

ILLUSTRATED CHECKLIST OF THE INFRALITTORAL MOLLUSCS OFF VILA FRANCA DO CAMPO

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ABSTRACT

A list of the molluscan species dredged during the 3rd International Workshop of Malacology and Marine Biology is presented. Positive identification has not been possible for a number of taxa. However, almost all species are illustrated so as to provide a practical guide to the species which may occur as beach drift and others which naturally range up into the intertidal.

The distribution of the species at the various collecting stations is also presented as a table organized by depth, and identifying where specimens were collected alive or, in the case of bivalves, with both valves attached.

RESUMO

Apresenta-se uma listagem das espécies de moluscos dragadas durante o 3^o Workshop Internacional de Malacologia e Biologia Marinha. Uma identificação positiva não foi possível para um determinado número de taxa. No entanto, quase todas as espécies estão ilustradas, de modo a providenciar um guia prático para as que podem ocorrer no material arrojado nas praias e outras que naturalmente estendem a sua distribuição até ao intertidal.

A distribuição das espécies pelas várias estações de colheita é também apresentada numa tabela organizada por profundidade, identificando também onde os exemplares foram recolhidos vivos ou, no caso dos bivalves, com ambas as valvas ligadas.

INTRODUCTION

The main purpose behind the 3rd International Workshop of Malacology and Marine Biology was to test the hypothesis that the deeper, colder, waters around the Azorean islands acted as a refuge during the warm periods that interspersed glaciations. It is thought that when surface temperatures began to rise, cold-water species would likely follow their temperature optima by descending to appropriate depths. Present results, preliminary as they are, do not support such a suggestion.

The extensive dredging has produced a wealth of information about the molluscan biodiversity of the sublittoral off Vila Franca do Campo, in a depth range poorly studied by previous authors in the Azores. This herein published list of 232 molluscan species and the pictorial representations of most of them is a contribution to that knowledge. The illustrations, whenever possible, were not only of the collected shells but of the living animals. This will provide students and researchers with an easier identification guide to facilitate their studies. Also, although in many

cases positive identifications were not possible, the provided illustrations supply a basis for further studies leading to more accurate taxonomic determinations.

The micromolluscs are unevenly reported upon because the minimum dredge mesh was 2.5 mm and only some hauls were sieved to retain the residual 1mm fraction.

A list of the stations related to the workshop is provided (see Text figure 1). All species sorted are reported upon (Table 1), even though their shells could only have been transported from other habitats, including the intertidal. Such situations are commented upon for each species identified. To facilitate inferences related to depth distribution, the species collected alive or, in the case of bivalves, with both valves attached, are shown in bold in the Taxonomic List, and the sampling depths also indicated. Also, in Table 1 the stations are arranged by increasing depth and the state of the collected specimens (fragment, empty shell/one valve, with animal/two valves) is differentiated by variations in the density of their gray overlays, so as to give an overall pictorial view of the distribution of each taxon.

The depth ranges of the species given by Poppe & Gotto (1991-1993) (P&G) and Macedo *et al.* (1999) (MM&B) are referred whenever possible. Also, where appropriate, reference is made to the species found alive in the nearby Ilhéu de Vila Franca do Campo (IVFC) (Martins, 2004). This is intended as a clarification to the distribution of these species in the dredged material.

Previous works on Ilhéu de Vila Franca do Campo have listed the marine molluscs of that islet or of the shores nearby, and Ávila *et al.* (2000) have provided the most recent list of the shallow-water marine molluscs of São Miguel. For comparison purposes reference to these publi-

cations will be made under the appropriate taxa. Species are presented following their current systematic position as set out in CLEMAM (Check List of European Marine Molluscs) (<http://www.somali.asso.fr/clemam/index.clemam.html>).

LIST OF SAMPLING STATIONS

Forty-six stations were sampled during the workshop (Text figure 1). Stations 3-4, 9-11, 17 were dive sites and are not included in this report, except in the notes provided under the respective station code.

