ovigerous capsules. Among the material from

BIAÇORES campaign, some specimens have this morphology and may be female (Pl. 6, Figs 5, 9 and 10). Out of illustrated specimens, 9 and 10 stand out with their large size and a very wide aperture. No. 9 is from Irving Bank, south of the Azores (1035 m), while no. 10 was collected in southern Bretagne, France (748-1262 m). Apart these dissimilarities, their conspecificity with *Coralliophila monterosatoi* is probable. Their spire is identical to that of the other specimens, and the small angulation at the shoulder is constant in this species. Large size differences are not uncommon in *Coralliophila*. The study by Oliverio & Mariottini (2001), based on molecular analysis, provides precise information on these variations in *Coralliophila meyendorffii* (Calcare, 1845). They recognized two forms with significant size differences among *C. meyendorffii* different Mediterranean populations, depending on their host corals. The smaller of the two forms, between 4 and 20 mm in size, is associated with scleratinaria, while the larger (8-40 mm) parasitizes alcyonaria. Note that significant size differences have already been observed in *C. galea* (Dillwyn, 1823) from the West Indies. Average adult size is between 10 and 20 mm, but specimens of over 50 mm are not uncommon.

DISCUSSION. Until recent years, *Coralliophila monterosatoi* was only known from its two syntypes. Recently, during the INDEMAR AVILES 0511 campaign, a single specimen (Pl. 2, Fig. 4) was collected in the Bay of Biscay at a depth of 593 m in the area of the type locality of this species (Rios & Gofas, 2022) (Pl. 6, Figs 1-2). This specimen (Pl. 6, Fig. 4), in excellent condition, is extremely close to some of those collected during the BIAÇORES campaign south of São Miguel (Azores), at a depth of 847-870 m (Pl. 6, Figs 3, 5, 7-9). These new findings provide a better understanding of the species and extend its range.

Coralliophila monterosatoi can be compared with its North Atlantic and Mediterranean deepwater relatives: *C. squamosa*, *C. basileus*, *C. lintoni* and *C. profundicola*.

Locard (1897) gave us a very detailed description of this species (p. 315), comparing it with *Pseudomurex aluoides* (= *Coralliophila squamosa*). We have seen above that *C. monterosatoi* differs from *C. squamosa* in having a wider, oval aperture, with no narrowing at the start of the siphonal canal, and a less squamous spiral sculpture with less prominent primary cords.

Compared with *Coralliophila basileus*, a species found in the same areas (Pl. 7, Figs. 1-5), the shell of *C. monterosatoi* is more fusiform, less stocky and with a higher spire. The two species also differ in the number of axial ribs: 8 to 9 for *C. monterosatoi* instead of 13 to 14 for *C. basileus*. These axial ribs are more erected in *C. monterosatoi*, with a distinctly smoother appearance (see differences in spire, Pl. 6, Fig. 5c and Pl. 7, Fig. 2c).

Coralliophila monterosatoi differs from *C. lintoni* (Pl. 10, Figs. 1-6) in having a more fusiform shell, a less angular shoulder, a less convex last whorl, a less impressed suture and a more elongated pyriform aperture.

Compared with *Coralliophila profundicola* (Pl. 10, Figs. 7-12), *C. monterosatoi* has a flatter infrasutural ramp with small cord spines at P1 on the shoulder and a smoother sculpture. The spiral sculpture of *C. monterosatoi* features relatively wide primary cords alternating with smaller secondaries, whereas

in adult *C. profundicola*, primaries and secondaries cords are thin, scaly and equivalent. The illustration of a *C. profundicola* at the three whorls teleoconch stage (Pl. 10, Fig. 12c) shows the value of a juvenile shell for determining the primary cords.

***Coralliophila basileus* (Dautzenberg & H. Fischer, 1896)**

Pl. 7, Figs 1-5

Pseudomurex basileus Dautzenberg & Fischer, 1896: 440, pl. 18, fig. 3 (Pl. 7, Fig. 1).

Pseudomurex basileus—Bouchet & Warén, 1985: 154, fig. 362-363 [not 364 = *C. monterosatoi*; 365 = xx, 366 = *C. aedonia* (Watson, 1886)]; Kosuge & Suzuki, 1985: 36, pl. 44, fig. 3, as *Coralliophila meyendorffii* (Calcar, 1845).

Coralliophila basileus—Gofas *et al.*, 2001, p. 192; Oliverio & Gofas, 2006: 215, fig. 7A-H; Garrigues *et al.*, 2022: 15, pl. 23, figs 1, 3-7 (not fig. 2a-b = *C. monterosatoi*).

TYPE MATERIAL. Holotype, MOM 241661 (INV-0012302) (Pl. 7, Fig. 1).

TYPE LOCALITY. Açores between Pico et São Jorge, lat. 38° 33' 21" long. 30° 28' 54", Hirondelle 1888, stn 69, 1300 m deep.

DISTRIBUTION. *Coralliophila basileus* is only known from the central Azores Archipelago and the Atlantis-Meteor complex of submarine volcanoes located 700 km south of the Azores between 310 and 1300 m deep. Two specimens were collected during the BALGIM campaign (stn. CP97) off Rabat, Morocco, at a depth of 1515 m.

DESCRIPTION. Stocky teleoconch with six whorls. Conical spire reaching 2/5 of the total height. H: 25 to 40 mm. Multispiral protoconch of 3.5 whorls. Conical spire. Apical angle of 43° to 50°. Standard suture. Tabulated infrasutural ramp becoming more convex on last whorl. Shoulder of last whorl rounded at mid-height of shell, with profile gradually narrowing towards siphonal canal. Axial sculpture of 12 to 16 ribs, poorly expressed from first to last whorl of the teleoconch. On last whorl, multiplication of ribs, less and less erect (Pl. 7, Fig. 3c). Spiral sculpture of squamous primary and secondary cords. On first whorls IP, P1-P6 more important, secondary cords adp, abp, s1-s6 smaller and interspersed between the primaries (Pl. 7, Fig. 5). On the last whorl, hypertrophy of secondary cords s2 and s3, as important as the primaries (Pl. 7, Fig. 2d). Crown-like appearance of the shoulder with adapically oriented P1 spines corresponding to more developed cord scales (Pl. 7, Fig. 2c). On siphonal canal, wide cords in ADP, MP, ABP and EAB1. Siphonal canal short, wide, straight and open. Pyriform aperture, larger diameter towards apex. Adherent columellar lip forming a medium-sized inductura. Rough anal sulcus. Edge of outer lip crenulated, sharp, smooth on inner side. Pseudumbilicus narrow. Microsculpture of overlapping lamellae. Ground color grayish or pale brown, opening white. D-shaped operculum with subapical nucleus on lower right, ochre-colored.

DISCUSSION. Although *Coralliophila basileus* is known from a few specimens, its profile, with its low spire and conical last whorl whose shoulder is located close to the suture, makes it fairly easy to distinguish from neighboring species. Its almost

flat infrasutural ramp, criss-crossed by numerous axial ribs and adorned with spines on the periphery, is also characteristic (Pl. 7, Figs. 2 and 5c).

Coralliophila basileus may be compared with *C. squamosa*, *C. lamellosa*, *C. rudrata*, *C. monterosatoi* and *C. lintoni*, species potentially occurring in the same areas.

Coralliophila basileus is easily distinguished from *C. squamosa* by its stocky shape with a low spire, an oval opening without narrowing at the start of the siphonal canal and numerous axial ribs (Pl. 2-3). Moreover, their spiral sculptures are very different, with the primary cords widest and less prominent in *C. basileus* (Pl. 7, Fig. 2d).

Coralliophila basileus differs from *C. lamellosa* (Pl. 4) by its stockier shape and a shoulder closer to the suture, which delimits an almost flat infrasutural ramp furrowed by more numerous axial ribs (12 to 16 instead of 8) (Pl. 7, Fig. 2d).

Compared with *Coralliophila rudrata* (Pl. 5), *C. basileus* has a lower spire, a shoulder offset towards the suture and more numerous, less prominent axial ribs. Nevertheless, both species have an almost horizontal infrasutural ramp.

Coralliophila basileus is close to some large specimens of *C. monterosatoi* (Pl. 5), but the morphology of their spire makes it easy to distinguish them. In *C. basileus*, the spire is lower and the axial ribs are much more numerous and scaly, giving a shaggy appearance that is not found in *C. monterosatoi*, whose spire is much smoother (Pl. 7, Fig. 2c and Pl. 6, Fig. 5c). This difference is particularly clear in juvenile specimens (Pl. 7, Figs. 2 and 5). Bayer (1971) illustrated a specimen of *Coralliophila lintoni* collected on Chinchorro Bank, off the southeast coast of the Yucatan Peninsula, Mexico (700 m deep) identified as *C. lamellosa* (Philippi). Garrigues *et al.* (2022), on the basis of extensive material collected in Guadeloupe by D. Lamy, have demonstrated the identity of this species. *Coralliophila basileus* can be distinguished from *C. lintoni* (Pl. 10, Figs. 1-6) by its stockier shape, more numerous axial ribs (12 to 16 instead of 8 to 10) and a shoulder closer to the suture.

***Coralliophila meteorensis* n. sp.**

Pl. 8, Figs 1-9

Coralliophila sp. 2— Oliverio & Gofas, 2006: 226

Coralliophila basileus?— Oliverio & Gofas, 2006: 216, 217

TYPE MATERIAL. Holotype, MNHN-IM-2000-29240, Atlantis Bank, **SEAMOUNT 2**, stn DW255 (34°04.9'N, 30°15.3'W), 340 m, 8.3 mm; paratype A, MNHN-IM-2000-29241, Atlantis Bank, N.O. "le Suroit", **SEAMOUNT 2**, stn CP257, 338 m, 7.4 mm; paratype B, MNHN-IM-2000-29242, Atlantis Bank, **SEAMOUNT 2**, stn DW255, 340 m, 5.8 mm; paratype C, MNHN-IM-2000-29243, Atlantis Bank, N.O. "le Suroit", **SEAMOUNT 2**, stn CP257, 338 m, 7.6 mm. paratype D, MNHN-IM-2000-29244, Hyères Bank, N. O. « le Suroit », **SEAMOUNT 2**, stn DW182, 480 m, 4 mm; paratype BG, Hyères Bank, **SEAMOUNT 2**, stn DW188, 310 m, 5.2 mm.

TYPE LOCALITY. Atlantis Bank, **SEAMOUNT 2**, stn DW255 (34°04.9'N, 30°15.3'W), 340 m deep.

DISTRIBUTION. *Coralliophila meteorensis* n. sp. is only known from Atlantis and Hyères Banks, which are part of Meteor Group seamounts located 1000 km south of the Azores between 310 and 480 m deep.

DESCRIPTION OF THE HOLOTYPE. Ovoid teleoconch with four whorls. H: 8.3 mm, D: 4.7 mm. Protoconch of four whorls with two spiral cords and numerous small interrupted axial ribs (Pl. 8, Fig. 9c). Apical angle: 55°. Standard suture. Slightly convex infrasutural ramp. Rounded shoulder. Axial sculpture of 8 to 9 rounded ribs from the first to the last whorl of the teleoconch, last rib slightly protruding and widening (Pl. 8, Fig. 1c). Spiral sculpture of rather flat and slightly scaly primary and secondary cords; on infrasutural ramp: adis, IP and abis equivalent; from first whorl of teleoconch: P1 more erect with shoulder spine; on convex part of the whorl: P2 to P5 equivalent and regularly arranged, P6 smaller, secondary cords less prominent s1 to s4 inserted between primaries; on siphonal canal ADP and ABP wide, MP smaller (Pl. 8, Fig. 1e). Aperture wide and oval. Columellar lip adherent. Outer lip sharp, crenulated, flared in its abapical part and slightly ridged internally. Square-ended spine in P3, projecting from the edge of the outer lip. Siphonal canal short and wide open. Wide fasciole bordering the pseudumbilicus. Microsculpture made of fine growth lamellae. Whitish ground color, slightly tawny on the spire. Bright white aperture. Operculum unknown.

The adult size of *Coralliophila meteorensis* n. sp. ranges from 5 to 8.3 mm. The shape of aperture is variable. In adults, such as the holotype (Pl. 8, Fig. 1) or paratype A (Pl. 8, Fig. 3), the outer lip is abapically flared, giving shell a subcylindrical shape, whereas juveniles have a more trapezoidal shape. In paratype C (Pl. 8, Fig. 6), a large adapical expansion of the outer lip could be intended to house the ovigerous capsules in a female, as has been observed in other *Coralliophila* species. In all the specimens studied, the spiral sculpture (Pl. 8, Fig. 1c) is very constant, as in *C. meyendorffii* (see above).

DISCUSSION. Oliverio & Gofas (2006) have clearly identified the characteristics of this small, previously undescribed *Coralliophila*, whose adult specimens exhibit a deformed appearance that does not resemble any known species. However, the presence of approximately ten specimens, including both adults and juveniles, warranted its description in this paper.

Among the closely related species present in the same area, *Coralliophila meteorensis* n. sp. can be compared with *C. brevis* (Blainville, 1832), which is known from the Mediterranean Sea and the eastern Atlantic Ocean (Portugal, Josephine and Ampère Seamounts, Canary Islands, Cape Verde, Ivory Coast, Ghana, Príncipe, and northern Angola) at depths ranging from 18 to 280 m. It can also be compared with another related species, *C. kaofitorum* Vega, Vega & Luque, 2002, which has only been recorded from the Canary Islands and the Gorringe Seamounts off Portugal at depths between 22 and 180 m.

Coralliophila brevis (Pl. 9, Figs. 1–7) is a highly variable species capable of adapting its structure to its substrate [Russo (2020)]. *Coralliophila meteorensis* n. sp. is distinguished from *C. brevis* by its oval shape and a higher spire, which does not develop the pagoda-like appearance visible on the first whorls and

commonly observed in *C. brevis*. The largest diameter of *C. meteorensis* n. sp. is at mid-shell height, whereas in *C. brevis*, it is clearly offset toward the apex.

The spiral sculpture of *C. meteorensis* n. sp. consists of rather flat, smooth primary and secondary cords, with the secondary cords being slightly wider (Pl. 8, Fig. 1c). In contrast, *C. brevis* exhibits broad, scaly primary cords alternating with fine secondary cords (Pl. 9, Fig. 1c). Additionally, *C. meteorensis* n. sp. has an adult size ranging from 5 to 8.3 mm and occurs at depths of 310 to 480 m. In comparison, *C. brevis* varies in size from 12 to 30 mm, with its typical habitat located between 20 and 80 m deep, rarely exceeding 200 m in depth.

Compared with *Coralliophila kaofitorum* (Pl. 9, Figs. 8–10), whose shell is almost biconical with an angular shoulder, *C. meteorensis* n. sp. is oval with a rounded shoulder. The spiral sculpture of *C. meteorensis* n. sp. is more regular, with flat primary cords alternating with smaller secondaries cords (Pl. 8, Fig. 1c), whereas in *C. kaofitorum* these cords are more prominent, with hypertrophy of s2 equivalent to the primaries cords (Pl. 9, Fig. 10c). *Coralliophila meteorensis* n. sp. also differs in having a whitish protoconch, whereas in *C. kaofitorum* it is pink to reddish (Vega *et al.*, 2002), and is much smaller in size.

ETHYMOLOGY. From the Great Meteor Seamount.

Genus *Babelomurex* Coen, 1922

TYPE SPECIES: *Fusus babelis* Requier, 1848 accepted as *Babelomurex cariniferus* (G.B. Sowerby, 1834) by original designation.

Babelomurex perfectus (Fischer, 1883)

Pl. 11, Figs 1-12

Pseudomurex perfectus Fischer, 1883, p. 274, n° 17.

Pseudomurex perfectus—Mayer (1883), p. 68 ; Martens (1883), p. 342 ; Clessin *et al.*, 1888, p. 122; Locard, A. (1897), p. 318, n° 6; p. 124 ; Hidalgo (1913), p. 1811.

= *Xanthochorus*—Kosuge & Suzuki (1985), p. 49.

= *Coralliophila squamosa* (Bivona, 1838), nomen dubium—Bouchet & Waren (1985), p. 153; Oliverio & Gofas (2006), p. 209 ; Peñas *et al.* (2006), p. 116 ; Taviani *et al.* (2009), p. 109 ; Nolf & Kreps (2009), p. 4.

Coralliophila sentix carcassii Nicolay & Angioy, 1985.

Babelomurex kawamurai sentix Bayer, 1971—Cecalupo (1985), p. 311, figs 1-2.

Latiaxis sentix (Bayer, 1971)—Giorgianni (1992), p. 74-75; Gofas *et al.* (2001), p. 192; Giannuzzi-Savelli *et al.*: 2003, p. 142-145, figs 259-261.

Latiaxis kawamurai sentix Bayer, 1971—Poppe & Goto (1991), p. 143, pl. 27, figs 14-15.

Coralliophila sentix (Bayer, 1971)—Bouchet & Waren (1985), fig. 367.

Babelomurex sentix (Bayer, 1971)—Oliverio & Gofas (2006), p. 222, fig. 10; Taviani *et al.* (2009), p. 109, figs 10-12, p. 111, figs 16-20; Russo (2020), p. 6, figs 3A-E (only); Garrigues *et al.* (2022), p. 19, pl. 17, figs 4, 7-11(only).

TYPE MATERIAL. Syntype (IRNSB, BE-RBINS-INV type MT 610) (Pl. 11, Fig. 1).

TYPE LOCALITY. Bay of Biscay, “TRAVAILLEUR” 1881, dredging 37 (44°10'N, 08°18'W), 400 m deep.

DISTRIBUTION. Present in the Northeast Atlantic, Azores [MONACO st. 113 (1287 m), BIACORES (450-475 m)], South of the Azores: Hyères Seamount (310-750 m), Atlantis Seamount (610 m), Meteor Seamount (585 m), Irving Seamount (480-790 m), Tyro Seamount (805 m) (SEAMOUNT 2), South of the Bay of Biscay (400 m)(WORKING) as well as in the Mediterranean Sea, South of Malta (460 m) and Southeast of Sardinia (370 m).

DESCRIPTION. Fusiform teleoconch of 7 whorls. H: 25 to 50 mm. Multispiral protoconch of 3.3 whorls (Pl. 11, Fig. 12b); protoconch I of 0.9 whorls ornamented with pustules; protoconch II of 2.4 whorls marked by two spiral keels and numerous interrupted axial ribs. Apical angle between 44° and 47°. Standard suture. Tabulate infrasutural ramp. Carinated shoulder with broad, flat triangular spines arranged in a crown, more or less curved towards the apex and appearing from the first whorl of the teleoconch (Pl. 11, Figs. 11-12). Axial sculpture of 8 to 9 ribs (Pl. 11, Fig. 2c). Spiral sculpture of narrow primary, secondary and tertiary cords (Pl. 11, Fig. 2d); on the infrasutural ramp, fine spiral cords poorly expressed; on the convex part of the whorl, hypertrophy of P1, then P2 to P6 and s1 to s5 all roughly equivalent; on the siphonal canal, ADP, ads, MP, ABP and abs equivalent (Pl. 11, Fig. 2d). Siphonal canal rather long and straight, slightly curved dorsally at its tip and about 26 to 31% of the total length of the teleoconch. Persistence of previous canals forming a wide fasciole bordering the pseudumbilicus. Oval aperture. Columellar lip adherent. External lip slightly crenulated. Elongated denticles on inner surface, from D1 to D6 (Pl. 11, Fig. 2e). Microsculpture of narrow growth lamellae. Background color light brown, ochre, cream or white. Aperture white, sometimes tinged with lilac or violet. Protoconch the same color as the teleoconch.

Pictures of a live gastropods clearly show the siphon, tentacles and foot with operculum. The soft parts are uniformly white, while the operculum is ochre. (Photo 3.)

DISCUSSION. The identity of *Pseudomurex perfectus* Fischer, 1883 has long been questioned, as its type specimen was never illustrated by Fischer. This species is usually listed as *nomen dubium* among the possible synonyms of *Coralliophila squamosa*. However, the specimen described by Fischer was recently discovered in the Dautzenberg collection (Pl. 11, Fig. 1) at the Royal Belgian Institute of Natural Sciences (IRNSB) in Brussels. There is no doubt that it belongs to the genus *Babelomurex*.

As shown in the images, this specimen perfectly aligns with the series of *Babelomurex* dredged south of the Azores (Pl. 11, Figs. 2, 4-8, and 10-12). Until now, these specimens were considered to belong to a species from the Lesser Antilles:

Babelomurex sentix Bayer, 1971, as referenced by Bouchet & Waren (1985), Oliverio & Gofas (2006), and Garrigues *et al.* (2022). Bayer described *B. sentix* from St. Vincent in the northern Grenadines and the neighboring island of St. Lucia, at depths between 230 and 430 meters (Pl. 12, Fig. 1). Additional specimens were collected in Guadeloupe at depths between 300 and 400 meters (Pl. 12, Figs. 2-6).

Both *Babelomurex perfectus* and *B. sentix* are known from only a small number of specimens, most of which are presented here. Comparing the Northeast Atlantic population (Pl. 11, Figs. 1-12) with that of the Lesser Antilles (Pl. 12, Figs. 1-6), each group appears quite homogeneous but differs in several conchological characters. Specimens attributed to *B. perfectus* are clearly more fusiform, with a proportionately smaller diameter and shorter shoulder spines. They consistently have a longer siphonal canal, accounting for 26–31% of the total teleoconch length, whereas in *B. sentix*, it ranges from 18–22%.

In most adult specimens of *B. perfectus*, well-expressed elongated denticles are present on the inner side of the outer lip, which tends to thicken in older individuals (Pl. 11, Figs. 7-8). In comparison, *B. sentix* is stockier, with longer spines. In this species, the denticles are much less pronounced or reduced to simple striations. Additionally, the mauve to violet coloration of the aperture, observed in many specimens of *B. perfectus*, is absent in *B. sentix*. However, the axial and spiral sculpture of both species is very similar.

Some conchylological differences and an ocean separate *Babelomurex perfectus* from *B. sentix*. However, the planktotrophy of their larvae may have facilitated their dispersal on both sides of the Atlantic and their establishment on suitable coral hosts.

Are they conspecific? At this stage, it's difficult to be categorical, and only molecular analysis is capable of resolving the question. A specimen dredged in Guadeloupe during the MNHN **KARUBENTHOS 2** mission has already been sequenced (Pl. 12, Fig. 2, IM-2013-60303, MUBA930-22, ON668331).

Cecalupo (1985) questioned the identity of two specimens dredged in southern Sardinia and noted striking similarities with two geographically distant species: *Babelomurex kawamurai* Kuroda, 1959 from Japan and *B. helenae* (Azuma, 1973) from Mozambique. He identified the Sardinian specimens as *Latiaxis (Babelomurex) kawamurai* Kuroda, 1959, considering them a subspecies of *B. sentix* Bayer, 1971. He also proposed elevating the subgenus *Babelomurex* Coen, 1922, to the rank of genus. More recently, in his study of the Coralliophilinae of the Southwest Pacific, Oliverio (2008) included the following species in this group: *B. helenae*, *B. fusiformis* (Martens, 1902), *B. nakamigawai io* Kilburn, 1974 from the Indian Ocean, *B. kawamurai*, *B. nakamigawai* (Kuroda, 1959) from the Pacific Ocean, and *B. sentix* from the Caribbean. This widely dispersed species complex requires revision.

Photo 3



Living specimen of *Babelomurex perfectus* trawled from South of Malta during the **MARCOS** cruise, stn MS43, 607 m (Chief scientist Marco Taviani)

***Babelomurex benoiti* (Tiberi, 1855)**

Pl. 13, Figs 1-9

Fusus squamosus Bivona & Bernardi in Bivona, 1838, pl. 3, fig. 22 (Pl. 13, Fig. 2).

Murex benoiti Tiberi, 1855 (Pl. 13, Fig. 1).

Coralliophila babelis Requieren—Kobelt (1886) (= *Murex benoiti*)
Pseudomurex amaliae Kobelt, 1907 (more recent synonym) (Pl. 13, Fig. 3).

Latiaxis amaliae (Kobelt, 1907) (more recent synonym).

Latiaxis benoiti (Tiberi, 1855).

Pseudomurex (*Babelomurex*) *babelis* Requieren—Coen (1922), Napoli, pl. 2, fig. 1 (Pl. 13, Fig. 4).

Coralliophila (*Babelomurex*) *benoiti regalis curta* Settepassi, 1977, pl. 3, fig. 18 (invalid, publication not using binominal nomenclature, ICZN art. 11.4).

Coralliophila (*Babelomurex*) *babelis squamulata* Settepassi, 1977, pl. 3, figs 15, 20 (invalid, publication not using binominal nomenclature, ICZN art. 11.4).

Coralliophila (*Babelomurex*) *babelis minor* Settepassi, 1977, pl. 3, fig. 22 invalid, publication not using binominal nomenclature, ICZN art. 11.4).

Coralliophila babelis Requieren—Kobelt (1886) (= *Murex benoiti*)
Coralliophila (*Babelomurex*) *babelis* (Requieren)—Settepassi (1977), pl. 3, figs 17, 19, 23.

Non *Coralliophila* (*Babelomurex*) *benoiti* —Settepassi (1977), figs 9, 11-13 (= *B. cariniferus*).

Pseudomurex (*Babelomurex*) *babelis* Requieren (= *cariniferus* Sowerby)—Coen: 1922, p. 68, pl. 2, figs 1-2.

Non *Babelomurex cariniferus* (Sowerby, 1834)—Kosuge & Suzuki: 1985, p. 11.

Latiaxis benoiti—Ghisotti: 1978, p. 141, pl. 2, figs 4-5, 8; Poppe & Goto (1991), p. 143, pl. 27, figs 10-11 [non 12-13 = *Babelomurex cariniferus* (Sowerby, 1834)]; Gofas *et al.*: 2001, p. 192.

Latiaxis amaliae—Giorganni (1992), p. 72, 73; Oliverio *et al.*: 2009, p. 115 (sequenced material: BAU00332).

Babelomurex benoiti—Giannuzzi-Savelli *et al.*: 2003, p. 130-133, figs 244-248; Gofas *et al.*: 2011, p. 286; Gofas: 2014; Russo: 2020, p. 2, figs. 1A-E; Garrigues *et al.*: 2022, p. 22, pl. 25, figs 1-4.

TYPE MATERIAL. Syntype (MNHN IM-2000-40).

TYPE LOCALITY. Tiberi (1855) adds a note explaining that the specimens in his possession came from boats originating from Torre del Greco, near Naples. These boats, called “*Coralline*”, were engaged in fishing for red coral off the coasts of Algeria and Sardinia (Russo, 2020).

DISTRIBUTION. This species is found in the western Mediterranean Sea, particularly around Sicily, Sardinia, North Africa, and as far south as the Alboran Sea, where it is especially common. In the Atlantic Ocean, it is not uncommon around the Canary Islands and along the Moroccan coast. This species occurs at depths ranging from 50 to 120 meters.

DESCRIPTION. Biconical to fusiform teleoconch of 7 whorls. H: 27 to 37 mm. Multispiral protoconch. Apical angle between 47° and 50°. Standard suture. Tabulate infrasutural ramp. Square shoulder with broad, flat triangular spines arranged in a crown, curved towards the apex and appearing from the first whorl of the teleoconch. Last whorl convex. Axial sculpture of 12 to 14 slightly protruding ribs. Spiral sculpture of scaly primary and secondary chords (Pl. 13, Fig. 6c); on the infrasutural ramp adis, IP and abis well expressed; on the convex part of the whorl, hypertrophy of P1, then P2 to P6 and s4 roughly equivalent; on the siphonal canal ADP, ads, MP and ABP equivalent. Wide, long and straight siphonal canal, slightly curved dorsally at its tip, variable in length and approximately 17 to 23% of the total length of the teleoconch. Persistence of previous canals forming a wide fasciole bordering a deep pseudumbilicus.

Oval aperture forming a constriction at the origin of the siphonal canal. Adherent columellar lip. Outer lip crenulated, internally striated. Microsculpture of narrow growth lamellae. Background color light brown, ochre, cream or white. White aperture. Operculum D-shaped, with subapical nucleus on lower right, brown to dark brown in color.

One of the most striking features of this species is its variability. There are broad, biconical forms with a relatively short canal and long spines (Pl. 13, Figs. 1, 4, 5 and 7), elongated forms with a longer canal and short spines (Pl. 13, Figs. 2, 3, 6 and 9) and intermediate forms (Pl. 13, Fig. 8). However, these differences relate more to the width of the last whorl, the length of the spines and the length of the siphonal canal than to the apical angle, which is relatively constant. These peculiarities can be found within the same population, where the different forms are found side by side.

DISCUSSION. Since its description, the polymorphism of *Babelomurex benoiti* has been a source of confusion. The rediscovery of the original Bivona plate (1838) published by Gemert (2023) illustrated *Fusus squamosus* (Pl. 1, Fig. 4; Pl. 13, Fig. 2). Bivona's specimen is undoubtedly a *B. benoiti* in its most elongated form.

A further complication was that *Babelomurex benoiti* was confused with another species also found in the same areas but at lower depths: *Babelomurex cariniferus* (SOWERBY II, 1834). In his publication on the Coralliophilinae of the Mediterranean, Russo (2020) analyzed the taxonomic path perfectly.

Tiberi (1855) gave a very precise description of *Murex benoiti* from Mediterranean coral beds, and dedicated it to Luigi Benoit.

Aradas & Benoit (1870) confused this species with *Fusus babelis* Requien, 1848 (= *B. cariniferus*) and preferred this name to that of Tiberi. This error was subsequently repeated.

On the basis of a few specimens acquired from a fisherman in Naples, Kobelt (1907) described *Pseudomurex amaliae*, which was later synonymized with *B. benoiti*. The specimen illustrated by Kobelt (pl. 25, fig. 8) (here, Pl. 13, Fig. 3) corresponds to an elongated form of *B. benoiti*.

Coen (1922) has created the subgenus *Babelomurex*, which was subsequently considered a genus. The designated type species is *Pseudomurex (Babelomurex) babelis* Requien (= *B. cariniferus*). However, the two specimens illustrated by Kobelt as *P. babelis* are *B. benoiti* (pl. 2, figs 1-2) (here Pl. 13, Fig. 4).

Settepassi (1977) also confused the two species, illustrating *B. babelis* (pl. 3, figs 17, 19, 23) for *B. benoiti* and vice versa (figs 9, 11-13).

Ghisotti (1978) carefully analyzed the differences between *Latiaxis babelis* and *L. amaliae*. But he compared his specimens, dredged from over 100 m deep off Palermo, with those represented by Coen (Pl. 13, Fig. 4), which are necessarily conspecific because of Coen's confusion. He concluded that *L. amaliae* was a deep-water form of *L. babelis*.

The complex taxonomic history of *Babelomurex benoiti* is no less intricate than that of the species discussed above. If the

epithet "*squamosa*" is considered valid (Art. 23.9.1.1) and refers to *Coralliophila squamosa* Bivona & Bernardi, 1838 (a synonym of *Murex aluoides* Blainville), then the name *squamosa* is no longer available. Consequently, the earliest valid name for this *Babelomurex* species is *benoiti* Tiberi, 1855. This name has been widely used in recent years.

It is interesting to compare *Babelomurex benoiti* with *B. cariniferus* (Pl. 14, Figs 1–6), with which it has frequently been confused. *Babelomurex cariniferus* has a very broad distribution. It is found throughout the Mediterranean Sea and in the Atlantic Ocean, ranging from the Iberian Peninsula northward and, moving southward, sporadically along the African coast as far as Angola. It is also present in the Azores, Canary Islands, Madeira, Cape Verde, as well as São Tomé and Príncipe. Its variability is extensively illustrated by Houart *et al.* (2025).

Babelomurex benoiti differs from *B. cariniferus* in several key aspects. It has more axial ribs (12 to 14 instead of 7 to 10) (Pl. 13, Fig. 5c and Pl. 1, Fig. 2b), a smaller aperture with a pronounced narrowing at the origin of the siphonal canal, and a less flared outer lip. Their spiral sculptures also differ: on the infrasutural ramp, *B. benoiti* has three broad, scaly main cords (ADIS, IP, and ABIS), whereas *B. cariniferus* has about ten finer, more uniform cords. On the convex part of the whorl, *B. benoiti* has equivalent primary cords (P2–P5) (Pl. 13, Fig. 6c), whereas *B. cariniferus* often exhibits hypertrophy of P3 (Pl. 14, Fig. 1c).

Additionally, their habitats differ: *B. benoiti* is typically found at depths of 50 to 120 m, whereas *B. cariniferus* prefers shallower waters, from 10 to 60 m deep.

Babelomurex bayeri Garrigues, Lamy & Zuccon, 2022, occurring in French Guiana (Pl. 14, Figs. 7–11), Venezuela, and Colombia at depths ranging from 46 to 725 m, is genetically close to *B. cariniferus* and also shares similarities with *B. benoiti* (compare Pl. 13, Fig. 5 and Pl. 14, Fig. 7). *Babelomurex benoiti* differs from *B. bayeri* in having more axial ribs (12 to 14 instead of 7 to 8), a longer siphonal canal, and a significantly larger size (30 to 40 mm compared to 14 to 16 mm).

CONCLUSION.

This work aims to shed light on certain species whose identification has remained unclear. In the particular case of *Coralliophila ruderata*, given the limited material studied and the inherent variability within *Coralliophila*, our conclusions should be considered as a preliminary approach. Many uncertainties remain, which can only be resolved with additional material and, potentially, genetic sequencing.

We can only admire the work of early malacologists, who lacked the modern tools available to us today. To conclude, we might cite the introduction to Dautzenberg & Fischer (1888–1895):

"Il n'est guère surprenant que la faune malacologique des grandes profondeurs soit encore très imparfaitement connue, car la portion du sol sous-marin fouillée jusqu'à ce jour par la drague est bien insignifiante, si on la compare à celle qui n'a jamais été explorée. Cela explique que chaque expédition de dragage nous apporte une riche moisson de formes inconnues."

"It is hardly surprising that the malacological fauna of the great depths is still very imperfectly known, for the portion of the submarine floor excavated to date by dredging is quite insignificant compared to that which has never been explored. This explains why each dredging expedition brings us a rich harvest of unknown forms."

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REFERENCES.

- ABBOTT, R.T., 1974. *American Seashells. Marine Mollusca of the Atlantic and Pacific coast of North America*. Van Nostrand Reinhold Company, New York. Second edition, 633 pp.
- ABBOTT, R.T. & Dance S.P., 1982. *Compendium of Seashells*. E.P. Dutton. New York. 411 pp.
- ALBANO, P., Schnedl, S.-M., Eschner, A., 2018. An illustrated catalogue of Rudolf Sturany's type specimens in the Naturhistorisches Museum Wien, Austria (NHMW): deep-sea Eastern Mediterranean molluscs. *Zoosystematics and Evolution*. 94(1): 29-56.
- ARADAS A. & BENOIT L. (1872-1876 ["1870"]). Conchigliologia vivente marina della Sicilia e delle isole che la circondano. *Atti dell'Accademia Gioenia di Scienze Naturali*. ser. 3, 6: 1-113, pls 1-2 [1872]; 113-226, pls 3-4 [1874]; 227-324, pl. 5 [1876].
- BAYER, F.M., 1971. *New and unusual mollusk collected by J. Elliott Pillsbruy and R. V. Gerda in the tropical West-America*: 111-236. In Bayer F. M., Voss G. L. *Studies in Tropical American Mollusks*. University of Miami Press, Coral Gables, Florida.
- BIVONA E BERNARDI., 1838. Generi et specie di molluschi descritti dal Barone Antonio Bivona e Bernardi. Lavori postumi pubblicati dal figlio Andrea dottore in medicina con note ed aggiunte. *Giornale di Scienze Lettere e Arti per la Sicilia*. 61: 211-227.
- BLAINVILLE, H. M. D. de. (1828-1830). Malacozoaires ou Animaux Mollusques. [in] *Faune Française*. Levrault, Paris 320 p., 48 pl. [livr. 18 (29 Nov. 1828), p. 1-80; livr. 20 (7 March 1829), p. 81-170; livr. 23 (1 Aug. 1829), p. 171-240; livr. 28 (3 July 1830), p. 241-320].
- BOUCHET, P. & M. TAVIANI, 1992. The Mediterranean deep sea fauna: pseudopopulations of Atlantic species? *Deep Sea Research*. 39: 169-184.
- BOUCHET, P. & WARÉN, A., 1985. Revision of the Northeast Atlantic bathyal and abyssal Neogastropoda excluding Turridae (Mollusca, Gastropoda). *Bollettino Malacologico*. supplement 1: 121-296.
- BRODERIP, W. J. & SOWERBY, G. B. I. (1832-1833). [Descriptions of new species of shells from the collection formed by Mr. Cuming on the western coast of South America, and among the islands of the southern Pacific Ocean.]. *Proceedings of the Committee of Science and correspondence of the Zoological Society of London*. Part II for 1832: 25-33 [21 April 1832], 50-61 [5 June 1832], 104-108 [31 July 1832], 113-120 [14 August 1832]; 173-179 [14 Jan. 1833], 194-202 [13 March 1833].
- CECALUPO A., 1985. Osservazioni sulla classificazione di una Coralliophilidae giapponese rinvenuta nel Mediterraneo. *Bollettino malacologico*, v. 21(10-12) : 311-317.
- CLESSIN, S., MENKE, KARL T., PFEIFFER, L. (Ludwig Georg Karl), 1885. *Malakozoologische Blätter*. Publication info: Cassel, T. Fischer . Kassel. v. 7-8.
- COEN G., 1922. *Del genere Pseudomurex (Monterosato 1872)*. *Atti della Società Italiana di Scienze Naturali e del Museo Civico di Storia Naturale in Milano*. 61: 68-71.
- DAUTZENBERG, P. & FISCHER, H. (1896). Dragages effectués par l'Hirondelle et par la Princesse Alice 1888-1895. 1. Mollusques Gastéropodes. *Mémoires de la Société Zoologique de France*. 9: 395-498, pl. 15-22.
- FERRIER-PAGÈS C., 2014. Les coraux scleractiniaires de Méditerranée. Centre scientifique de Monaco. Institut océanographique, Fondation Albert 1^{er}, Prince de Monaco.
- FISCHER, P., 1882-1883. Diagnoses d'espèces nouvelles de mollusques recueillis dans le cours des expéditions scientifiques de l'avis "Le Travailleur" (1880 et 1881). *Journal de Conchyliologie*. 30: 49-53 [1882], 273-277.
- FREIWALD, A., BEUCK, L., RÜGGERBERG, A., TAVIANI, M., HEBBELN, D. and R/V METEOR M70-1 Participants, 2009. The white coral community in the Central Mediterranean Searevealed by ROV surveys. *Oceanography*. 22: 36-52.
- GARRIGUES, B., LAMY, D. & ZUCCON, D., 2022. The Coralliophilinae from the Antilles and French Guiana with the description of six new species. *Xenophora Taxonomy*. 37: 4-53.
- GEMERT L.J. (VAN), 2023. The plates in the reprints of the main publications (1832-1838) on marine molluscs by Antonino Bivona e Bernardi and of his son Andrea Bivona. *Alleryana*. 41 (2) p. 51-55.
- GHISOTTI F., 1978. Considerazioni su *Latiaxis babelis* (Requien) e su *Latiaxis amaliae* (Kobelt). *Bollettino Malacologico*, 14 (7-8): 135-142.
- GIANNUZZI-SAVELLI R., PUSATERI, F., PALMERI, A. & EBREO, C., 2003. Atlante delle conchiglie marine del mediterraneo - Atlas of Mediterranean seashells. Vol. 4 (Neogastropoda part 1).
- GIORGIANNI G. , 1992. The Coralliophilidae. Mediterranean section. *World Shells*. 3: 1-104.
- GOFAS, S., LE RENARD, J., BOUCHET, P., 2001. Mollusca. in: Costello, M.J. et al. (eds), European Register of Marine Species: a check-list of the marine species in Europe and a bibliography

of guides to their identification. *Patrimoines Naturels*. 50: 180-213.

GOFAS, S., MORENO, D. & SALAS, C. (2011): Moluscos marinos de Andalucía: I. Introducción general, clase Solenogastres, clase Caudofoveata, clase Polyplacophora y clase Gastropoda (Prosobranchia). *Servicio de Publicaciones e Intercambio Científico*, Universidad de Málaga: Málaga. ISBN 978-84-9747-381-1. XVI, 1-342.