Stations 47-54 were sampled after the workshop timeframe but followed the same procedure and are, therefore included herein. Similarly, stations 56-58, sampled during fieldwork undertaken for the Malacology class of the Department of Biology of the University of the Azores, were added to the workshop material. Station 55 represented from the biological material collected from a stone snagged by a fishing net.

STATION 1 – in front of the marina – Vila Franca do Campo.

Date: 17-07-2006.

Depth: 32 fathoms (57 m).

Co-ordinates: N 37° 42' 12" W 25° 25' 09".

Collected by: Frias Martins, Brian Morton, Jerry Harasewych.

Observations: (large dredge) two tows (A and B) pooled.

STATION 2 – in front of the marina - Vila Franca do Campo.

Date: 17-07-2006.

Depth: 75 fathoms (135 m).

Co-ordinates: N 37° 41' 42" W 25° 25' 22".

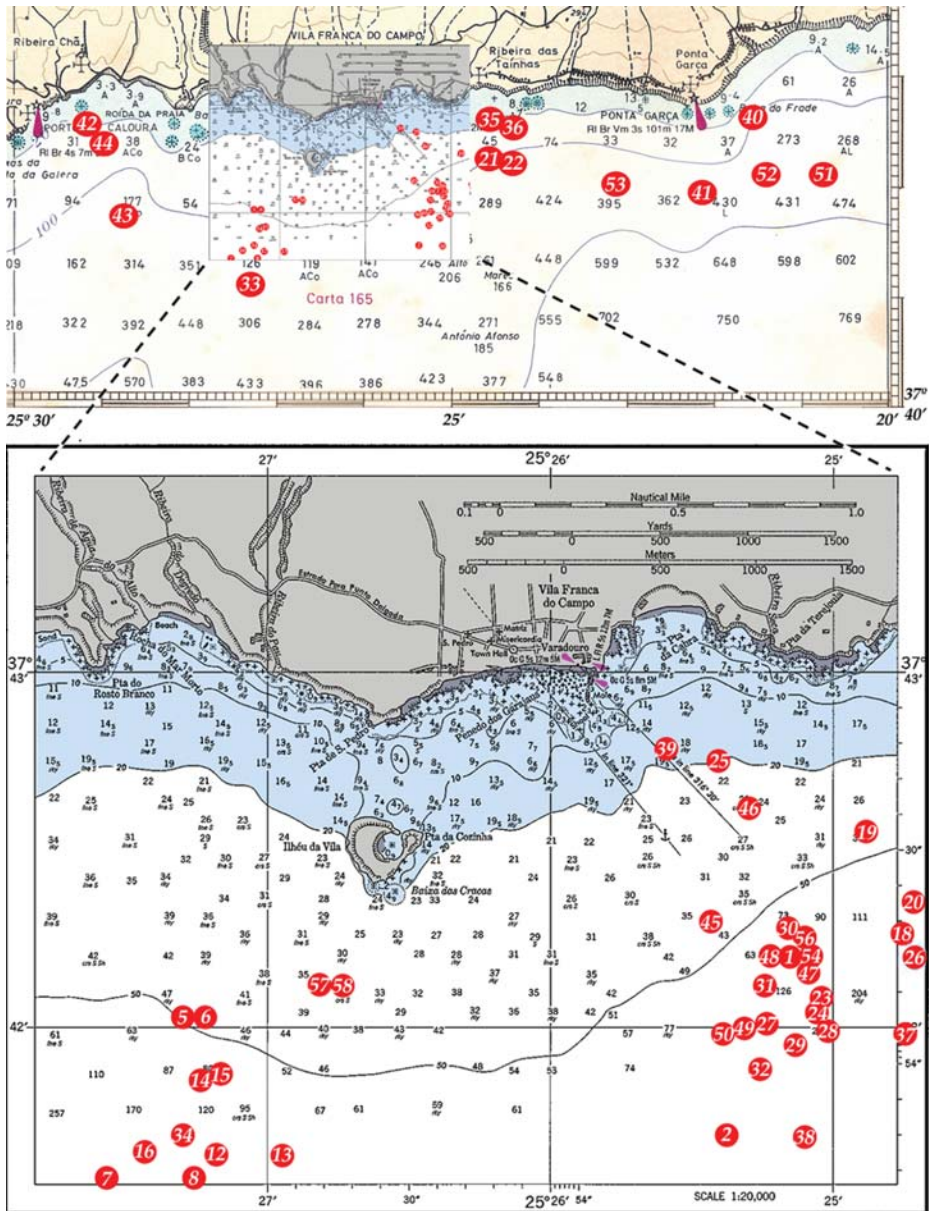
Collected by: Frias Martins, Brian Morton, Jerry Harasewych.

Observations: (large dredge).

STATION 3 – around Farilhão, SE of Ilhéu de Vila Franca do Campo.

Date: 18-07-2006.

Depth: 5-19 m.



TEXT FIGURE 1. Distribution of the stations.

Co-ordinates: --

Collected by: Joana Xavier, Paola Rachello, José Pedro Borges, Gonçalo Calado.

Observations: (SCUBA) 1 ophiurid (10 m) *Hypselodoris picta webbi* (4 spcs.), *Chromodoris purpurea* (2 spcs.), *Platydoris argo*

(1 spc.), *Flabellina* (1 spc.), *Hypselodoris midatlantica* (1 spc.); *Umbraculum umbraculum* (1 spc. feeding on *Halichondria aurantiaca*).

STATION 4 – off Cais do Tagarete, Vila Franca do Campo.

Date: 18-07-2006.

Depth: 7 m.

Co-ordinates: ---

Collected by: Gonçalo Calado, José Pedro Borges, Paola Rachello.

Observations: (SCUBA).

STATION 5

Date: 19-07-2006.

Depth: 23-24 fathoms (41-43 m)

Co-ordinates: N 37° 42' 02" W 25° 27' 18".

Collected by: Brian Morton, Sérgio Ávila, Pedro Rodrigues.

Observations: (dredge) 6 minute tow at 1.5 knots.

STATION 6

Date: 19-07-2006.

Depth: 22-23 fathoms (40-41 m).

Co-ordinates: N 37° 42' 02" W 25° 27' 13".

Collected by: Brian Morton, Sérgio Ávila, Pedro Rodrigues.

Observations: (dredge) "earthworm" sand fish *Apterichthys caecus* (Linnaeus, 1758).

STATION 7

Date: 19-07-2006.

Depth: 93-105 fathoms (167-189 m).

Co-ordinates: N 37° 41' 34" W 25° 27' 34".

Collected by: Brian Morton, Sérgio Ávila, Pedro Rodrigues.

Observations: (dredge) 10 min tow at 1.5 – 2 knots.

STATION 8

Date: 19-07-2006.

Depth: 70-95 fathoms (126-171 m).

Co-ordinates: N 37° 41' 34" W 25° 27' 15".

Collected by: Brian Morton, Sérgio Ávila, Pedro Rodrigues.

Observations: (dredge) 6 minute tow at 1.5 – 2 knots.

STATION 9 – Portinho da Ribeirinha.

Date: 20-07-2006.

Depth: 5-14 m.

Co-ordinates: ---

Collected by: Gonçalo Calado, Joana Xavier, Patrícia Madeira, Paola Rachello.

Observations: (SCUBA) ophiurids.

STATION 10 – wall and mouth of the marina – Vila Franca do Campo.

Date: 20-07-2006.

Depth: 6 m.

Co-ordinates: ---

Collected by: Gonçalo Calado, Patrícia Madeira.

Observations: (SCUBA) echinoderms.

STATION 11 – Ilhéu de Vila Franca do Campo (NE).

Date: 19-07-2006.

Depth: 16 m.