GOFAS, S. (2014). *Babelomurex benoiti* (Tiberi, 1855). In: Costello, M.J.; Bouchet, P.; Boxshall, G.; Arvantis, C.; Appeltans, W., 2014. *European Register of Marine Species*.

GRACIA, A., ARDILA, N.E., DÍAZ, J.M., 2004. Gastropods collected along the continental slope of the Colombian Caribbean during the INVEMAR-Macrofauna campaigns (1998- 2001). *Iberus* 22 (1): 43-75.

HAAS, F., 1949. On some deep-sea mollusks from Bermuda. *Bulleti de la Institució Catalana d' Història Natural*. 37: 69-72.

Hidalgo J.G., 1913. Estudios preliminares sobre los moluscos terrestres y marinos de España, Portugal y las Baleares. *Obras malacológicas*, Madrid, pt. 2.

HOUART, R., 2018. Historique et classification des espèces actuelles de Muricidae (Neogastropoda, Muricoidea). *Novapex*. 19 (2): 37-66.

HOUART R., 2024. *Living Muricidae of the World – Ocenebrinae*. ConchBooks: 1-238.

HOUART R., GARRIGUES B. & RYALL P., 2025. *Taxonomic review of the family Muricidae (Gastropoda: Muricoidea) of Tropical West Africa*. *Acta Conchyliorum* (in press). 1-90.

KEEN M., 1971. *Sea shells of tropical West America*. Second edition. Stanford University Press, Standford, California: 1-1064.

KOBELT W., 1887. - Iconographie der schalentragenden europäischen Meeresconchylien. Cassel. 1 : 1-139.

KOBELT W., 1888. *Prodromus faunae molluscorum testaceorum maria europaea inhabitantium*. Nürnberg.

KOBELT, W., 1907. Diagnosen neuer Arten. *Nachrichtsblatt der deutschen malakozoologischen Gesellschaft*. 40(3): 167-169.

KOSUGE, S. & SUZUKI, M., 1985. *Illustrated catalogue of Lattaxis and its related groups: family Coralliophilidae*. Institute of Malacology of Tokyo, Special Publication (1): 83 pp.

LANDAU B.M., MERLE D., CEULEMANS L. & VAN DINGENEN F., 2019. The upper Miocene gastropods of northwestern France, 3. Muricidae. *Cainozoic Research*. 19(1): 3-44.

LOCARD, A., 1897-1898. Expéditions scientifiques du Travailleur et du Talisman pendant les années 1880, 1881, 1882 et 1883. *Mollusques testacés*. Paris, Masson. vol. 1 [1897], p. 1-516 pl. 1-22; vol. 2 [1898], p. 1-515, pl. 1-18.

MARIOTTINI, P., SMRIGLIO, C. & ROLÁN, E., 2005. *Coralliophila trigoi* (Gastropoda, Muricidae), a new species from the North-eastern Atlantic. *The Nautilus* 119 (3): 109-115.

MARTENS (VON) E, 1883. *Archiv für Naturgeschichte*. Berlin, Nicolaische Verlags Jahrgang.

MAYER P., 1883. *Zoologischer Jahresbericht* für 1882. Statione zoologica di Napoli. Leipzig. v. 3

MERLE, D., 2001. The spiral cords and the internal denticles of the outer lip of the Muricidae: terminology and methodological comments. *Novapex*, 2 (3): 69-91.

MERLE, D., GARRIGUES, B. & POINTIER, J.P., 2011. *Fossil and Recent Muricidae of the World. Part Muricinae*. Conchbooks, Hackenheim. 648 pp.

MONTEROSATO, T. A. di., 1878. Enumerazione e sinonimia delle Conchiglie mediterranee. *Giornale di Scienze Naturali ed*

Economiche. 13: 61-115 [December 31st, 1878].

NICOLAY K. & ANGIOY M., 1985. Eccezionale ritrovamento nel Mediterraneo. *La Conchiglia*, 17 (192-193): 16-18.

NOLF F. & KREPS J-P, 2009. Comparison of some interesting molluscs, trawled by the Belgian fishery in the Bay of Biscay, with similar representatives from adjacent waters: part II. *Neptunea*, vol. 8, n°3.

NOCELLA E., FASSIO G., ZUCCON D., PUILLANDRE N., MODICA M.V. & OLIVERIO M., 2024. From coral reefs into the abyss: the evolution of corallivory in the Coralliophilinae (Neogastropoda, Muricidae)

OLIVERIO M., 2008. *Coralliophilinae (Neogastropoda: Muricidae) from the south-west Pacific*, in HérosV., Cowie R., Bouchet P. (eds), *Tropical Deep Sea Benthos*, volume 25. *Mémoires du Muséum national d'Histoire naturelle* 196: 451-555.

OLIVERIO M., 2009. Diversity of Coralliophilinae (Mollusca, Neogastropoda, Muricidae) at Austral Islands (South Pacific). *Zoosystema*. 31 (4): 759-789.

OLIVERIO, M. & GOFAS, S., 2006. Coralliophilinae diversity at Mid- Atlantic Seamounts (Neogastropoda, Muricidae, Coralliophilinae). *Bulletin of Marine Science* 79: 205-230.

OLIVERIO, M. & MARIOTTINI, P., 2001. Contrasting morphological and molecular variation in *Coralliophila meyendorffii* (Muricidae, Coralliophilinae). *Journal of Molluscan Studies*. 67, 243-246.

OLIVERIO, M., BARCO, A., RICHTER, A. & MODICA, M.V., 2009. The Coralliophilinae (Gastropoda: Muricidae) radiation: repeated colonizations of the deep sea. *The Nautilus* 123 (3): 113-120.

PALLARY, P., 1900. Coquilles marines du littoral du département d'Oran. *Journal de Conchyliologie*. 48(3): 211-422.

PAETEL F., 1888. *Catalog der Conchylien-Sammlung, mit Hinzufügung der bis jetzt publicirten recenten Arten, sowie der ermittelten Synonyma*. Berlin, Abth.1.

PEÑAS, A. - ROLÁN, E., LUQUE, A., TEMPLADO, J., MORENO, D., RUBIO S., SALAS F., SIERRA A. & GOFAS, S., 2006. *Marine mollusca from the Alboran island, Iberus*: revista de la Sociedad Española de Malacología, Barcelona, La Sociedad. 24 :23-151.

PHILIPPI, R. A., 1836. *Enumeratio molluscorum Siciliae cum viventium tum in tellure tertiaria fossilium quae in itinere suo observavit*. Vol. 1. xiv + 267 p., pls. 1-12.

POPPE, G.T. & GOTO, Y, 1991. *European Seashells*. Verlag Christa Hemmen. 1: 352 pp.

REEVE, L. A., 1845-1849. *Conchologia iconica: or, illustrations of the shells of Molluscos animals*. Vol. 3. *Murex*, REEVE, London, 37 pls (1845-46, 1849).

RÍOS, P. & GOFAS, S., 2022. Nueva cita de *Coralliophila monterosatoi* (Locard, 1897) (Gastropoda, Muricidae) en el cañón de Avilés (golfo de Vizcaya). *Iberus*. 40(2): 455-458.

ROBIN, A., 2008: *Encyclopedia of marine gastropods*. ConchBooks, Hackenheim, Germany, pp 1-480.

Russo, P, 2020. La sotto famiglia delle Coralliophilinae Chenu, 1859 (Neogastropoda: Muricidae) nel Mare Mediterraneo. *Alleryana*. 1-23.

SCAPERROTTA, M., BARTOLINI, S. & BOGI, C, 2016. Accrescimenti VIII - Stadi di accrescimento dei Molluschi marini del Mediterraneo - Stages of growth of marine molluscs of the Mediterranean Sea, Vol. VIII, 208 pp.

SEGRS, W., SWINNEN, F. & DE PRINS, R., 2009. Marine Molluscs of Madeira. The living marine molluscs of the province of Madeira (Madeira and Selvagens Archipelago). 611 pp.

SERRÃO SANTOS R., 2012. Cold-water or deep-sea corals. IMAR – Instituto do Mar, LARSyS & Departamento de Oceanografia

grafia e Pescas, Universidade dos Açores, Portuga. Membre du Conseil scientifique de l'Institut océanographique, Fondation Albert Ier, Prince de Monaco.

SETTEPASSI, F., 1971) Atlante Malacologico. I molluschi marini viventi nel Mediterraneo, volume II.

SETTEPASSI, F., 1977. Atlante Malacologico. I molluschi marini viventi nel Mediterraneo, volume II. Museo di Zoologia, Roma, 304 pp. [stated date 1971 on frontispiece].

SOWERBY G.B. II, 1834-1841a. The Conchological Illustrations, *Murex*, Sowerby, London: pls 58–67 (1834); pls 187–199 + catalogue: 1–9 (1841).

STURANY, R., 1896. Zoologische Ergebnisse VII. Mollusken I (Prosobranchier und Opisthobranchier; Scaphopoden; Lamellibranchier) gesammelt von S.M. Schiff "Pola" 1890-1894. *Denkschriften der Kaiserlichen Akademie der Wissenschaften, Mathematische-Naturwissenschaftlichen Classe*. 63: 1-36, pl. 1-2.

TAVIANI, M., A. FREIWALD, A. & ZIBROWIUS H., 2005. Deep coral growth in the Mediterranean Sea: An overview. In: Freiwald, A. and M. Roberts (eds.) *Deep-Water Corals & Ecosystems*, Springer-Verlag, Berlin-Heilderberg, pp. 137–156.

TAVIANI, M., ANGELETTI, L., DIMECH, M., MIFSUD, C., FREIWALD, A., HARASEWYCH, M.G. & OLIVERIO, M., 2009. Coralliophilinae (Gastropoda: Muricidae) associated with deep-water coral banks in the Mediterranean. *The Nautilus* 123: 106-112. 230.

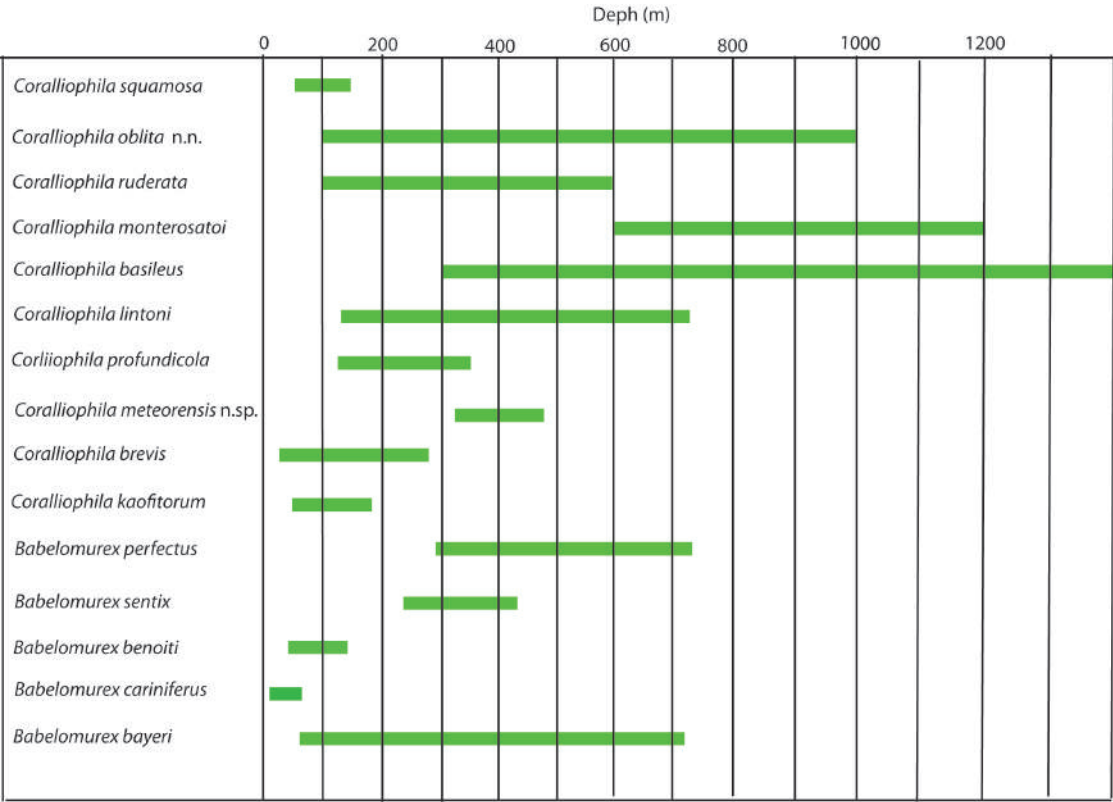
TIBERI, N., 1855. Descrizione di alcuni testacei viventi viventi nel Mediterraneo. Lettere di Nicola Tiberi. Stabilimento tipografico del cav. Gaetano Nobile, Napoli, 16 p. + 2 pl.

TRYON G.W. Jr, 1880. *Manual of Conchology*. Vol. 2. Muricidae Purpuridae. Tryon. Philadelphia. 289 pp.

VEGA R., VEGA R. & LUQUE Á.A. (2002). *Coralliophila kaofitorum*, a new species (Gastropoda: Coralliophilidae) from the Canary Islands living on *Antipathes wollastoni* (Cnidaria: Anthozoa: Antipatharia). *The Nautilus* 116(2): 50-55, page(s): 50-55.

VERRILL, A.E., 1882. Notice of the remarkable marine fauna occupying the outer banks off the southern coast of New England, No. 7, and some additions to the fauna of Vineyard Sound. *American Journal of Science*, (3) 24: 360-371.

YIDI DACCARETT, E. & SARMIENTO BOSSIO, V., 2011. *Colombian Seashells from the Caribbean Sea*. L'Informatore Piceno. 384 pp.



Bathymetric map of Coralliophilidae

Pl. 2 - *Coralliophila squamosa*

Fig. 1. Neotype for *Fusus squamosus* Bivona, 1838, (MNHN IM-2000-20004), Revellata Bay, Calvi, Corsica, 60–80 m, 30 mm. **Fig. 2.** MNHN IM-2021-7765, East of Cap Corse and of Agriate, CORSICABENTHOS 1, stn CD06, 8 mm. **Fig. 3-4.** MNHN IM-2021-7767, Petit Pain de Sucre, Cap Corse, CORSICABENTHOS 1, stn CS02; **Fig. 3.** 4.7 mm; **Fig. 4.** with protoconch. **Fig. 5.** La Linea, Malaga, Spain, JLD, 20 mm, juvenile with protoconch. **Fig. 6.** Malaga, Espagne, 80-150 m, BG, 33.2 mm. **Fig. 7.** MNHN, Le Brus, Cap Sicié, Toulon, Provence, France, in pagure trap, 40-100 m, juvenile, 29 mm. **Fig. 8.** MNHN, Provence, France, 30.4 mm. **Fig. 9.** Porto Palo, Sicily, Italy, 90 m., FN, 25.3 mm. **Fig. 10.** MNHN, Golfe du Lion, France, 42° 09.4' N, 3° 22.5' E, IFREMER/DEPRO 96, réc. F. Galgani, 350 m, 36.1 mm. **Fig. 11.** MNHN, Golfe du Lion, France, 42° 09.4' N, 3° 22.5' E, IFREMER/DEPRO 96, réc. F. Galgani, 350 m, 35.7 mm. **Fig. 12.** Porto Palo, Sicily, Italy, 90 m., FN, 30.2 mm. **Fig. 13.** Benicarlo, Spain, 90 m., FN, 37.3 mm. **Fig. 14.** Benicarlo, Spain, 90 m., FN, 39.5 mm. (scale-bar: 0.5 mm).

Pl. 3 - *Coralliophila squamosa*

Fig. 1-4. South of La Rochelle, Bay of Biscay, W France. 120 m, FN; **Fig. 1.** 27.6 mm; **Fig. 2.** Juvenile, 23.6 mm; **Fig. 3.** 36.6 mm; **Fig. 4.** 31.9. **Fig. 5.** West Sahara, 90 m, CPR, 32.2 mm. **Fig. 6.** Rio de Oro, West Sahara, 85 m, CPR, 34.1 mm. **Fig. 7.** Nouakchott, Mauritania, 80 m, CPR, 31.4 mm. **Fig. 8-10.** MNHN, Provence, in pagure trap, 40-100 m; **Fig. 8.** Juvenile, 17.6 mm; **Fig. 9.** 33.1 mm; **Fig. 10.** Juvenile, 29.1 mm. **Fig. 11.** La Linea, Spain, CJLD, 30 mm. **Fig. 12.** MNHN, Toulon, France, 25.2 mm.

Pl. 4 - *Coralliophila oblita* n.n. for *Fusus lamellosus*

Fig. 1. *Fusus lamellosus*, original figure of Philippi, 1836, H: 39 mm (18 lignes), D : 22 mm (10 lignes). **Fig. 2.** *Pseudomurex bracteatus* var. *lamellosus* Philippi, figure of Tryon: 1880, p. 210, fig. 378. **Fig. 3.** *Pseudomurex (Hirtomurex) lamellosus* Philippi-Coen :1922, p. 69, fig. 4, Napoli, Italia (type of *Hirtomurex*). **Fig. 4.** Holotype of *Coralliophila oblita*, MNHN IM-2023-2867, North West Spain, North-East Atlantic , 41° 26 N, 09° 12 W, THALASSA stn.Y383, 420 m, H= 31.5 mm. **Fig. 5.** Paratype of *Coralliophila oblita*, MNHN IM-2023-2866, North West Spain, North-East Atlantic , 41° 26 N, 09° 12 W, THALASSA stn.Y383, 420 m, H= 38.2 mm. **Fig. 6.** Paratype of *Coralliophila oblita* BG, Capo Teulada, Cagliari, Sardinia, 1000 m, local fisherman, 34.7 mm. **Fig. 7.** MNHN IM-2023-2865, North West Spain, North-East Atlantic , 41° 32 N, 09° 14 W, THALASSA stn.Y377, 320 m, H= 35.3 mm. **Fig. 8.** MNHN IM-2023-2864, Bay of Biscay, North-East Atlantic, 43° 48 N, 05° 11 W, THALASSA stn.Y399, 165-210 m, H= 33.5 mm. **Fig. 9.** MNHN-IM-2023-2870, Bay of Biscay, 1894, « Princesse Alice 1 », MONACO, stn 503, 748-1262 m, 38 mm. **Fig. 10.** MNHN-IM-2023-2871, offshore Portugal, 1908, stn 2720, 310-749 m, 33 mm. **Fig. 11.** Golfo di Carini, Palermo, Sicilia, 170 m, PR, 44 mm. **Fig. 12.** Bouche de Bonifacio, Sardinia, Italia, 90 m, BG, 34 mm.

Pl. 5 - *Coralliophila ruderata*

Fig. 1. Original figure in Sturany, 1896 comparing the spiral sculpture of *Fusus craticulatus* var. *pianosana* Sturany, 1896 (figs 40-41) (POLA expedition st. 243, between Tremiti Islands and Pianosa Isl., Adriatic Sea, Italy, 103 m) with that of *Pseudomurex ruderatus* Sturany in Monterosato, 1896 (figs 42-43) (Corsica). **Fig. 2.** Syntype of *Pseudomurex ruderatus*, (NHMW 28222a), Corsica, France, 26 mm. **Fig. 3.** Syntype of *Pseudomurex ruderatus*, (NHMW 28222b), Corsica, France, 23 mm. **Fig. 4.** MNHN, Mediterranean Sea (no further information), 24.3 mm. **Fig. 5.** Collected using the remote-controlled electric robot ROV Marum Quest, expédition M70-1 of R/V METEOR (2006) on the volcanic bedrock at circa 500 m off the Nameless-Urania Bank, Strait of Sicily, Italia, 44 mm, photo L. Angeletti. **Fig. 6.** Cagliari, 600 m, PR, 36 mm.

Pl. 6 - *Coralliophila monterosatoi*

Fig. 1. Syntype of *Pseudomurex monterosatoi*, MNHN IM-2000-792, Sud Gascogne, Atlantic, TRAVAILLEUR 1882, DR02, 608 m, 23.2 mm (photo M. Caballer, projet RECOLNAT ANR-11-INBS-0004). **Fig. 2.** Syntype of *Pseudomurex monterosatoi*, MNHN IM-2000-793, Sud Gascogne, Atlantic, TRAVAILLEUR 1882, DR01, 564 m, 23.2 mm. **Fig. 3.** MNHN, Irving Bank, N. O. « le Suroit », SEAMOUNT 2, stn DW238, 890 m, 5 mm, with protoconch. **Fig. 4.** Avilés Canyon, Biscay Bay, INDEMARES AVILES 0511, DR04, 593 m, 39.9 mm, photo courtesy of S. Gofas (University of Malaga). **Fig. 5.** MNHN, South of Sao Miguel, “Jean Charcot”, Biaçores, st. 148, 847–870 m, 16.3 mm, with spiral sculpture and spire detail. **Fig. 6.** MNHN IM-2023-2868, Sud Gascogne, North-East Atlantic, 44° 02' N, 07° 09' W, THALASSA stn. W424, 300–700 m, H= 30.5 mm. **Fig. 7.** MNHN, South of Sao Miguel, Biaçores, st. 151, 780–788 m, 19.1 mm. **Fig. 8.** MNHN, South of Sao Miguel, Biaçores, st. 151, 780–788 m, 18.2 mm. **Fig. 9.** MNHN, Banc Irving, N. O. « le Suroit », SEAMOUNT 2, st. DW 225, 1035 m, 28.7 mm. **Fig. 10.** MOM 241663, off shore, at about the level of Belle-Ile-en-Mer, Bretagne, France, MONACO stn. 503, 47°10' N, 05 48 W, 748–1262m, 49.3 mm, with spire detail, photo courtesy of M. Bruni and M. Dagnino (MOM). (scale-bar: 0.5 mm).

Pl. 7 - *Coralliophila basileus*

Fig. 1. Holotype of *Pseudomurex basileus*, MOM 241661, Azores, 1300 m, 38 mm, photo courtesy of M. Bruni and M. Dagnino (MOM). **Fig. 2.** MNHN, "Jean Charcot", BIAÇORES, stn 180, N. Sao Miguel, 1069–1205 m, 20.5 mm. **Fig. 3.** MNHN, "Jean Charcot", BIAÇORES, stn 180, N. Sao Miguel, 1069–1205 m, 24 mm. **Fig. 4.** MNHN, "Jean Charcot", BIAÇORES, stn 4, 1080–1200 m, 27.2 mm. **Fig. 5.** MNHN, Hyères Bank, N. O. « le Suroit », SEAMOUNT 2, st. DW 200, 1060 m, 7 mm. (scale bar: 0.5 mm)

Pl. 8 - *Coralliophila meteorensis* n. sp.

Fig. 1. Holotype, MNHN-IM-2000-29240, Atlantis Bank, SEAMOUNT 2, stn DW255, 340 m, 8.3 mm. **Fig. 2.** Paratype B, MNHN-IM-2000-29242, Atlantis Bank, SEAMOUNT 2, stn DW255, 340 m, 5.8 mm. **Fig. 3.** Paratype A, MNHN-IM-2000-29241, Atlantis Bank, N.O. "le Suroit", SEAMOUNT 2, stn CP257, 338 m, 7.4 mm. **Fig. 4.** Paratype BG, Hyères Bank, SEAMOUNT 2, stn DW188, 310 m, 5.2 mm. **Fig. 5.** MNHN, Hyères Bank, SEAMOUNT 2, stn DW188, 310 m, 6.1 mm. **Fig. 6.** Paratype C, MNHN-IM-2000-29243, Atlantis Bank ntis, N.O. "le Suroit", SEAMOUNT 2, stn CP257, 338 m, 7.6 mm. **Fig. 7.** MNHN, Hyères Bank, SEAMOUNT 2, stn DW188, 310 m, 4,9 mm. **Fig. 8.** Paratype D, MNHN-IM-2000-29244, Hyères Bank, N. O. « le Suroit », SEAMOUNT 2, stn DW182, 480 m, 4 mm. **Fig. 9.** MNHN, Hyères Bank, N. O. « le Suroit », SEAMOUNT 2, stn DW182, 480 m, 2 mm, with protoconch. (scale bar: 0.5 mm)

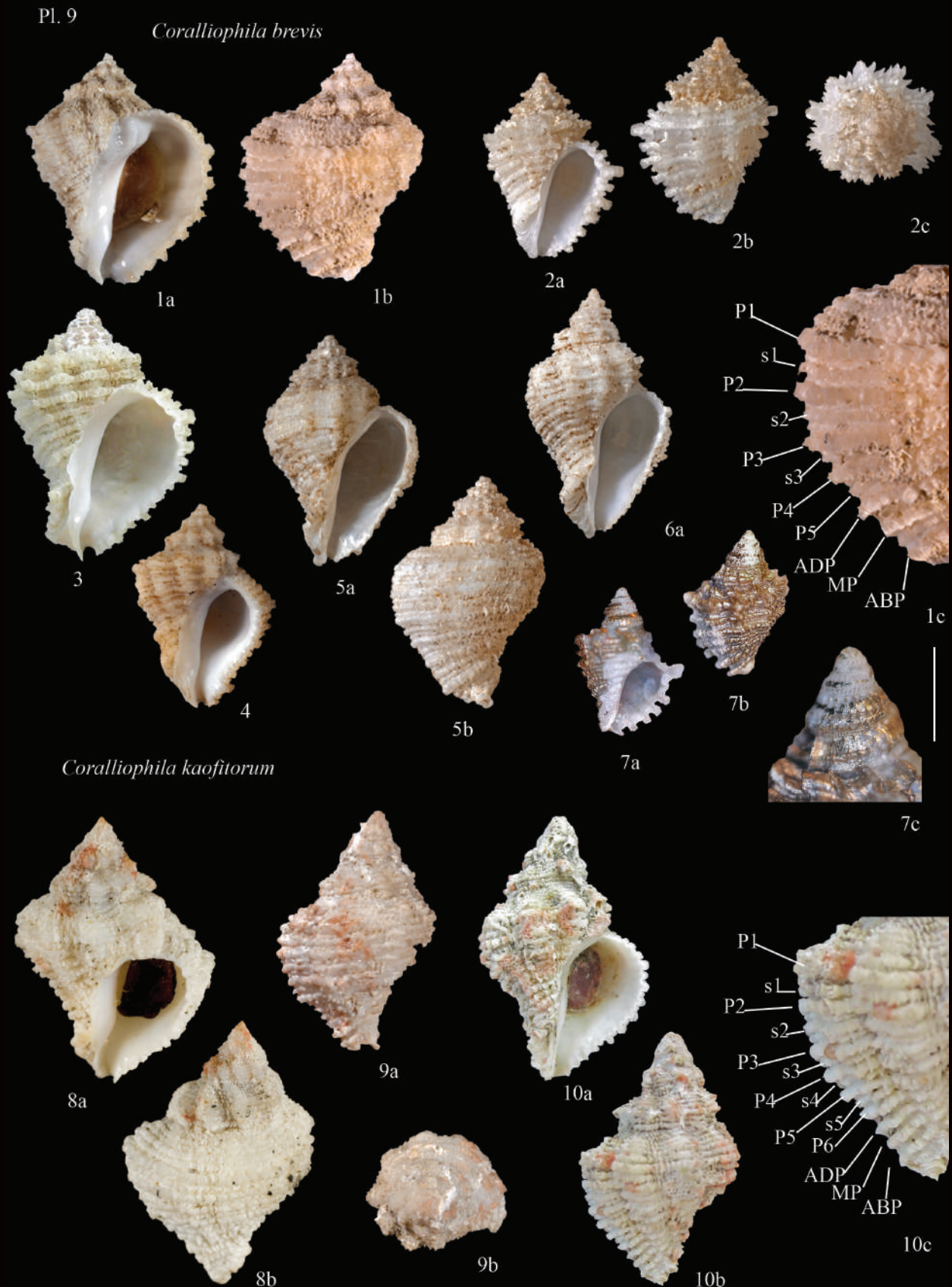


Fig. 1. MNHN, Gibraltar, 25-40 m, 14.2 mm. **Fig. 2.** MNHN, Josephine Bank, Lusitanian seamounts, “Le Noroit”, SEAMOUNT 1, DW61, 200-205 m, 11 mm. **Fig. 3.** Santa Antao, SaoVicente, Cape Verde Isl., 24 m, CPR, 17.6 mm. **Fig. 4.** Alghero, Sardinia, Italy, 80 m, BG, 12.8 mm. **Fig. 5-6.** MNHN, Ampere Bank, SEAMOUNT 1, CP99, 225-280 m; **Fig. 5.** 14.8 mm; **Fig. 6.** 15.5 mm. **Fig. 7.** MNHN, Josephine Bank, SEAMOUNT 1, DW61, 200-205 m, 2.8 mm.

***Coralliophila kaofitorum* Vega, Vega & Luque, 2002**

Fig. 8. Holotype (MNCN 15.05.32583), Punta de Teno, Canary Isl., 22 m, 24.6 mm. **Fig. 9.** MNHN, Goringe seamount, SEAMOUNT 1, DW05, 180 m, 16 mm. **Fig. 10.** Tenerife, Canary Isl., 5 m, PR, 19.8 mm. (scale-bar: 0.5 mm).



Fig. 1. Holotype, USNM 77269, Massachusetts, USA, 128 m, 26.9 mm. **Fig. 2-6.** South Désirade, Guadeloupe, 250 m, DL ; **Fig. 2.** 26.4 mm ; **Fig. 3.** 16.1 mm ; **Fig. 4.** 16.2 mm ; **Fig. 5.** 17.6 mm, **Fig. 6.** 8.5 mm.

***Coralliophila profundicola* Hass, 1949.**

Fig. 7. Holotype, FMNH 31655, Bermuda, 3000 m, 12.8 mm. **Fig. 8.** South Desirade, Guadeloupe, 250 m, DL, 20.9 mm. **Fig. 9.** MNHN, South Desirade, Guadeloupe, 228-264 m, 25.8 mm. **Fig. 10.** MNHN IM-2013-60332, BOLD : MUBA931-22, GenBank : ON668367, Nord Grande Terre, Guadeloupe, 320-338 m, 15.6 mm. **Fig. 11.** MNHN IM-2013-56535, BOLD : MUBA 927-22, GenBank : ON668340, French Guyana, 114-118 m, 13.8 mm. **Fig. 12.** Sud Desirade, Guadeloupe, 250 m, DL, 6 mm. (scale bar : 0.5 mm)

Pl. 11. *Babelomurex perfectus*

Fig. 1. Type of *Pseudomurex perfectus* Fischer, 1883 (IRNSB, BE-RBINS-INV type MT 61), H: 29 mm, D: 16 mm. Copyright: RBINS / DIGIT-3 Belspo Licence: CC BY NC ND, photo Jonathan Brecko. **Fig. 2.** MNHN, Meteor Seamount, N.O. "Le Suroit" SEAMOUNT 2, CP151, 585 m, 25.9 mm. **Fig. 3.** Malta, PR, 52 mm. **Fig. 4.** MNHN, Irving Seamount, N.O. "Le Suroit" SEAMOUNT 2, DW208, 790 m, 21.2 mm. **Fig. 5.** MNHN, Irving Seamount, N.O. "Le Suroit" SEAMOUNT 2, DW218, 480 m, 29.3 mm. **Fig. 6.** MNHN, Irving Seamount, N.O. "Le Suroit" SEAMOUNT 2, DW210, 320 m, juvenile, 15.8 mm. **Fig. 7.** MNHN, Irving Seamount, N.O. "Le Suroit" SEAMOUNT 2, DW231, 745 m, 32.7 mm. **Fig. 8.** MNHN, Hyères Seamount, N.O. "Le Suroit" SEAMOUNT 2, DW184, 705 m, 16.4 mm. **Fig. 9.** Cagliari, Sardinia, Italia, PR, 33 mm. **Fig. 10.** MNHN, Hyères Seamount, N.O. "Le Suroit" SEAMOUNT 2, juvenile, 12.4 mm. **Fig. 11.** MNHN, Atlantic Seamount, N.O. "Le Suroit" SEAMOUNT 2, DW263, 610 m, juvenile, 4.6 mm. **Fig. 12.** MNHN, Hyères Seamount, N.O. "Le Suroit" SEAMOUNT 2, DW202, 640 m, juvenile, with protoconch. (scale-bar: 0.5 mm). **Fig. 11.** MNHN, Atlantic Seamount, N.O. "Le Suroit" SEAMOUNT 2, DW263, 610 m, juvenile, 4.6 mm.

Pl. 12. *Babelomurex sentix*

Fig. 1. Holotype of *Babelomurex sentix* (Bayer, 1971), USNM 701155, St Vincent, Lesser Antilles, PILLSBURY stn. P-876, 231-258 m, 28.6 mm, with operculum. **Fig. 2.** MNHN IM-2013-60303, DNA sequenced (BOLD: MUBA930-22, GenBank: ON668331), N.O. "Antea", KARUBENTHOS 2, stn. DW4536, 323-347 m, North Grande Terre, Guadeloupe, 21.7 mm. **Fig. 3.** Deshaies, Guadeloupe, 300 m, DL, 29 mm. **Fig. 4.** North Grande Terre, Guadeloupe, 430 m, BG, 14.1 mm. **Fig. 5.** Guadeloupe, 350 m, DL, 21.6 mm. **Fig. 6.** Vieux-Habitants, Basse Terre, Guadeloupe, 300m, BG, 20.8 mm.

Pl. 13. *Babelomurex benoiti*

Fig. 1. Syntype of *Murex benoiti*, MNHN IM-2000-40, Sardinia, Italia, 32 mm. **Fig. 2.** *Fusus squamosus* Bivona & Bernardi in Bivona, 1838, pl. 3, fig. 22. **Fig. 3.** *Pseudomurex amaliae* Kobelt, 1908, pl. 125, fig. 8. **Fig. 4.** *Pseudomurex (Babelomurex) babelis* Requier—Coen (1922), Napoli, pl. 2, fig.1. **Fig. 5.** Safi, Atlantic coast of Morocco, 50-60 m, BG, 36 mm. **Fig. 6.** Malaga, Spain, trawled on mud bottom in 80-150 m, BG, 31 mm. **Fig. 7.** Malaga, Spain, PR, 35.5 mm. **Fig. 8.** Alger Bay, Algeria, PR, 27 mm. **Fig. 9.** Malaga, Andalusia, South Spain, trawled by local fishermen in 150 m, 36.6 mm

Pl. 14

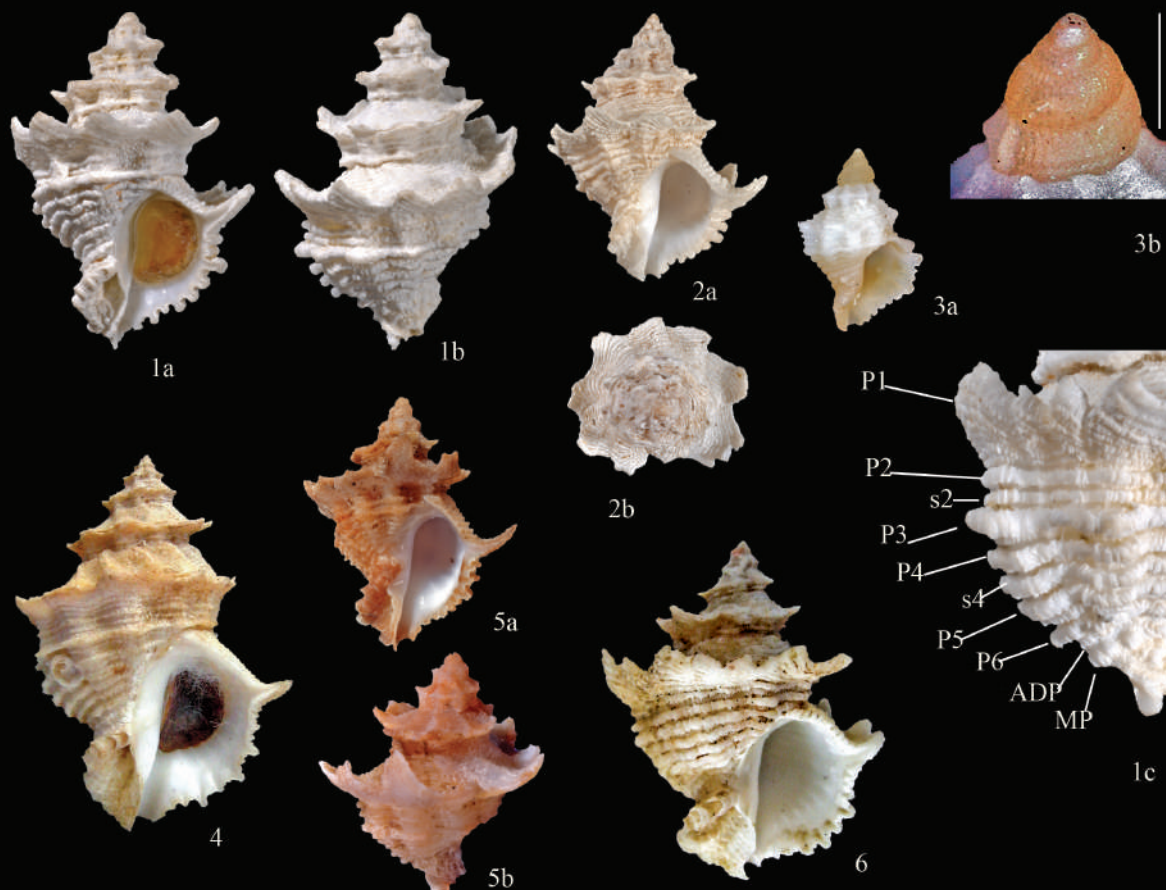
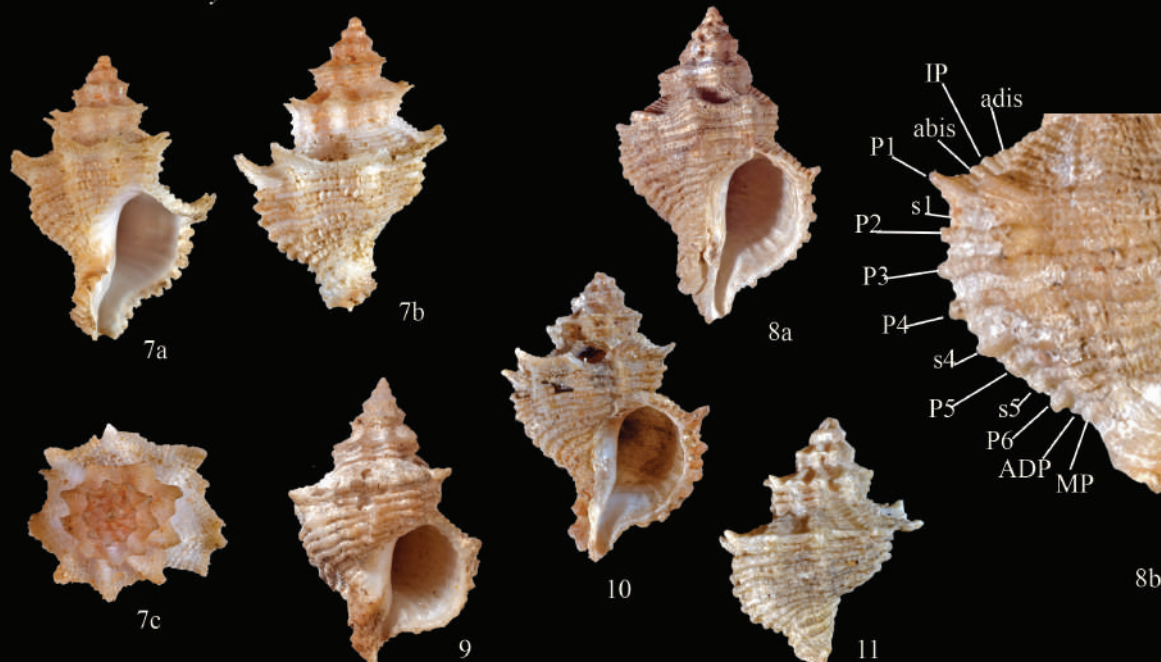
Babelomurex cariniferus*Babelomurex bayeri****Babelomurex cariniferus* (Sowerby II, 1834)**

Fig. 1. Porto Koufo, Sithonia, Halkidiki region, Aegan Sea, Greece, 8 m, CBG, 28.3 mm. **Fig. 2.** Canary Islands, 35 m, BG, 22.6 mm. **Fig. 3.** Canary Islands, PR, 3.3 mm, juvenile with protoconch. Scale-bar: 0.5 mm. **Fig. 4.** Vridi Channel, Abidjan, Ivory Coast, 20 m, PR, 32.9 mm. **Fig. 5.** Luanda province, Angola, 40 m, PR, 15.7 mm. **Fig. 6.** Bojador Cape, West Sahara, 60 m, CPR, 33.6 mm.

***Babelomurex bayeri* Garrigues, Lamy & Zuccon, 2022**

Fig. 7. Holotype, MNHN IM-2013-56493, French Guyana, ACOUPA CP4379, 130 m, DNA sequenced (MUBA928-22, ON668371), 14.2 mm. **Fig. 8.** Paratype A, MNHN IM-2013-43163, French Guyana, ACOUPA CP4348, 115 m, 16.2 mm. **Fig. 9.** Paratype B, MNHN IM-2013-43163, French Guyana, ACOUPA CP4348, 115 m, 16.5 mm.

Fig. 10-11. MNHN, French Guyana, mission PROTEUS. (scale-bar: 0.5 mm).

**TWO NEW VOLUTOIDEA (ONE CYSTISCIDAE AND ONE MARGINELLIDAE)
FROM MACAÉ, RIO DE JANEIRO STATE, 155 METERS DEEP**

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ABSTRACT

Two species of Volutoidae dredged off Macaé (Rio de Janeiro State, Brazil) from a depth of 155 meters in the Western Atlantic Ocean are described: *Volvarina glauca* n. sp. and *Sagittalia guanabara* n. sp.

KEY WORDS: Volutoidae, Marginellidae, Cystiscidae, *Volvarina*, *Sagittalia*, Macaé, Rio de Janeiro State, Paulinian Subprovince

INTRODUCTION

After acquiring shells from a Brazilian shell dealers, originally dredged by a research vessel in February 1992 from the edge of the continental shelf off Macaé (later obtained by Adolpho Birman from São Paulo before being passed to the dealer), we immediately noticed the presence of previously unknown material.

Among this material, we identified two small species from this cold-water zone: one belonging to the family Marginellidae and the other to the family Cystiscidae. These are described in the present paper as *Volvarina glauca* and *Sagittalia guanabara*, respectively.

SYSTEMATICS

Class Gastropoda

Order Prosobranchia

Infraorder Neogastropoda

Superfamily Volutoidae Rafinesque, 1815

Family Cystiscidae W. Stimpson, 1865

Subfamily Cystiscinae W. Stimpson, 1865

Genus *Sagittalia* F. Boyer, 2024

Type species: *Marginella sagittata* Hinds, 1844

***Sagittalia guanabara* n. sp.**

Type material

Holotype: 5.7 × 3.8 mm, deposited at Museu Nacional Rio de Janeiro (MNRJ) under code MNRJ 37344.

Paratype: 5.7 × 4.2 mm, housed in the Gregorio Pereira de Queiroz collection.

DESCRIPTION

Shell morphology: Globular, pear-shaped, with a length/width ratio of approximately 1.42. The spire is immersed, giving the apex a flattened appearance. The aperture is convex and open, with three columellar plaits.

Shell coloration and pattern: The shell is light blue-gray with large yellow zigzag markings, characteristic of the *Sagittalia* genus. These markings are more distinctly visible on paratype 1.

Type locality

Off Macaé, Rio de Janeiro State, Paulinian Subprovince, Brazil (21°21'S, 40°16'W), dredged at a depth of 155 meters, collected by a research vessel in February 1992.

Distribution

Only known from the type locality.

Etymology

The genus name *Sagittalia* derives from the Latin word for «arrow,» reflecting the typical pattern of the genus. *Guanabara* was the historical name for Rio de Janeiro State in the mid-20th century, derived from Tupi-Guarani and meaning «sea breast,» a reference to the round shape of Guanabara Bay. This coincides with the species' shell shape.

DISCUSSION

Sagittalia guanabara n. sp. shares the characteristic arrow-shaped pattern of the genus with *Sagittalia sagittata* (Hinds, 1844), but it is distinguishable by its rounder shape (*S. sagittata* is nearly cylindrical), its glaucous shell color (compared to the whitish or beige hue of *S. sagittata*), and its geographical location, which is 500 km south of the known range of *S. sagittata*.

Other similar species include:

Gibberula moscatellii F. Boyer, 2004: A larger species (8–12 mm) with an oblong rather than globular shape, found 800 km north of the new species. It also has denser brown arrow-shaped markings instead of yellow ones.

Persicula moretzsohni Coltro, 2020: A smaller species (4–5 mm) with an elongated cylindrical shell, found in Abrolhos, Bahia, approximately 500 km north of *S. guanabara*.

Caribbean species such as *Gibberula fluctuata* (C.B. Adams, 1850) and *Persicula frumentum* (Sowerby I, 1832), which are more elongated and lack the prominent yellow zigzag markings, instead displaying fine brown arrows.

Family Marginellidae J. Fleming, 1828**Subfamily** Marginellinae J. Fleming, 1828**Genus** *Volvarina* Hinds, 1844**Type species:** *Volvarina mitrella* (Risso, 1826)***Volvarina glauca* n. sp.****Type material****Holotype:** 7.9 × 3.9 mm, deposited at Museu Nacional Rio de Janeiro (MNRJ) under code MNRJ 37345.**Paratypes:**

Paratype 1: 9.0 × 4.5 mm, housed in the Gregorio Pereira de Queiroz collection.

Paratype 2: 7.1 × 3.5 mm, housed in the Gregorio Pereira de Queiroz collection.

DESCRIPTION

Volvarina glauca n. sp. is a mid-sized *Volvarina* species with a shape similar to *Volvarina serrei* (Bavay, 1913) but slightly blunter. It has a gray-bluish coloration and features four strong columellar plaits. The spire constitutes approximately 15% of the total shell length.

Type locality

Off Macaé, Rio de Janeiro State, Paulinian Subprovince, Brazil (21°21'S, 40°16'W), dredged at a depth of 155 meters, collected by a research vessel in February 1992.

Distribution

Only known from the type locality.

Etymology

The species name *glauca* derives from the Latin *glaucus*, meaning pale bluish-gray. It references Glaucus, an Arcadian nymph who was one of Zeus's nurses.

DISCUSSION

The primary comparison is with *Volvarina serrei* (Bavay, 1913). *V. glauca* differs in its glaucous coloration (as opposed to the bright, shiny white of *V. serrei*), its blockier shape, its stronger and more horizontally aligned columellar plaits, and its deeper habitat (155 meters, whereas *V. serrei* is not found below 80 meters). Additionally, Boyer and Vanin noted that *V. serrei* specimens over 7 mm typically have five columellar plaits. Other related species include:

Volvarina tunicata F. Boyer, 2000: Found mainly in Espírito Santo State, 300 km to the north, but with a more elongated shape, pale orange coloration with two white bands, and a shallower depth preference (below 50 meters).

Volvarina brasiliiana Boyer, 2000: More oval-shaped with no distinct curvature between the last whorl and the spire, and displaying three distinct brown bands on the last whorl.

GENERAL DISCUSSION

We believe that many more species of Marginellidae and Cystiscidae will be discovered in Brazil in the coming years, as seabeds below 30 meters remain poorly explored.

In the past three years alone, we have described or redescribed six new *Volvarina* species from Brazil. We expect to find many

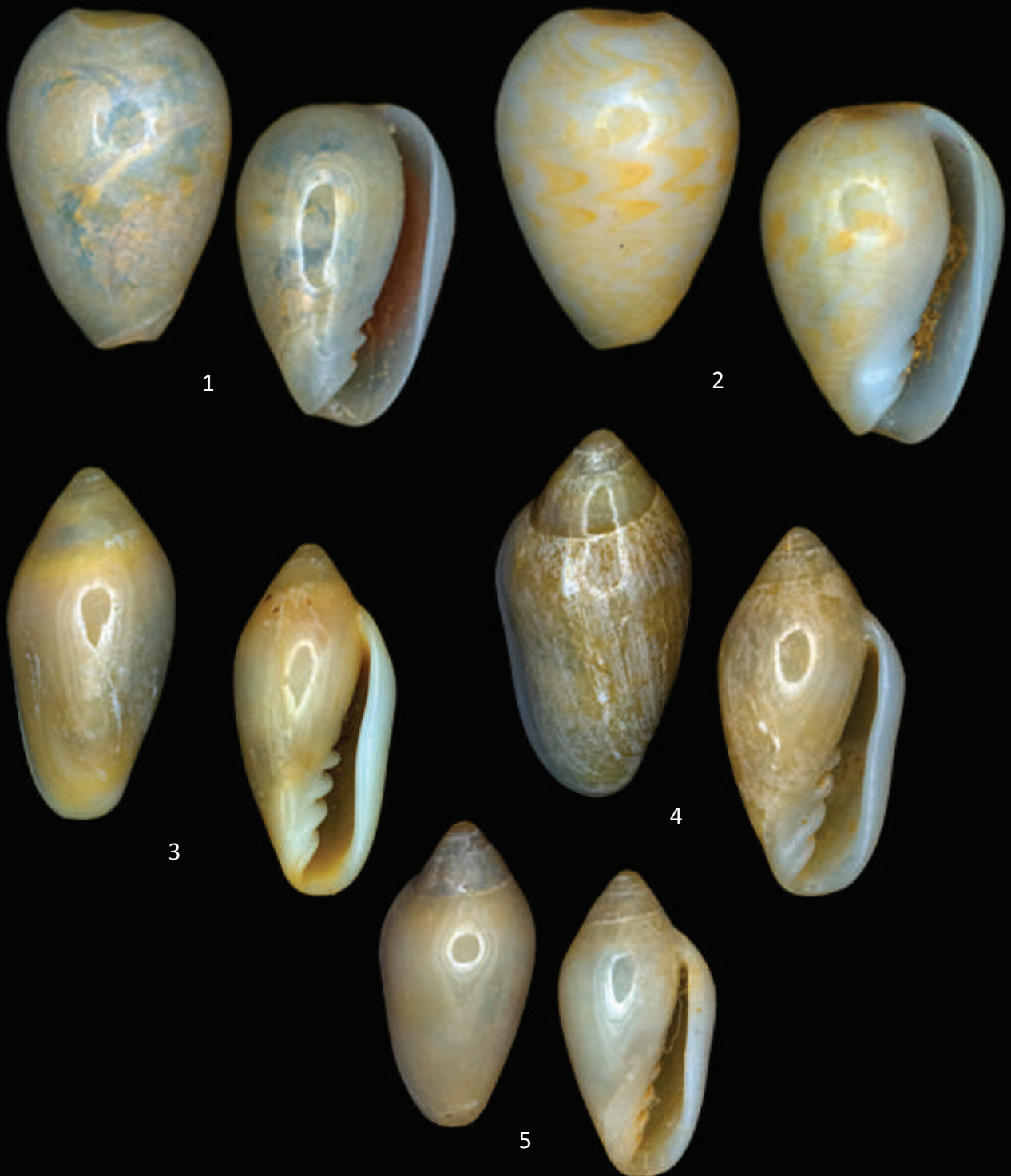
more, making the Volutoidae superfamily one of the most diverse along these coasts. Additionally, we suspect that several undescribed species are hidden within the *Volvarina serrei* complex. Capturing live specimens will be crucial in differentiating closely related species based on more than just shell morphology.

ACKNOWLEDGMENTS

I thank Franck Boyer for informing me of the new genus *Sagittalia*, which I was previously unaware of. I am also grateful to Prof. Alexandre Pimenta of MNRJ for granting access to laboratory equipment and for patiently considering my suggestions. Finally, I extend my thanks to Antônio Monteiro for reviewing the text and improving the English vocabulary.

REFERENCES

- BAVAY A. 1913a. Sables coquilliers recueillis par M. Serre à Bahia (Brésil). Bulletin du Muséum national d'Histoire naturelle 19 : 358–360.
- BAVAY A 1913b. Sables de Bahia récoltés par M.Serre, Consul de France. Bulletin du Muséum national d'Histoire naturelle 19 : 481–483.
- BAVAY A 1922. Marginelles nouvelles de la collection Jous-seaume. Bulletin du Muséum national d'Histoire naturelle 28 : 76–81.
- BOYER F. 2000. The genus *Volvarina* (Volutacea :Marginellidae) in Brazil. Part 1: revision of the species described by A. Bavay, and closely related species. Novapex 1(2) : 35–55.
- BOYER F. 2023. About some marginelliform gastropods (Marginellidae, Cystiscidae and Granulinidae) from French Guyana. Biodiversity Journal 14(3) : 513–532.
- BOYER F. 2024. Revision of the wavy ornated cystiscids (Volutoidae Cystiscidae) From the Dhofar (southern Oman) and description of new taxa Biodiversity Journal 15(3) : 525–545
- BOYER F., CRABOS O., PEREIRA DE QUEIROZ G. 2024. Description de trois espèces nouvelles de gastéropodes marginelliformes du Brésil (Gastropoda : Volutoidae), et remplacement générique de *Prunum* amphorale Souza, 1992. Novapex, 25(3), 147–154
- COOVERT G.A. & H.K. COOVERT. 1995. Revision of the supraspecific classification of marginelliform gastropods. The Nautilus 109(2-3):43–110.
- CRABOS O., PEREIRA DE QUEIROZ G., POMPONET OLIVEIRA G., PASSOS DE ALMEIDA L. 2023. DESCRIPTION OF TWO NEW SPECIES OF MARGINELLIDAE FROM NorthEast Brazil Xenophora Taxonomy, 39, 33–35
- PEREIRA DE QUEIROZ G., CRABOS O., POMPONET OLIVEIRA G., PASSOS DE ALMEIDA L. 2022. Description of a new Marginellidae from North-East Brazil. Xenophora Taxonomy, 35, 2–4
- RIOS E. DE C. & LEAL J. 1993. *Volvarina pontesi*, a new bathyal marginellid (Mollusca, Gastropoda) from off Brazil. Apex 8(1–2) : 27–30.
- RIOS E. DE C. & MATTHEWS H.R. 1972. Uma nova espécie de *Marginella* Lamarck, 1799 do Brasil (Mollusca, Gastropoda, Marginellidae). Arquivos de Ciências Marinhas 12 : 31–33.
- SOUZA P.J. DE 1992. A new species of marginellid (Gastropoda : Prosobranchia) from the north coast of Brazil. Journal of Conchology 34 : 237–242.
- SOUZA P.J.S. DE, 1997. A Tribo Marginellini Fleming, 1828 na Costa Brasileira (Mollusca, Gastropoda, Marginellidae). Tese de Mestrado em Ciências Biológicas-Zoologia. Universidade Federal do Rio de Janeiro : I-XII, 1–75



1. *Sagittalia guanabara* n. sp., Holotype, 5,7 × 3.8 mm, MNRJ 37344, Off Macaé, Rio de Janeiro State, Brazil.
2. *Sagittalia guanabara* n. sp., Paratype 1, 5,7 × 4.2 mm, Off Macaé, Rio de Janeiro State, Brazil, Coll. GPdQ.
3. *Volvarina glauca* n. sp, Holotype, 7.9 × 3.9 mm, MNRJ 37345, Off Macaé, Rio de Janeiro State, Brazil.
4. *Volvarina glauca* n. sp, Paratype, 1, 9.0 × 4.5 mm, Col. GPQ, Off Macaé, Rio de Janeiro State, Brazil, Coll. GPdQ.
5. *Volvarina glauca* n. sp, Paratype, 2, 7.1 × 3.5 mm, Col. GPQ, Off Macaé, Rio de Janeiro State, Brazil, Coll. GPdQ.

ENRICHING THE MARINE MOLLUSCS' BIODIVERSITY OF THE HELLENIC SEAS (BY OCTOBER 2024)

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KEYWORDS

Biodiversity, Greece, Mollusca, New Records

ABSTRACT

The Hellenic marine malacofauna is affected by current environmental changes, ongoing research, and the introduction of alien species. We report here the first presence of the non-indigenous mollusk *Metaxia bacillum* (Issel, 1869) together with several second and previously not image documented records from the Hellenic Seas. Taxonomy is followed by discussion.

INTRODUCTION

Biological invasions are considered as seriously threatening the global biodiversity thus constituting a crucial pervasive factor of its change (Galil, 2007; Molnar *et al.*, 2008; Occhipinti-Ambrogi & Galil, 2010). The Mediterranean Sea is a hotspot of biodiversity and endemism (Bianchi & Morri, 2000; Coll *et al.*, 2010) and is affected by the so-called “Lessepsian invasion” or “Erythrean invasion” a major biological marine invasion that followed the opening of the Suez Canal in 1869, especially after its recent widening.

The Canal is an artificial waterway and also the most significant vector for introductions of non-indigenous species (NIS) to the Mediterranean basin, followed by shipping (Galil, 2008; 2012;

Galil *et al.*, 2016; Zenetos, 2017). The Levantine Sea in the south-eastern Mediterranean is primarily affected due to its proximity to the Suez Canal and the prevailing surface currents (Galil, 2008, 2016; Tzomos *et al.*, 2012; Galil *et al.*, 2016). Biological invasions have the potential to radically change the structure and functioning of the recipient communities (Molnar *et al.*, 2008; Ehrenfeld, 2010; Fanelli *et al.*, 2015), thus causing extensive ecological, social and economic damage apart from the negative affects on the local biodiversity (e.g. Galil, 2007; Pyšek & Richardson, 2010), particularly if NIS affect the provision of ecosystem services (Wallentinus & Nyberg, 2007) and/or adversely affect human health (Mazza *et al.*, 2014).

Taking into account the above and the rapid range expansions observed for many Lessepsian invaders originally restricted to the Levantine Basin (Galil, 2009; Tzomos *et al.*, 2012; Galil *et al.*, 2016), it is of paramount importance the early reporting of new findings as it essentially aids to the better understanding of the dynamics of the invasion and to the early recognition of potentially invasive species, when mitigation measures are most effective (Crooks, 2005; Simberloff *et al.*, 2013).

This invasion is nowadays registered from adjacent countries (e.g. Katsanevakis *et al.*, 2009; Manousis *et al.*, 2010; Çinar *et al.*, 2011; Manousis & Galinou-Mitsoudi, 2013; Ammar, 2018; Manousis *et al.*, 2018; Zenetos *et al.*, 2018; Bariche &

Fricke, 2020; Crocetta *et al.*, 2020; Manousis *et al.*, 2020a, b, c; Mbazios *et al.*, 2020; Kontadakis *et al.*, 2021; Manousis *et al.*, 2021; Zaminos *et al.*, 2021; Manousis *et al.*, 2022; Mbazios *et al.*, 2022; Kolokotronis *et al.*, 2023) and some have reached the Central Mediterranean, e.g., Tunisia (e.g. Ounifi-Ben Amor *et al.*, 2016), Italy (e.g. Occhipinti-Ambrogi *et al.*, 2011), and France (e.g. Daniel *et al.*, 2009; Bodilis *et al.*, 2011).

Moreover, biodiversity has undergone modifications during recent decades, following the introduction of non-indigenous species, attributed to the expansion of shipping traffic, aquaculture activities and migration through the Strait of Gibraltar (Por, 1990; Galil & Zenetos, 2002; Streftaris *et al.*, 2005).

At the same time, accelerating climate warming is especially affecting the Eastern Mediterranean Basin (Giorgi & Lionello, 2008; Ozer *et al.*, 2017), causing the decline of indigenous species and potentially more favourable conditions for the establishment of tropical species (Rilov, 2016; Albano *et al.*, 2021a, b). The Hellenic marine molluscan biodiversity has been reviewed two years ago in a systematic catalogue by Manousis (2021) and further updated recently (Manousis, 2023).

Perceptive human resources management in the form of citizen science monitoring projects have shown that the Hellenic Seas are in need of further search (Galinou-Mitsoudi *et al.*, 2022).

Considering the above issues, the aim of this study is to further investigate the presence of autochthonous and allochthonous molluscan species in localities of the Hellenic Seas.

METHODS

Sampling, handling and species recognition were conducted according to Manousis & Galinou-Mitsoudi (2013) and Mbazios *et al.* (2020) in certain locations of the Hellenic Seas. All 1st and 2nd documented records for the Mediterranean and the Hellenic Seas are listed below with collection data. Description of certain specimens is given whenever additional information aid to identification. Findings are presented in Figures 1 and 2. Specimens are deposited in the premises of G. Mbazios and G. Zaminos. Scientists are welcome to access the biological material for inspection by appointment.

RESULTS

Abbreviations: **De** = Detritus; **DG1** – first image documented record for Greece; **G1, G2** – First or second record for Greece; **MB** - Mixed Bottom; **Ra** – Rare;

THE RECORDS

Bivalvia

Pinna rudis Linnaeus, 1758 (Fig. 1a). An uncommon amphiatlantic species (Gofas *et al.*, 2011) also present in the Mediterranean Sea (Repetto *et al.*, 2005) and rather recently also referred from the Hellenic Seas (Salomidi *et al.*, 2016; Gerovasileiou, 2018) without image documentation. Its presence in the Hellenic waters was first image documented by Galinou-Mitsoudi *et al.* (2023), and more recently, the species has been image documented and molecularly

confirmed from several locations in southern Crete and the Ionian Sea (Zotou *et al.*, 2023). We contribute to the overall effort by reporting live individuals: one, 1 m, MB, Gavdos Isl. (34°51'31N, 24°06'33E), June 2023; one, 5 m, MB, Marathi, Crete, (35°30'18N, 24°10'33E), July 2023; one, 4 m, Mytikas, Preveza (38°59'57N, 20°41'52E), August 2023; one, 3 m, Gidaki, Ithaca Isl. (38°23'08N, 20°44'02E), August 2023. Unlike the specimens collected in Tripoli, Tunisia (Tsagarakis *et al.*, 2021), the symbiotic decapod *Pontonia pinnophylax* (Otto, 1821) was not present in all our individuals may be due to small size of the hosts and the shallow waters where found (Pacheco *et al.*, 2014). Description in Gofas *et al.* (2011).

Bankia gouldi (Bartsch, 1908) (Fig. 1b). 17 live, in flouting log, Kyllini, Ionian sea (37°56'35N, 21°08'58E), August 2023, G1 (Manousis *et al.*, 2021), G2, description in Turner (1966).

Gastropoda

Gibbula vimontiae Monterosato, 1884 (Fig. 1c). 14 shells, De, 6 m, Eristos, Tilos Island (36°25'52N, 27°20'59E), July 2024, G1 Manousis (2021), G2, Description in Scaperrotta *et al.* (2010).

Metaxia bacillum (Issel, 1869) (Fig. 1d). 2 shells, De, 6 m, Eristos, Tilos Island (36°25'52N, 27°20'59E), July 2024, G1, presented in Cossignani & Ardevini (2011).

Alvania campanii Tisselli & Giunchi, 2013 (Fig. 1e). Two shells, beached, Ai Giannis, Gavdos Isl. (34°51'31N, 24°06'33E), June 2023, G1 (Manousis *et al.*, 2023, Fig. 1c), G2, description in Tisselli & Giunchi (2013).

Dendropoma* cf. *cristatum (Biondi-Giunti, 1859) (Fig. 1f). Pieces of a colony, beached, Agios Ioannis, Gavdos Isl. (34°51'31N, 24°06'33E), June 2023, DG1. The species has been referred for Greece as *Dendropoma petraeum* (Monterosato, 1884) (a synonym) without any type of documentation by Koukouras (2010). Our specimens fit the description and photographic presentation by Golding *et al.* (2014). The species identity of *Dendropoma* cf. *petraeum* remains uncertain after a recent molecular analysis that revealed significant genetic separation between four Mediterranean regions suggestive of a cryptic species complex (Calvo *et al.*, 2009).

Atlanta lesueurii J. E. Gray, 1850 (Fig. 1g). Two shells, MB, 10 m, Kalathas, Gulf of Chania, Crete (35°33'22N, 24°05'07E), June 2023, G1 (Manousis, 2021, page 185), G2, presented in Cossignani & Ardevini (2011).

Pseudofusus patriciae (Russo & Olivieri, 2013) (Fig. 1h). Four shells, De, 7-10 m, Eristos, Tilos Island (36°25'52N, 27°20'59E), July 2024, and one shell, Maerl, 60-120 m, Agios Stefanos, Tilos Island (36°25'41N, 27°24'20E), July 2024, G1 Manousis (2021), G2, description in Russo (2013).

Heliacius jeffreysianus (Tiberi, 1867) (Fig. 1i). One live, Maerl, small gear fishing nets, 60-120 m, Rhodes Island, Karpathos Sea (35°33'22N, 24°05'07E), June 2024, very Ra, G1 Manousis *et al.* (2018), G2, presented in Cossignani & Ardevini (2011).

Auristomia erjaveciana (Brusina, 1869) (Fig. 2a). Eight shells, MB, 10 m, Kalathas, Gulf of Chania, Crete (35°33'22N, 24°05'07E), June 2023, G1 Manousis *et al.* (2020a, Fig. 1a), G2, description in Giannuzzi-Savelli *et al.* (2014).

Liostomia mamoi Mifsud, 1993 (Fig. 2b). One shell, MB, 60-120 m, Gavdos Isl. (34°51'31N, 24°06'33E), June 2023, G1 Manousis *et al.* (2020a, Fig. 4a), G2, description in Giannuzzi-Savelli *et al.* (2014).

Callostracon tyrrhenicum (Smriglio & Mariottini, 1996) (Fig. 2c). Several immature shells, MB, 60-120 m, Gavdos Isl. (34°51'31N, 24°06'33E), June 2023, G1 (Manousis *et al.* 2021, Fig. 9c), G2, description in Smriglio & Mariottini (1996).

Philine angulata Jeffreys, 1867 (Fig. 2d). One shell, MB, 10 m, Kalathas, Gulf of Chania, Crete (35°33'22N, 24°05'07E), June 2023, G1 (Manousis *et al.*, 2020b, Fig. 6b), G2, description in Gofas *et al.* (2011).

Acteocina mucronata (R. A. Philippi, 1849) (Fig. 2e). 1 shell, De, 7-10 m, Eristos, Tilos Island (36°25'52N, 27°20'59E), July 2024, G1 Manousis (2021), G2, presented in Cossignani & Ardevini (2011).

DISCUSSION

Pinna rudis shell is very similar to that of *P. nobilis* but its fewer and more robust scales and smaller size (Gvozdenović *et al.*, 2019). The species was known mainly from the western Mediterranean Sea (Zotou *et al.*, 2023) but recently appeared to have expanded in locations previously occupied by *P. nobilis* in southern parts of the eastern Mediterranean Sea (Donato *et al.*, 2021; Zotou *et al.*, 2023). Apparently, most of *P. nobilis* populations died due to *Haplosporidium pinnae* infection (Donato *et al.*, 2021), allegedly giving space to unaffected *P. rudis*.

P. nobilis is more associated with *Posidonia oceanica* meadows and soft substrates (Addis *et al.*, 2009; Vázquez-Luis *et al.*, 2014; Deudero *et al.*, 2015) while *P. rudis* prefers hard substrates and gravel (Pope & Goto, 1993). In areas where both species coexist, particularly in the western Mediterranean, their populations overlap (Kersting & García-March, 2017); an indication that they do not compete, and the recent spread of *P. rudis* in the eastern Mediterranean basin cannot be attributed to niche availability due to the mortality of *P. nobilis*. *P. rudis* is a hermaphrodite species while *P. nobilis* is dioecious (Kozul *et al.*, 2024) while there is evidence of hybridization between the two congeneric species *P. nobilis* X *P. rudis* (Vázquez-Luis *et al.*, 2021).

Future research is needed to better understand the *P. rudis* population's status in the presence or absence of *P. nobilis*. We should emphasize that by characterizing the records in this work as first (G1) or second (G2) for Greece we by no means refer to the establishment status or their establishment capacity of alien or Lessepsian species in the Hellenic waters. On the contrary, we invite readers to draw their own conclusions on the matter by taking into account the available systematic catalogue documented with bibliographic and pictorial references by Manousis (2023), and the criteria employed by Zenetos *et al.* (2005), particularly defined by Crocetta (2012) and further

discussed by Kontadakis *et al.* (2021).

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CORRIGENDUM

With this corrigendum the authors of Varnava *et al.* (2024) wish to correct an inaccuracy, more precisely, the record of *Bulla arabica* Malaquias & D. Reid, 2008 (Fig. 4k) is not DC1 (first image documented record for Cyprus) but DC2 (second image documented record for Cyprus), as the DC1 was that of Zenetos *et al.* (2004), though erroneously identified as *Bulla ampulla* Linnaeus, 1758 (<https://www.ciesm.org/atlas/Bullaampulla.html>).

REFERENCES

- ADDIS P., SECCI M., BRUNDU G., MANUNZA A., CORRIAS S., *et al.*, 2009. Density, size structure, shell orientation and epibiotic colonization of the fan mussel *Pinna nobilis* L. 1758 (Mollusca: Bivalvia) in three contrasting habitats in an estuarine area of Sardinia (W Mediterranean). *Scientia Marina*, 73 (1): 143-152.
- ALBANO P. G., STEGER J., BAKKER P. D. J., BOGI C., BOŠNJAK M., GUYHAIM T., FUSEYINOGLU M. F., LAFOLLETTE P. I., LUBINEVSKY H., MULAS M., STOCKINGER M., AZZARONE M., SABELLI B., 2021a. Numerous new records of tropical non-indigenous species in the Eastern Mediterranean highlight the challenges of their recognition and identification. *ZooKeys*, 1010: 1–95. <https://doi.org/10.3897/zookeys.1010.58759>
- ALBANO P. G., STEGER J., BOŠNJAK M., DUNNE B., GUI-FARRO Z., TURAPOVA E., HUA Q., KAUFMAN D. S., RILOV G., ZUSCHIN M., 2021b. Native biodiversity collapse in the Eastern Mediterranean. *Proc. R. Soc. B: Biological Sciences*, 288 (1942): 20202469.
- AMMAR I., 2018. New record of alien species of gastropods in Syrian coast. *Damascus University Journal of Basic Science*, 34: 95-122.
- BARICHE M., FRICKE R., 2020. The marine ichthyofauna of Lebanon: an annotated checklist, history, biogeography, and conservation status. *Zootaxa*, 4775: 1-157. <https://doi.org/10.11646/zootaxa.4775.1.1>
- BIANCHI C. N., MORRI C., 2000. Marine biodiversity of the Mediterranean Sea: situation, problems and prospects for future research. *Mar. Pollut. Bull.* 40: 367–376, [https://doi.org/10.1016/S0025-326X\(00\)00027-8](https://doi.org/10.1016/S0025-326X(00)00027-8)
- BODILIS P., ARCEO H., FRANCOUR P., 2011. Further evidence of the establishment of *Fistularia commersonii* (Osteichthyes: Fistulariidae) in the north-western Mediterranean Sea. *Mar. Biodivers. Rec.*, 4: E18. <https://doi.org/10.1017/S1755267211000194>
- CALVO M., TEMPLADO J., OLIVERIO M., MACHORDOM A., 2009. Hidden Mediterranean biodiversity: molecular evidence for a cryptic species complex within the reef building vermetid gastropod *Dendropoma petraeum* (Mollusca: Caenogastropoda). *Biol. J. Linn. Soc. Lond.*, 96: 898–912.
- ÇINAR M. E., BILECENOGLU M., ÖZTÜRK B., KATAGAN T., YOKES M. B., *et al.*, 2011. An updated review of alien species on

the coasts of Turkey. *Mediterr. Mar. Sci.*, 12: 257-315. <https://doi.org/10.12681/mms.34>

COLL M., PIRODDI C., STEENBEEK J., KASCHNER K., BEN RAIS LASRAM F., *et al.*, 2010. The biodiversity of the Mediterranean Sea: estimates, patterns, and threats. *PLoS ONE* 5: e11842, <https://doi.org/10.1371/journal.pone.0011842>

COSSIGNANI T., ARDOVINI R., 2011. *Malacologia Mediterranea, Atlante delle conchiglie del Mediterraneo*. L'Informatore Piceno, Ancona, Italy.

CROCETTA F., 2012. Marine alien Mollusca in Italy: a critical review and state of the knowledge. *J. Mar. Biolog. Assoc. U.K.*, 92 (6): 1357–1365.

CROCETTA F., BITAR G., ZIBROWIUS H., OLIVERIO M., 2020. Increase in knowledge of the marine gastropod fauna of Lebanon since the 19th century. *Bull. Mar. Sci.*, 96: 22. <https://doi.org/info:doi/10.5343/bms.2019.0012>

CROOKS J. A., 2005. Lag times and exotic species: The ecology and management of biological invasions in slow-motion. *Ecoscience*, 12: 316–329, <https://doi.org/10.2980/i1195-6860-12-3-316.1>

DANIEL B., PIRO S., CHARBONNEL E., FRANCOUR P., LETOURNEUR Y., 2009. Lessepsian rabbit fish *Siganus luridus* reached the French Mediterranean coasts. *Cybius* 33: 163-164.

DEUDERO S., VÁZQUEZ-LUIS M., ALVAREZ E., 2015. Human stressors are driving coastal benthic long-lived sessile fan mussel *Pinna nobilis* population structure more than environmental stressors. *PLOS ONE*, 10 (7): e0134530.

DONATO G., VÁZQUEZ-LUIS M., NEBOT-COLOMER E., LUNETTA, A., GIACCOBE, S., 2021. Nobel fan-shell, *Pinna nobilis*, in Lake Faro (Sicily, Italy): ineluctable decline or extreme opportunity? *Estuar. Coast. Shelf Sci.*, 261: 107536.

EHRENFELD J. G., 2010. Ecosystem consequences of biological invasions. *Annu. Rev. Ecol. Evol. Syst.*, 41: 59–80, <https://doi.org/10.1146/annurev-ecolsys-102209-144650>

FANELLI E., AZZURRO E., BARICHE M., CARTES J. E., MAYNOU F., 2015. Depicting the novel eastern Mediterranean food web: a stable isotopes study following Lessepsian fish invasion. *Biol. Invasions*, 17: 2163–2178, <https://doi.org/10.1007/s10530-015-0868-5>

GALIL B. S., ZENETOS A., 2002. A sea change - exotics in the Eastern Mediterranean. In: Leppäkoski E, Gollasch S, Olenin S, eds. *Invasive aquatic species of Europe. Distributions, impacts and management*. Kluwer Academic Publishers, Dordrecht: 325-336.

GALIL B. S., 2007. Loss or gain? Invasive aliens and biodiversity in the Mediterranean Sea. *Mar. Pollut. Bull.* 55: 314–322. <https://doi.org/10.1016/j.marpolbul.2006.11.008>

GALIL B. S., 2008. Alien species in the Mediterranean Sea – which, when, where, why? *Hydrobiologia*, 606: 105–116, <https://doi.org/10.1007/s10750-008-9342-z>

GALIL B. S., 2009. Taking stock: inventory of alien species in the Mediterranean Sea. *Biol. Invasions*, 11: 359-372. <https://doi.org/10.1007/s10530-008-9253-y>

GALIL B. S., 2012. Truth and consequences: the bioinvasion of the Mediterranean Sea. *Integr. Zool.*, 7 (3): 299-311.

GALIL B. S., MARCHINI A., OCCHIPINTI-AMBROGI A., 2016. East is east and west is west? Management of marine bioinvasions in the Mediterranean Sea. *Estuar. Coast. Shelf Sci.*, 201: 7–16, <https://doi.org/10.1016/j.ecss.2015.12.021>

GALINO-MITSOU S., ZAMINOS G., MANOUSIS T., KONTADAKIS C., STASINOS S., MBAZIOS G., PORFYRIS A., 2023. Mediterranean and Hellenic Seas: new records and distributional

status of marine mollusca (by December 2022). *Xenophora Taxonomy*, 39: 57-67.

GEROVASILEIOY V., 2018. Biodiversity of marine caves in the North Aegean sea. PhD Thesis (in Greek). DOI: 10.12681/eadd/42262

GIANNUZZI-SAVELLI R., PUSATERI F., MICALI P., NOFRONI I., BARTOLINI S., 2014. *Atlante delle conchiglie marine del Mediterraneo*, Vol. 5. Palermo: Edizioni Danaus.

GIORGI F., LIONELLO P., 2008. Climate change projections for the Mediterranean region. *Glob. Planet. Change*, 63 (2–3): 90-104.

GOFAS S., MORENO D., SALAS C., 2011. *Moluscos Marinos de Andalucía*, Vol. 1. Málaga: Universidad de Málaga.

GOLDING R. E., BIELER R., RAWLINGS T. A., COLLINS T. M., 2014. Deconstructing *Dendropoma*: A Systematic Revision of a World-Wide Worm-Snail Group, with Descriptions of New Genera (Caenogastropoda: Vermetidae). *Malacologia*, 57 (1): 1-97.

GVOZDENOVIC S., MACIC V., PESIC V., NIKOLIC M., PERAS L., *et al.*, 2019. Review on *Pinna rudis* (Linnaeus, 1758) (Bivalvia: Pinnidae) presence in the Mediterranean. *Agriculture & Forestry*, 65 (4): 115-126. DOI: 10.17707/AgricultForest.65.4.10 <https://www.ciesm.org/atlas/Bullaampulla.html>

KATSANEVAKIS S., TSIAMIS K., IOANNOU G., MICHAELIDIS N., ZENETOS A., 2009. Inventory of alien marine species of Cyprus. *Mediterr. Mar. Sci.*, 10: 109-134. <https://doi.org/10.12681/mms.113>

KERSTING D. K., GARCÍA-MARCH J. R., 2017. Long-term assessment of recruitment, early stages and population dynamics of the endangered Mediterranean fan mussel *Pinna nobilis* in the Columbretes Islands (NW Mediterranean). *Mar. Environ. Res.*, 130: 282-292.

KOLOKOTRONIS D., MANOUSIS T., PAPAVALASILEIOU K., KONTADAKIS C., GALINO-MITSOU S., 2023. New records and distributional status of marine Mollusca of Cyprus (by September 2022). *Xenophora Taxonomy*, 38: 25-32.

KONTADAKIS C., MBAZIOS G., MANOUSIS T., GALINO-MITSOU S., 2021. Records of the Indo-Pacific species *Heliacus implexus* (Mighels, 1845) (Gastropoda, Architectonicidae) established in the Mediterranean Sea. *Xenophora Taxonomy*, 32: 18-22.

KOUKOURAS A., 2010. Check-list of marine species from Greece. Aristotle University of Thessaloniki. Assembled in the framework of the EU FP7 PESI project.

KOŽUL V., BOLOTIN J., GLAVIC N., ANTOLOVIC N., 2024. Sexual Maturation of Fan Mussel *Pinna nobilis* (Linnaeus, 1758) (Mollusca: Bivalvia) in Experimental Cages in the Mali Ston Bay (South Adriatic Sea). *Appl. Sci.*, 14 (10): 4092. <https://doi.org/10.3390/app14104092>

MANOUSIS T., 2021. *Hellenic Conches*. Harxheim: Conchbooks, 609 pp. ISBN 978-3-948603-17-5

MANOUSIS T., 2023. The Marine Mollusca of Greece: an up-to-date, systematic catalogue, documented with bibliographic and pictorial references. *Xenophora Taxonomy*, 40: 25-63.

MANOUSIS T., MPARDAKIS G., PARASKEVOPOULOS C., GALINO-MITSOU S., 2010. The Bivalvia Mollusca of Thessaloniki and Thermaikos Gulfs (North Aegean Sea), Greece with emphasis on new species for Hellenic waters. *J. Biol. Res.-Thessalon.*, 14: 161–179.

MANOUSIS T., GALINO-MITSOU S., 2013. New gastropod records for the Eastern Mediterranean Sea and one new alien (*Emarginula decorata* Deshayes, 1863) for the Mediterranean Sea from NW Aegean Sea, Greece. *J. Biol. Res. Thessalon.*, 21:

1-20.

MANOUSIS T., KONTADAKIS C., POLYZOULIS G., MBAZIOS G., GALINO-MITSOUDI S., 2018. New marine gastropod records for the Hellenic waters. *J. Biol. Res. Thessalon.*, 25: 6.

MANOUSIS T., KONTADAKIS C., MBAZIOS G., POLYZOULIS G., 2018. The family Raphitomidae (Mollusca: Gastropoda: Conoidea) in the Greek Seas with the description of two new species. *J. Biol. Res. Thessalon.*, 25 (14): 1-38.