Co-ordinates: ---

Collected by: Gonçalo Calado, José Pedro Borges, Joana Xavier, Paola Rachello, Patrícia Madeira.

Observations: (SCUBA).

STATION 12

Date: 21-07-2006.

Depth: 53-67 fathoms (95-121 m).

Co-ordinates: N 37° 41' 39" W 25° 27' 11".

Collected by: Brian Morton.

Observations: (dredge).

STATION 13

Date: 21-07-2006.

Depth: 47.9–40.8 fathoms (86-73 m).

Co-ordinates: N 37° 41' 34" W 25° 26' 57".

Collected by: Brian Morton.

Observations: (dredge).

STATION 14

Date: 21-07-2006.

Depth: 25-26.2 fathoms (45-47 m).

Co-ordinates: N 37° 41' 51" W 25° 27' 14".

Collected by: Brian Morton.

Observations: (dredge).

STATION 15

Date: 21-07-2006.

Depth: 25,7 – 26 fathoms (46-47 m).

Co-ordinates: N 37° 41' 52" W 25° 27' 13".

Collected by: Brian Morton.

Observations: (dredge).

STATION 16*Date:* 21-07-2006.*Depth:* 9.9 – 11 fathoms (18-20 m).*Co-ordinates:* N 37° 42' 39" W 25° 27' 26".*Collected by:* Brian Morton.*Observations:* (dredge).**STATION 17** – mouth of Ilhéu de Vila Franca do Campo.*Date:* 20-07-2006.*Depth:* 6 m.*Co-ordinates:* --*Collected by:* Andrea Cunha, Daniela Gabriel.*Observations:* (SCUBA) sponges, sand urchin, algae.**STATION 18** – off Ribeira das Tainhas.*Date:* 21-07-2006.*Depth:* 40 fathoms (72 m).*Co-ordinates:* N 37° 42' 16" W 25° 24' 45".*Collected by:* Frias Martins, Brian Morton, Roger Bamber.*Observations:* (small dredge) 5 minute tow.**STATION 19** – off Ribeira das Tainhas.*Date:* 21-07-2006.*Depth:* 13 fathoms (23 m).*Co-ordinates:* N 37° 42' 33" W 25° 24' 53".*Collected by:* Roger Bamber, Frias Martins, Brian Morton.*Observations:* (grab).**STATION 20** – off Ribeira das Tainhas.*Date:* 21-07-2006.*Depth:* 28 fathoms (50 m).*Co-ordinates:* N 37° 42' 21" W 25° 24' 43".*Collected by:* Roger Bamber, Frias Martins, Brian Morton.*Observations:* (grab).**STATION 21** – off Ribeira das Tainhas.*Date:* 21-07-2006.*Depth:* 66 fathoms (118 m).*Co-ordinates:* N 37° 42' 16" W 25° 24' 34".*Collected by:* Roger Bamber, Frias Martins, Brian Morton.*Observations:* (grab).**STATION 22** – off Ribeira das Tainhas.*Date:* 24-07-2006.*Depth:* 6 fathoms (11 m).*Co-ordinates:* N 37° 42' 51" W 25° 24' 45".*Collected by:* Frias Martins, Brian Morton.*Observations:* (large dredge).**STATION 23** – off Ribeira das Tainhas.*Date:* 24-07-2006.*Depth:* 65-25 fathoms (117- 45 m).*Co-ordinates:* N 37° 42' 05" W 25° 25' 03".*Collected by:* Frias Martins, Brian Morton.*Observations:* (large dredge)**STATION 24** – off Ribeira das Tainhas.*Date:* 24-07-2006.*Depth:* 65-27 fathoms (117-48 m).*Co-ordinates:* 37° 42' 04" W 25° 25' 02".*Collected by:* Frias Martins, Brian Morton.*Observations:* (large dredge).**STATION 25** – off Praia da Vinha da Areia.*Date:* 24-07-2006.*Depth:* 7.6 fathoms (14 m).*Co-ordinates:* N 37° 42' 45" W 25° 25' 24".*Collected by:* Frias Martins, Brian Morton.*Observations:* (large dredge).**STATION 26** – off Ribeira das Tainhas.*Date:* 21-07-2006.*Depth:* 94 fathoms (169 m).*Co-ordinates:* N 37° 42' 15" W 25° 24' 28".*Collected by:* Roger Bamber, Frias Martins, Brian Morton.*Observations:* (dredge).**STATION 27** – off Ribeira das Tainhas.*Date:* 24-07-2006.*Depth:* 60-55 fathoms (108-99 m).*Co-ordinates:* N 37° 42' 01" W 25° 25' 14".*Collected by:* Sérgio Ávila.*Observations:* (large dredge) *Holothuria*.**STATION 28**– off Ribeira das Tainhas.*Date:* 24-07-2006.*Depth:* 65-81 fathoms (117-145 m).*Co-ordinates:* N 37° 42' 01" W 25° 25' 01".*Collected by:* Sérgio Ávila.*Observations:* (large dredge).**STATION 29** – off Ribeira das Tainhas.*Date:* 24-07-2006.*Depth:* 110-80 fathoms (198-144 m).*Co-ordinates:* N 37° 41' 57" W 25° 25' 08".*Collected by:* Sérgio Ávila.*Observations:* (large dredge).