MANOUSIS T., KONTADAKIS C., MBAZIOS G., GALINO-MITSOUDI S., 2020a. New records of Cimidae, Murchisonellidae and Pyramidellidae (Mollusca: Gastropoda: Heterobranchia) for the Mediterranean Sea and the Hellenic Waters. *Xenophora Taxonomy*, 28: 3-27.

MANOUSIS T., PORFYRIS A., MBAZIOS G., ZAMINOS G., KONTADAKIS C., GALINO-MITSOUDI S., 2020b. New bivalve occurrences for the Mediterranean and the Hellenic Seas. *Xenophora Taxonomy*, 29: 1-15.

MANOUSIS T., KONTADAKIS C., ZAMINOS G., ZEIMBEKIS C., MBAZIOS G., GALINO-MITSOUDI S., 2020c. New records of Lower Heterobranchia (Mollusca: Gastropoda) for the Mediterranean and the Hellenic Seas. *Xenophora Taxonomy*, 30: 22-39.

MANOUSIS T., ZAMINOS G., KONTADAKIS C., MBAZIOS G., PORFYRIS A., GALINO-MITSOUDI S., 2021. New records of Mollusca for the Mediterranean and the Hellenic Seas. *Xenophora Taxonomy*, 31: 30-44.

MANOUSIS T., TISSELI M., GALINO-MITSOUDI S., 2022. Description of *Odostomia widmeri* spec. nov. (Mollusca, Gastropoda, Pyramidellidae) from the Eastern Mediterranean Sea. *Xenophora Taxonomy*, 36: 69-72.

MANOUSIS T., MBAZIOS G., ZAMINOS G., PORFYRIS A., PAPAVALSILEIOU K., KONTADAKIS C., GALINO-MITSOUDI S., 2023. Mediterranean and Hellenic Seas: New records and distributional status of marine molluscs (by September 2022). *Xenophora Taxonomy*, 39: 11-21.

MAZZA G., TRICARICO E., GENOVESI P., GHERARDI F., 2014. Biological invaders are threats to human health: an overview. *Ethol. Ecol. Evol.*, 26: 112-129, <https://doi.org/10.1080/03949370.2013.863225>

MBAZIOS G., KONTADAKIS C., GALINO-MITSOUDI S., MANOUSIS T., 2020. New gastropod records for the Mediterranean and the Hellenic Seas. *Xenophora Taxonomy*, 27: 34-58.

MBAZIOS G., ROZAKIS T., ZAMINOS G., KARYPIDIS S., MINOS G., PAPAVALSILEIOU K., KONTADAKIS C., MANOUSIS T., GALINO-MITSOUDI S., 2022. New records and distributional status of marine Mollusca for the Hellenic Seas (by September 2021). *Xenophora Taxonomy*, 35: 8-16.

MOLNAR J. L., GAMBOA R. L., REVENGA C., SPALDING M. D., 2008. Assessing the global threat of invasive species to marine biodiversity. *Front. Ecol. Environ.* 6: 485-492, <https://doi.org/10.1890/070064>

OCCHIPINTI-AMBROGI A., GALIL B., 2010. Marine alien species as an aspect of global change. *Advances in Oceanography and Limnology*, 1: 199-218, <https://doi.org/10.1080/19475721003743876>

OCCHIPINTI-AMBROGI A., MARCHIMI A., CANTONE G., CASTELLI A., CHIMENZ C., et al., 2011. Alien species along the Italian coasts: an overview. *Biol. Invasions*, 13: 215-237. <https://doi.org/10.1007/s10530-010-9803-y>

OUNIFI-BEN AMOR K., RIFI M., GHANEM R., DRAEIF I., ZAOUALI J., BEN SOUSSI J., 2016. Update of alien fauna and new records from Tunisian marine waters. *Mediterr. Mar. Sci.*, 17: 124. <https://doi.org/10.12681/mms.1371>

OZER T., GERTMAN I., KRESS N., SILVERMAN J., HERUT B., 2017. Interannual thermohaline (1979-2014) and nutrient (2002-2014) dynamics in the Levantine surface and intermediate water masses, SE Mediterranean Sea. *Glob. Planet. Change*, 151: 60-67. <https://doi.org/10.1016/j.gloplacha.2016.04.001>

PACHECO R. J., BARREIROS J. P., GONÇALVES S. C., 2014. The fan mussel *Pinna rudis* - occurrence and association with *Pontonia pinnophylax* in Terceira Island (Azores, NE Atlantic). *Mar. Sci.*, Conference Abstract: IMMR | International Meeting on Marine Research.

POPPE G.T., GOTO Y., 1993. *European Seashells*. Vol. 2. Hackenheim, ConchBooks Press, 221 pp.

POR F. D., 1990. Lessepsian migration. An appraisal and new data. *Bull. Inst. océanogr.*, (Monaco), 7: 1-10.

PYŠEK P., RICHARDSON D. M., 2010. Invasive species, environmental change and management, and health. *Annu. Rev. Environ. Resour.*, 35: 25-55, <https://doi.org/10.1146/annurev-environ-033009-095548>

REPETTO G., ORLANDO F., ARDUINO G., 2005. *Conchiglie del Mediterraneo*. Alba: Amici del Museo "Federico Eucebio".

RILOV G., 2016. Multi-species collapses at the warm edge of a warming sea. *Sci. Rep.*, 6: 36897. <https://doi.org/10.1038/srep36897>

RUSSO P., 2013. Tre nuove specie di *Fusinus* (Gastropoda: Fascioliariidae) per il Mare Mediterraneo. *Boll. Malacol.*, 49 (1): 1-11.

SALOMIDI M., GIAKOUMI S., GERAARIS V., ISSARIS Y., SINI M., TSIAMIS K., 2016. Setting an ecological baseline prior to the bottom-up establishment of a marine protected area in Santorini Island, Aegean Sea. *Medit. Mar. Sci.*, 17 (3). doi:10.12681/mms.1802

SCAPERROTTA M., BARTOLINI S., BOGI C., 2010. *Accrescimenti. Stadi di accrescimento dei molluschi marini del Mediterraneo*. Volume II. L'Informatore Piceno, 176 pp.

SIMBERLOFF D., MARTIN J. L., GENOVESI P., MARIS V., WARDLE D. A., ARONSON J., et al., 2013. Impacts of biological invasions: what's what and the way forward. *TREE*, 28 (1): 58-66. <https://doi.org/10.1016/j.tree.2012.07.013>

SMRIGLIO C., MARIOTTINI P., 1996. Central Tyrrhenian sea Mollusca: XI. Description of *Callostrakon tyrrhenicum* sp. nov. (Gastropoda, Acteonidae) and remarks on the other Mediterranean species of the family Acteonidae d'Orbigny, 1835. *Basteria*, 60: 183-193.

STREFTARIS N., ZENETOS A., PAPAATHANASSIOU E., 2005. Globalization in marine ecosystems: The story of non-indigenous marine species across European seas. *Oceanogr. Mar. Biol.*, 43: 419-453.

TISSELI M., GIUNCHI L., 2013. Due nuove specie di *Alvania* (Gastropoda: Rissoidae) dal nord-ovest della Turchia. *Quad. Studi Nat. Romagna*, 37: 163-174.

TSAGARAKIS K., DARMANIN S. A., AL MABRUK S., AURIEMMA R., AZZURRO E., et al., 2021. "New records of rare species in the Mediterranean Sea" (October 2021). *Mediterr. Mar. Sci.*, 22(3): 627-652. doi:<https://doi.org/10.12681/mms.26669>

TURNER R. D., 1966. *A Survey and Illustrated Catalogue of the Teredinidae (Mollusca: Bivalvia)*. The Museum of Comparative Zoology, Harvard University, Cambridge, Mass. 02138.

TZOMOST T., KITSOS M. S., KOUTSOUBAS D., KOUKOURAS A., 2012. Evolution of the entrance rate and of the spatio-temporal distribution of Lessepsian Mollusca in the Mediterranean Sea. *J. Biol. Res. (Thessalon.)*, 17: 81-96.

VARNAVA Y., PAPAETHODOULOU M., KOLOKOTRONIS D.,

KONTADAKIS C., MANOUSIS T., GALINO-MITSOUDI S., 2024. New records of marine mollusca for the Eastern Mediterranean and Cyprus (by April 2024). *Xenophora Taxonomy*, 44: 28-35.

VÁZQUEZ-LUIS M., MARCH D., ALVAREZ E., ALVAREZ-BERASTEGUI D., DEUDERO S., 2014. Spatial distribution modeling of the endangered bivalve *Pinna nobilis* in a Marine Protected Area. *Mediterr. Mar. Sci.*, 15 (3): 626-634.

VÁZQUEZ-LUIS M., NEBOT-COLOMER E., DEUDERO S., PLANES S., BOISSIN E., 2021. Natural hybridization between pen shell species: *Pinna rudis* and the critically endangered *Pinna nobilis* may explain parasite resistance in *P. nobilis*. *Mol. Biol. Rep.* 48: 997–1004.

WALLENTINUS I., NYBERG C. D., 2007. Introduced marine organisms as habitat modifiers. *Mar. Pollut. Bull.*, 55: 323–332, <https://doi.org/10.1016/j.marpolbul.2006.11.010>

ZAMINOS G., APOSTOLOU C., PORFYRIS A., MANOUSIS T., ZEIMBEKIS C., TSIARAS S., GALINO-MITSOUDI S., 2021. New records of extant and fossil Mollusca for the Hellenic Seas. *Xenophora Taxonomy*, 34: 16-25.

ZENETOS A., GOFAS S., RUSSO G., TEMPLADO J., 2004. CIESM Atlas of exotic species in the Mediterranean. Volume 3. Molluscs. 376 pp. CIESM Publishers, Monaco.

ZENETOS A., VARDALA-THEODOROU E., ALEXANDRAKIS C., 2005. Update of the marine Bivalvia Mollusca checklist in Greek waters. *J. Mar. Biol. Assoc. U.K.*, 85: 993-998.

ZENETOS A., ÇINAR M. E., CROCETTA F., GOLANI D., ROSSO A., SERVELLO G., SHENKAR N., TURON X., VERLAQUE M., 2017. Uncertainties and validation of alien species catalogues: The Mediterranean as an example. *Estuar. Coast. Shelf Sci.*, 191: 171-187. <https://doi.org/10.1016/j.ecss.2017.03.031>

ZENETOS A., CORSINI-FOKA M., CROCETTA F., GEROVASI-LEIOU V., SIMBURA N., *et al.*, 2018. Deep cleaning of alien and cryptogenic species records in the Greek Seas (2018 update). *Manag. Biol. Invasions*, 9: 209–226. <https://doi.org/10.3391/mbi.2018.9.3.04>

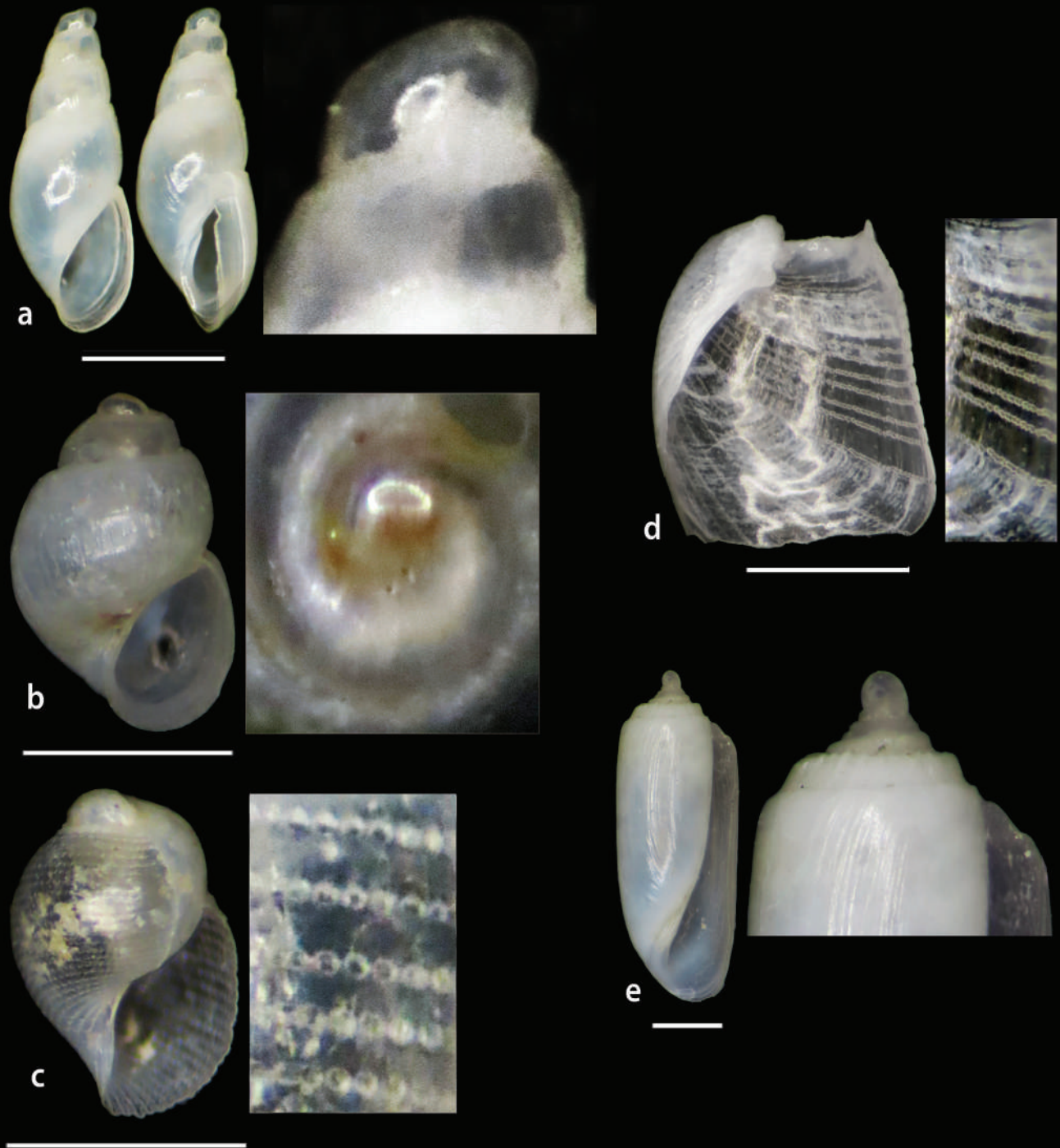
ZOTOU M., PAPADAKIS O., CATANESE G., STRANGA Y., RAGKOUSIS M., KAMPOURIS E. T., NAASAN AGA - SPYRIDOPOULOU R., PAPADIMITRIOU E., KOUTSOUBAS D., KATSANEVAKIS S., 2023. New kid in town: *Pinna rudis* spreads in the eastern Mediterranean. *Mediterr. Mar. Sci.*, 24 (3): 709–721. <https://doi.org/10.12681/mms.35343>

Figure 1



a. *Pinna rudis* Linnaeus, 1758, + *in situ* image; b. *Bankia gouldi* (Bartsch, 1908); c. *Gibbula vimontiae* Monterosato, 1884; d. *Metaxia bacillum* (Issel, 1869); e. *Alvania campanii* Tisselli & Giunchi, 2013; f. *Dendropoma* cf. *cristatum* (Biondi-Giunti, 1859); g. *Atlanta lesueurii* J. E. Gray, 1850; h. *Pseudofusus patriciae* (Russo & Olivieri, 2013); i. *Heliacus jeffreysianus* (Tiberi, 1867). Barr = 1 mm.

Figure 2



a. *Auristomia erjaveciana* (Brusina, 1869); b. *Liostomia mamoi* Mifsud, 1993; c. *Callostracon tyrrhenicum* (Smriglio & Mariottini, 1996); d. *Philine angulata* Jeffreys, 1867; e. *Acteocina mucronata* (R. A. Philippi, 1849). Barr = 1 mm.

OFFSHORE CONIDAE FROM MARQUESAS, FRENCH POLYNESIA: REVISION OF THE MATERIAL COLLECTED DURING THE EXPEDITION "PAKAHI I TE MOANA"* (2012)

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Abstract:

We identified twenty-five different species among the material collected during the **PAKAHI I TE MOANA** expedition in 2012, twenty-two of which were sequenced for the *cox-1* barcode fragment. We compared the material collected with those from previous expeditions, mainly **PELE** (1969), **MUSORSTOM 9** (1997) and **CONPOL** (2007). This study completes the biological inventories carried out during previous expeditions with the sequencing of a large number of species, some of them sequenced for the first time. This study also fills a gap in the representation of types for three species endemic to the Marquesan archipelago, whose holotypes have been lost or destroyed, and for which neotypes are proposed: *Conus encaustus* Kiener, 1845, *Conus marchionatus* Hinds, 1843 and *Conus vautieri* Kiener, 1847.

Introduction:

The **PAKAHI I TE MOANA (PITM)** expedition, conducted by the Agence des Aires Marines Protégées (**AAMP**), aimed to spatially document the biodiversity of an understudied region, the Marquesas Islands, by representing the major benthic groups in a selection of sites that reflect the different configurations of the Marquesan coasts. Other objectives included establishing a typology of habitats and compiling associated biological inventories for conservation purposes. This campaign was intended to complement previous biological inventories conducted on mobile fauna (**MUSORSTOM 9 campaign, 1996**), sponges and ascidians (**ALIS/IRD campaign on Biodiversity and Marine Substances BSM-PF1, 2009**), and to study neglected groups. (1)

The Marquesas archipelago includes ten high islands and about ten submerged banks. Nine high islands were surveyed during the **PITM** expedition, six islands of the North group (Eiao, Hatutaa, Nuku Hiva, Ua Huka, Ua Pou, Fatu Huku) and three of the South group (Hiva Oa, Tahuata and Fatu Hiva).

The surveys were carried out by SCUBA and on foot on some tide pools and basalt pavements. The dives included two groups of six and four divers and were carried out mainly between

0 and 30 meters for 65 to 80 minutes, twice a day (7:30 and 13:30). The typical dive profile allowed on average to search and sample five types of habitats. Four night dives were scheduled to complete the inventory of mobile fauna. Bulk collections (brushing and vacuuming) also took place. Incidentally, some specimens were collected with the **COMEX** ROV (Remotely Operated Vehicle), an underwater robot capable of reaching great depths.

Sixty-four different habitats were studied, such as sedimentary plains (10 and 40 meters), heterogeneous sedimentary plains (10 and 30 meters), scree (intertidal to 30 meters), wave-beaten intertidal zones (0 to 3 meters), coral habitats (3 to 15 meters), caves and overhangs with a sandy bottom, seaweed beds (3 to 20 meters) as well as drop-offs, walls and escarpments (3 to 30 meters).

Regarding molluscs, all collected batches were preserved to ensure at least one specimen was kept in 95% alcohol for molecular studies, while the rest were preserved in 80% ethanol. This exploration resulted in the collection of 492 specimens from 42 surveyed stations, representing more than 200 species of molluscs. Upon return from the campaign, all specimen lists and photographs were handed over to **AAMP**. Unfortunately, very few photographs of live molluscs were taken.

The goal of this study was to revise the cone snail fauna of the Marquesas Islands, by identifying all the collected material. Each species is compared with closely related species, and its validity is discussed using morphological and molecular characters.

The list of stations can be consulted in the appendix 1.

Each sample was given a code composed as follows:

Date, MQ1-GR-PC1.

In which:

MQ1: Site N°1 of Marquesas Leg3, Ekamako

GR: Prélèvement à vue en Grotte (sight sampling in cave)

PC 1: sample n°1 processed by Pierre Chevaldonné

Sampling type codes:

GR Prélèvement à vue en Grotte (sight sampling in cave)
 GR-S Suçage en Grotte (sucking in the cave)
 GR-B Brossage en Grotte (brushing in the cave)
 R prélèvement à vue hors grotte, sur Roche (sampling on sight outside the cave, on rock)
 S Suçage hors grotte (sucking out of cave)
 B Brossage hors grotte (brushing out of cave)
 ACH Prélèvement au ROV ACHille (sampling with ROV ACHille)
 M prélèvement à pied à la Marée (sampling on foot at the tide)
 Processing operator codes:
 TP Thierry Pérez
 PC Pierre Chevaldonné
 LC Laure Corbari
 MARQ John Starmer
 JP Joseph Poupin
 BC specimen BarCoding, Barbara Buge & Virginie Héros
 LOT Mélange d'individus (batch, mix of specimens)

Abbreviations:

MNHN: Muséum National d'Histoire Naturelle (Paris, France)
PITM: PAKAHI I TE MOANA
DNA: DeoxyriboNucleic Acid
Spm(s): specimen(s)
Stn: station
m: meter(s)
pl.: plate
fig.: figure
coll.: collection
P: periostracum
N.P: Nicolas Puillandre
M: Marquesas; **SOC:** Society Islands; **TUA:** Tuamotu;
NH: Nuku Hiva; **UP:** Ua Pou; **UH:** Ua Huka; **HO:** Hiva Oa;
T: Tahuata; **FH:** Fatu Hiva; **E:** Eiao; **HI:** Hatu Hiti.

Keywords: PAKAHI I TE MOANA, Neogastropoda, Conidae, *Conus*, coastal benthic fauna, Marquesas Archipelago, French Polynesia, Pacific Ocean, DNA, endemism, neotype.

Concerning the bibliographic references, which dealt with the species presented in this work, we chose as a reference point the work **Marine Mollusks of French Polynesia** (Boutet Gourget & Letourneux, 2020).

Plates 1 to 4: all shells have been photographed by A. Lardeur (**MNHN**) with the periostracum.

Molecular analyses:

Sequenced specimens were collected during the **PAKAHI I TE MOANA** expedition. After sampling, they were placed into a microwave oven to remove them from their shells (Galindo *et al.* 2014). Specimens are registered in the **MNHN** collection and sequences were deposited in BOLD (Barcode of Life Datasystem) and GenBank (appendix 3). DNA was extracted from a piece of foot tissue, using the Epmotion 5075 robot (Eppendorf), following the manufacturers' recommendations. The barcode fragment of the *cox-1* gene was sequenced following the protocol described in Puillandre *et al.* (2017). The dataset was complemented with sequences available

in GenBank or unpublished sequences, corresponding to the same species as the Marquesas specimens, or to closely related species, for comparison purposes. A sequence of *Californiconus californicus* was used as an outgroup. A Bayesian analysis was performed to reconstruct a phylogenetic tree, using Mr.Bayes 3.2.6 (Huelsenbeck, Ronquist & Hall, 2001), with two runs consisting each of four Markov chains and 10 000 000 generations, two swaps at each generation, a sampling frequency of one tree each 10 000 generations and a chain temperature set at 0.02. Convergence of each run was evaluated using TRACER 1.6 (Rambaut & Drummond, 2014) to check that all effective sample size values exceeded 200. Consensus trees were calculated after omitting the first 25% trees as burn-in. A GTR + I + G substitution model was used, and the *cox-1* gene was divided into three partitions corresponding to the three codon positions.

The results of the phylogenetic analysis are presented in Appendix 2, and are commented on for each species in the following section. All the species discussed below and for which at least two sequences are available correspond to highly supported (posterior probabilities > 0.98), except *Conus encaustus*, *Conus nanus* and *Conus sponsalis* (see below for more details).



The Braveheart in "La baie des vierges", Fatu Hiva.
 Photo: Joseph Poupin



Analysis of samples on board the Braveheart, Tahuata.
 Photo: Barbara Buge

Family CONIDAE Fleming, 1822Genus **Conus** Linné, 1758***Conus adamsonii* Broderip, 1836**

Boutet *et al.*, 2020: 429; Tröndlé *et al.*, 2020: 94; Richard & Rabiller, 2021: 34; Touitou & Balleton, 2022: 166.

Sequenced material:

Ua Pou: Stn MQ24-R (6-12 m) 1 spm (44.8 mm) MNHN-IM-2013-40001.

Ua Huka: Stn MQ11-II-17 (17-22 m) 1 spm (38.8 mm) MNHN-IM-2013-40073.

Biogeography and comments:

The **CONPOL** expedition (2007) collected one live specimen at 20 meters in Nuku Hiva (Moolenbeek *et al.*, 2008). In 2012, two specimens were collected live between 6 and 22 meters and sequenced. The two sequences are nearly identical, clustered together in a clade, sister to *Conus bullatus*. *Conus bullatus* from the Marquesas Islands has been described last year as *Conus minamiae* (Lum, 2023). The nature of the diet of *C. adamsonii* in the Marquesas is confirmed by two photos, taken by Paul Kanner and Drew Strickland, showing the regurgitation of prey (Touitou & Balleton, 2022). The depth of the habitat of *C. adamsonii* is given as “Intertidal to 60 m” (Röckel & al., 1995), “Intertidal at 60 m” (Balleton & Marti, 2017), “1-60 m” (Monnier *et al.*, 2018) and “0-30 m” (Boutet *et al.*, 2020). In the other archipelagos, *Conus adamsonii* is light pink. In the Marquesas it is much darker in color, although some specimens have a light color, as evidenced by specimen MNHN-IM-2013-40073.

***Conus canonicus* Hwass in Bruguière, 1792**

Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 133; Touitou & Balleton, 2022: 200.

Sequenced material:

Nuku Hiva: Stn MQ1-R (8-10 m) 1 spm (23.2 mm) MNHN-IM-2013-40021.

Other material examined:

Nuku Hiva: Stn MQ11-II-01 (38 m) 1 spm (9.7 mm) MNHN-IM-2016-7927. - Stn MQ11-II-04 (28 m) 1 spm (27.5 mm) MNHN-IM-2016-7934. - Stn MQ11-II-02 (25 m) 1 spm (30.9 mm) MNHN-IM-2016-7935. - Stn MQ11-II-03 (10 m) 2 spms (35.3 mm) MNHN-IM-2016-7939; (28.6 mm) MNHN-IM-2016-7940. - Stn MQ11-II-10 (24 m) 1 spm (24.2 mm) MNHN-IM-2016-7938. - Stn MQ11-II-11 (20 m) 1 spm (23.7 mm) MNHN-IM-2016-7937. - Stn MQ11-II-12 (14 m) 1 spm (32.2 mm) MNHN-IM-2016-7936. - Stn MQ11-II-13 (36 m) 2 spms (28.8 mm) MNHN-IM-2016-7941; (10.7 mm) juv. MNHN-IM-2016-7942. - Stn MQ1-R (8-10 m) 1 spm (39.9 mm) MNHN-IM-2013-40017.

Ua pou: Stn MQ21-R 1 (6-10 m) 1 spm (24 mm) MNHN-IM-2013-40022.

Hiva Oa: Stn MQ19-R (10-25 m) 2 spms (51.2 mm) MNHN-IM-2013-40023; (39.5 mm) MNHN-IM-2013-40024.

Ua Huka: Stn MQ11-II-17 (17-22 m) 1 spm (44.0 mm) MNHN-IM-2013-40091.

Biogeography and comments:

Conus textilinus Kiener, 1845 has undergone taxonomic instability (Touitou & Balleton, 2022), with some authors classifying specimens from the Marquesas as *Conus textilinus*, while others identify them as *Conus canonicus*. *Conus canonicus* is recorded in the Marquesas, the Tuamotu, and the Society Islands. Some specimens collected around the island of Tahiti, as well as in the Indian Ocean, closely resemble those from the Marquesas (Touitou & Balleton, 2022), contributing to ongoing confusion. The validity of the taxon *Conus textilinus* remains controversial and may represent a geographical or ecological variation of *Conus canonicus*. The only *Conus textilinus* specimen from the Marquesas that has been sequenced to date is a 23.2 mm juvenile collected during the PITM expedition. A morphological study of this specimen does not allow for a definitive determination of whether it corresponds to *Conus textilinus* or *Conus canonicus*. Until larger specimens (at least 60 mm) with morphology clearly matching the species described by Kiener are sequenced and compared with genetic material from *Conus canonicus*, we consider *Conus textilinus*, as a precautionary measure, to be a synonym of *Conus canonicus*.

***Conus catus* Hwass in Bruguière, 1792**

Boutet *et al.*, 2020: 428; Richard & Rabiller, 2021: 50; Touitou & Balleton, 2022: 216

Sequenced material:

Fatu Hiva: Stn MQ16-M (0-1 m) 3 spms (32.1 mm) MNHN-IM-2013-40046; (23.5 mm) MNHN-IM-2013-40047; (22.6 mm) MNHN-IM-2013-40048.

Nuku Hiva: Stn MQ7-M (0-1 m) 2 spms (29.8 mm) MNHN-IM-2013-40054; (38.9 mm) MNHN-IM-2013-40096. - Stn MQ25-M (0-1 m) 1 spm (41.1 mm) MNHN-IM-2013-40095. - Stn MQ1-R (8-10 m) 1 spm (39.6 mm) MNHN-IM-2013-40055.

Fatu Hiva: Stn MQ16-M (0-1 m) 2 spms (25.3 mm) MNHN-IM-2013-40052; (20.7 mm) MNHN-IM-2013-40053

Hiva Oa: Stn MQ19-R (10-25 m) 1 spm (30.2 mm) MNHN-IM-2013-40056.

Eiao: Stn MQ11-II-10 (24 m) 1 spm (34.8 mm) MNHN-IM-2013-40094.

Other material examined:

Hiva Oa: Stn MQ19-R (10-25 m) 1 spm (35.0 mm) MNHN-IM-2016-7996; Stn MQ11-II-39 (30 m) 1 spm (31.7 mm) MNHN-IM-2016-7948.

Hatutaa: Stn MQ11-II-08 (38 m) 1 spm (31.4 mm) MNHN-IM-2016-7946.

Nuku Hiva: Stn MQ11-II-03 (10 m) 3 spms (21.9 mm) MNHN-IM-2016-7959; (29.5 mm) MNHN-IM-2016-7989; (23.1 mm) MNHN-IM-2016-7990.

Ua Pou: Stn MQ11-II-41 (30 m) 2 spms (28.7 mm) MNHN-IM-2016-7976; (22.1 mm) MNHN-IM-2016-7977.

Ua Huka: Stn MQ11-II-19 (20 m) 2 spms (36.5 mm) MNHN-IM-2016-7995; (32.8 mm) MNHN-IM-2016-7996

Biogeography and comments:

Nineteen specimens were collected between 0 and 18 meters during the 1969 **PELE** expedition (Touitou & Balleton, 2022). Moolenbeek *et al.*, in 2008, studied seventeen live specimens collected between 0 and 30 meters (most of which were between 0 and 3 meters). During **PITM**, twenty-one specimens

were collected between 0 and 38 meters, eight of which were sequenced. Molecular analysis suggests a specific rank for the taxon, clearly separated from the most closely related species (*Conus aurisiacus* Linnaeus, 1758, *Conus gauguini* and *Conus circumciscus*, Born, 1778). Within *Conus catus*, the Marquesas specimens form a subgroup, with low genetic distances with the specimens from other localities, clearly linked to the geographical distances (Touitou & Balleton, 2022). Note that no specimens from the Indian Ocean have been sequenced. Since the *fuscolivaceus* variation is now attributed to dark specimens from Indonesia (Monnier *et al.*, 2018), it is appropriate to treat the Marquesas specimens as a Marquesan variation. A specimen with the morphological characters of the species *Conus easoni* Petuch & Berschauer, 2018 is included in the same clade as the *Conus catus* specimens from the Marquesas islands, and Touitou & Balleton (2022) have chosen to treat the taxon *easoni* as a synonym of *Conus catus*. In addition, it would be interesting to sequence specimens from other archipelagos to verify if they cluster with the Marquesan group, thus forming a Polynesian (and not specifically Marquesan) variation.

The nature of the species' diet in the Marquesas Islands is confirmed by photos taken by Camille Gache (CRIOBE), in an aquarium, and illustrated by Touitou & Balleton (2022). The depth of the habitat of *Conus catus* is given as "Intertidal to about 20 m" (Röckel & al., 1995), "0-30 m" (Monnier *et al.*, 2018) and "0-20 m" (Boutet *et al.*, 2020). While in most other localities in the Indo-Pacific area (including the neighboring archipelagos of Polynesia), *C. catus* seems to live mainly between 0 and 5 meters, in the Marquesas Islands *C. catus* has colonized deeper habitats, living beyond 30 meters. A specimen was collected alive at 38 meters during the 2012 expedition, this constitutes an extension of the bathymetry of this species.

***Conus conco* Puillandre, Stöcklin, Favreau, Bianchi, Perret, Rivasseau, Limpalaër, Monnier & Bouchet, 2015**

Boutet *et al.*, 2020: 434. Tröndlé *et al.*, 2020: 94; Richard & Rabiller, 2021: 55; Touitou & Balleton, 2022: 230

Sequenced material:

Hiva Oa: Stn MQ19-R (10-25 m) 1 spm (58.5 mm) MNHN-IM-2013-40036.

Nuka Hiva: Stn MQ2-GR (20-23 m) 2 spms (33.8 mm) MNHN-IM-2013-40009; (43.6 mm) MNHN-IM-2013-40038.

Other material examined:

Nuku Hiva: Stn MQ11-II-03 (10 m) 5 spms (18.5 mm) MNHN-IM-2016-5144; (27.3 mm) MNHN-IM-2016-5146; (29.1 mm) MNHN-IM-2016-5147; (31.4 mm) MNHN-IM-2016-5148; (30.2 mm) MNHN-IM-2016-5149. - Stn MQ11-II-04 (28 m) 1 spm (31.9 mm) MNHN-IM-2016-5145. - Stn MQ11-II-12 (14 m) 1 spm (50.2 mm) MNHN-IM-2016-7914.

Biogeography and comments:

Until 2015, the Marquesas specimens were considered a geographical variation of *Conus lividus* Hwass in Bruguière, 1792. However, molecular data revealed that the Marquesas population represents a distinct species, leading to the description of *Conus conco* as a new species. The last molecular analysis suggests that it is separate from its sister species, *Conus lividus*. *Conus conco* is a vermivorous species endemic to the Marquesas Islands that lives between 5 and 30 meters (Monnier *et al.*, 2018), 2 and 30 meters (Boutet *et al.*, 2020). It lives in

sympatry with *Conus lividus*, a rarer species in the Marquesas Islands, although there is no sequence available for Marquesas specimens of *Conus lividus*. During the **CONPOL** expedition (2007), three specimens were collected alive (Moolenbeek *et al.*, 2008). The PITM expedition yielded ten specimens between 10 and 28 meters, three of which were sequenced.

***Conus encaustus* Kiener, 1845**

Boutet *et al.*, 2020: 436; Tröndlé *et al.*, 2020: 94; Richard & Rabiller, 2021: 67; Touitou & Balleton, 2022: 245

Sequenced material:

Fatu Hiva: Stn MQ16-M (0-1 m) 4 spms (20.9 mm) MNHN-IM-2013-40010; (21.8 mm) MNHN-IM-2013-40011; (19.4 mm) MNHN-IM-2013-40014, (20.7 mm) MNHN-IM-2013-40015.

Tahuata: Stn MQ11-GR (6-12 m) 1 spm (22.2 mm) MNHN-IM-2013-40016.

Ua Pou: Stn MQ22-R (6 m) 1 spm (17.2 mm) MNHN-IM-2013-40019.

Other material examined:

Nuku Hiva: Stn MQ11-II-02 (25 m) 4 spms (21.2 mm) MNHN-IM-2016-7980; (18.2 mm) MNHN-IM-2016-7981; (15.7 mm) MNHN-IM-2016-7982; (7.5 mm) juv. MNHN-IM-2016-7983. - Stn MQ11-II-03 (10 m) 3 spms (23.9) MNHN-IM-2016-7930; (25.0 mm) MNHN-IM-2016-7991; (24.3 mm) MNHN-IM-2016-7992. - Stn MQ11-II-05 (4 m) 2 spms (28.1 mm) MNHN-IM-2016-7978; (20.2 mm) MNHN-IM-2016-7979. - Stn MQ11-II-12 (14 m) 2 spms (21.8 mm) MNHN-IM-2016-7931; (7.6 mm) juv. MNHN-IM-2016-7933. - Stn MQ11-II-12 (38 m) 2 spms (17.7 mm) MNHN-IM-2016-5138; (16.8 mm) MNHN-IM-2016-5139.

Fatu Hiva: Stn MQ16-M (0-1 m) 4 spms (17.9 mm) MNHN-IM-2016-7932; (7.2 mm) juv. MNHN-IM-2016-7929; (17.2 mm) MNHN-IM-2013-40012; (24.3 mm) MNHN-IM-2013-40013. - Stn MQ11-II-22 (25 m) 1 spm (30.2 mm) MNHN-IM-2016-7971. - Stn MQ11-II-25 (25 m) 1 spm (19.4 mm) MNHN-IM-2016-5141. **Hatutaa:** Stn MQ11-II-08 (38 m) 3 spm (21.8 mm) MNHN-IM-2016-5129; (16.4 mm) MNHN-IM-2016-5130; (15.0 mm) MNHN-IM-2016-5131.

Biogeography and comments:

A vermivorous species endemic to the Marquesas, *Conus encaustus* is morphologically close to *Conus miliaris*, Hwass, 1792, a species present in other Polynesian archipelagos but absent from the Marquesas. Several publications treat *Conus encaustus* as a species (Kohn *et al.*, 1995; Tucker & Tenorio, 2013; Monnier *et al.*, 2018). Molecular analysis of specimens collected and sequenced during the **PITM** expedition leads to considering *C. encaustus* as a geographical variation of *C. miliaris*, since *C. miliaris* is not monophyletic and includes specimens of *C. encaustus*. This would suggest that these two species are synonyms, a hypothesis that must be tested with other genes. It can be noted that the number of nodules that adorn the spire is however different for the two species (Touitou & Balleton, 2022). The taxonomic status of *Conus encaustus* remains unchanged while awaiting further studies.

Fifteen specimens were collected between 1 and 79 meters during the 1969 **PELE** expedition. Forty-eight specimens were collected alive between 0 and 30 meters during the

MUSORSTOM 9 (1997) and **CONPOL** (2007) expeditions. During the **PITM** expedition, twenty-eight specimens were collected between 0 and 38 meters, six of which were sequenced. The species is given to live “0.5–6 m” (Röckel *et al.*, 1995), “at depths till 30 m” (Moolenbeek *et al.*, 2008), “0–30 m” (Monnier & al., 2018), “2–5 m” (Boutet *et al.*, 2020). We do not know if the two specimens (USNM lot 794397) collected in 1969 between 68 and 79 meters were alive, and the other specimens were collected between 1 and 18 meters. During the **PITM** expedition, three live specimens were collected at the Stn MQ11-II-08 at 38 meters, representing a slight extension of its bathymetrical range.

The holotype has been lost: “Holotype was in collection H.A. Prevost, sold to G.B. Sowerby III and dispersed, present whereabouts unknown” (Filmer, 2012). We therefore designate the sequenced specimen MNHN-IM-2013-40015, 20.7 mm [French Polynesia, Marquesas Islands: Fatu Hiva, 10°27,84'S 138°39,97'W, 17-18/12/2011, PITM Stn MQ16-M] as the neotype of *Conus encaustus*. This specimen corresponds to the accepted taxonomic morphological variation of this species, with the tawny or reddish color of the test, the brown lines, the white spots and the brown maculations, as described by Kiener. In addition, the size of the designated specimen is relatively close to that of the holotype (26 mm).

***Conus gauguini* Richard & Salvat, 1973**

Boutet *et al.*, 2020: 428; Tröndlé *et al.*, 2020: 94; Richard & Rabiller, 2021: 74; Touitou & Balleton, 2022: 258

Sequenced material:

Hiva Oa: Stn MQ19-R (10–25 m) 1 spm (76.5 mm) MNHN-IM-2013-40076.

Other material examined:

Nuku Hiva: Stn MQ11-II-02 (25 m) 1 spm juv. (16.8 mm) MNHN-IM-2016-7918. - Stn MQ11-II-13 (36 m) 2 spms (68.5 mm) MNHN-IM-2016-7912; (70.7 mm) MNHN-IM-2016-7953. **Tahuata:** Stn MQ11-II-33 (40 m) 2 spms (72.6 mm) MNHN-IM-2016-7957; (64.2 mm) MNHN-IM-2016-7958.