STATION 30 – off Ribeira das Tainhas.*Date:* 24-07-2006.*Depth:* 35-19 fathoms (63-34 m).*Co-ordinates:* N 37° 42' 17" W 25° 25' 09".*Collected by:* Sérgio Ávila.*Observations:* (large dredge).**STATION 31** – off Cais do Tagarete, Vila Franca do Campo.*Date:* 25-07-2006.*Depth:* 29 fathoms (52 m).*Co-ordinates:* N 37° 42' 07" W 25° 25' 14".*Collected by:* Frias Martins.*Observations:* (large dredge).**STATION 32** – off Cais do Tagarete, Vila Franca do Campo.*Date:* 25-07-2006.*Depth:* 100 fathoms (180 m).*Co-ordinates:* N 37° 41' 53" W 25° 25' 15".*Collected by:* Frias Martins.*Observations:* (large dredge).**STATION 33** – off Rosto Branco, Água d'Alto.*Date:* 25-07-2006.*Depth:* 82-120 fathoms (147-216 m).*Co-ordinates:* N 37° 41' 08" W 25° 27' 18".*Collected by:* Frias Martins.*Observations:* (large dredge).**STATION 34***Date:* 25-07-2006.*Depth:* 9.3 fathoms (17 m).*Co-ordinates:* N 37° 42' 42" W 25° 24' 38".*Collected by:* Roger Bamber, Joana Xavier, Paola Racheello.*Observations:* (grab) two samples pooled.**STATION 35***Date:* 25-07-2006.*Depth:* 12.7 fathoms (23 m).*Co-ordinates:* N 37° 42' 37" W 25° 24' 34".*Collected by:* Roger Bamber, Joana Xavier, Paola Racheello.*Observations:* (grab) two samples pooled.**STATION 36***Date:* 25-07-2006.*Depth:* 20 fathoms (36 m).*Co-ordinates:* N 37° 42' 33" W 25° 24' 35".*Collected by:* Roger Bamber, Joana Xavier, Paola Racheello.*Observations:* (grab) two samples pooled.**STATION 37***Date:* 25-07-2006.*Depth:* 130-75 fathoms (234-135 m) (G); 117-65 fathoms (210-117 m) (H).*Co-ordinates:* N 37° 42' 13" W 25° 24' 36" (G)
N 37° 41' 59" W 25° 24' 44" to N 37° 42' 11" W 25° 24' 45" (H).*Collected by:* Joana Xavier, Paola Racheello, Roger Bamber.*Observations:* (large dredge) G+H were pooled.**STATION 38***Date:* 25-07-2006.*Depth:* 115-72 fathoms (207-129 m).*Co-ordinates:* N 37° 41' 41" W 25° 25' 06" to N 37° 41' 17" W 25° 25' 10".*Collected by:* Joana Xavier, Paola Racheello, Roger Bamber.*Observations:* (large dredge).**STATION 39***Date:* 25-07-2006.*Depth:* 6.7 fathoms (12 m).*Co-ordinates:* N 37° 42' 47" W 25° 25' 34".*Collected by:* Roger Bamber, Joana Xavier, Paola Racheello.*Observations:* (grab) two samples pooled.**STATION 40** – off Amora, Ponta Garça.*Date:* 26-07-2006.*Depth:* 21 fathoms (38 m).*Co-ordinates:* N 37° 42' 43" W 25° 21' 33".*Collected by:* Frias Martins, Jerry Harasewych.*Observations:* (small dredge).**STATION 41** – off Amora, Ponta Garça.*Date:* 26-07-2006.*Depth:* 200-87 fathoms (360-156 m).*Co-ordinates:* N 37° 41' 57" W 25° 22' 08".*Collected by:* Frias Martins, Jerry Harasewych.*Observations:* (large dredge); bottom drops suddenly to about 600 fathoms; tow up slope.**STATION 42** – off Praia de Água d'Alto.*Date:* 26-07-2006.*Depth:* 83.6 fathoms (150 m).*Co-ordinates:* N 37° 42' 35" W 25° 29' 10".*Collected by:* Frias Martins, Jerry Harasewych.*Observations:* (large dredge) rocky; octopus.**STATION 43** – off Praia de Água d'Alto.*Date:* 26-07-2006.