Biogeography and comments:

Conus gauguini was first collected during the **PELE** expedition in 1969, and the authors related the specimens to the well-known species *Conus barthelemyi* Bernardi, 1861 (Richard, Pers. Comm., 2021). Only four years later it was described as a new species, *Conus gauguini*, and since the 1970s, countless specimens have been collected. Some specimens have a different shape, widened at the shoulder, almost devoid of patterns, with very light color or with a higher and more stepped spire, this last variation being also collected in Hawaii at significant depths, 100 to 200 meters (Touitou & Balleton, 2022). This calls into question the endemic nature of *Conus gauguini* or might suggest the presence of an undescribed pseudo-cryptic species.

At least three specimens were collected during the **PELE** expedition (1969) between 3 and 117 meters. Two dead specimens, including a juvenile, were collected during **MUSORSTOM 9** (1997). Four live specimens were collected between 5 and 30 meters during the **CONPOL** expedition (2007). Seven specimens were collected between 10 and

40 meters during the **PITM** expedition, two of which were sequenced. Molecular analysis of these two specimens initially labeled *Conus gauguini* suggests that they are two genetically different species. Thus, the specimen MNHN-IM-2013-40002 was re-identified as *Conus sp.* (Touitou & Balleton, 2022), while the specimen IM-2013-40076 (fig.1,pl.7;fig.1,pl.8) cluster with another *Conus gauguini* from GENBANK. Since *Conus boutetorum* Richard & Rabiller, 2013 has not yet been sequenced in Polynesia, the comparison of its genetic material with *Conus gauguini* and *Conus sp.* remains to be done.

The species is given to live “20–50 m” (Röckel & al., 1995), (Monnier & al., 2018), “20–40 m” (Boutet *et al.*, 2020). We estimate that the presence of *Conus gauguini* beyond 50 meters is likely because this species has been mainly collected by divers, who rarely venture beyond 40 to 50 meters in the Marquesas.

***Conus imperialis* Linnaeus, 1758**

Boutet *et al.*, 2020: 430; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 81; Touitou & Balleton, 2022: 274

Sequenced material:

Hatu Iti: Stn MQ27-GR (5–22 m) 2 spms (69.4 mm) MNHN-IM-2013-40077; (51.9 mm) MNHN-IM-2013-40089.

Other material examined:

Hiva Oa: Stn Stn MQ11-II-23 (30 m) 1 spm (58.1 mm) MNHN-IM-2016-7952.

Ua Pou: Stn MQ11-II-41 (30 m) 1 spm (67.7 mm) MNHN-IM-2016-7954.

Hatu iti: Stn MQ27-GR (5–22 m) 1 spm MNHN-IM-2013-40077.

Nuku Hiva: Stn MQ11-II-13 (36 m) 1 spm (33.2 mm) MNHN-IM-2016-5137.

Biogeography and comments:

Conus imperialis is a vermivorous species. Many specimens (fifty-five) were collected between 1 and 82 meters during the 1967 **PELE** expedition, among which are probably specimens belonging to a species that will be described forty years later: *Conus pseudimperialis* Moolenbeek, Zandbergen & Bouchet, 2008. Moolenbeek *et al.* studied twelve specimens and defined the species as littoral (0–20 m). During the 2012 expedition, six specimens were collected between 5 and 36 meters, of which one has been sequenced. Its sequence is slightly divergent from the other available ones from Rapa, Papua New Guinea and Vanuatu, but pending for more data, we consider all of them as a single species, with genetic diversity linked to geography. The data collected during the 1967 expedition could extend the bathymetric data but, to our knowledge, no study has been carried out to date.

***Conus litoglyphus* Hwass in Bruguière, 1792**

Boutet *et al.*, 2020: 429; Richard & Rabiller, 2021: 89; Touitou & Balleton, 2022: 280

Other material examined:

Hiva Oa: Stn MQ11-II-24 (37 m) 1 spm juv. (13.4 mm) MNHN-IM-2016-7925.

Biogeography and comments:

Four live specimens of this vermivorous species were collected between 5 and 30 meters during the **CONPOL** expedition (Moolenbeek *et al.*, 2008). A juvenile specimen was collected dead at 37 meters during the **PITM** expedition. Molecular analysis (Touitou & Balleton, 2022) suggests that *Conus litoglyphus* is a complex of two cryptic species, both present in sympatry in the Indian Ocean and the Pacific Ocean.

***Conus magnificus* Reeve, 1843**

Boutet *et al.*, 2020: 426; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 93; Touitou & Balleton, 2022: 284

Sequenced material:

Fatu Hiva: Stn MQ11-II-29 (30 m) 1 spm (40.9 mm) MNHN-IM-2013-52135.

Other material examined:

Nuku Hiva: Stn MQ11-II-14 (36 m) 1 spm (39.8 mm) MNHN-IM-2013-52136.

Biogeography and comments:

A specimen of this malacophagous species was collected between 2 and 18 meters during the **PELE** expedition (1967). Five live specimens were collected between 5 and 30 meters during the 2007 **CONPOL** expedition (Moolenbeek *et al.*, 2008) and two specimens were found alive between 30 and 36 meters during the **PITM** expedition, one of which was sequenced. Despite a different appearance in the Marquesas, the sequences of the Marquesas and Vanuatu specimens are nearly identical.

***Conus marchionatus* Hinds, 1843**

Boutet *et al.*, 2020: 426; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 95; Touitou & Balleton, 2022: 290

Sequenced material:

Nuku Hiva: Stn MQ6-ACH (60-76 m) 1 spm (30.9 mm) MNHN-IM-2013-40037.

Other material examined:

Tahuata: Stn MQ13-GR (27-35 m) 1 spm (25.1 mm) MNHN-IM-2013-40084.

Biogeography and comments:

This species was collected in large numbers during the 1967 **PELE** expedition, with seventy-five specimens found between 1 and 82 meters. More than a hundred specimens were collected alive between 5 and 285 meters during the **MUSORSTOM 9** and **CONPOL** expeditions. Moolenbeek *et al.* specified in 2008 that this endemic species is rather common between 25 and 180 meters and that its paucispiral protoconch is to be linked to its limited distribution. Only two specimens were collected, between 27 and 76 meters, during the 2012 expedition and one specimen was sequenced, which constitutes a separate lineage that clearly corresponds to a separate species. No specimen has been observed outside the Marquesas archipelago, the species is therefore considered endemic.

The holotype was lost: "Holotype was in collection Sir E. Belcher,

present whereabouts unknown" (Filmer, 2012). We therefore designate the sequenced specimen MNHN-IM-2013-40037, 30.9 mm [French Polynesia, Marquesas Islands: Nuku Hiva, 08°56.01'S 140°01.7'W, 13/01/2012, PITM stn MQ6-ACH] as the neotype of *Conus marchionatus*. This specimen corresponds to the accepted morphological variation of this species, with a white shell, angularly reticulate with brown, depressed spiral as described by Hinds but without illustration. Furthermore, the designated specimen is close in size to the holotype (34 mm), comes from Nuku Hiva Island, which represents the type locality "Port Anna Maria, Nukuhiva" and was collected at a comparable depth (20 -25 m) ("7 - 10 fths", approximately 13 - 18 m).

***Conus moreleti* Crosse, 1858**

Boutet *et al.*, 2020: 435; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 102; Touitou & Balleton, 2022: 302

Sequenced material:

Nuku Hiva: Stn MQ3-GR (20-25 m) 1 spm (46.2 mm) MNHN-IM-2013-40045.

Eiao: Stn MQ11-II-07BIS (25 m) 1 spm (55.0 mm) MNHN-IM-2013-52139.

Other material examined:

Ua Pou: Stn MQ11-II-41 (30 m) 1 spm (40.4 mm) MNHN-IM-2016-7913.

Nuku Hiva: Stn MQ11-II-01 (38 m) 1 spm (44.8 mm) MNHN-IM-2016-7949. - Stn MQ11-II-02 (25 m) 3 spms (38.4 mm) MNHN-IM-2016-7984; (36.6 mm) MNHN-IM-2016-7985; (32.6 mm) MNHN-IM-2016-7986.

Biogeography and comments:

In the Marquesas, this vermivorous species has a shell whose color sometimes differs from the traditionally observed olive green in other archipelagos; it can be yellow or orange. During the **MUSORSTOM 9** and **CONPOL** expeditions, ten living specimens were collected at depths ranging from 5 to 30 meters. In 2012, seven additional specimens were collected between 20 and 38 meters, two of which were sequenced. The genetic analysis revealed that these specimens clustered with others from Rapa and the Society Islands, showing short genetic distances but no correlation with shell color patterns.

***Conus nanus* G. B. Sowerby I, 1833**

Boutet *et al.*, 2020: 436; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 103; Touitou & Balleton, 2022: 306

Matériel examiné:

Ua Uka: Stn (20 m) 1 spm (7.6 mm) MNHN-IM-2016-7928.

Hatu Iti: Stn MQ27-GR (5-22 m) 1 spm (11.5 mm) MNHN-IM-2013-40003.

Hiva Oa: Stn MQ11-II-24 (37 m) 1 spm (12.2 mm) MNHN-IM-2016-5143.

Biogeography and comments:

Conus nanus is a vermivorous species. One specimen was collected between 0 and 1 meter during the 1967 **PELE** expedition. Three specimens were recorded between 5 and 37 meters during the **PITM** expedition. The species seems uncommon in the Marquesas. Similar to the results found

by Duda *et al.* (2008) with a larger dataset, *Conus nanus* is mixed together with the morphologically similar species *Conus musicus* Hwass, 1792, *Conus mcbridei* Lorenz, 2005, *Conus nux* Broderip, 1833, *Conus sponsalis* Hwass in Bruguière, 1792 and *Conus parvatus* Walls, 1979, and its specific status cannot be confirmed.

***Conus obscurus* G. B. Sowerby I, 1833**

Boutet *et al.*, 2020: 427; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 106; Touthou & Balleton, 2022: 310

Sequenced material:

Hiva Oa: Stn MQ19-R (10-25 m) 1 spm (22.0 mm) MNHN-IM-2013-40035.

Fatu Hiva: Stn MQ16-M (0-1 m) 1 spm (28.6 mm) MNHN-IM-2013-40032.

Ua Pou: Stn MQ24-R (6-12 m) 1 spm (22.2 mm) MNHN-IM-2013-40033.

Nuku Hiva: Stn MQ1-R (8-10 m) 1 spm (26.0 mm) MNHN-IM-2013-40025.

Other material examined:

Hiva Oa: Stn MQ11-II-23 (30 m) 1 spm juv. (10.1 mm) MNHN-IM-2016-7926.

Nuku Hiva: Stn MQ11-II-15 (36 m) 1 spm (33.7 mm) MNHN-IM-2016-7950.

Hatutaa: Stn MQ11-II-08 (38 m) 2 spm (29.7 mm) MNHN-IM-2016-7974; (29.1 mm) MNHN-IM-2016-7975. - Stn MQ32-GR (17-22 m) 4 spms (26.3 mm) MNHN-IM-2013-40026; (26.3 mm) MNHN-IM-2013-40027; (26.2 mm) MNHN-IM-2013-40028; (25.4 mm) MNHN-IM-2013-40029

Eiao: Stn MQ11-II-10 (24 m) 3 spms (27.2 mm) MNHN-IM-2016-7997; (29.1 mm) MNHN-IM-2016-7998; (25.6 mm) MNHN-IM-2016-7999.

Ua Uka: Stn MQ11-II-19 (20 m) 2 spms (24.5 mm) MNHN-IM-2016-7988; (21.2 mm) MNHN-IM-2016-8000. - Stn MQ11-II-21 () 2 spms (25.0 mm) MNHN-IM-2016-5132; (25.3 mm) MNHN-IM-2016-5133.

Fatu Hiva: Stn MQ16-M (0-1 m) 2 spms (30.4 mm) MNHN-IM-2013-40030; (25.2 mm) MNHN-IM-2013-40031.

Tahuata: Stn MQ11-II-31 (25 m) 3 spms (25.4 mm) MNHN-IM-2016-5134; (23.3 mm) MNHN-IM-2016-5135; (22.4 mm) MNHN-IM-2016-5136.

Ua Pou: Stn MQ11-II-41 (30 m) 1 spm (21.5 mm) MNHN-IM-2016-5140.

Biogeography and comments:

Two specimens were collected, between 3 and 18 meters, during the **PELE** expedition (1967). During the **MUSORSTOM 9** (1997) and **CONPOL** (2007) expeditions, twelve specimens were collected between 0.5 and 30 meters. Twenty-five specimens were collected during the 2012 expedition between 0 and 38 meters, four of which were subsequently sequenced: their sequences are nearly identical to a sequence obtained from a specimen from Guam. This piscivorous species is quite rare in neighboring archipelagos while it is quite common in the Marquesas.

***Conus pseudimperialis* Moolenbeek, Zandbergen & Bouchet, 2008**

Boutet *et al.*, 2020: 430; Tröndlé *et al.*, 2020: 95; Richard &

Rabiller, 2021: 115; Touthou & Balleton, 2022: 314

Sequenced material:

Nuku Hiva: Stn MQ6-ACH (60-76 m) 1 spm (39.8 mm) MNHN-IM-2013-40042.

Fatu Hiva: Stn MQ15-GR (0-28 m) 1 spm (44.9 mm) MNHN-IM-2013-40041.

Other material examined:

Ua Huka: Stn MQ11-II-21 (20 m) 1 spm (34.6 mm) MNHN-IM-2016-7911.

Biogeography and comments:

This vermivorous species was described based on specimens collected during the **MUSORSTOM 9** expedition (1997). Around thirty specimens were collected between 10 and 252 meters, twenty of which were alive. Three-quarters of the specimens were collected at less than 110 meters. Three specimens were collected in 2012 between 0 and 76 meters, two of which were subsequently sequenced: they constitute a separate lineage in the tree, well differentiated from *Conus fuscatus* Born, 1778 and *Conus imperialis*, justifying its specific status. The species was probably also collected during the **PELE** expedition (1967) because fifty-five specimens of the species *Conus imperialis* were collected between 1 and 82 meters, but *Conus pseudimperialis* had not yet been described; thus specimens labelled *Conus imperialis* are probably *Conus pseudimperialis*. The species seems more common below around thirty meters.

***Conus quercinus* [Lightfoot], 1786**

Boutet *et al.*, 2020: 435; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 117; Touthou & Balleton, 2022: 320

Sequenced material:

Ua Huka: Stn MQ11-II-21 (20 m) 2 spms (69.1 mm) MNHN-IM-2013-52137; (60.6 mm) MNHN-IM-2013-52138.

No data: Stn "no data" (label lost) 1 spm (64.8 mm) MNHN-IM-2013-40079.

Other material examined:

Nuku Hiva: Stn MQ11-II-02 (25 m) 1 spm (30.5 mm) MNHN-IM-2016-7966. - Stn MQ11-II-12 (14 m) 1 spm (38.2 mm) MNHN-IM-2016-7947.

Eiao: Stn MQ11-II-07BIS (25 m) 6 spms (53.8 mm) MNHN-IM-2016-7960; (46.3 mm) MNHN-IM-2016-7961; (48.5 mm) MNHN-IM-2016-7962; (44.7 mm) MNHN-IM-2016-7963; (38.4 mm) MNHN-IM-2016-7964; (35.9 mm) MNHN-IM-2016-7965.

Biogeography and comments:

This is a vermivorous species common to the Marquesas Islands. The **PELE** expedition (1967) collected seventy-two specimens between 20 and 117 meters and the **MUSORSTOM 9** (1997) and **CONPOL** (2007) expeditions were able to collect dozens of specimens between 5 and 155 meters. However, the majority of the cones collected come from stations whose depth is less than 100 meters. Of the eleven specimens collected between 20 and 25 meters in 2012, three were subsequently sequenced. Molecular analysis suggests that the taxon *C. quercinus* actually includes two species, one of which would represent a new species. These two species cannot be separated on a geographical basis because specimens from

localities in the Indian Ocean and the Pacific Ocean, including the Marquesas Islands, are present in both groups.

***Conus retifer* Menke, 1829**

Boutet *et al.*, 2020: 425; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 120; Touitou & Balleton, 2022: 322

Sequenced material:

Fatu Hiva: Stn MQ11-II-19 (28 m) 1 spm (32.2 mm) MNHN-IM-2013-40090.

Biogeography and comments:

Five specimens were collected during the 1967 **PELE** expedition between 0 and 12 meters. The **MUSORSTOM 9** (1997) and **CONPOL** (2007) expeditions collected two live specimens, one between 5 and 30 meters. During the 2012 expedition, a specimen was collected at 28 meters and then sequenced. The shell of this malacophagous species has a very dark coloration in the Marquesas Islands, contrasting with the lighter color of specimens from other archipelagos. This very dark coloration is also found in the Indian Ocean. The molecular analysis includes both a dark specimen (Marquesas Islands) and a light specimen (Tuamotu), together with a third specimen from Christmas Islands, and they all form a homogenous group, likely representing a single species. The different color patterns are thus more likely linked to geographical or ecological variation.

***Conus sanguinolentus* Quoy & Gaimard, 1834**

Boutet *et al.*, 2020: 434; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 123; Touitou & Balleton, 2022: 330

Sequenced material:

Fatu Hiva: Stn MQ16-M (0-1 m) 5 spms (24.2 mm) MNHN-IM-2013-40005; (25.4 mm) MNHN-IM-2013-40006; (25.2 mm) MNHN-IM-2013-40007; (25.7 mm) MNHN-IM-2013-40008; (22.2 mm) MNHN-IM-2013-40044.
Ua Pou: Stn MQ21-R (6-10 m) 1 spm (43.6 mm) MNHN-IM-2013-40018.

Other material examined:

Tahuata: Stn MQ11-II-30 (36 m) 1 spm (46.9 mm) MNHN-IM-2016-7915.

Nuku Hiva: Stn MQ11-II-02 (25 m) 1 spm (35.3 mm) MNHN-IM-2016-7916. - Stn MQ11-II-04 (28 m) 1 spm (36.4 mm) MNHN-IM-2016-7987.

Motane: Stn MQ17-R (35-40 m) 1 spm (24.6 mm) MNHN-IM-2016-7955.

Biogeography and comments:

More than fifty specimens, collected during the **MUSORSTOM 9** (1997) and **CONPOL** (2007) expeditions, were studied by Moolenbeek *et al.* (2008). Most of them come from depths between 0 and 3 meters but live specimens have been collected up to 30 meters. The 2012 expedition collected ten specimens between 10 and 40 meters, six of which were then sequenced: they all form a single homogenous clade together with a sequence from Rapa.

***Conus sponsalis* Hwass in Bruguière, 1792**

Boutet *et al.*, 2020: 437; Tröndlé *et al.*, 2020: 95; Richard &

Rabiller, 2021: 124; Touitou & Balleton, 2022: 332

Sequenced material:

Fatu Hiva: Stn MQ16-M (0-1 m) 2 spms (12.4 mm) MNHN-IM-2013-40086; (10.9 mm) MNHN-IM-2013-40087.

Other material examined:

Fatu Hiva: Stn MQ16-M (0-1 m) 10 spms (11.3 mm) MNHN-IM-2016-7923; (11.1 mm) MNHN-IM-2016-7921; (9.7 mm) MNHN-IM-2016-7924; (11.2 mm) MNHN-IM-2016-7920; (19.0 mm) MNHN-IM-2016-7919; (12.0 mm) MNHN-IM-2016-7922; (10.2 mm) MNHN-IM-2016-7972; (9.4 mm) MNHN-IM-2016-7973; (10.2 mm) MNHN-IM-2013-40085; (11.5 mm) MNHN-IM-2013-40088.

Nuku Hiva: Stn MQ7-M (0-1 m) 1 spm (9.5 mm) MNHN-IM-2013-40020.

Biogeography and comments:

Six specimens of this vermivorous species were collected during the **PELE** expedition (1967) between 1 and 18 meters. During the research of R. Von Cosel, J. Tröndlé and J. Tardy (1997), C. Bryce and K. L. Kaiser (1999) and during **MUSORSTOM 9** (1997) more than sixty specimens were collected between 0.5 and 17 meters, the majority of which were collected between 0 and 0.5 meters. Thirteen specimens were collected in 2012 between 0 and 1 meter, two of which were subsequently sequenced. As previously indicated, *Conus sponsalis* cannot be distinguished from the other species of the *Harmoniconus* group.

***Conus taitensis* Hwass in Bruguière, 1792**

Boutet *et al.*, 2020: 432; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 128; Touitou & Balleton, 2022: 334

Sequenced material:

Fatu Hiva: Stn MQ16-M (0-1 m) 1 spm (32.9 mm) MNHN-IM-2013-40043.

Tahuata: Stn MQ12-M (0-1 m) 2 spms (33.4 mm) MNHN-IM-2013-40049; (37.0 mm) MNHN-IM-2013-40050.

Other material examined:

Nuku Hiva: Stn MQ11-II-01 (38 m) 1 spm (43.2 mm) MNHN-IM-2016-7956. - Stn MQ11-II-03 (10 m) 3 spms (29.3 mm) MNHN-IM-2016-7993; (16.8 mm) MNHN-IM-2016-7994; (29.3 mm) MNHN-IM-2016-5150.

Tahuata: Stn MQ12-M (0-1 m) 1 spm (25.3 mm) MNHN-IM-2013-40051.

Fatu Hiva: Stn MQ11-II-25 (25 m) 1 spm (21.0 mm) MNHN-IM-2016-5142.

Biogeography and comments:

Nine specimens were collected during the **PELE** expedition (1967) between 0 and 59 meters. Moolenbeek *et al.* (2008) studied twenty-six specimens collected live between 0.5 and 3 meters. The authors specify that the species can be collected up to 100 meters and give the form name *taitensis* to the Marquesas specimens. Nine specimens were collected, between 0 and 38 meters, during the 2012 expedition, three of which were subsequently sequenced. Our phylogenetic tree confirms that *C. taitensis*, represented by samples from the Marquesas Islands, Guam and Rapa, and *C. rattus* are two different species.

***Conus terebra* Born, 1778**

Boutet *et al.*, 2020: 435; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 130; Tuitou & Balleton, 2022: 342

Matériel examiné:

Nuku Hiva: Stn MQ11-II-04 (28 m) 1 spm (70.0 mm) MNHN-IM-2016-7910

Tahuata: Stn MQ11-II-35 (10 m) 1 spm (45.9 mm) MNHN-IM-2016-7951; Stn MQ11-II-36 (20 m) 1 spm (73.4 mm) MNHN-IM-2016-7909.

Biogeography and comments:

This vermivorous species is uncommon in the Marquesas: it was not collected during the 1967 and 1997 expeditions. Three specimens were collected in 2012 between 10 and 28 meters but none were sequenced. Note that specimens from the Marquesas are usually much more colorful than those from other archipelagos.

Conus aff. tessulatus

Boutet *et al.*, 2020: 433; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 131; Tuitou & Balleton, 2022: 344

Sequenced material:

Tahuata: Stn MQ13-GR (27-35 m) 1 spm (27.8 mm) MNHN-IM-2013-40092.

Other material examined:

Nuku Hiva: Stn MQ11-II-04 (28 m) 1 spm (28.4 mm) MNHN-IM-2016-7968. - Stn MQ11-II-13 (36 m) 2 spms (29.9 mm) MNHN-IM-2016-7969; (26.5 mm) MNHN-IM-2016-7970.

Biogeography and comments:

This vermivorous species appears to be common, with one hundred and fifty-seven specimens collected during the **PELE** expedition in 1967, between 2 and 82 meters, and more than one hundred specimens collected alive during the 1997, 1999 and 2007 expeditions. Most specimens were collected at less than 30 meters. During the 2012 **PITM** expedition, four specimens were collected between 27 and 36 meters, one of which was subsequently sequenced. Molecular analysis suggests that the specimens from the Pacific and Indian Oceans belong to different species. We applied the name *Conus aff. tessulatus* for the Marquesas population (and that of the Pacific Ocean) because the holotype of *Conus tessulatus*, Born, 1778 comes from the Indian Ocean, following the opinion of Monnier *et al.* (2018).

***Conus troendlei* Moolenbeek, Zandbergen & Bouchet, 2008**

Boutet *et al.*, 2020: 431; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 136; Tuitou & Balleton, 2022: 348

Sequenced material:

Fatu Hiva: Stn MQ14-ACH (130-500 m) 1 spm (15.8 mm) MNHN-IM-2013-40004.

Biogeography and comments:

Twenty-three specimens were collected during the **MUSORSTOM 9** expedition (1997) between 50 and 110 meters. During the 2012 expedition, a live specimen was collected between 130 and 500 meters, then sequenced. In the

phylogenetic tree, it is sister to *Conus sazanka* Shikama, 1970, represented by two specimens from Vanuatu and Mozambique. To date, the species has not been collected in another archipelago of French Polynesia, and thus represents a species endemic to the Marquesas Islands. The 2012 expedition shows that the species can live at greater depths (130 m and more) than those found during the 1997 expedition (50 to 110 m).

***Conus vautieri* Kiener, 1847**

Boutet *et al.*, 2020: 433; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 139; Tuitou & Balleton, 2022: 350

Sequenced material:

Ua pou: Stn MQ24-R (6-12 m) 2 spms (24.5 mm) MNHN-IM-2013-40034; (17.7 mm) MNHN-IM-2013-40039; Stn MQ3-GR (20-25 m) 1 spm (34.6 mm) MNHN-IM-2013-40040.

Other material examined:

Nuku Hiva: Stn MQ11-II-02 (25 m) 1 spm (21.8 mm) MNHN-IM-2016-7967. - Stn MQ11-II-03 (10 m) 1 spm (26.2 mm) MNHN-IM-2016-7943.

Fatu Hiva: Stn MQ11-II-22 (25 m) 1 spm (42.2 mm) MNHN-IM-2016-7944. - Eiao: Stn MQ11-II-07BIS (25 m) 1 spm (38.9 mm) MNHN-IM-2016-7945.

Ua Huka: Stn MQ11-II-19 (20 m) 1 spm (32.5 mm) MNHN-IM-2013-40093.

Biogeography and comments:

Conus vautieri is a fairly common vermivorous species. During the 1967 expedition, thirty specimens were collected between 1 and 82 meters. The 1997 and 2007 expeditions collected thirty-seven specimens between 5 and 55 meters, most of which were brought up from a depth of less than 30 meters. In 2012, eight specimens were collected between 6 and 25 meters, three of which were sequenced. Molecular analysis suggests a specific rank, with the clade including the *Conus vautieri* specimens well differentiated from *Conus bizona* Coomans, Moolenbeek & Wils, 1981 and the *Conus pulicarius* Hwass, 1792/*Conus arenatus* Hwass in Bruguière, 1792 complex. To date, the species has not been collected in another archipelago of French Polynesia. According to current knowledge, it is an endemic species of the Marquesas Islands.

The holotype was destroyed: "Holotype was in collection A.C. Bernardi acquired by M. Gubba then in **MHNH**, destroyed in World War 2" (Filmer, 2012). We therefore designate the sequenced specimen MNHN-IM-2013-40040, 34.6 mm [French Polynesia, Marquesas Islands: Ua Pou, 08°55.97'S 140°13.57'W, 08/01/2012, PITM Stn MQ3-GR] as the neotype of *Conus vautieri*. This specimen fits within the morphological variation of this species, with a whitish shell, clouded with pink and brown with a large number of brown or blackish dots, and a crowned spire, as described by Kiener. In addition, the size of the designated specimen is close to that of the holotype (32 mm).

***Conus vexillum* Gmelin, 1791**

Boutet *et al.*, 2020: 429; Tröndlé *et al.*, 2020: 95; Richard & Rabiller, 2021: 140; Tuitou & Balleton, 2022: 358

Sequenced material:

Nuku Hiva: Stn MQ1-GR (8-10 m) 1 spm (86.2 mm) MNHN-IM-2013-40078.

Biogeography and comments:

This vermivorous species was represented by one specimen in the material of the 1967 expedition, collected between 53 and 73 meters. Moolenbeck *et al.* (2008) studied six specimens collected between 0 and 3 meters, and described the species as littoral and common. A single specimen was collected in 2012 between 8 and 10 meters and then sequenced: it clusters in a well differentiated lineage, together with specimens from Vanuatu and Tuamotu.

Conus sp.

Sequenced material:

Motane: stn MQ17-R (35-40 m) 1 spm (42.0 mm) MNHN-IM-2013-40002.

Other material examined:

Fatu Hiva: Stn MQ11-II-29 (30 m) 1 spm juv. (19.7 mm) MNHN-IM-2016-7917.

Biogeography and comments:

Seven specimens identified as *Conus gauguini* were collected between 10 and 40 meters during the **PITM** expedition (2012), two of which were sequenced. Molecular analysis of these two specimens initially labeled *Conus gauguini* suggests that they are two genetically different species. Thus, the specimen MNHN-IM-2013-40002 was identified as *Conus sp.* (Touitou & Balleton, 2022; Touitou, 2024); since *Conus boutetorum* has not yet been sequenced in Polynesia, the comparison of its genetic material with that of *Conus gauguini* and *Conus sp.* remains to be done. *Conus sp.* is represented by two specimens, one of which is a juvenile. The shell has a morphology and color close to *C. gauguini*, making this potential new species and *Conus gauguini* almost cryptic for the moment (Touitou, 2024). The sequenced specimen is of modest size and its lip is thin. It is necessary to collect other specimens, of larger sizes in order to be able to determine the morphological characters that eventually distinguish it from *C. gauguini*. It can be noted that the juvenile specimens of *C. gauguini*, *C. boutetorum* and *Conus sp.* are morphologically different (see plate n°6).

In addition, it has been established that a variation of *C. gauguini* from the Marquesas Islands - a pale pink shell, sometimes without pattern, with a broad shoulder and a very stepped spire - is also present in the Hawaiian archipelago where it lives in sympatry with *Conus boutetorum* Richard & Rabiller, 2013 (Touitou & Balleton, 2022; Touitou, 2024). Whether this variation belongs to the same species as the sequenced specimen or not remains to be tested by sequencing adult specimens from both groups.

CONCLUSION

The **PAKAHI I TE MOANA** expedition of 2012 completed the biological inventories carried out during previous expeditions in the Marquesas Islands. The sequencing of twenty-two species of Conidae helped to clarify the phylogenetic relationships of the Marquesas species with their relatives in other Archipelagos from the Pacific, as well as in clarifying some

species boundaries.. This material also gave us the opportunity to designate neotypes, chosen among the sequenced material, to replace lost or destroyed holotypes of three endemic *Conus* species.

However, some questions still remain open: does the taxon *Conus textilinus* deserve a specific rank as Kiener assumed? Does the *Conus sp.* discovered during the molecular study corresponds to the variation of *Conus gauguini* also present in Hawaii? Additional sampling in the Marquesas Islands and surrounding localities will be necessary to complete our taxonomic knowledge of the cone snail fauna in the area.

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REFERENCES

- BALLETON M., & MARTI P., 2017.** *CONIDAE de Polynésie française*. Auto-édition.
- BOUCHET P., 1995 (Ed.).** Résultats des Campagnes MUSOR-STOM, Volume 14. — *Mémoires du Muséum national d’Histoire naturelle* 167: 1-654.
- BOUTET M., GOURGUET R., & LETOURNEUX J., 2020.** *Mollusques marins de Polynésie française*. Editions Pacifique, 766p.
- GALINDO L.A., PUILANDRE N., STRONG E. & BOUCHET P., 2014.** Using Microwaves to Prepare Gastropods for DNA Barcoding. *Molecular Ecology Resources* 14, no 4 (July 2014): 700-705. <https://doi.org/10.1111/1755-0998.12231>.
- HINDS R.B., 1843.** Descriptions of new shells from the collection of Captain Belcher. — *Annals and Magazine of Natural History* 11: 16–21.
- HWASS C.W. in J.G. BRUGUIÈRE, 1792.** *Encyclopédie méthodique: Histoire naturelle des vers* 1 (2): 586-757. Paris, France.
- HUELSENBECK J.P., RONQUIST F. & HALL B., 2001.** Mr Bayes: Bayesian inference of phylogeny. *Bioinformatics* 17 (2001): 754-55.
- KIENER L.C., 1845-1850.** *Spécies général et iconographie des coquilles vivantes*, vol. 2, 379 pp. [1846-1850], 111pls [1845]. Paris.
- LUM D., 2023.** A new species of Textilia from the Marquesas Islands. *The Festivus*. 55(4): 232-245.
- MASSEMIN D., BALLETON M., 2024.** Description de Cylindero patmartii (Gastropoda: Conidae), de l’Archipel des Iles Marquises (Polynésie Française). *Xenophora Taxonomy* N° 45

- MONNIER E., LIMPALAER L., 2015.** Additional informations on *Lividoconus conco* (Puillandre & al, 2014) a new endemic species from the Marquesas Islands. *Xenophora Taxonomy*, n° 7 (pp.27-34).
- MONNIER E., LIMPALAER L., ROBIN A. & ROUX C., 2018.** *A Taxonomic Iconography of Living Conidae*, vol. I & II. Conchbooks.
- PETUCH E., & BERSHAUER D., 2018.** Ten new cone shells from Indonesia, the Marquesas Islands, Brazil, and Pacific Panama. *The Festivus* 50(1): 17-35.
- PUILLANDRE N., FEDOSOV A., ZAHARIAS P., AZNAR-CORMANO L. & KANTOR Y., 2017.** A quest for the lost types of Lophiotoma (Gastropoda: Conoidea: Turridae): integrative taxonomy in a nomenclatural mess. *Zoological Journal of the Linnean Society* 181, no 2 (2017): 243-71.
- RABILLER M., & RICHARD G., 2014.** *Conus* (Gastropoda, Conidae) from offshore French Polynesia: Description of dredging from TARASOC expedition, with new records and new species. *Xenophora Taxonomy* n°5: 25-48.
- RAMBAUT A., DRUMMOND A.J., 2014.** Tracer v1.6. Available at: <http://beast.bio.ed.ac.uk/Tracer>
- REHDER H.A., & B.R. WILSON, 1975.** New species of marine molluscs from Pitcairn Island and the Marquesas. — *Smithsonian Contributions to Zoology* 203: 1-16.
- RICHARD G., 1985a.** Conidae de Polynésie française (I). *Xenophora*, n° 26: 1-12 [9-20].
- RICHARD G., 1985b.** Conidae de Polynésie française (II). *Xenophora*, n° 27: 13-24 [7-18].
- RICHARD G., 1985c.** Conidae de Polynésie française (III). *Xenophora*, n° 28: 25-36 [9-20].
- RICHARD G., & SALVAT B., 1973.** *Cahiers Pacifique*, (Paris), no. 17: p. 25, figs 1-3.
- RICHARD G., & SALVAT B., 1973.** *Conus (Dendroconus) gauguini* sp. n. (Neogastropoda, Conidae) des Iles Marquises (Polynésie française). — *Cahiers du Pacifique* 17: 25-29.
- RICHARD G., & RABILLER M., 2013.** *Conus boutetorum* spec. nov., (Mollusca, Gastropoda, Conidae) and notes on the *Piononcus* group in French Polynesia. *Annales de la Société des Sciences Naturelles de la Charente-Maritime*, supplément: 53-63.
- RICHARD G., & RABILLER M., 2021.** PANORAMA SUR LA DIVERSITE DES CONIDAE 110 espèces prédatrices des plus efficaces. CRIOBE, Tahiti.
- RICHARD G., & RABILLER M., 2021.** *Panorama sur la diversité des CONIDAE en Polynésie française - 110 espèces prédatrices des plus efficaces*: Tahiti Graphic, Papeete, Tahiti, 162 p.
- RICHER DE FORGES B., POUPIN J., & LABOUTE P., 1999.** La campagne MUSORSTOM 9 dans l'archipel des îles Marquises (Polynésie française). Compte rendu et liste des stations. In: A. Crosnier (ed.), Résultats des Campagnes MUSORSTOM, Volume 20. — *Mémoires du Muséum national d'Histoire naturelle*, 180: 9-29.
- RÖCKEL D., KORN W., & KOHN A.J., 1995.** Manual of the living Conidae. Volume 1: Indo Pacific Region. Wiesbaden, Germany. 517 pp.
- SALVAT B., & TRÖNDLÉ J., 2017.** Biogéographie des mollusques marins de Polynésie française. *Revue d'Ecologie (Terre et Vie)*, Vol. 72 (3), (pp.215-257).
- SALVAT B., PETEK S., FOLCHER E. & DEBITUS C., 2016.** Invertébrés benthiques des Marquises. *Société Française d'Ichtyologie* (pp.221-258).
- SALVAT B., & RIVES C., 1975.** *Coquillages de Polynésie*. Editions du Pacifique.
- SEVERNS M., 2011.** *Shells of the Hawaiian Islands*. Conchbooks.
- TOUITOU D., & BALLETON M., 2005.** Conidae de Polynésie. *Xenophora*, n° 111: 27-42
- TOUITOU D., BALLETON M., 2022.** *Cônes des Marquises - Cone shells of the Marquesas*. Autoédition.
- TOUITOU D., 2023.** Présence de *Leporiconus tenuistriatus* (G. B. Sowerby II, 1858) aux Marquises. *Xenophora*, n° 184: 11-15.
- TOUITOU D., 2023.** *Lividoconus peasei* (Brazier, 1877) aux Marquises. *Xenophora*, n° 182: 13-13.
- TOUITOU D., 2025.** Inventaire des CONIDAE des Marquises - Inventory of CONIDAE of the Marquesas. *Xenophora*, n°189: 22-28.
- TRÖNDLÉ J., & von COSEL R., 2005.** Inventaire bibliographique des mollusques marins de l'archipel des Marquises (Polynésie Française). — *Atoll Research Bulletin* 542: 267-340.
- TRÖNDLÉ J., & BOUTET M., 2009.** Inventory of Marine Molluscs of French Polynesia. *Atoll Research Bulletin*. 1–87.
- TRÖNDLÉ J., RABILLER M., RICHARD G., & SALVAT B., 2020.** Inventaire des Conidae de Polynésie française de la zone côtière à l'étage bathyal. *Novapex*, n°21 (2-3): 93-96.
- TUCKER J., & TENORIO M., 2013.** *Illustrated Catalog of the Living Cone Shells*. MdM Publishing.
- WALLS J. G., Cone Shells: A Synopsis of the Living Conidae.** TFH Publications, 1011 pp.
- (1) IRD, Rapport de expedition, Campagne MARQUISES, 'Benthos côtier' leg#2, Claude Payri, coordinatrice Serge Andréfouët, Francesca Benzoni, Nathaniel Evans, Sylvie Fiat, Jean-Louis Menou, Johann Mourier, Marco Oliverio, Sylvain Petek, 2012.

Internet resources:

- <https://www.mnhn.fr/fr>
- <https://www.marinespecies.org/>
- <https://science.mnhn.fr/institution/mnhn/collection>
- <http://www.biodiversitylibrary.org/item/88016>
- <https://www.biodiversitylibrary.org/item/88016#page/23/mode/1up>
- <https://www.biodiversitylibrary.org/page/42906950#page/303/mode/1up>
- <https://www.biodiversitylibrary.org/item/88016#page/360/mode/1up>
- <https://www.biodiversitylibrary.org/page/42906950>
- <http://www.biodiversitylibrary.org/item/88016>
- <https://expeditions.mnhn.fr/campaign/pakaihiitemoana#les-stations>
- <https://naturalhistory.museumwales.ac.uk/molluscatypes/Browserrecord.php?-recid=129&-page=bibliography>

APPENDIX 1: List of stations.

INV/MAR.CAMPAGNE.NOM	INV/MAR.STATION.NUM.STATION	INV/MAR.STATION.LAT.TEXT	INV/MAR.STATION.LONG.TEXT	INV/MAR.STATION.PROFONDEUR.1	INV/MAR.STATION.PROFONDEUR.2	INV/MAR.STATION.DATE.TEXT
PAKAHI I TE MOANA	MQ1-GR	08°56,21'S	140°05,45'W	8	10	07,28JANV2012
PAKAHI I TE MOANA	MQ2-GR	08°56,23'S	140°07,24'W	20	23	07,11-13,29JANV2012
PAKAHI I TE MOANA	MQ3-GR	08°55,97'S	140°13,57'W	20	25	08-janv-12
PAKAHI I TE MOANA	MQ4-GR	08°56,27'S	140°07,52'W	10	19	08,24JAN2012
PAKAHI I TE MOANA	MQ5-M	08°55,27'S	140°06,37'W	0	1	12-janv-12
PAKAHI I TE MOANA	MQ6-ACH	08°56,01'S	140°01,7'W	60	76	13-janv-12
PAKAHI I TE MOANA	MQ7-M	08°53,92'S	140°02,92'W	0	1	13-janv-12
PAKAHI I TE MOANA	MQ8-ACH1	09°58,99'S	139°07,89'W	50	60	14-15JAN2012
PAKAHI I TE MOANA	MQ9-ACH1	09°59'S	139°08'W	125	240	14-janv-12
PAKAHI I TE MOANA	MQ9-ACH2	09°58'S	139°09'W	300	300	16-janv-12
PAKAHI I TE MOANA	MQ10-M	09°48,09'S	139°01,78'W	0	1	14-janv-12
PAKAHI I TE MOANA	MQ10-R	09°48,09'S	139°01,78'W	1	10	14-janv-12
PAKAHI I TE MOANA	MQ11-GR	10°00,84'S	139°07,35'W	6	12	15-janv-12
PAKAHI I TE MOANA	MQ12-M	09°58,22'S	139°07,55'W	0	1	15-janv-12
PAKAHI I TE MOANA	MQ13-GR	09°59,98'S	139°07,83'W	27	35	15-16JAN2012
PAKAHI I TE MOANA	MQ14-ACH	10°28'S	138°41'W	130	500	17-18JAN2012
PAKAHI I TE MOANA	MQ15-GR	10°28,31'S	138°40,68'W	0	28	17-18JAN2012
PAKAHI I TE MOANA	MQ16-M	10°27,84'S	138°39,97'W	0	1	17-18JAN2012
PAKAHI I TE MOANA	MQ17-ACH1	10°00'S	138°11'W	40	250	19-janv-12
PAKAHI I TE MOANA	MQ17-ACH2	10°00'S	138°11'W	400	500	19-janv-12
PAKAHI I TE MOANA	MQ17-R	09°59,84'S	138°10,72'W	35	40	19-janv-12
PAKAHI I TE MOANA	MQ18-M	09°46,24'S	138°50,78'W	0	1	21-janv-12
PAKAHI I TE MOANA	MQ19-R	09°45,67'S	138°50,69'W	10	25	21-janv-12
PAKAHI I TE MOANA	MQ19-B	09°45,67'S	138°50,69'W	10	25	21-janv-12
PAKAHI I TE MOANA	MQ20-ACH1	09°48'S	139°38'W	315	340	22-janv-12
PAKAHI I TE MOANA	MQ20-ACH2	09°49'S	139°39'W	550	550	22-janv-12
PAKAHI I TE MOANA	MQ20-ACH3	09°49'S	139°39'W	430	450	22-janv-12
PAKAHI I TE MOANA	MQ21-GR	09°22,12'S	140°06,81'W	6	10	23-janv-12
PAKAHI I TE MOANA	MQ21-R	09°22,12'S	140°06,81'W	6	10	23-janv-12
PAKAHI I TE MOANA	MQ22-R	09°20,52'S	140°03,98'W	6	6	23-janv-12
PAKAHI I TE MOANA	MQ23-M	09°21,45'S	140°06,15'W	0	1	23-janv-12
PAKAHI I TE MOANA	MQ24-GR	09°23,71'S	140°07,76'W	6	12	23-janv-12
PAKAHI I TE MOANA	MQ24-R	09°23,71'S	140°07,76'W	6	12	23-janv-12
PAKAHI I TE MOANA	MQ25-M	08°56,53'S	140°09,69'W	0	1	24-janv-12
PAKAHI I TE MOANA	MQ26-ACH1	08°54'S	140°15'W	300	400	24-janv-12
PAKAHI I TE MOANA	MQ27-GR	09°23,714'S	140°07,759'W	5	22	25-janv-12
PAKAHI I TE MOANA	MQ27-R	09°23,714'S	140°07,759'W	5	22	25-janv-12
PAKAHI I TE MOANA	MQ27-M	09°23,714'S	140°07,759'W	0	1	25-janv-12
PAKAHI I TE MOANA	MQ28-ACH1	08°42'S	140°39'W	100	350	25-janv-12
PAKAHI I TE MOANA	MQ29-M	07°59,61'S	140°42,47'W	0	1	26-janv-12
PAKAHI I TE MOANA	MQ30-ACH1	08°00'S	140°45'W	120	300	26-janv-12
PAKAHI I TE MOANA	MQ31-ACH1	07°56'S	140°59'W	120	300	27-janv-12
PAKAHI I TE MOANA	MQ32-GR	07°54,39'S	140°33,97'W	17	22	27-janv-12
PAKAHI I TE MOANA	MQ33-M	08°56,1'S	140°10,1'W	0	1	28-janv-12
PAKAHI I TE MOANA	MQ33 (riviere)	08°56,1'S	140°10,1'W			28-janv-12
PAKAHI I TE MOANA	no data					janv-12
PAKAHI I TE MOANA	MQ11-II-01	08°55,8'S	140°13,6'W	38		21-nov-11
PAKAHI I TE MOANA	MQ11-II-02	08°49,2'S	140°15,1'W	25		22-nov-11
PAKAHI I TE MOANA	MQ11-II-03	08°49,2'S	140°14,9'W	10		22-nov-11
PAKAHI I TE MOANA	MQ11-II-04	08°48,2'S	140°03,1'W	28		23-nov-11
PAKAHI I TE MOANA	MQ11-II-05	08°49,5'S	140°03,2'W	4		23-nov-11
PAKAHI I TE MOANA	MQ11-II-06	07°59,3'S	140°42,7'W	37		24-nov-11
PAKAHI I TE MOANA	MQ11-II-07 BIS	07°58,8'S	140°42,7'W	25		24-nov-11
PAKAHI I TE MOANA	MQ11-II-07	07°58,8'S	140°42,7'W	25		24-nov-11
PAKAHI I TE MOANA	MQ11-II-08	07°53,8'S	140°33,7'W	38		25-nov-11
PAKAHI I TE MOANA	MQ11-II-09	07°54,3'S	140°34,1'W	28		25-nov-11
PAKAHI I TE MOANA	MQ11-II-10	07°57,3'S	140°39,7'W	24		26-nov-11
PAKAHI I TE MOANA	MQ11-II-11	07°57,8'S	140°39,8'W	20		26-nov-11
PAKAHI I TE MOANA	MQ11-II-12	08°48,5'S	140°02,9'W	14		27-nov-11
PAKAHI I TE MOANA	MQ11-II-13	08°55,4'S	140°01,2'W	36		27-nov-11
PAKAHI I TE MOANA	MQ11-II-14	08°56,3'S	140°05,8'W	36		28-nov-11
PAKAHI I TE MOANA	MQ11-II-15	08°55,9'S	140°05,9'W	36		28-nov-11
PAKAHI I TE MOANA	MQ11-II-16	08°51,8'S	139°35,6'W	45		29-nov-11
PAKAHI I TE MOANA	MQ11-II-17	08°57,4'S	139°36'W	22		29-nov-11
PAKAHI I TE MOANA	MQ11-II-18	08°56,5'S	139°36,1'W	24		29-nov-11
PAKAHI I TE MOANA	MQ11-II-19	08°57,3'S	139°35,7'W	20		30-nov-11
PAKAHI I TE MOANA	MQ11-II-20	08°56,2'S	139°33,3'W	3		30-nov-11
PAKAHI I TE MOANA	MQ11-II-21	08°56,4'S	139°33,3'W	20		30-nov-11
PAKAHI I TE MOANA	MQ11-II-22	09°26,3'S	138°56,2'W	25		01DEC2011
PAKAHI I TE MOANA	MQ11-II-23	09°44,4'S	138°48,5'W	30		01DEC2011
PAKAHI I TE MOANA	MQ11-II-24	09°44,7'S	138°48,7'W	37		02DEC2011
PAKAHI I TE MOANA	MQ11-II-25	10°32'S	138°41,1'W	25		03DEC2011
PAKAHI I TE MOANA	MQ11-II-26	10°29,8'S	138°40,7'W	35		03DEC2011
PAKAHI I TE MOANA	MQ11-II-27	10°27,7'S	138°40,2'W	23		03DEC2011
PAKAHI I TE MOANA	MQ11-II-28	10°28,3'S	138°40,7'W	40		04DEC2011
PAKAHI I TE MOANA	MQ11-II-29	10°27,5'S	138°40,3'W	30		04DEC2011
PAKAHI I TE MOANA	MQ11-II-30	09°58,7'S	139°07,9'W	36		05DEC2011
PAKAHI I TE MOANA	MQ11-II-31	09°59'S	139°07,8'W	25		05DEC2011
PAKAHI I TE MOANA	MQ11-II-32	09°58,8'S	139°07,8'W	18		05DEC2011
PAKAHI I TE MOANA	MQ11-II-33	09°53,3'S	139°04,7'W	40		06DEC2011
PAKAHI I TE MOANA	MQ11-II-34	09°53,5'S	139°05,1'W	1		06DEC2011
PAKAHI I TE MOANA	MQ11-II-35	09°53,4'S	139°04,5'W	10		06DEC2011
PAKAHI I TE MOANA	MQ11-II-36	09°53,5'S	139°05,1'W	20		06DEC2011
PAKAHI I TE MOANA	MQ11-II-37	09°51,1'S	139°05,2'W	30		07DEC2011
PAKAHI I TE MOANA	MQ11-II-38	09°50,2'S	139°07,1'W	30		08DEC2011
PAKAHI I TE MOANA	MQ11-II-39	09°47,4'S	139°09,5'W	30		08DEC2011
PAKAHI I TE MOANA	MQ11-II-40	09°28,1'S	140°04,4'W	42		09DEC2011
PAKAHI I TE MOANA	MQ11-II-41	09°27,2'S	140°05,3'W	30		09DEC2011
PAKAHI I TE MOANA	MQ11-II-42	09°20,5'S	140°05,5'W	20		10DEC2011
PAKAHI I TE MOANA	MQ11-II-43	09°20,6'S	140°05,8'W	22		10DEC2011
PAKAHI I TE MOANA	hors station 1					02DEC2011
PAKAHI I TE MOANA	hors station 2			0	1	02DEC2011
PAKAHI I TE MOANA	hors station 3					04DEC2011
PAKAHI I TE MOANA	hors station 4					04DEC2011
PAKAHI I TE MOANA	no data 2					
PAKAHI I TE MOANA	MQ1-R	08°56,21'S	140°05,45'W	8	10	07,28JANV2012

APPENDIX 2: Bayesian phylogenetic tree, with posterior probabilities (>0.95) shown for each node.

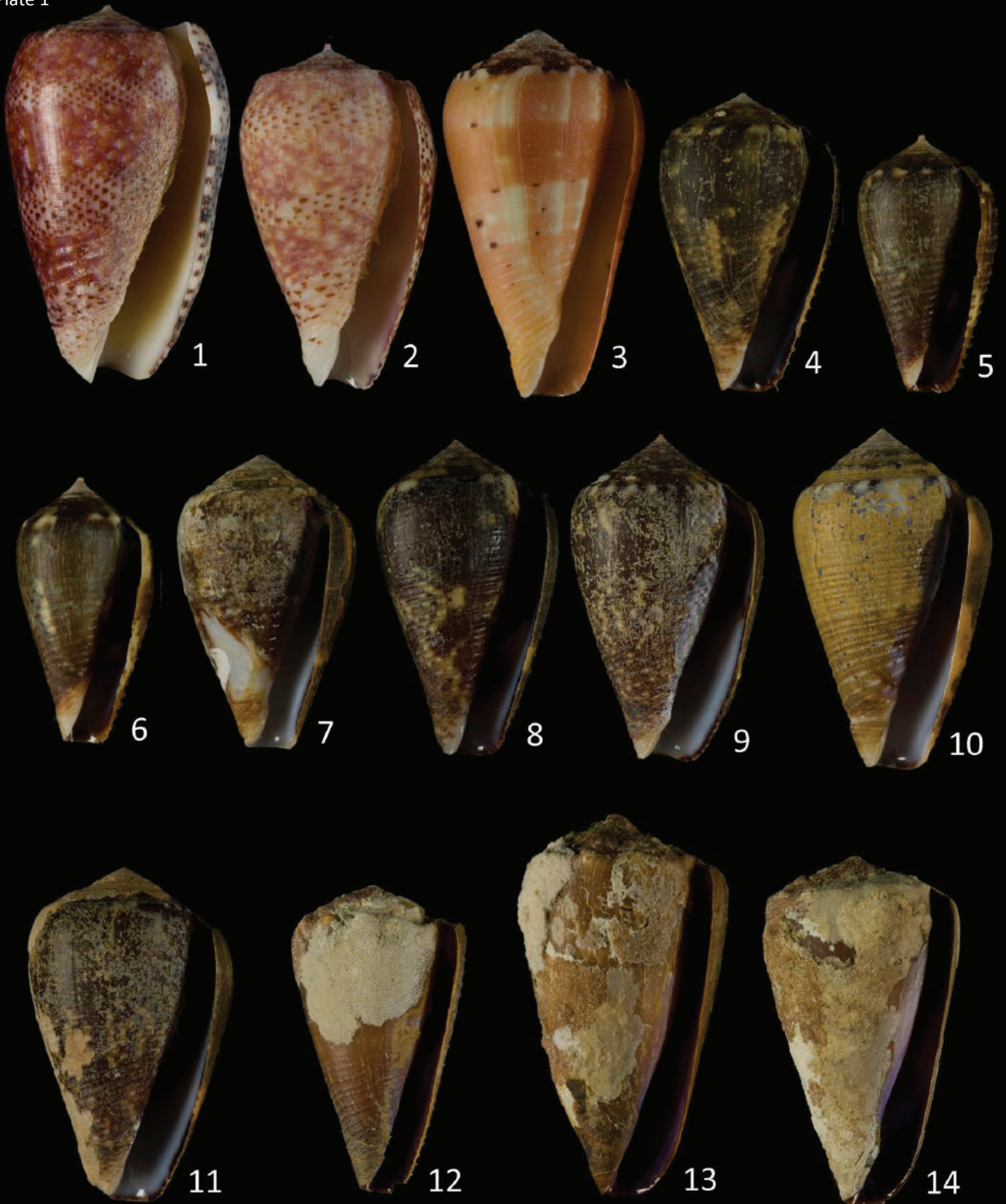


APPENDIX 3: Table of sequenced specimens (used to build the Bayesian phylogenetic tree)

MNHN #	BOLD	Country (expedition)	Identification	GenBank COI
IM-2007-17758	CONO1724-14	Vanuatu (SANTO 2006)	<i>Conus miles</i>	KJ550379
IM-2007-17937	CONO505-08	Vanuatu (SANTO 2006)	<i>Conus circumciscus</i>	EU015749
IM-2007-30086	CONO1375-14	Philippines (PANGLAO 2004)	<i>Conus circumciscus</i>	KJ550173
IM-2007-30644	CONO998-10	Vanuatu (SANTO 2006)	<i>Conus quercinus</i>	KJ550433
IM-2007-30654	CONO1005-10	Vanuatu (SANTO 2006)	<i>Conus imperialis</i>	KJ550308
IM-2007-30684	CONO1013-10	Vanuatu (SANTO 2006)	<i>Conus tessulatus</i>	KJ550492
IM-2007-30695	CONO1372-14	Vanuatu ()	<i>Conus bullatus</i>	KJ550157
IM-2007-30699	CONO1447-14	Vanuatu (SANTO 2006)	<i>Conus magnificus</i>	KJ550235
IM-2007-30712	CONO1398-14	Philippines (PANGLAO 2004)	<i>Conus arenatus</i>	KJ550126
IM-2007-30723	CONO1466-14	Philippines (PANGLAO 2004)	<i>Conus tessulatus</i>	KJ550493
IM-2007-30749	CONO1383-14	Vanuatu (SANTO 2006)	<i>Conus vexillum</i>	KJ550520
IM-2007-30763	CONO1028-10	Vanuatu (SANTO 2006)	<i>Conus quercinus</i>	KJ550434
IM-2007-30786	CONO1386-14	Vanuatu (SANTO 2006)	<i>Conus pulicarius</i>	KJ550430
IM-2007-30787	CONO1037-10	Vanuatu (SANTO 2006)	<i>Conus vexillum</i>	KJ550521
IM-2007-30793	CONO1042-10	Vanuatu (SANTO 2006)	<i>Conus rattus</i>	KJ550438
IM-2007-30794	CONO1043-10	Vanuatu (SANTO 2006)	<i>Conus catus</i>	KJ550165
IM-2007-30891	CONO1076-10	Vanuatu (SANTO 2006)	<i>Conus lividus</i>	KJ550340
IM-2007-30900	CONO1078-10	Vanuatu (SANTO 2006)	<i>Conus textile</i>	KJ550497
IM-2007-30903	CONO1387-14	Vanuatu (SANTO 2006)	<i>Conus arenatus</i>	KJ550127
IM-2007-38080	CONO1729-14	Madagascar (MIRIKY)	<i>Conus quercinus</i>	KJ550436
IM-2009-15553	CONO1994-17	Madagascar (ATIMO VATAE)	<i>Conus lividus</i>	MG786087
IM-2009-15634	CONO1691-14	Madagascar (ATIMO VATAE)	<i>Conus miliaris</i>	KJ550380
IM-2009-15656	CONO1999-17	Madagascar (ATIMO VATAE)	<i>Conus quercinus</i>	MG786097
IM-2009-15676	CONO1684-14	Madagascar (ATIMO VATAE)	<i>Conus parvatus</i>	KJ550407
IM-2009-15684	CONO1611-14	Madagascar (ATIMO VATAE)	<i>Conus fuscatus</i>	KJ550309
IM-2009-15688	CONO1690-14	Madagascar (ATIMO VATAE)	<i>Conus miliaris</i>	KJ550381
IM-2009-15690	CONO1683-14	Madagascar (ATIMO VATAE)	<i>Conus parvatus</i>	KJ550408
IM-2009-18249	CONO1489-14	Vanuatu (TERRASSES)	<i>Conus sazanka</i>	KJ550444
IM-2009-18296	CONO1704-14	Djibouti ()	<i>Conus rattus</i>	KJ550439
IM-2009-29413	CONO2001-17	Mozambique (INHACA 2011)	<i>Conus sponsalis</i>	MG786099
IM-2009-29437	CONO2005-17	Mozambique (INHACA 2011)	<i>Conus tessulatus</i>	MG786108
IM-2009-31298	CONO2011-17	Madagascar (ATIMO VATAE)	<i>Conus sponsalis</i>	MG786100
IM-2009-31343	CONO2019-17	Mozambique (INHACA 2011)	<i>Conus parvatus</i>	MG786093
IM-2009-6486	CONO3239-22	Mozambique ()	<i>Conus sazanka</i>	ON687964
IM-2013-40001	CONO5619-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus adamsonii</i>	PV057245
IM-2013-40002	CONO5620-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus sp.</i>	PV057229
IM-2013-40004	CONO5621-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus troendlei</i>	PV057262
IM-2013-40005	CONO5650-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus sanguinolentus</i>	PV057214
IM-2013-40006	CONO5622-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus sanguinolentus</i>	PV057259
IM-2013-40007	CONO5623-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus sanguinolentus</i>	PV057208
IM-2013-40008	CONO5651-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus sanguinolentus</i>	PV057237
IM-2013-40009	CONO5624-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus conco</i>	PV057215
IM-2013-40010	CONO5625-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus encaustus</i>	PV057249
IM-2013-40011	CONO5626-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus encaustus</i>	PV057258
IM-2013-40014	CONO5627-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus encaustus</i>	PV057226
IM-2013-40015	CONO5628-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus encaustus</i>	PV057246
IM-2013-40016	CONO5629-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus encaustus</i>	PV057222
IM-2013-40018	CONO5630-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus sanguinolentus</i>	PV057219
IM-2013-40019	CONO5631-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus encaustus</i>	PV057236
IM-2013-40021	CONO5632-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus canonicus f. textilis</i>	PV057235
IM-2013-40025	CONO5633-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus obscurus</i>	PV057225
IM-2013-40032	CONO5634-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus obscurus</i>	PV057216
IM-2013-40033	CONO5635-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus obscurus</i>	PV057248
IM-2013-40034	CONO5652-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus vaultieri</i>	PV057256
IM-2013-40035	CONO5636-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus obscurus</i>	PV057254
IM-2013-40036	CONO5637-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus conco</i>	PV057267
IM-2013-40037	CONO5653-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus marchionatus</i>	PV057218
IM-2013-40038	CONO5638-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus conco</i>	PV057239
IM-2013-40039	CONO5639-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus vaultieri</i>	PV057233
IM-2013-40040	CONO5654-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus vaultieri</i>	PV057223
IM-2013-40041	CONO2020-17	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus pseudimperialis</i>	MG786094
IM-2013-40042	CONO2021-17	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus pseudimperialis</i>	MG786095
IM-2013-40043	CONO5655-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus taitensis</i>	PV057232
IM-2013-40044	CONO5640-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus sanguinolentus</i>	PV057238
IM-2013-40045	CONO5656-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus moreleti</i>	PV057241
IM-2013-40046	CONO5641-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus catus</i>	PV057264
IM-2013-40047	CONO5642-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus catus</i>	PV057231
IM-2013-40048	CONO5657-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus catus</i>	PV057244
IM-2013-40049	CONO5643-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus taitensis</i>	PV057261
IM-2013-40050	CONO5644-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus taitensis</i>	PV057260
IM-2013-40054	CONO5658-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus catus</i>	PV057213
IM-2013-40056	CONO5645-25	Marquesas Islands (PAKAIHI I TE MOANA)	<i>Conus catus</i>	PV057224

MNHN #	BOLD	Country (expedition)	Identification	GenBank COI
IM-2013-40073	CONO5646-25	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus adamsonii</i>	PV057212
IM-2013-40076	CONO5647-25	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus gauguini</i>	PV057220
IM-2013-40078	CONO5659-25	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus vexillum</i>	PV057221
IM-2013-40079	CONO5648-25	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus quercinus</i>	PV057247
IM-2013-40086	CONO5649-25	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus sponsalis</i>	PV057252
IM-2013-40087	CONO5660-25	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus sponsalis</i>	PV057263
IM-2013-40089	CONO2008-17	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus imperialis</i>	MG786085
IM-2013-40090	CONO5615-25	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus retifer</i>	PV057242
IM-2013-40092	CONO2009-17	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus tessulatus</i>	MG786104
IM-2013-40094	CONO5616-25	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus catus</i>	PV057255
IM-2013-40095	CONO5617-25	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus catus</i>	PV057228
IM-2013-40096	CONO5618-25	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus catus</i>	PV057265
IM-2013-46875	CONO2030-17	Papua New Guinea (KAVIENG)	<i>Conus miliaris</i>	MG786090
IM-2013-47267	CONO2033-17	Papua New Guinea (KAVIENG)	<i>Conus sponsalis</i>	MG786098
IM-2013-47747	CONO5673-25	Papua New Guinea (KAVIENG)	<i>Conus canonicus</i>	PV057253
IM-2013-50726	CONO5674-25	Papua New Guinea (KAVIENG)	<i>Conus canonicus</i>	PV057268
IM-2013-50732	CONO5675-25	Papua New Guinea (KAVIENG)	<i>Conus canonicus</i>	PV057211
IM-2013-50735	CONO2044-17	Papua New Guinea (KAVIENG)	<i>Conus imperialis</i>	MG786081
IM-2013-50736	CONO5676-25	Papua New Guinea (KAVIENG)	<i>Conus canonicus</i>	PV057207
IM-2013-50783	CONO5677-25	Papua New Guinea (KAVIENG)	<i>Conus canonicus</i>	PV057217
IM-2013-50809	CONO5678-25	Papua New Guinea (KAVIENG)	<i>Conus bullatus</i>	PV057230
IM-2013-51224	CONO2048-17	Papua New Guinea (KAVIENG)	<i>Conus tessulatus</i>	MG786109
IM-2013-51250	CONO2050-17	Papua New Guinea (KAVIENG)	<i>Conus textile</i>	MG786119
IM-2013-51277	CONO2051-17	Papua New Guinea (KAVIENG)	<i>Conus imperialis</i>	MG786083
IM-2013-52135	CONO2022-17	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus magnificus</i>	MG786089
IM-2013-52137	CONO5661-25	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus quercinus</i>	PV057250
IM-2013-52138	CONO2023-17	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus quercinus</i>	MG786096
IM-2013-52139	CONO5662-25	Marquesas Islands (PAKAHI I TE MOANA)	<i>Conus moreleti</i>	PV057205
IM-2013-52140	CONO5663-25	Rapa (Tuhaa Pae 2013)	<i>Conus moreleti</i>	PV057206
IM-2013-52141	CONO5664-25	Rapa (Tuhaa Pae 2013)	<i>Conus sanguinolentus</i>	PV057269
IM-2013-52145	CONO2024-17	Rapa (Tuhaa Pae 2013)	<i>Conus imperialis</i>	MG786084
IM-2013-52146	CONO5665-25	Rapa (Tuhaa Pae 2013)	<i>Conus taitensis</i>	PV057209
IM-2013-52147	CONO5666-25	Rapa (Tuhaa Pae 2013)	<i>Conus sponsalis</i>	PV057257
IM-2013-52150	CONO5216-23	Rapa (Tuhaa Pae 2013)	<i>Conus miliaris</i>	PP047731
IM-2013-52153	CONO5667-25	Rapa (Tuhaa Pae 2013)	<i>Conus leopardus</i>	PV057227
IM-2013-52155	CONO2026-17	Rapa (Tuhaa Pae 2013)	<i>Conus textile</i>	MG786123
IM-2013-52157	CONO5668-25	Rapa (Tuhaa Pae 2013)	<i>Conus leopardus</i>	PV057266
IM-2013-52158	CONO2027-17	Rapa (Tuhaa Pae 2013)	<i>Conus tessulatus</i>	MG786103
IM-2013-52160	CONO5669-25	Rapa (Tuhaa Pae 2013)	<i>Conus mcbridei</i>	PV057210
IM-2013-52161	CONO5670-25	Rapa (Tuhaa Pae 2013)	<i>Conus mcbridei</i>	PV057251
IM-2013-52165	CONO5671-25	Rapa (Tuhaa Pae 2013)	<i>Conus taitensis</i>	PV057234
IM-2013-52166	CONO2029-17	Rapa (Tuhaa Pae 2013)	<i>Conus miliaris</i>	MG786091
IM-2013-52167	CONO5672-25	Rapa (Tuhaa Pae 2013)	<i>Conus flavidus</i>	PV057240
Touitou-20	CONO5679-25	Nuku-Hiva	<i>Conus catus f. easoni</i>	PV057243
(GenBank)		Heron Islands Australia	<i>Conus miles</i>	AY296840
(GenBank)		Tuvalu	<i>Conus catus</i>	AY588163
(GenBank)		California	<i>Conus californicus</i>	DQ885848
(GenBank)		Thailande	<i>Conus musicus</i>	EU423417
(GenBank)		Society Islands	<i>Conus nanus</i>	EU423424
(GenBank)		Oman	<i>Conus nanus</i>	EU423427
(GenBank)		Panama	<i>Conus nux</i>	EU423428
(GenBank)		Philippines	<i>Conus aurisiacus</i>	FJ868111
(GenBank)		Philippines	<i>Conus catus</i>	FJ868113
(GenBank)			<i>Conus gauguini</i>	FJ868117
(GenBank)		Philippines	<i>Conus pulicarius</i>	GU134375
(GenBank)		Hawaii	<i>Conus quercinus</i>	JN831246
(GenBank)		Tuamotu	<i>Conus canonicus</i>	KJ549880
(GenBank)		Tuvalu	<i>Conus catus</i>	KJ549884
(GenBank)		Papua New Guinea	<i>Conus circumcissus</i>	KJ549888
(GenBank)		Tuamotu	<i>Conus flavidus</i>	KJ549909
(GenBank)		Vanuatu	<i>Conus leopardus</i>	KJ549937
(GenBank)		Society Islands	<i>Conus moreleti</i>	KJ549960
(GenBank)		Guam	<i>Conus obscurus</i>	KJ549967
(GenBank)		Fidji	<i>Conus quercinus</i>	KJ549982
(GenBank)		Guam	<i>Conus taitensis</i>	KJ549983
(GenBank)		Tuamotu	<i>Conus rattus</i>	KJ549984
(GenBank)		Tuamotu	<i>Conus retifer</i>	KJ549986
(GenBank)		Christmas Islands	<i>Conus retifer</i>	KJ549987
(GenBank)		Oman	<i>Conus tessulatus</i>	KJ550000
(GenBank)		Tuamotu	<i>Conus vexillum</i>	KJ550007
(GenBank)		Marquesas Islands	<i>Conus conco</i>	KJ550025
(GenBank)		Taiwan	<i>Conus quercinus</i>	MH400188
(GenBank)		Hainan island China	<i>Conus miles</i>	MN389187
(GenBank)		Hainan island China	<i>Conus quercinus</i>	MN389188

Plate 1



1. *Conus adamsonii* 44.9 mm [UP,M] IM-2013-40001
3. *Conus* sp. 42.0 mm [Motane,M] IM-2013-40002
5. *Conus catus* 23.7 mm [FH,M] IM-2013-40047
7. *Conus catus* 29.9 mm [NH,M] IM-2013-40054
9. *Conus catus* 35.0 mm [E,M] IM-2013-40094
11. *Conus catus* 39.2 mm [NH,M] IM-2013-40096
13. *Conus concho* 58.6 mm [HO,M] IM-2013-40036

2. *Conus adamsonii* 39.0 mm [UH,M] IM-2013-40073
4. *Conus catus* 32.1 mm [FH,M] IM-2013-40046
6. *Conus catus* 22.9 mm [FH,M] IM-2013-40048
8. *Conus catus* 35.2 mm [HO,M] IM-2013-40056
10. *Conus catus* 41.2 mm [NH,M] IM-2013-40095
12. *Conus concho* 33.9 mm [NH,M] IM-2013-40009
14. *Conus concho* 43.6 mm [NH,M] IM-2013-40003

Plate 2



1. *Conus encaustus* 21.1 mm [FH,M] IM-2013-40010
2. *Conus encaustus* 21.9 mm [FH,M] IM-2013-40011
3. *Conus encaustus* 19.3 mm [FH,M] IM-2013-40014
4. *Conus encaustus* 20.7 mm [FH,M] IM-2013-40015
5. *Conus encaustus* 22.2 mm [T,M] IM-2013-40016
6. *Conus encaustus* 17.3 mm [UP,M] IM-2013-40019
7. *Conus gauguini* 76.5 mm [HO,M] IM-2013-40076
8. *Conus imperialis* 51.8 mm [HI,M] IM-2013-40089
9. *Conus magnificus* 41.0 mm [FH,M] IM-2013-52135
10. *Conus marchionatus* 30.8 mm [NH,M] IM-2013-40037
11. *Conus moreleti* 46.3 mm [NH,M] IM-2013-40045
12. *Conus moreleti* 55.1 mm [E,M] IM-2013-52139
13. *Conus obscurus* 26.0 mm [NH,M] IM-2013-40025
14. *Conus obscurus* 28.7 [FH,M] IM-2013-40032
15. *Conus obscurus* 22.3 mm [UP,M] IM-2013-40033
16. *Conus obscurus* 21.9 mm [HO,M] IM-2013-40035

Plate 3



1. *Conus pseudimperialis* 44.9 mm [FH,M] IM-2013-40041
3. *Conus vaultieri* 24.3 mm [UP,M] IM-2013-40034
5. *Conus vaultieri* 34.5 mm [NH,M] IM-2013-40040
7. *Conus quercinus* 69.1 mm [UH,M] IM-2013-52137
9. *Conus retifer* 32.4 mm [FH,M] IM-2013-40090
11. *Conus sanguinolentus* 25.5 mm [FH,M] IM-2013-40006

2. *Conus pseudimperialis* 39.8 mm [NH,M] IM-2013-40042
4. *Conus vaultieri* 17.8 mm [UP,M] IM-2013-40039
6. *Conus quercinus* 64.9 mm [?,M] IM-2013-40079
8. *Conus quercinus* 60.7 mm [UH,M] IM-2013-52138
10. *Conus sanguinolentus* 24.4 mm [FH,M] IM-2013-40005

Plate 4



1. *Conus sanguinolentus* 25.3 mm [FH,M] IM-2013-40007

3. *Conus sanguinolentus* 43.7 mm [UP,M] IM-2013-40018

5. *Conus sponsalis* 12.5 mm [FH,M] IM-2013-40086

7. *Conus taitensis* 32.7 mm [FH,M] IM-2013-40043

9. *Conus taitensis* 37.1 mm [T,M] IM-2013-40050

11. *Conus canonicus* f. *textilinus* 23.4 mm [NH,M] IM-2013-40021

12. *Conus troendlei* 15.8 mm [FH,M] IM-2013-40004

2. *Conus sanguinolentus* 25.6 mm [FH,M] IM-2013-40008

4. *Conus sanguinolentus* 22.3 mm [FH,M] IM-2013-40044

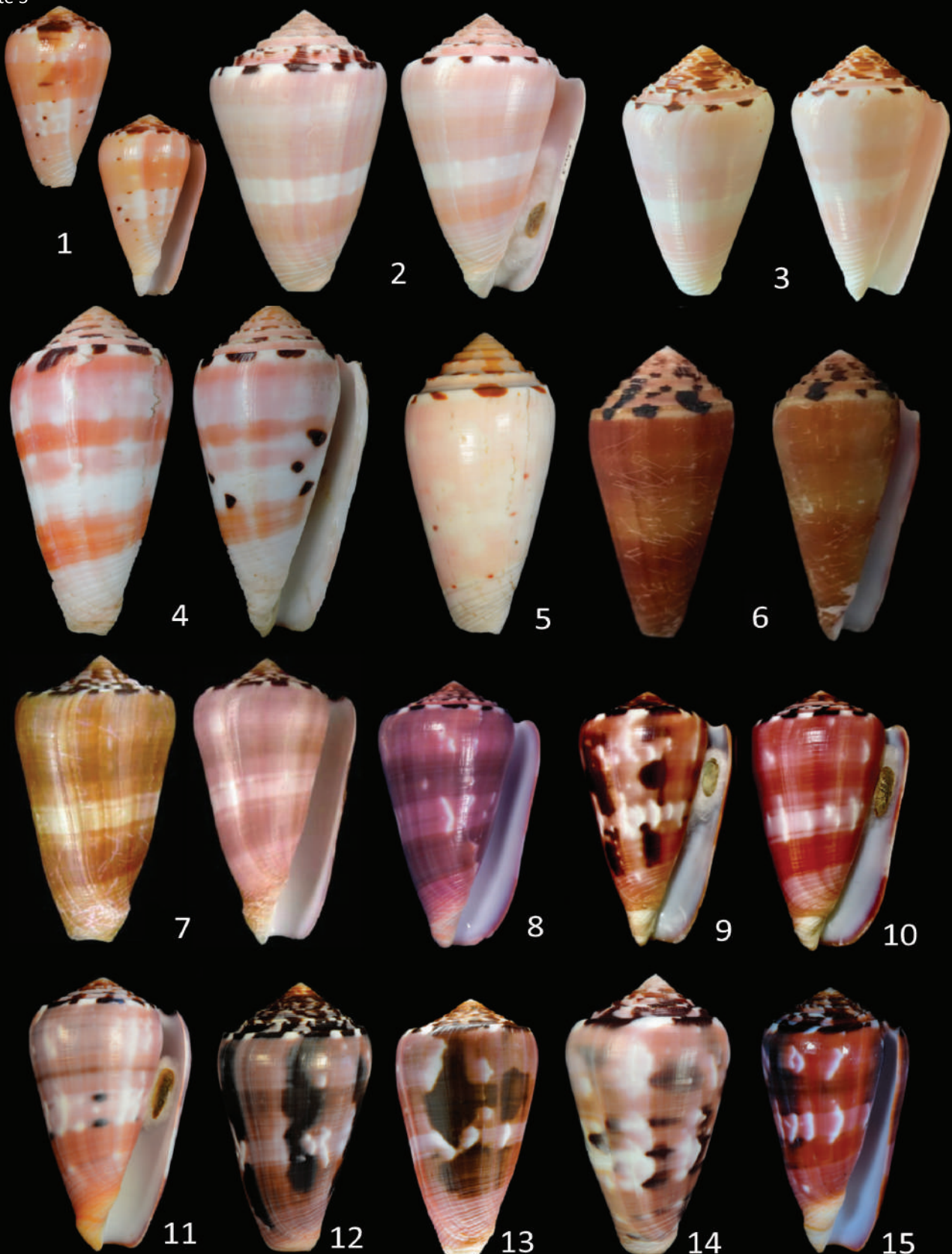
6. *Conus sponsalis* 10.9 mm [FH,M] IM-2013-40087

8. *Conus taitensis* 33.5 mm [T,M] IM-2013-40049

10. *Conus* aff. *tessulatus* 27.7 mm [T,M] IM-2013-40092

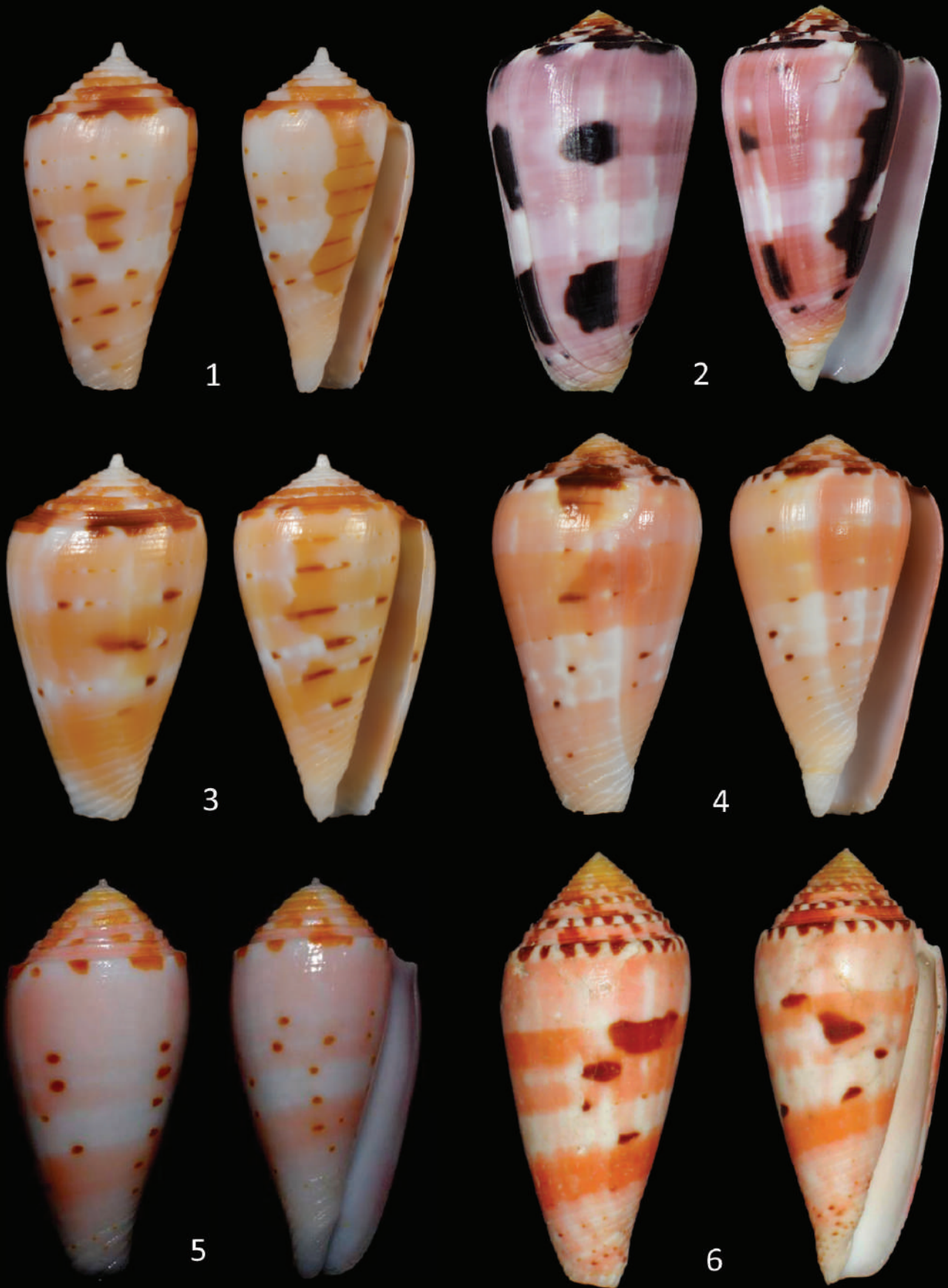
13. *Conus vexillum* 86.8 mm [NH,M] IM-2013-40078

Plate 5



1. *Conus* sp. 42.0 mm [Motane,M] MNHN-IM-2013-40002
2. *Conus* aff. *gauguini* 67.7 mm [NH,M], coll. M. Small
3. *Conus* aff. *gauguini* 59.0 mm [Hawaii], coll. H. Lynch
4. *Conus* *boutetorum* 82 mm [Tahiti], coll. L. Poroi
5. *Conus* *boutetorum* 67.7 mm [M], coll. T. Joly
6. *Conus* *boutetorum* 60.3 mm [Hawaii], coll. M. Pang [with P]
7. *Conus* *gauguini* 87 mm [M], MNHN-IM-2000-2557, Photo: C. Reyens
8. *Conus* *gauguini* 81.9 mm [NH,M], coll. D. Lum
9. *Conus* *gauguini* 72.5 mm [NH,M], coll. P. Kanner
10. *Conus* *gauguini* 70.4 mm [NH,M], coll. P. Kanner
11. *Conus* *gauguini* 70.5 mm [M], coll. T. Joly
12. *Conus* *gauguini* 67.4 mm [M], coll. T. Joly
13. *Conus* *gauguini* 65.2 mm [NH,M], coll. M. Balleton
14. *Conus* *gauguini* 74.0 mm [UP,M], coll. M. Small
15. *Conus* *gauguini* 62.8 mm [NH,M], coll. G. Hamann

Plate 6



1. *Conus gauquini* 16.8 mm juvenile [NH,M], MNHN-IM-2016-7918 2. *Conus gauquini* 71.0 mm [NH,M], coll. L. Poroi
 3. *Conus* sp. 19.7 mm [FH,M], MNHN-IM-2016-7917 4. *Conus* sp. 42.0 mm [Motane,M] MNHN-IM-2013-40002
 5. *Conus boutetorum* 37.9 mm young [Tuamotu], coll. T. Joly 6. *Conus boutetorum* 60.2 mm [Tahiti, S], coll. B. Fenzan

Plate 7



1. *Conus gauguini* 76.5 mm [HO,M] MNHN-IM-2013-40076 [with P]
2. *Conus vautieri* 34.6 mm [NH,M] MNHN-IM-2013-40040 Neotype [with P]
3. *Conus marchionatus* 30.9 mm [NH,M] MNHN-IM-2013-40037 Neotype [with P]
4. *Conus encaustus* 20.7 mm [FH,M] MNHN-IM-2013-40015 Néotype [with P]

Plate 8



1. *Conus gauguini* 76.5 mm [HO,M] MNHN-IM-2013-40076
2. *Conus vautieri* 34.6 mm [NH,M] MNHN-IM-2013-40040 Neotype
3. *Conus marchionatus* 30.9 mm [NH,M] MNHN-IM-2013-40037 Neotype
4. *Conus encaustus* 20.7 mm [FH,M] MNHN-IM-2013-40015 Neotype

PLate 9 Living specimens from the Marquesas.