Depth: 130 fathoms (234 m).
Co-ordinates: N 37° 41' 44" W 25° 28' 44".
Collected by: Frias Martins, Jerry Harasewych.
Observations: (large dredge) rock.

STATION 44 – off Praia de Água d'Alto.

Date: 26-07-2006.
Depth: 37 fathoms (66 m).
Co-ordinates: N 37° 42' 24" W 25° 28' 59".
Collected by: Frias Martins, Jerry Harasewych.
Observations: (small dredge).

STATION 45 – off Vinha da Areia, Vila Franca do Campo.

Date: 26-07-2006.
Depth: 16.5 fathoms (30 m).
Co-ordinates: N 37° 42' 18" W 25° 25' 26".
Collected by: Frias Martins, Jerry Harasewych.
Observations: (small dredge) near sewage outlet.

STATION 46 – off Vinha da Areia, Vila Franca do Campo.

Date: 26-07-2006.
Depth: 31 fathoms (56 m).
Co-ordinates: N 37° 42' 37" W 25° 25' 18".
Collected by: Frias Martins, Jerry Harasewych.
Observations: (small dredge).

STATION 47 – off Vinha da Areia, Vila Franca do Campo.

Date: 05-09-2006.
Depth: 43 fathoms (77 m).
Co-ordinates: N 37° 42' 09" W 25° 25' 04".
Collected by: Frias Martins, Patrícia Madeira, Henk van Goor.
Observations: (small dredge).

STATION 48 – off Vinha da Areia, Vila Franca do Campo.

Date: 05-09-2006.
Depth: 35 fathoms (63 m).
Co-ordinates: N 37° 42' 12" W 25° 25' 09".
Collected by: Frias Martins, Patrícia Madeira, Henk van Goor.
Observations: (small dredge).

STATION 49 – off Vinha da Areia, Vila Franca do Campo.

Date: 05-09-2006.
Depth: 45 fathoms (81 m).
Co-ordinates: N 37° 42' 00" W 25° 25' 15".

Collected by: Frias Martins, Patrícia Madeira, Henk van Goor.
Observations: (small dredge).

STATION 50 – off Vinha da Areia, Vila Franca do Campo.