1



2



3



4



5



6

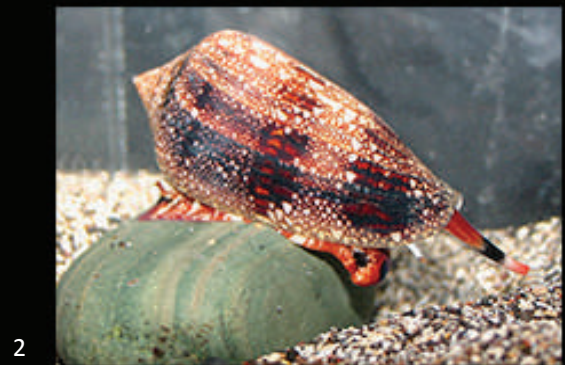


7



1. *Conus catus*, photo Camille Gache.
2. *Conus imperialis*, photo Camille Gache.
3. *Conus pseudimperialis*, photo Patrick Marti.
4. *Conus vaultieri*, photo Camille Gache.
5. *Conus marchionatus*, photo Xavier Curvat.
6. *Conus adamsonii*, photo Xavier Curvat.
7. *Conus adamsonii*, photo Paul Kanner.

PLate 10 Living specimens from the Marquesas and Tahiti (specimen 5).



1. *Conus magnificus*, photo Paul Kanner.
2. *Conus canonicus*, photo Xavier Curvat.
3. *Conus canonicus*, photo Camille Gache.
4. *Conus minamiae*, Photo : M. Balleton & J. Orempuller.
5. *Conus boutetorum*, photo Patrick Vappereau.
6. *Conus gauguini*, photo Xavier Curvat.

THE MARINE MOLLUSCA OF GREECE (BY JANUARY 2025): AN UPDATED, SYSTEMATIC CATALOGUE, DOCUMENTED WITH BIBLIOGRAPHIC AND PICTORIAL REFERENCES

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KEYWORDS

Biodiversity, Greece, Marine Mollusca, Systematic Catalogue

ABSTRACT

This work provides an updated systematic catalogue documented with bibliographic and pictorial references on the extant marine Mollusca reported within the Hellenic Exclusive Economic Zone as of January 2025. It adds 28 additional species for the area and two new species to science compared to the previous relevant catalogue. It incorporates 1,507 species belonging to 279 families, referenced in 238 publications. The up-to-date nomenclature is based on the WoRMS Database.

INTRODUCTION

The documentation of the Hellenic marine malacofauna in plain and/or annotated checklists has been extensively presented in the systematic catalogues by Manousis (2021, 2023). The over 1,900 readings of the first annotated list (Manousis, 2021) and over 800 of the second (Manousis, 2023) on ResearchGate (accessed January 2025) affirm their necessity. Since 2023, 40 additional faunistic works (e.g., Manousis *et al.*, 2023; Mbazios *et al.*, 2023; Papavasileiou *et al.*, 2023; Kontadakis *et al.*, 2024; Ovalis & Zenetos, 2024; Ovalis *et al.*, 2024) and images uploaded online by citizen scientists have contributed 26 new species for the area and two new species to science. Additionally, a significant number of taxa names have changed (WoRMS, accessed January 2025). These developments are incorporated into this work to provide an updated and accessible information tool on the Hellenic marine malacofauna.

MATERIALS AND METHODS

All relevant studies from the past two years documenting specimens collected from the Hellenic Seas, as well as some overlooked publications from previous catalogues, were reviewed and incorporated into the work of Manousis (2023). As in previous editions, and for economy of space, references are numbered in alphabetical and chronological order (note: the work of Öztürk & Ovalis, 2024, is represented in the References as 161a, and that of Scuderi & Micali, 2024, as 198a). The nomenclature follows the WoRMS Database (accessed January 2025).

RESULTS AND DISCUSSION

Symbols

- ! - As drawing
- †† - As species
- ‡ - Dubious identification
- † - From synonym

- * - Misidentification
- * - No image documentation
- ‡ - Questionable establishment
- ‡ - Questionable image documentation
- † - Questionable origin
- # - Synonym of

This work includes 68 families of Bivalvia with 364 species, two families of Caudofoveata with two species, 23 families of Cephalopoda with 54 species, 171 families of Gastropoda with 1,050 species, eight families of Polyplacophora with 22 species, six families of Scaphopoda with 14 species, and one family of Solenogastres with one species. In total, 279 families and 1,507 species are catalogued, supported by 238 references.

Confirming the optimism expressed in Manousis (2021) that the catalogue would be updated to keep pace with the rapidly expanding malacofauna, this work adds to the previous catalogue (Manousis, 2023): one species of Bivalvia, four species of Cephalopoda, seven families and 21 species of Gastropoda, and one family and one species of Polyplacophora. In total, eight additional families, 27 more species, 41 additional references, and two new species to science are included: *Raphitoma aspera* Mbazios, Kontadakis, Ovalis, Polyzoulis, Zeimbekis & Manousis, 2023, and *Raphitoma minae* Kontadakis, Ovalis, Zaminos & Manousis, 2024. Compared to the previous catalogue (Manousis, 2023), these additions represent an increase of approximately 2% in species and 20% in references.

Each listed species is accompanied by references where it is depicted or reported. As before (Manousis, 2021; 2023):

References marked with an asterisk (*) report but do not depict the species.

Dubious identifications due to lack of detailed presentation, misidentifications, species of questionable establishment or documentation, and questionable origins are appropriately marked.

Accidental and casual records are generally excluded unless no other references document their presence.

Dendostrea cfr. *folium* (Linnaeus, 1758), *Spondylus* cfr. *spinus* Schreibers, 1793, and *Viriola* cfr. *bayani* Jousseaume, 1884 are included as their identity requires confirmation via DNA analysis.

Three unidentified species-level records are included to encourage collaboration with fellow scientists:

Cerithiopsis sp. (Manousis *et al.*, 2023, fig. 2d)

Horologica sp. (Manousis *et al.*, 2023, fig. 8a) - likely an undescribed species, an opinion shared by Cesare Bogi (personal communication).

Tubulophilinopsis sp. (Galinou-Mitsoudi *et al.*, 2023, fig. 3) - possibly an undescribed species of *Tubulophilinopsis* Zamora-Silva & Malaquias, 2017 (per Manuel Malaquias, personal communication), or of *Melanochlamys* Cheeseman, 1881, as suggested by Ángel Valdés (personal communication). Alternatively, it could be a juvenile of *Philinopsis speciosa* Pease, 1860, an alien species recently reported from Souda Beach, Crete (Winkel *et al.*, 2024).

Additionally, *Onoba* cfr. *erugata* Ponder & Worsfold, 1994 (Manousis *et al.*, 2023, fig. 2c) and *Teretia* cfr. *neocaledonica* Morassi & Bonfitto, 2015 (Manousis *et al.*, 2018, fig. 25b) are included to facilitate future comparisons with new findings.

The establishment status of alien or Lessepsian species in the area is subject to change with each new publication. As this catalogue is expected to remain in use for some time, readers are encouraged to draw their own conclusions using the present systematic catalogue and the criteria outlined by Zenetos *et al.* (2005), as further defined by Crocetta (2012) and discussed by Kontadakis *et al.* (2021).

We hope to continue updating this catalogue to reflect the ever-growing malacofauna of the Hellenic territory due to new arrivals and the discovery of previously unknown local species.

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REFERENCES

1. AGAMENNONE F., SBRANA C., NARDI N., SIRAGUSA F., GERMANÁ A., 2020. *Dikoleps micalii* n. sp. (Gastropoda: Skeneidae) from the Eastern Aegean Sea. *Boll. Malacol.*, 56 (1): 91-95.
2. AGAMENNONE F., MICALI P., 2022. First Mediterranean record of *Atys ehrenbergi* (A. Issel, 1869) with notes on some species of the genus *Retusa* (T. Brown, 1827) (Gastropoda: Cephalaspidea). *Boll. Malacol.*, 58: 87-93.
3. AISSAOUI C., PUILLANDRE N., BOUCHET P., FASSIO G., MODICA M. V., OLIVERIO M., 2016. Cryptic diversity in Mediterranean gastropods of the genus *Aplus* (Neogastropoda: Buccinidae). *Sci. Mar.*, 80 (4): 521-533.
4. AISSAOUI C., PUILLANDRE N., BOUCHET P., 2017. New insights in the taxonomy of Mediterranean *Diodora* (Mollusca, Gastropoda, Fissurellidae). *J. Mar. Biolog. Assoc. U.K.*, 97 (7): 1527-1536.
5. ALBANO P. G., SCHNEDL S. M., ESCHNER A., 2018. An illustrated catalogue of Rudolf Sturany's type specimens in the Naturhistorisches Museum Wien, Austria (NHMW): deep-sea Eastern Mediterranean mollusks. *Zoosyst. Evol.*, 94 (1): 29-56.
6. ALBANO P. G., STEGER J., BAKKER P. D. J., BOGI C., BOŠNJAK M., GUY-HAIM T., FUSEYINOGLU M. F., LaFOLLETTE P. I., LUBINEVSKY H., MULAS M., STOCKINGER M., AZZARONE M., SABELLI B., 2021. Numerous new records of tropical non-indigenous species in the Eastern Mediterranean highlight the challenges of their recognition and identification. *ZooKeys*, 1010: 1-95. <https://doi.org/10.3897/zookeys.1010.58759>
7. AMATI B., 2012. *Alvania consociella* Monterosato, 1884 junior synonym of *Alvania lanciae* (Calcara, 1845) (Prosobranchia, Rissoidae). *Boll. Malacol.*, 48: 116-121.
8. AMATI B., CHIARELLI S., 2017. Description of *Alvania oetyliaca* n. sp. from the Mediterranean Sea (Mollusca Gastropoda Rissoidae). *Biodiver. J.*, 8 (3): 839-850.
9. AMATI B., APPOLLONI M., QUAGGIOTTO E., SMRIGLIO C., OLIVERIO M., 2019. Notes on some taxa of the *Alvania lineata*-complex with the descriptions of three new species from the Mediterranean Sea (Gastropoda: Rissoidae). *Iberus*, 37 (1): 81-112.
10. ANGELIDIS A., 2013. *Fulvia fragilis* (Forsskål in Niebuhr, 1775) (Bivalvia: Cardiidae), first record of an alien mollusk in the Gulf of Thessaloniki (Inner Thermaikos Gulf, North Aegean Sea, Greece). *J. Biol. Res.-Thessalon.*, 20: 228-232.
11. ANGELIDIS A., POLYZOULIS G., 2018. New distributional records of four Indo-Pacific species from Astypalaia Island, South Aegean Sea, Greece. *Xenophora Taxonomy*, 21: 3-10.
12. ANGELIDIS A., GUBILI C., POLYZOULIS G., 2018. Tropical Isognomonids in the Mediterranean Sea: When the West Atlantic met the Indo-Pacific Region in the South Aegean Sea. *Thalassas*. DOI: <https://doi.org/10.21203/rs.3.rs-4269231/v1>.
13. APPOLLONI M., SMRIGLIO C., AMATI B., LUGLIÉ L., NOFRONI I., TRINGALI L. P., MARIOTTINI P., OLIVERIO M., 2018. Catalogue of the primary types of marine molluscan taxa described by Tommaso Allery Di Maria, Marquis of Monterosato, deposited in the Museo Civico di Zoologia, Roma. *Zootaxa*, 4477 (1): 1-138.
14. BALLESTEROS M., MADRENAS E., PONTES M., 2012-2020. OPK-Opistobranquis. <https://opistobranquis.info/> (Accessed, January 2023).
15. BAPTISTA L., FASSIO G., GOFAS S., OLIVERIO M., AVILA S. P., SANTOS A. M., 2023. Evaluating the taxonomic status of the large sized *Tricolia* Risso, 1826 in the Northeast Atlantic and Mediterranean Sea. *Mol. Phylogenet. Evol.*, 186, 107857.
16. BARCO A., AISSAOUI C., HOUART R., BONOMOLO G., CROCETTA F., OLIVERIO M., 2018. 2017. Revision of the *Ocenebrina aciculata* species complex (Mollusca: Gastropoda: Muricidae) in the northeastern Atlantic Ocean and Mediterranean Sea. *J. Mollusc. Stud.*, 84: 19-29.
17. BAPTISTA L., FASSIO G., GOFAS S., OLIVERIO M., ÁVILA, S. P., SANTOS A. M., 2023. Evaluating the taxonomic status of the large sized *Tricolia* Risso, 1826 in the Northeast Atlantic and Mediterranean Sea. *Mol. Phylogenet. Evol.*, 186: 1-14. doi: <https://doi.org/10.1016/j.ympev.2023.107857>
18. BARICHE M., AL-MABRUK S. A. A., ATEŞ M. A., BÜYÜK A., CROCETTA F., *et al.*, 2020. New Alien Mediterranean Biodiversity Records (March 2020). *Medit. Mar. Sci.*, 21 (1) 129-145.
19. BILECENOGLU M., ALFAYA J. E. F., AZZURRO E., BALDACONI R., BOYACI Y. Ö., *et al.*, 2013. New Mediterranean Marine biodiversity records (December, 2013). *Medit. Mar. Sci.*, 14(2): 463-480.
20. BOGI C., GIANNUZZI SAVELLI R., PUSATERI F., SPADA G., 2021. A new species of *Bela* Leach in J.E. Gray, 1847a (Conoidea Mangeliidae) from Creta (Mediterranean Sea). *Biodiver. J.*, 12 (4): 793-798.
21. BOYER F., RENDA W., 2022. Revision of *Gibberula philippii* (Monterosato, 1878) in a populational approach (Gastropoda Cystiscidae). *Biodivers. J.*, 13 (2): 443-478.
22. CHIAPPA G., FASSIO G., CORSO A., CROCETTA F., MODICA M. V., OLIVERIO M., 2022. How Many Abalone Species Live

in the Mediterranean Sea? *Diversity*, 14, 1107. <https://doi.org/10.3390/d14121107>

23. CHIAPPA G., FASSIO G., SMRIGLIO C., MARIOTTINI P., ALBANO P. G., MODICA M. V., ZUCCON D., PUILLANDRE N., OLIVERIO M., 2024. The polymorphic top-shell puzzle: iterative taxonomy of *Calliostoma* Swainson, 1840 (Gastropoda: Calliostomatidae), in the Mediterranean Sea. *J. Molluscan Stud.*, 90: <https://doi.org/10.1093/mollus/eyae026>
24. CORSINI M., LEFKADITOU E., 1994. Occurrence of *Ocythoe tuberculata* (Cephalopoda: Ocythoidae) in Greek waters. *Boll. Malacol.*, 30: 304-310.
25. CORSINI-FOKA M., LORENZINI P., TIRRO F., SOTTILE G., KONDILATOS G., 2011. On the recent occurrence of females *Argonauta argo* (Mollusca: Cephalopoda) in the Adriatic and Aegean seas with observations on aquarium maintenance. *Vie et Milieu*, 61 (1): 35-39.
26. CORSINI-FOKA M., ZENETOS A., CROCETTA F., ÇINAR M. E., KOÇAK F., *et al.*, 2015. Inventory of alien and cryptogenic species of the Dodecanese (Aegean Sea, Greece): collaboration through COST action training school. *Manag. Biol. Invasions*, 6 (4): 351-366.
27. COSSIGNANI T., ARDOVINI R., 2011. *Malacologia Mediterranea*. L'Informatore Piceno, Ancona.
28. COSSIGNANI T., 2016. *Mimachlamys meli* (Bivalvia: Ostreoida: Pectinidae) nuova specie dal Mediterraneo. *Malacologia Mostra Mondiale*, 93: 31-32.
29. COSSIGNANI T., 2018. *Tritia tavernai*, nuova specie dal Mediterraneo. *Malacologia Mostra Mondiale*, 101: 18-19.
30. CROCETTA F., 2012. Marine alien Mollusca in Italy: a critical review and state of the knowledge. *J. Mar. Biolog. Assoc. U.K.*, 92 (6): 1357-1365.
31. CROCETTA F., RUSSO P., 2013. The alien spreading of *Chama pacifica* Broderip, 1835 (Mollusca: Bivalvia: Chamidae) in the Mediterranean Sea. *Turk. J. Zool.*, 37: 92-96.
32. CROCETTA F., POURSANIDIS D., TRINGALI L. P., 2015. Biodiversity of sea slugs and shelled relatives (Mollusca: Gastropoda) of the Cretan Archipelago (Greece), with taxonomic remarks on selected species. *Quat. Int.*, 30: 1-13.
33. CROCETTA F., TRINGALI L. P., 2015. Mapping alien Mollusca distribution in the Mediterranean Sea: the Lessepsian immigrant *Retusa desgenettii* (Audouin, 1826) reaches Turkey. *Quater. Int.*, 390: 14-20.
34. CROCETTA F., TRINGALI L. P., MIENIS H. K., ZENETOS A., 2016. *Clementia papyracea* (Gmelin, 1791) (Mollusca: Bivalvia: Veneridae): its established status in the Mediterranean Sea and the first record from Greece. *Cah. Biol. Mar.*, 57: 271-275.
35. CROCETTA F., GOFAS S., SALAS C., TRINGALI L. P., ZENETOS A., 2017. Local ecological knowledge versus published literature: a review of non-indigenous Mollusca in Greek marine waters. *Aquat. Invasions*, 13: 415-434.
36. CROCETTA F., AL MABRUK S. A. A., AZZURRO E., BAKIU R., BARICHE M., *et al.*, 2021. New Alien Mediterranean Biodiversity Records (November 2021). *Medit. Mar. Sci.*, 22 (3): 724-746.
37. DASKOS A., ZENETOS A., 2007. Additions to the knowledge of alien Opisthobranchia of Greece. *Aquat. Invasions*, 2 (3): 258-260.
38. DELAMOTTE M., VARDALA-THEODOROU E., 2001. *Shells from the Greek Seas*. The Goulandris Natural History Museum, Athens.
39. DELAMOTTE M., VARDALA-THEODOROU E., 2008. *Sea Shells from the Greek Seas*. Goulandris Museum of Natural History, Kifisia.
40. DELL'ANGELO B., RENDA W., SOSSO M., GIACOBBE S., 2018. 138 years later: new data on *Callistochiton* (*Allerychiton*) *pachylasmae* (Monterosato, 1879) from its type locality, the Strait of Messina. *Arch. Molluskenkd.*, 147 (2): 215-221.
41. DELL'ANGELO B., RENDA W., SIRENKO B. I., SOSSO M., GIACOBBE S., 2021. The Mediterranean distribution of *Hanleya hanleyi* (Bean in Thorpe, 1844) and *H. mediterranea* Sirenko, 2014 (Polyplacophora). *Boll. Malacol.*, 57: 124-135.
42. DELONGUEVILLE C., SCAILLET R., 2007. Les espèces invasives de mollusques en Méditerranée. *Novapex*, 8 (2): 47-70.
43. DI BARI D., PAGLI D., PAGLI A., BOGI C., 2024. Malacological notes on a deep-sea environment in the Cretan Sea. *Boll. Malacol.*, 60: 29-34.
44. D'ONGHIA G., TURSI A., MATARRESE A., PANETTA P., 1993. Some aspects of the biology of *Bathypolypus sponsalis* (Mollusca, Cephalopoda) in the North Aegean Sea (Eastern Mediterranean Sea). *Vie et Milieu*, 43 (2-3): 161-164.
45. DOXA C. K., STERIOTI A., DIVANACH P., KENTOURI M., 2019. Reproductive behavior of the marine gastropod *Charonia sequeenzae* (Aradas & Benoit, 1870) in captivity. *Med. Mar. Sci.*, 20 (1): 49-55.
46. DRAGIČEVIĆ B., ANADOLU O., ANGEL D., BENABDI M., BITAR G., *et al.*, 2019. New Mediterranean Biodiversity Records (December 2019). *Medit. Mar. Sci.*, 20 (3): 645-656.
47. ELEFThERIOU A., ANAGNOSTOPOULOU-VISILIA E., ANASTASOPOULOU E., ATES S. A., *et al.*, 2011. New Mediterranean Biodiversity Records (December 2011). *Medit. Mar. Sci.*, 12 (2): 491-508.
48. EVAGELOPOULOS A., POURSANIDIS D., PAPAIZI E., GEROVASILEIOU V., KATSIARAS N., KOUTSOUBAS D., 2015. Records of alien marine species of Indo-Pacific origin at Sigrí Bay (Lesvos Island, north-eastern Aegean Sea). *Mar. Biodivers. Rec.*, 3: 1-10.
49. FEHSE D., GREGO J., MANOUSIS T., DIESTE J. P., 2024. *Contribution to the knowledge of the Triviidae, XLV: Does Trivia arctica occur in the Mediterranean Sea? Acta Conchyliorum*, 22: 3-47.
50. FISCHER W., POKŁĘKOWSKI M., ZEIMBEKIS C., 2023. New localities of *Conomurex persicus* (Swainson, 1821) (Gastropoda: Strombidae) from Tunisia, Corfu, Naxos and other Aegean islands (Greece), and a brief overview of its distribution in the Mediterranean Sea. *Arianta*, 10: 46-51.
51. FRYGANIOTIS K., ANTONIADOU C., CHINTIROGLOU C., 2013. Comparative distribution of the fan mussel *Atrina fragilis* (Bivalvia, Pinnidae) in protected and trawled areas of the north Aegean Sea (Thermaikos Gulf). *Medit. Mar. Sci.*, 14 (1): 119-124.
52. FURFARO G., SALVI D., MANCINI E., MARIOTTINI P., 2018. A multilocus view on Mediterranean aeolid nudibranchs (Mollusca): Systematics and cryptic diversity of Flabellinidae and Piseinotecidae. *Mol. Phylogenet. Evol.*, 118: 13-22.
53. GALINOUMITSOU S., ZAMINOS G., MANOUSIS T., KONTADAKIS C., STASINOS S., MBAZIOS G., PORFYRIS A., 2023. Mediterranean and Hellenic Seas: new records and distributional status of marine mollusca (by December 2022). *Xenophora Taxonomy*, 39: 57-67.
54. GARABETIAN K., MALAQUIAS A. E., CROCETTA F., ZENETOS A., KAVADAS S., VALDÉS Á., 2017. *Haminoea ortegai* Talavera, Murillo & Templado, 1987 (Mollusca: Gastropoda: Heterobranchia: Cephalaspidea), a widespread species in the Mediterranean and northeastern Atlantic. *Cah. Biol. Mar.*, 58: 107-113.

55. GARRIGUES B., LAMY D., ZUCCON D., 2022. The Coralliophilinae from the Antilles and French Guiana with the description of six new species. *Xenophora Taxonomy*, 37: 4-53.
56. GARILLI V., VARDALA-THEODOROU E., 2005. Occurrence of the Western Atlantic *Cerithium litteratum* (Born, 1778) (Gastropoda: Cerithiidae) in The Aegean Sea. *Notiziario S.I.M.*, 23 (9-12): 34-36.
57. GARZIA M., DONEDDU M., GIACOBBE S., SALVI D., TRAINITO E., MARIOTTINI P., 2024. Molecular and morphological data provide evidence for only one alien species of pearl oyster in the Mediterranean Sea. *Sci. Mar.*, 88 (2): 1-11.
58. GEORGIEV D. G., TODOROV O. B., 2016. Marine Molluscs (Scaphopoda, Gastropoda, Bivalvia, Cephalopoda) around the Amouliani Island, Chalkidiki (Greece). *Bull. Nat. Hist. Mus. Plovdiv.*, 1: 25-29.
59. GEROVASILEIOU V., AKEL E. H. Kh., AKYOL O., ALONGI G., AZEVEDO F., *et al.*, 2017. New Mediterranean Biodiversity Records (July, 2017). *Medit. Mar. Sci.*, 18 (2): 355-384.
60. GEROVASILEIOU V., 2018. Biodiversity of marine caves in the North Aegean sea. PhD Thesis (in Greek). DOI: 10.12681/eadd/42262
61. GEROVASILEIOU V., AKYOL O., AL-HOSNE Z., ALSHIKH RASHEED R., ATAÇ E., *et al.*, 2020. New records of rare species in the Mediterranean Sea (May 2020). *Medit. Mar. Sci.*, 21(2): 340-359.
62. GIANNUZZI-SAVELLI R., PUSATERI F., PALMERI, A., EBREO, C., COPPINI, M., MARGELLI, A., BOGI, C., 2001. *Atlante delle conchiglie marine del Mediterraneo: Bivalvia: Protobranchia-Pteromorphia*, Vol.7. Rome: Evolver Publishing.
63. GIANNUZZI-SAVELLI R., PUSATERI F., PALMERI, A., EBREO, C., 2002. *Atlante delle conchiglie marine del Mediterraneo*. Vol. 2. Rome: Evolver Publishing.
64. GIANNUZZI-SAVELLI R., PUSATERI F., MICALI P., NOFRONI I., BARTOLINI S., 2014. *Atlante delle conchiglie marine del Mediterraneo*, Vol. 5. Palermo: Edizioni Danaus.
65. GIANNUZZI-SAVELLI R., PUSATERI F., BARTOLINI S., 2018. A revision of the Mediterranean Raphitomidae (Gastropoda: Conoidea) 5: loss of planktotrophy and pairs of species, with the description of four new species. *Supplemento Boll. Malacol.*, 54: 1-77.
66. GIANNUZZI-SAVELLI R., PUSATERI F., BARTOLINI S., 2018. A revision of the Mediterranean Raphitomidae (Gastropoda, Conoidea), 7: on the sibling species *Raphitoma densa* (Monterosato, 1884) and *R. griseomaculata* n. sp.. *Biodiver. J.*, 9 (4): 429-440.
67. GIANNUZZI-SAVELLI R., PUSATERI F., BARTOLINI S., 2019. A revision of the Mediterranean Raphitomidae, 8: on two poorly known species of *Raphitoma* Bellardi, 1847: *R. pumila* (Monterosato, 1890) and *R. hispidella* nomen novum (Gastropoda Conoidea). *Biodiver. J.*, 10 (1): 57-66.
68. GIANNUZZI-SAVELLI R., PUSATERI F., PRKIĆ J., BARTOLINI S., RUSSINI V., FASSIO G., OLIVERIO M., 2020. Revision of Mediterranean and NE Atlantic Raphitomidae (Gastropoda, Conoidea) 8: The genus *Leufroyia* Monterosato, 1884. *Zoosystema*, 42 (22): 433-473.
69. FASSIO G., RUSSO P., BONOMOLO G., FEDOSOV A. E., MODICA M. V., NOCELLA E., OLIVERIO M., 2022. A molecular framework for the systematics of the Mediterranean spindle-shells (Gastropoda, Neogastropoda, Fasciolaridae, Fusininae). *Mediterr. Mar. Sci.*, 23 (3): 623-636. <https://doi.org/10.12681/mms.29935>.
70. GIUNCHI L., MICALI P., TISSELLI M., 2001. Segnalazione di due nuovi immigranti lessepsiani lungo le coste della Turchia. *La Conchiglia*, 33 (298): 47-48.
71. HOLZKNECHT M., ALBANO P. G., 2022. The molluscan assemblage of a pristine *Posidonia oceanica* meadow in the eastern Mediterranean. *Mar. Biodivers.*, 52: 59. <https://doi.org/10.1007/s12526-022-01292-2>
72. <https://malacopics.nl/showimage.php?malacopicna=rissoidea&image=Alvania%20fractospira.JPG>
73. <https://www.facebook.com/photo.php?fbid=4308490799267547&set=p.4308490799267547&type=3>
74. <https://www.facebook.com/photo/?fbid=10158933768871966&set=pcb.2016856185185875>
75. <https://www.facebook.com/100430349078026/photo/s/a.147690074352053/147690441018683/>
76. <https://www.facebook.com/photo/?fbid=10159007521421966&set=pcb.2032694386935388>
77. <https://www.facebook.com/photo/?fbid=10231979055199963>
78. <https://www.facebook.com/photo?fbid=10233076105745541&set=gm.244649270222219&idortvity=331466433724867> (Nickos Akylas)
79. <https://www.facebook.com/photo/?fbid=7238199562915803&set=gm.2845204688971957&idortvity=1240468699445572>
80. <http://www.marinespecies.org/aphia.php?p=taxdetails&id=139684#images>
81. <http://www.seaslugforum.net/find/14287>
82. <https://elnais.hcmr.gr/publications/>
83. <https://greece.inaturalist.org/taxa/255196-Polycerella-emertoni>
84. https://science.mnhn.fr/taxon/species/ocinebrina/aegeensis?lang=en_US
85. <https://www.marinespecies.org/aphia.php?p=image&tid=139865&pic=155579>
86. https://www.naturagraeca.com/ws/#_
87. <https://www.inaturalist.org/observations/81986733>
88. JEREB P., CANNAS R., MAIORANO P., BELLO G., GARIBALDI F., *et al.*, 2016. The deep-water squid *Octopoteuthis sicula* Rüppell, 1844 (Cephalopoda: Octopoteuthidae) as the single species of the genus occurring in the Mediterranean Sea. *Mar. Biol.*, 163:192.
89. JÖRGER K. M., NEUSSER T. P., BRENZINGER B., SCHRÖDL M., 2014. Exploring the diversity of mesopsammic gastropods: How to collect, identify, and delimitate small and elusive sea slugs? *Amer. Malac. Bull.* 32 (2): 290-307.
90. KALLONAS M., ZENETOS A., GOFAS S., 1999. Notes on the ecology and distribution of microbivalvia in Greek waters. *La Conchiglia*, 29: 11-20.
91. KARACHLE P. K., ANGELIDIS A., APOSTOLOPOULOS G., AYAS D., BALLESTEROS M., *et al.*, 2016. New Mediterranean Biodiversity Records (March 2016). *Medit. Mar. Sci.*, 17 (1): 130-252.
92. KAPIRIS K., APOSTOLODIS C., BALDACCONI R., BAŞUSTAN, BILECENOGLU M., *et al.*, 2014. New Mediterranean Marine biodiversity records (April, 2014). *Medit. Mar. Sci.*, 15 (1): 198-212.
93. KONTADAKIS C., MBAZIOS G., MANOUSIS T., GALINOU-MITSOU S., 2021. Records of the Indo-Pacific species *Heliacus implexus* (Mighels, 1845) (Gastropoda, Architectonicidae) established in the Mediterranean Sea. *Xenophora Taxonomy*, 32: 18-22.
94. KONTADAKIS C., MANOUSIS T., 2022. Description of

a new species of the genus *Raphitoma* Bellardi, 1847 from the Mediterranean Sea (Mollusca, Neogastropoda, Conoidea, Raphitomidae). *Xenophora Taxonomy*, 36: 54-60.

95. KONTADAKIS C., OVALIS P., ZAMINOS G., MANOUSIS T., 2024. Description of *Raphitoma minae* sp. nov. (Mollusca, Gastropoda, Raphitomidae) from the Mediterranean (Aegean Sea, Greece). *Xenophora Taxonomy*, 43: 23-26.

96. KOUKOURAS A., KARACHLE P., 2005. The polyplacophoran (Eumollusca, Mollusca) fauna of the Aegean Sea with the description of a new species, and comparison with those of the neighbouring seas. *J. Biol. Res.-Thessalon.*, 3: 23-38.

97. KOUKOURAS A., 2010. Check-list of marine species from Greece. Aristotle University of Thessaloniki. Assembled in the framework of the EU FP7 PESI project.

98. KOULOURI P., KOUTSOUBAS D., DOUNAS C., 2000. Structure and dynamics of the infralittoral molluscan assemblages (soft substrata) in Heraklion Bay (Crete, Eastern Mediterranean). In *Proceedings of 6th Hellenic Symposium of Oceanography & Fisheries*, 2. pp. 355.

99. KOUNTOURAS S., 2021. *Platydorhis argo* (Linnaeus, 1767). <https://www.facebook.com/photo?fbid=6312832112075504&set=pcb.1629442803927217>.

100. KOUTSOUBAS D., VOULTSIADOU-KOUKOURA E., 1991. Occurrence of *Rapana venosa* (Valenciennes, 1846) in the Aegean Sea. *Boll. Malacol.*, 26 (10-12): 201-204.

101. KOUTSOUBAS D., KOUKOURAS A., THOMPSON T. E., 1993. Sacoglossa and Nudibranchia (Opisthobranchia) from the Aegean Sea: new records for the eastern Mediterranean fauna. *Zoosystematics Evol.*, 69 (1): 155-163.

102. KOUTSOUBAS D., CINELLI F., 1997. Indo-Pacific origin Gastropods in the Aegean Sea: *Melibe fimbriata* Alder & Hancock, 1864, a new invader. *Boll. Malacol.*, 32 (1-4): 7580.

103. KOUTSOUBAS D., BOYLE P., 1999. *Histioteuthis bonnellii* (Ferussac, 1835) (Cephalopoda) in the Eastern Mediterranean: New record and biological considerations. *J. Molluscan stud.*, 65: 380-383.

104. KOUTSOUBAS D., TSELEPIDES A., ELEFThERIOU A., 2000. Deep Sea Molluscan Fauna of the Cretan Sea (Eastern Mediterranean): Faunal, Ecological and Zoogeographical Remarks. *Senckenb. Marit.*, 30 (3/6): 85-98.

105. KOUTSOUBAS D., GALINOU – MITSOU DI S., KATSANEVAKIS S., LEONTARAKIS P., METAXATOS A., ZENETOS A., 2007. II.5. Bivalve and gastropod mollusks of commercial interest for human consumption in the Hellenic Seas. In: C. Papaconstantinou, A. Zenetos, V. Vassilopoulou & G. Tserpes (Eds) *State of Hellenic Fisheries*, edited by, HCMR publ. Athens, p. 70-84.

106. KOWALEVSKY A., 1901. Études anatomiques sur le genre *Pseudovermis*. *Mém. Acad. Imp. Sci. St.-Petersbourg*, VIII Série, 12 (4):1-32.

107. KYTINOU E., ZOTOU M., VIRGILI R., CRO CETTA F., KATSANEVAKIS S., 2022. The Indo-Pacific nudibranch *Baeolidia moebii* Bergh, 1888 in Greece, with the first documented spawning aggregation in the Mediterranean Sea. *BiolInvasions Rec.*, 11 (2): 461-472.

108. LEFKADITOU E., MITILINEOU C., MAIORANO P., D'ONGHIA G., 2003. Cephalopod species captured by deep-water exploratory trawling in the northeastern Ionian Sea. *J. Northw. Atl. Fish. Sci.*, 31: 431-440.

109. LEFKADITOU E., SIAPATIS A., SOMARAKIS S., 2005. Juvenile planktonic cephalopods sampled off the coasts of central Greece (Eastern Mediterranean) during winter. *Phuket mar. biol. Cent. Res. Bull.*, 66: 259-265.

110. LEFKADITOU E., KASPIRIS P., 2005. Distribution and abundance of sepiolids (Mollusca : Cephalopoda) off the north-eastern Greek coasts. *Belg. J. Zool.*, 135 (2): 199-204.

111. LEFKADITOU E., POLITOU C. Y., PAPA CONSTANTINO U C., 2000. Notes on *Brachioteuthis riisei* (Steenstrup, 1882) and *Ancistroteuthis lichtensteini* (Orbigni, 1839) (Cephalopoda:Teuthoidea) found in the Aegean Sea. *Belg. J. Zool.*, 130 (Supplement): 71-75.

112. LEFKADITOU E., PAPA CONSTANTINO U C., ANASTASOPOULOU K., 1999. Juvenile cephalopods collected in the midwater macroplankton over a trench in the Aegean Sea (Northeastern Mediterranean). *Isr. J. Ecol. Evol.*, 45 (3), 395-405.

113. LEFKADITOU E., 2007. Review of Cephalopod Fauna in Hellenic Waters. p. 62-69. In: Papaconstantinou, C., Zenetos, A., Vassilopoulou, V., Tserpes, C. (Eds.). *State of Hellenic Fisheries*. Hellenic Centre for Marine Research, Athens.

114. LEFKADITOU E., CORSINI-FOKA M., KONDILATOS G., 2009. Description of the first Lessepsian squid migrant, *Sepio teuthis lessoniana* (Cephalopoda: Loliginidae), in the Aegean Sea (Eastern Mediterranean). *Medit. Mar. Sci.*, 10 (2): 87-97.

115. LEFKADITOU E., PERISTERAKI P., CHARTOSIA N., SALMAN A., 2011. Recent findings of *Ommastrephes bartramii* (Cephalopoda: Ommastrephidae) in the eastern Mediterranean and the implication on its range expansion. *Medit. Mar. Sci.*, 12 (1): 413-428.

116. LEFKADITOU E., TSIGENOPOULOS C. S., ALIDROMITI C., HARALABOUS J., 2012. On the occurrence of *Alloteuthis subulata* in the Eastern Ionian Sea and its distinction from the sympatric *Alloteuthis media*. *J. Biol. Res.-Thessalon.*, 17: 169 – 175.

117. LIPEJ L., ACEVEDO I., AKEL E. H. K., ANASTASOPOULOU A., ANGELIDIS A., *et al.*, 2017. New Mediterranean Biodiversity Records (March 2017). *Medit. Mar. Sci.*, 18 (1): 179-201.

118. LOUIZIDOU P., THESSALOU-LEGAKI M., ZENETOS A., 2007. First record of the Red Sea immigrant *Chrysallida fischeri* (Hornung and Mermod, 1925) (Gastropoda: Pyramidellidae) from Greek waters. *Aquat. Invasions*, 2 (2): 95-98.

119. MANOUSIS T., MPARDAKIS G., PARASKEVOPOULOS C., GALINOU – MITSOU DI S., 2010. The Bivalvia Mollusca of Thessaloniki and Thermaikos Gulfs (North Aegean Sea), Greece with emphasis on new species for Hellenic waters. *J. Biol. Res.-Thessalon.*, 14: 161-179.

120. MANOUSIS T., 2012. *The Sea Shells of Greece*. Thessaloniki: Kyriakidis Brothers.

121. MANOUSIS T., MPARDAKIS G., ZAMORA SILVA A., PARASKEVOPOULOS C., MANIOS D., GALINOU-MITSOU DI S., 2012. New findings of Gastropods in the Hellenic Seas with emphasis on their origin and distribution status. *J. Biol. Res.-Thessalon.*, 18: 249-264.

122. MANOUSIS T., GALINOU-MITSOU DI S., 2013. New and Uncommon Bivalvia Mollusca of Thermaikos Gulf (Northern Aegean Sea). *J. Biol. Res.-Thessalon.*, 20: 339 – 366.

123. MANOUSIS T., GALINOU-MITSOU DI S., 2014. New gastropod records for the Eastern Mediterranean Sea and one new alien (*Emarginula decorata* Deshayes, 1863) for the Mediterranean Sea from NWAegean Sea, Greece. *J. Biol. Res.-Thessalon.*, 21: 20.

124. MANOUSIS T., KONTADAKIS C., MBAZIOS G., POLYZOULIS G., GALINOU-MITSOU DI S., 2017. Possible poecilogony due to discontinuous multifactorial inheritance in some Mediterranean species of *Raphitoma* (Mollusca, Conoidea, Raphitomidae). *Organismal and Molecular Malacology*, Prof. Sajal Ray

(Ed.), InTech, DOI: 10.5772/67847. <https://www.intechopen.com/books/organismal-and-molecular-malacology/possible-poecilogony-due-to-discontinuous-multifactorial-inheritance-in-some-mediterranean-species-o>

125. MANOUSIS T., KONTADAKIS C., POLYZOULIS G., MBAZIOS G., GALINOU-MITSOUDI S., 2018. New marine gastropod records for the Hellenic waters. *J. Biol. Res.-Thessalon.*, 25: 6.
126. MANOUSIS T., KONTADAKIS C., POLYZOULIS G., MBAZIOS G., 2018. The family Raphitomidae (Mollusca: Gastropoda: Conoidea) in the Greek Seas with the description of two new species. *J. Biol. Res.-Thessalon.*, 25: 14.
127. MANOUSIS T., KONTADAKIS C., MBAZIOS G., GALINOU-MITSOUDI S., 2019. New records of Rissoidae (Mollusca: Gastropoda) for the Hellenic Seas with the description of *Rissoa electrae* n. sp.. *Xenophora Taxonomy*, 26: 11-19.
128. MANOUSIS T., KONTADAKIS C., MBAZIOS G., GALINOU-MITSOUDI S., 2020. New records of Cimidae, Murchisonellidae and Pyramidellidae (Mollusca: Gastropoda: Heterobranchia) for the Mediterranean Sea and the Hellenic Waters. *Xenophora Taxonomy*, 28: 3-27.
129. MANOUSIS T., PORFYRIS A., MBAZIOS G., ZAMINOS G., KONTADAKIS C., GALINOU-MITSOUDI S., 2020. New bivalve occurrences for the Mediterranean and the Hellenic Seas. *Xenophora Taxonomy*, 29: 1-15.
130. MANOUSIS T., KONTADAKIS C., ZAMINOS G., ZEIMBEKIS C., MBAZIOS G., GALINOU-MITSOUDI S., 2020. New records of Lower Heterobranchia (Mollusca: Gastropoda) for the Mediterranean and the Hellenic Seas. *Xenophora Taxonomy*, 30: 34-51.
131. MANOUSIS T., ZAMINOS G., KONTADAKIS C., MBAZIOS G., PORFYRIS A., GALINOU-MITSOUDI S., 2021. New records of Mollusca for the Mediterranean and the Hellenic Seas. *Xenophora Taxonomy*, 31: 30-44.
132. MANOUSIS T., ZAMINOS G., SAMARA E., MBAZIOS G., GALINOU-MITSOUDI S., 2021. *Rissoella angeli* n. sp. (Gastropoda: Heterobranchia: Rissoellidae) and additional new records of molluscs for E. Mediterranean and the Hellenic Seas. *Xenophora Taxonomy*, 31: 51-70.
133. MANOUSIS T., 2021. *Hellenic Conches*. Harxheim: Conchbooks, 609 pp. ISBN 978-3-948603-17-5
134. MANOUSIS T., GALINOU-MITSOUDI S., 2022. Great molluscan diversity associated with a limited *Cymodocea nodosa* (Ucria) Ascherson 1870 bed in Thermaikos Gulf, North Aegean Sea, Greece. *Xenophora Taxonomy*, 35: 20-42.
135. MANOUSIS T., TISSELI M., GALINOU-MITSOUDI S., 2022. Description of *Odostomia widmeri* spec. nov. (Mollusca, Gastropoda, Pyramidellidae) from the Eastern Mediterranean Sea. *Xenophora Taxonomy*, 36: 69-72.
136. MANOUSIS T., 2023. The Marine Mollusca of Greece: an up-to-date, systematic catalogue, documented with bibliographic and pictorial references. *Xenophora Taxonomy*, 40: 25-63.
137. MANOUSIS T., BALDOVI J. D. O., ZAMINOS G., 2023. Description of *Alvania esmes* spec. nov. (Mollusca, Gastropoda, Rissoidae) from the Eastern Mediterranean Sea. *Xenophora Taxonomy*, 38: 3-9.
138. MANOUSIS T., MBAZIOS G., ZAMINOS G., PORFYRIS A., PAPAVALASILEIOU K., KONTADAKIS C., GALINOU-MITSOUDI S., 2023. Mediterranean and Hellenic Seas: New records and distributional status of marine molluscs (by September 2022). *Xenophora Taxonomy*, 39: 11-21.
139. MANOUSIS T., MBAZIOS G., POLYZOULIS G., ZAMINOS G., KONTADAKIS C., GALINOU-MITSOUDI S., 2023. The family

Cerithiopsidae (Mollusca: Gastropoda: Triphoroidea) in the Hellenic Seas and three new records for the East Mediterranean Sea. *Xenophora Taxonomy*, 39: 33-46.

140. MANOUSIS T., ZAMINOS G., KONTADAKIS C., MBAZIOS G., GALINOU-MITSOUDI S., 2023. Enriching the marine molluscs' biodiversity of the Mediterranean and the Hellenic seas (by April 2023). *Xenophora Taxonomy*, 40: 23-31.
141. MBAZIOS G., KONTADAKIS C., GALINOU-MITSOUDI S., MANOUSIS T., 2020. New gastropod records for the Mediterranean and the Hellenic Seas. *Xenophora Taxonomy*, 27: 34-58.
142. MBAZIOS G., ROZAKIS., ZAMINOS G., KARYPIDIS S., MINOS G., PAPAVALASILEIOU K., KONTADAKIS C., MANOUSIS T., GALINOU-MITSOUDI S., 2022. New records and distributional status of marine Mollusca for the Hellenic Seas (by September 2021). *Xenophora Taxonomy*, 35: 8-16.
143. MBAZIOS G., KONTADAKIS C., OVALIS P., POLYZOULIS G., ZEIMBEKIS C., MANOUSIS T., 2023. Description of *Raphitoma aspera* spec. nov. (Mollusca, Gastropoda, Raphitomidae) from the Mediterranean (Aegean Sea, Greece). *Xenophora Taxonomy*, 41: 3-8.
144. MICALI P., T., SIRAGUSA F., AGAMENNONE F., GERMANÁ F., SBRANA C., 2017. Karpathos Island (Greece) and its Indo-Pacific alien species. Part 1. *Boll. Malacol.*, 53: 40-48.
145. MICALI P., AGAMENNONE F., GERMANÁ F., NARDI N., 2022. New records of non-indigenous species at Lefkada Island (Greece). *Boll. Malacol.*, 58: 143-146. <https://doi.org/10.53559/BollMalacol.2022.17>
146. MIFSUD C., OVALIS P., 2008. Re-discovery of living specimens of *Heliacus (Gyriscus) jeffreysianus* (Tiberi, 1867) (Gastropoda: Architectonicidae). *Iberus*, 26 (1): 1-4.
147. MIFSUD C., OVALIS P., 2008. On the presence of *Leptochiton asellus* (Gmelin, 1791) (Polyplacophora: Leptochitonidae) in the Mediterranean Sea. *Boll. Malacol.*, 44 (9-12): 133-134.
148. MIFSUD C., OVALIS P., 2021. On the presence of the species *Ringicula minuta* in the Mediterranean (Gastropoda: Heterobranchia: Ringiculidae). *Triton*, 41: 1-3.
149. MOLLO E., GAVAGNIN M., CARBONE M., CASTELLUCCIO F., POZONE F., ROUSSIS V., TEMPLADO J., GHISELIN M. T., CIMICO G., 2008. Factors promoting marine invasions: a chemoecological approach. *Proc. Natl. Acad. Sci. U.S.A.*, 105: 4582-4586.
150. MOOLENBEEK R. G., HENSELAAR H. J., OLIVERIO M., 1991. The rissoid species described by J. J. Oberling. *Boll. Malacol.*, 27 (5-9): 107-120.
151. MOUTOPOULOS D., RAMFOS A., THEODOROU J. A., KATSELIS G., 2021. Biological aspects, population and fishery dynamics of the non-indigenous pearl oyster *Pinctada imbricata radiata* (Leach, 1814) in the Eastern Mediterranean. *Reg. Stud. Mar. Sci.*, 44: 1-11.
152. MYTILINEOU C., AKEL E. H. K., BABALI N., BALISTRERI P., BARICHE M., et al., 2016. New Mediterranean Biodiversity Records (November, 2016). *Medit. Mar. Sci.*, 17 (3): 794-821.
153. NAPPO A., CILIA D. P., CARDONA S., 2024. Additions to the marine mollusc fauna of the Maltese Archipelago, with observations on the nomenclature and biogeography of rare or poorly known Central Mediterranean species. *Boll. Malacol.* 60: 46-79.
154. Natuurhistorisch Museum Rotterdam. www.nmr-pics.nl.
155. NICOLAIDOU A., ALONGI G., AYDOGAN O., CATRA M., CAVAS L., et al., 2012. New Mediterranean Biodiversity Records (June 2012). *Medit. Mar. Sci.*, 13 (1): 162-174.

156. NICOLAY K., 1980. *Siphonaria pectinata* Linnaeus, 1758 (Pulmonata: Siphonariidae) - First record in Greek waters. *La Conchiglia*, 11:130-1.
157. NOFRONI I., RENDA W., VANNOZZI A., 2022. Mingled in the crowd: A new *Megastomia* from eastern Mediterranean Sea (Gastropoda: Pyramidellidae). *Boll. Malacol.*, 58 (2): 151-159.
158. OVALIS P., ZENETOS A., 2007. On the establishment of two more alien mollusca (*Chama aspersa* Reeve, 1846 and *Chama asperella* Lamarck, 1819) in the eastern Mediterranean. *Medit. Mar. Sci.*, 8 (2): 97-100.
159. OVALIS P., ZENETOS A., 2024. Two more alien micro-molluscs in the Greek Seas: new records of *Stosicia lineata* and *Finella pupoides* from the Saronikos Gulf. *Cah. Biol. Mar.*, 65: 169-172.
160. OVALIS P., JAUX G., MANOUSIS T., GALINOU-MITSOU S., 2024. **Enriching the marine molluscs' biodiversity of the Hellenic Seas (by July 2024).** *Xenophora Taxonomy*, 45: 21-25.
161. OWEN B., HANAVAN S., HALL S., 2001. A new species of abalone (*Haliotis*) from Greece. *The Veliger*, 44 (3): 301-309.
- 161a. ÖZTÜRK B., OVALIS P., 2024. *Bela* Leach, 1847 (Gastropoda Conoidea) species distributed along the Turkish coasts and in the Saronic Gulf (Greece) with description of *Bela filioae* n. sp. *Biodiversity Journal*. 15(1): 85–103., <https://doi.org/10.31396/Biodiv.Jour.2024.15.1.85.103>
162. PÁLL-GERGELY B., CSABAI Z., 2008. Notes on the continental malacofauna of Rhodes, with two new species for the fauna of the island. *Malacol. Bohemoslov.*, 7: 76–78.
163. PANCUCCI - PAPADOPOULOU M. A., ZENETOS A., CORSINI - FOKA M., POLITOU C. Y., 2005. Update of marine alien species in Hellenic waters. *Medit. Mar. Sci.*, 6 (2): 147-158.
164. PAPAVALASILEIOY K., MANOUSIS T., GALINOU-MITSOU S., 2023. Two new *Emarginula* Lamarck, 1801 species for the Hellenic Seas. *Xenophora Taxonomy*, 41: 64-66.
165. PERNA E., 2013. La collezione Perna Atlanto-Mediterranea – Gastropoda. *I Quaderni di Malachia*. 7: 1–271.
166. POURSANIDIS D., KOUTSOUBAS D., ISSARIS J., GEROVASILEIOU V., ZENETOS A., 2009. New records on the opisthobranch fauna of the Greek seas. *Mar. Biodivers. Rec.*, 2 (74): 1-7.
167. POURSANIDIS D., 2011. First record of *Piseinotecus gabinieri* (Mollusca: Gastropoda: Nudibranchia: Piseinotecidae) from the Aegean Sea. *Mar. Biodivers. Rec.*, 4 (7): 1-3.
168. POURSANIDIS D., KOUTSOUBAS D., 2015. On the occurrence of *Elysia gordanae* Thompson & Jaklin, 1988 (Mollusca, Opisthobranchia) in East Mediterranean Sea. *Mar. Biodivers.*, DOI 10.1007/s12526-015-0318-8.
169. POURSANIDIS D., CHIMIENTI G., in: KOUSTENI, V. et al., 2022. New records of rare species in the Mediterranean Sea (May 2022). *Medit. Mar. Sci.*, 23 (3): 417-446.
170. POURSANIDIS D., GUBILI C., 2025. *Martadoris mediterranea* (Domínguez, Pola & Ramón, 2015), a new arrival in the Aegean Sea, in: New records of rarely reported species in the Mediterranean Sea (early view). *Med. Mar. Sci.*, <https://doi.org/10.12681/mms.30420>
171. PRKIĆ J., GIANNUZZI-SAVELLI R., PUSATERI F., RUSINI V., FASSIO G., OLIVERIO M., 2020. Three new species of *Raphitoma* Bellardi, 1847 (Mollusca, Gastropoda, Raphitomidae) from Croatian waters (NE Adriatic Sea). *Zoosystema*, 42 (16): 215-237.
172. PRKIĆ J., GIANNUZZI-SAVELLI R., 2022. A new species of *Bela* Leach in J.E. Gray, 1847 (Conoidea Mangeliidae) from Croatia. *Biodivers. J.*, 13 (4): 841-852. <https://doi.org/10.31396/Biodiv.Jour.2022.13.4.841.948.852>
173. PUSATERI F., GIANNUZZI-SAVELLI R., STAHLSCHMIDT P., 2017. Description of a new species of the genus *Raphitoma* Bellardi, 1847 from the Mediterranean Sea (Mollusca: Neogastropoda: Conoidea: Raphitomidae). *Biodivers. J.*, 8 (1): 205–210.
174. PUSATERI F., GIANNUZZI-SAVELLI R., RENDA W., BARTOLINI S., 2018. *Raphitoma melitis* Kontadakis & Mbazios, 2018 (Mollusca: Gastropoda: Conoidea): osservazioni sulla morfologia e ampliamento dell'areale di distribuzione. *Alleryana*, 36 (2): 59-63.
175. RADEA C., LOUVROU I., ECONOMOU-AMILLI A., 2008. First record of the New Zealand mud snail *Potamopyrgus antipodarum* J. E. Gray, 1843 (Mollusca: Hydrobiidae) in Greece – Notes on its population structure and associated microalgae. *Aquat. Invasions*, 3 (3): 341-344.
176. RAGKOUSIS M., ABDELALI N., AZZURRO E., BADRED-DINE A., BARICHE M., et al., 2020. New Alien Mediterranean Biodiversity Records (October 2020). *Medit. Mar. Sci.*, 21 (3): 631-652.
177. REID D., 2011. The genus *Echinolittorina* Habe, 1956 (Gastropoda: Littorinidae) in the eastern Atlantic Ocean and Mediterranean Sea. *Zootaxa*, 2974: 1–65.
178. REPETTO G., ORLANDO F., ARDUINO G., 2005. *Conchiglie del Mediterraneo*. Amici del Museo “Federico Eucebio”, Alba.
179. ROMANI L., RAVEGGI A., SCAPERROTTA M., BARTOLINI S., 2017. Nota sui micromolluschi marini conchiferi rinvenuti nei dintorni di Paleokastritsa (Corfù [Kerkyra] Grecia, Mar Ionio Nord-Orientale). *Alleryana*, 35 (1): 24-46.
180. ROMANI L., ROLÁN E., MIFSUD C., CROSETTA F., 2017. Redescription of *Retilaskeya horrida* (di Monterosato, 1874) comb. nov. and a re-evaluation of the taxonomic affinity of the genus *Retilaskeya* (Caenogastropoda: Triphoroidea). *J. Nat. Hist.*, 52 (1-2): 116-135.
181. ROMANI L., BARTOLINI S., OLIVER P. G., TAVIAN, M., 2021. “*Draculamya*” *uraniae*: A New Small-Sized Bivalve from the Mediterranean Sea (Galeommatida, Lasaeidae). *Taxonomy*, 1: 142–151. <https://doi.org/10.3390/taxonomy1020011>
182. ROMANI L., TRINGALI L. P., CROSETTA F., 2021. A review of occurrence, distribution and alien status of *Notodiaphana atlantica* Ortea, Moro and Espinosa, 2013 and *Liloea mongii* (Audouin, 1826) (Mollusca: Heterobranchia) in the Mediterranean Sea. *Oceanol. Hydrobiol. Stud.*, 50 (3): 259-268.
183. ROMANI L., BOGI C., GIUSTI F., MICALI P., STANIĆ R., APPOLLONI M., LANGENECK J., 2021. Remarks on the Mediterranean marine Valvatoidea (Gastropoda: Heterobranchia). *Boll. Malacol.*, 57: 164-178.
184. ROMANI L., BOGI C., CHIRIACO F., PAGLI A., SBRANA C., SIRAGUSA F., 2021. I dubbi nel cassetto, secondo contributo: le conchiglie fossili. *Alleryana*, 39 (1): 59-64.
185. RUDMAN W. B., 2003. *Haminoea cyanomarginata* Heller & Thompson, 1983. [In] Sea Slug Forum. Australian Museum, Sydney. Available at <http://www.seaslugforum.net/showall/hamicyan>.
186. RUSSINI V., GIANNUZZI-SAVELLI R., PUSATERI F., PRKIĆ J., FASSIO G., MODICA M. V., OLIVERIO M., 2020. Candidate cases of poecilogony in Neogastropoda: implications for the systematics of the genus *Raphitoma* Bellardi, 1847. *Invertebr. Syst.*, 34: 293–318.
187. RUSSO P., ANGELIDIS A., 2016. A new species of *Fusinus* (Gastropoda, Fasciolaridae) from the Aegean Sea. *Boll. Malacol.*, 52: 68-73.

188. RUSSO P., 2020. La sottofamiglia delle Coralliophilinae Chenu, 1859 (Neogastropoda: Muricidae) nel Mare Mediterraneo. *Alleryana*, 38 (1): 1-23.
189. RUSSO P., 2021. La Famiglia Naticidae Guilding, 1834 (Gastropoda: Caenogastropoda) del Mare Mediterraneo. *Alleryana*, 39 (1): 33-58.
190. RUSSO P., 2021. La famiglia dei Nassariidae Iredale, 1916 (1835) nel Mare Mediterraneo con alcune considerazioni sulla *Tritia corniculum* f. *bedei*. *Alleryana*, 39 (2): 96-125.
191. RUSSO P., 2023. Storia tassonomica di *Trochus laugier* Payraudeau, 1826 (Gastropoda: Calliostomatiidae) e del complesso di specie affini. *Alleryana*, 41 (1): 1-17.
192. RUSSO P., 2023. Il genere *Cerithium* Bruguière, 1789 (Gastropoda: Cerithiidae) nel Mare Mediterraneo, VI parte: *Cerithium scabridum* Philippi, 1848. *Alleryana*, 41 (1): 36-39.
193. SALOMIDI M., GIAKOUMI S., GERAKARIS V., ISSARIS Y., SINI M., TSIAMIS K., 2016. Setting an ecological baseline prior to the bottom-up establishment of a marine protected area in Santorini Island, Aegean Sea. *Medit. Mar. Sci.*, 17 (3). doi:10.12681/mms.1802
194. SALVINI-PLAWEN L. STERRER W., 1968. Zur kenntnis der mesopsammalen Gattung *Pseudovermis* (Gastropoda, Nudibranchia). *Helgolander Wissenschaftliche Meeresuntersuchungen*, 18: 69-77.
195. SANTÍN A., AGUILAR R., AKYOL O., BEGBURS C. R., BENOIT L., CHIMIANTI G., CROSETTA F., DALYAN C., DE LA LINDE RUBIO A., DRAGIČEVIĆ B., DULČIĆ J., GIGLIO G., GÖNÜLAL O., KEBAPCIOGLU T., KESICI N. B., KIPARISIS S., KOUSTENI V., MANCINI E., MASTROTOTARO F., MENUT T., MONTESANTO F., PERISTERAKI P., POURSANIDIS D., RENOULT J. P., SÁNCHEZ-TOCINO L., SPERONE E., TIRALONGO F., 2021. New records of rare species in the Mediterranean Sea. *Medit. Mar. Sci.*, 22 (1): 199-217.
196. SCAPERROTTA M., BARTOLINI S., BOGI C., 2019. *Accrescimenti. Stadi di accrescimento dei molluschi marini del Mediterraneo*. Volume X. L'Informatore Piceno, 212 pp.
197. SCHULZE A., WAGELE H., 1998. Morphology, anatomy and histology of *Flabellina affinis* (Gmelin, 1791) (Nudibranchia, Aeolidioidea, Flabellinidae) and its relation to other Mediterranean *Flabellina* species. *J. Moll. Stud.*, 64: 195-21.
198. SCUDERI D., BALISTRERI P., GERMANÁ A., 2019. Are *Pinctada radiata* (Leach, 1814) and *Pinctada fucata* (Gould, 1850) (Bivalvia Pteriidae) only synonyms or really different species? The case of some Mediterranean populations. *Biodiver. J.*, 10: 415- 426.
- 198a. SCUDERI D., MICALI P., (2024). The Mediterranean *Pusillina philippi* (Aradas et Maggiore, 1844) complex (Gastropoda Rissoidae) with the description of *Pusillina terlizziorum* n. sp. *Biodiver. J.* 15 (4): 897-912., <https://doi.org/10.31396/biodiv.jour.2024.15.4.897.912>
199. SHIPWAY J. R., BORGES L. M. S., MÜLLER J., CRAGG S. M., 2014. The broadcast spawning Caribbean shipworm, *Teredothyra dominicensis* (Bivalvia, Teredinidae), has invaded and become established in the eastern Mediterranean Sea. *Biol. Invasions*, 16 (10): 2037-2048. DOI 10.1007/s10530-014-0646-9
200. SPADA G., SABELLI B., GIANNUZZI-SAVELLI R., 2023. *Mangelia* Risso, 1826 and allied genera in the Mediterranean with the description of a new genus and three new species (Gastropoda: Mangeliidae). *Boll. Malacol.*, 59 (1): 1-53.
201. STEGER J., STOCKINGER M., IVKIĆ A., GALIL B. S., ALBANO P. G., 2018. New records of non-indigenous molluscs from the eastern Mediterranean Sea. *BiolInvasions Rec.*, 7 (3): 245–257.
202. STRACK H. L., 1990. The distribution of Chitons (Polyplacophora) in Greece: addendum. *Apex*, 5: 1315.
203. SZAROWSKA M., FALNIOWSKI A., 2014. *Ventrosia maritima* (Milaschewitsch, 1916) and *V. ventrosa* (Montagu, 1803) in Greece: molecular data as a source of information about species ranges within the Hydrobiinae (Caenogastropoda: Truncatelloidea). *Folia Malacol.*, 22 (1): 61-67.
204. TENEKIDES N. S., 1989. *On a collection of shells from the Greek Seas*. Athens: Protopapa Press, 187 pp. (in Greek).
205. THEODOROU J. A., PERDIKARIS C., SPINOS E., 2019. On the occurrence of rayed pearl oyster *Pinctada imbricata radiata* (Leach, 1814) in Western Greece (Ionian Sea) and its biofouling potential. *Biharean Biol.*, 13 (1): 4-7.
206. THOMPSON T. E., CRAMPTON D. M., 1984. Biology of *Melibe fimbriata*, a conspicuous opisthobranch Mollusc of the Indian Ocean, which has now invaded the Mediterranean Sea. *J. Molluscan Stud.*, 50: 113-121.
207. THOMPSON T. E., JARMAN G. M., ZENETOS A., 1988. Infralittoral macrobenthos of the Patras Gulf and Ionian Sea: Opisthobranch mollusks. *J. Conch.*, 32: 71-95.
208. THOMPSON T. E., 1988. Eastern Mediterranean Opisthobranchs: Oxynoidae, Polibranchiidae, Stiligeridae (Sacoglossa). *J. Moll. Stud.*, 54: 157-172.
209. TSIAMIS K., AYDOGAN Ö., BAILLY N., BALISTRERI P., BARICHE M., *et al.*, 2015. New Mediterranean Biodiversity Records (July 2015). *Medit. Mar. Sci.*, 16(2): 472-488.
210. TZOMOS T., CHARTOSIA N., CHRISTODOULOU M., KITSOS M. S., 2010. New records and range expansion of lessepsian migrants in the Levantine and Aegean Seas. *Mar. Biodivers. Rec.*, 3 (e10): 1-5. doi:10.1017/S1755267209991114
211. VAFIDIS D., KOUTSOUBAS D., CHARTOSIA N., KOUKOURAS A., 2008. The Teuthoidea (Cephalopoda, Mollusca) fauna of the Aegean Sea: comparison with the neighbouring seas and notes on their diet composition. *J. Biol. Res.-Thessalon.*, 10: 191-205.
212. VAN AARTSEN J. J., GOUD J., 2000. European marine mollusca: notes on less well known species. XV. Notes on Lusitanian species of *Parvicardium* Monterosato 1884, and *Afrocardium richardi* (Audouin, 1826) (Bivalvia, Heterodonta, Cardiidae). *Basteria*, 64: 171-186.
213. VAN AARTSEN J. J., GOUD J., 2001. European Marine Mollusca: notes on less well-known species. XVII. *Parvicardium carrozzai* sp. nov., with notes on *P. minimum* (Philippi, 1836) and *Cardium perrieri* Dautzenberg & Fischer, 1897 (Bivalvia, Heterodonta, Cardiidae). *Basteria* 65: 117-122.
214. VARDALA-THEODOROU G. E., GIAMAS P., DIMITROPOULOS A., 1991. A short notice on the occurrence of a pair of *Thysanoteuthis rhombus* Troschel, 1857 in southern Euboic Gulf. *Boll. Malacol.*, 27: 25-34.
215. VARDALA-THEODOROU G. E., 1995. *Tremoctopus violaceus* Delle Chiaje, 1830, from the Epidauros gulf (Aegean sea, Greece). Contribution to knowledge of its geographical distribution. *Ann. Mus. Goulandris*, 9: 471-477.
216. VARDALA-THEODOROU G. E., 1999. The Occurrence of the Indo-Pacific Molluscan Species *Fulvia fragilis* (Forskål, 1775) and *Bulla ampulla* Linnaeus, 1758 in Elefsis Bay. *Newsletter of the Hellenic Zoological Society*, 3: 10-11.
217. VILLARI A., SCUDERI D., 2022. Mainly Mediterranean Rissoellidae (Heterobranchia Acteonimorpha?) with the description of *Rissoella camillae* n. sp.. *Biodivers. J.*, 13 (3): 717–728.

218. WINKEL S., GAMBICHLER V., HORZKNECHT M., MANOUSIS T., GALINOU-MITSOUDI S. First record of the alien *Philinopsis speciosa* Pease, 1860 (Opisthobranchia: Aglajidae) for the Hellenic Seas. *Xenophora Taxonomy*, 46: 23-27.
219. www.ciesm.org/atlas
220. YOKEŞ M. B., ANDREOU V., BAKIU R., BONANOMI S., CAMPS J., *et al.*, 2018. New Mediterranean Biodiversity Records (November 2018). *Medit. Mar. Sci.*, 19 (3): 673-689.
221. YOUNG L., 2006. Expansion of the distribution of *Strombus persicus*: first documentation from Saronikos Gulf (E. Mediterranean). *Xenophora*, 116: 24-25.
222. YOUNG L., POLYCHRONIDIS L., ZENETOS A., 2007. Saronikos Gulf: Hot spot for alien mollusca, in: *1st Pan-Hellenic Meeting on Aquatic Invasive Species in the Eastern Mediterranean*. Herakleio, Crete. pp. 5-6.
223. ZAMINOS G., APOSTOLOU C., PORFYRIS A., MANOUSIS T., TSIRAS S., GALINOU-MITSOUDI S., 2021. New records of extant and fossil Mollusca for the Hellenic Seas, *Xenophora Taxonomy*, 34: 1-10.
224. ZENETOS A., 1994. *Scapharca demiri* (Piani, 1981): First finding in the North Aegean Sea. *La Conchiglia*, 271: 37-38.
225. ZENETOS A., GOGAS S., RUSSO G., TEMPLADO J., 2003. *CIESM atlas of exotic species in the Mediterranean 3 Molluscs*. [F. Briand, Ed.]. Monaco: CIESM Publishers.
226. ZENETOS A., VARDALA-THEODOROU E., ALEXANDRAKIS C., 2005. Update of the marine Bivalvia Mollusca checklist in Greek waters. *J. Mar. Biol. Assoc. U.K.*, 85: 993-998.
227. ZENETOS A., VASSILOPOULOU V., SALOMIDI M., POURSANIDIS D., 2007. Additions to the marine alien fauna of Greek waters (2007 update). *J. Mar. Biolog. Assoc. U.K.*, 5928: 1-8.
228. ZENETOS A., OVALIS P., HOUART R., 2008. Eastward spread of *Ergalatax junionae* Houart, 2008 (Gastropoda, Mollusca), a recent alien species in the Mediterranean. *J. Biol. Res.-Thessalon.*, 10: 1-3.
229. ZENETOS A., OVALIS P., KALOGIROU S., 2009. Closing the gap: *Cerithium scabridum* Philippi, 1848 found in the South Aegean (Greece, Mediterranean Sea). *J. Biol. Res.-Thessalon.*, 11: 107-110.
230. ZENETOS A., OVALIS P., VARDALA-THEODOROU E., 2009. The American piddock *Petricola pholadiformis* Lamarck, 1818 spreading in the Mediterranean Sea. *Aquat. Invasions*, 4 (2): 385-387.
231. ZENETOS A., PANCUCCI-PAPADOPOULOU M. A., ZOGARIS S., PAPASTERGIADOU E., VARDAKAS L., ALIGIZAKI K., ECONOMOU A. N., 2009. Aquatic alien species in Greece (2009): tracking sources, patterns and effects on the ecosystem. *J. Biol. Res.-Thessalon.*, 12: 135-172.
232. ZENETOS A., KATSANEVAKIS S., POURSANIDIS D., CROSETTA F., DAMALAS D., APOSTOLOPOULOS G., GRAVILI C., VARDALA-THEODOROU E., MALAQUIAS M., 2011. Marine alien species in Greek Seas: Additions and amendments by 2010. *Medit. Mar. Sci.*, 12 (1): 95-120.
233. ZENETOS A., KOUTSOGIANNOPOULOS D., OVALIS P., POURSANIDIS D., 2013. The role played by citizen scientists in monitoring marine alien species in Greece. *Cah. Biol. Mar.*, 54: 419-426.
234. ZENETOS A., AKEL E. H. K. H., APOSTOLIDIS C., BILECENOGLU M., BITAR G., 2015. New Mediterranean Biodiversity Records (April 2015). *Medit. Mar. Sci.*, 16 (1): 266-284.
235. ZENETOS A., OVALIS P., GIAKOUMI S., KONTADAKIS C., LEFCADITOU E., MPAZIOS G., SIMBOURA N., TSIAMIS K., 2020. Saronikos Gulf: a hotspot area for alien species in the Mediterranean Sea. *BiolInvasions Rec.*, 9, (4): 873-889.
236. ZOTOU M., PAPADAKIS O., CATANESE G., STRANGA Y., PAGKOUSIS M., *et al.*, 2023. New Kid in Town: *Pinna rudis* spreads in the eastern Mediterranean. *Med. Mar. Sci.*, 24 (3): 709-721. <https://doi.org/10.12681/mms.35343>

CATALOGUE OF SPECIES

BIVALVIA	
SOLEMYIDAE Gray, 1840	
<i>Solemya togata</i> (Poli, 1791)	38, 120, 133, 134, 204
NUCULIDAE J. E. Gray, 1824	
<i>Austronucula perminima</i> (Monterosato, 1875)	131, 133, 53
<i>Ennucula aegeensis</i> (Forbes, 1844)	43*, 122, 133
<i>Ennucula corbuloides</i> (G. Seguenza, 1877)	133
<i>Ennucula tenuis</i> (Montagu, 1808)	133
<i>Nucula hanleyi</i> Winckworth, 1931	120, 133
<i>Nucula nitidosa</i> Winckworth, 1930	38, 120, 133, 204
<i>Nucula nucleus</i> (Linnaeus, 1758)	38, 120, 133, 204
<i>Nucula sulcata</i> Bronn, 1831	120, 133, 204
MALLETIIDAE H. Adams & A. Adams, 1858 (1846)	
<i>Malletia pianii</i> (van Aartsen & Giannuzzi-Savelli, 1991)	133†
NEILONELLIDAE Schileyko, 1989	
<i>Pseudoneilonella latior</i> (Jeffreys, 1876)	97†*
NUCULANIDAE H. Adams & A. Adams, 1858	
<i>Ledella messanensis</i> (Jeffreys, 1870)	129, 133
<i>Lembulus pella</i> (Linnaeus, 1758)	38†, 120†, 122, 133, 204†
<i>Nuculana minuta</i> (O. F. Müller, 1776)	120†, 133
<i>Saccella commutata</i> (R. A. Philippi, 1844)	38†, 120†, 122, 133, 204†
<i>Saccella illirica</i> (Carrozza, 1987)	120†, 119, 133
PRISTIGLOMIDAE H. L. Sanders & Allen, 1973	
<i>Pristigloma minima</i> (G. Seguenza, 1877)	129, 133
YOLDIIDAE Dall, 1908	
<i>Microgloma pusilla</i> (Jeffreys, 1879)	133
<i>Microgloma tumidula</i> (Monterosato, 1880)	120‡, 129, 133
<i>Yoldia micrometrica</i> (G. Seguenza, 1877) †	131, 133
<i>Yoldiella curta</i> A. E. Verrill & K. J. Bush, 1898	97*
<i>Yoldiella frigida</i> (Torell, 1859)	97*
<i>Yoldiella lucida</i> (Lovén, 1846)	120‡, 133
<i>Yoldiella ovulum</i> La Perna, 2004	129, 133
<i>Yoldiella philippiana</i> (Nyst, 1845)	43*, 120, 133
<i>Yoldiella propinqua</i> (Leche, 1878)	129, 133
<i>Yoldiella striolata</i> (Brugnone, 1876)	129, 133
<i>Yoldiella wareni</i> La Perna, 2004	43*, 129, 133
ARCIDAE Lamarck, 1809	
<i>Acar clathrata</i> (Defrance, 1816)	38†, 120†, 133, 204†
<i>Acar plicata</i> (Dillwyn, 1817)	210*, 225
<i>Anadara corbuloides</i> (Monterosato, 1881)	97*, 104, 120‡
<i>Anadara gibbosa</i> (Reeve, 1844)	38†, 120†, 133, 204†
<i>Anadara inaequalis</i> (Bruguère, 1789)	97*
<i>Anadara transversa</i> (Say, 1822)	120, 133, 219†, 224†
<i>Arca noae</i> Linnaeus, 1758	38, 105, 120, 133, 204
<i>Asperarca nodulosa</i> (O. F. Müller, 1776)	43*, 120, 133, 204†
<i>Asperarca secreta</i> La Perna, 1998	43*, 120, 122, 133, 179
<i>Barbatia barbata</i> (Linnaeus, 1758)	38, 120, 133, 204
<i>Bathyarca frielei</i> (Friele, 1877)	120‡, 133
<i>Bathyarca pentunculoides</i> (Scacchi, 1835)	43*, 120, 122, 133, 204
<i>Bathyarca philippiana</i> (Nyst, 1848)	43*, 122, 133
<i>Tetrarca tetragona</i> (Poli, 1795)	38, 120, 133, 204†
NOETIIDAE Stewart, 1930	
<i>Striarca lactea</i> (Linnaeus, 1758)	38, 120, 133, 204

GLYCYMERIDIDAE Dall, 1908	
<i>Glycymeris bimaculata</i> (Poli, 1795)	38†, 120, 133, 204
<i>Glycymeris glycymeris</i> (Linnaeus, 1758)	38, 120*, 133, 204
<i>Glycymeris nummaria</i> (Linnaeus, 1758)	38†, 120†, 133, 204†
<i>Glycymeris pilosa</i> (Linnaeus, 1767)	38†, 120, 133, 204
DREISSENIDAE Gray, 1840	
<i>Dreissena polymorpha</i> (Pallas, 1771)	133
MYTILIDAE Rafinesque, 1815	
<i>Arcuatula perfragilis</i> (Dunker, 1857)	120†, 133
<i>Brachidontes pharaonis</i> (P. Fischer, 1870)	131, 133, 204*
<i>Crenella arenaria</i> Monterosato, 1875 ex H. Martin, ms.	120, 122, 133
<i>Crenella decussata</i> (Montagu, 1808)	120, 133
<i>Crenella pellucida</i> (Jeffreys, 1859)	53
<i>Dacrydium hyalinum</i> (Monterosato, 1875)	120, 122, 133
<i>Gregariella petagnae</i> (Scacchi, 1832)	38†, 120, 133, 204†
<i>Gregariella semigranata</i> (Reeve, 1858)	129, 133
<i>Idas argenteus</i> Jeffreys, 1876	133
<i>Idas modiolaeformis</i> (Sturany, 1896)	138
<i>Lioberus ligneus</i> (Reeve, 1858)	129, 133
<i>Lithophaga lithophaga</i> (Linnaeus, 1758)	38, 105, 120, 129, 133, 204
<i>Modiolula phaseolina</i> (R. A. Philippi, 1844)	120, 133
<i>Modiolus adriaticus</i> Lamarck, 1819	38, 120, 133, 204
<i>Modiolus barbatus</i> (Linnaeus, 1758)	38, 105, 120, 133, 204
<i>Musculus costulatus</i> (Risso, 1826)	38, 120, 133, 204
<i>Musculus discors</i> (Linnaeus, 1767)	120, 133
<i>Musculus subpictus</i> (Cantraine, 1835)	120†, 133, 204
<i>Mytilaster lineatus</i> (Gmelin, 1791)	119, 133, 204
<i>Mytilaster marioni</i> (Locard, 1889)	119, 120, 133
<i>Mytilaster minimus</i> (Poli, 1795)	38, 120, 133, 204
<i>Mytilaster solidus</i> Monterosato, 1883	120, 133, 204
<i>Mytilus edulis</i> Linnaeus, 1758	120, 133
<i>Mytilus galloprovincialis</i> Lamarck, 1819	38, 105, 120, 133, 204
<i>Rhomboidella prideauxi</i> (Leach, 1815)	138
<i>Septifer cumingii</i> Récluz, 1849	48, 91, 122, 133, 179, 232†*
PINNIDAE Leach, 1819	
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