Date: 05-09-2006.
Depth: 37 fathoms (66 m).
Co-ordinates: N 37° 41' 59" W 25° 25' 22".
Collected by: Frias Martins, Patrícia Madeira, Henk van Goor.
Observations: (small dredge).

STATION 51 – off Amora, Ponta Garça.

Date: 05-09-2006.
Depth: 195 fathoms (351 m).
Co-ordinates: N 37° 42' 06" W 25° 20' 47".
Collected by: Frias Martins, Patrícia Madeira, Henk van Goor.
Observations: (large dredge) sponge, corals.

STATION 52 – off Amora, Ponta Garça.

Date: 05-09-2006.
Depth: 150 fathoms (270 m).
Co-ordinates: N 37° 42' 07" W 25° 21' 24".
Collected by: Frias Martins, Patrícia Madeira, Henk van Goor.
Observations: (large dredge).

STATION 53 – off Ponta Garça.

Date: 05-09-2006.
Depth: 177 fathoms (318 m).
Co-ordinates: N 37° 42' 01" W 25° 23' 07".
Collected by: Frias Martins, Patrícia Madeira, Henk van Goor.
Observations: (large dredge).

STATION 54 – off Vinha da Areia, Vila Franca do Campo.

Date: 05-09-2006.
Depth: 37 fathoms (66 m).
Co-ordinates: N 37° 42' 11" W 25° 25' 04".
Collected by: Frias Martins, Patrícia Madeira, Henk van Goor.
Observations: (small dredge).

STATION 55 – off Vila Franca do Campo.

Date: 07-09-2006.
Depth: 90 fathoms (162 m).
Co-ordinates: –
Collected by: Moisés Bolarinho, skipper of the fishing boat 'Vila Franca'.

Observations: rock snagged on fishing gear; covered with mud, two white gorgonians, some sponges and living *Chama*.

STATION 56 – off Vila Franca do Campo, east of Ilhéu.

Date: 03-10-2006.

Depth: 32 fathoms (58 m).

Co-ordinates: N 37° 42' 12" W 25° 25' 08".

Collected by: Malacology class (Department of Biology, University of Azores).

Observations: (small dredge) one tow 5 min and another 15 min, pooled.

STATION 57 – off Vila Franca do Campo, west of Ilhéu.

Date: 03-10-2006.

Depth: 18 fathoms (32 m).

Co-ordinates: N 37° 42' 08" W 25° 26' 49".

Collected by: Malacology class (Department of Biology, University of Azores).

Observations: (small dredge) tow during 15 min.

STATION 58 – off Vila Franca do Campo, west of Ilhéu.

Date: 03-10-2006.

Depth: 18 fathoms (32 m).

Co-ordinates: N 37° 42' 08" W 25° 26' 49".

Collected by: Malacology class (Department of Biology, University of Azores).

Observations: (grab) 4 samples, pooled.

TAXONOMIC LIST

Phylum MOLLUSCA

Class POLYPLACOPHORA Gray, 1821

Order LEPIDOPLEURIDA Thiele, 1909

Family Leptochitonidae Dall, 1889

Lepidochiton cimicoides (Monterosato, 1879)

(Figure 1)

Remarks: Specimens collected only at Station 37; alive. Depth range: 0-50 m (P&G); 0-200 m (MM&B); this study, alive: 117-234 m.

Order CHITONIDA Thiele, 1909

Family Acanthochitonidae Simroth, 1894

Acanthochitona fascicularis (Linnaeus, 1767)

(Figure 2)

Remarks: Only loose valves were found; however, the number and freshness of the valves collected suggests that it could live on nearby

rocky habitats. Ávila *et al.*, 2000. Depth range: 0-50 m (P&G); 0-200 m (MM&B); this study: 30-129 m. Alive on IVFC (Martins, 2004).

Class GASTROPODA Cuvier, 1797

Subclass PROSOBRANCHIA Milne Edwards, 1848

Order ARCHAEOGASTROPODA Thiele, 1925

Suborder DOCOGLOSSA Troschel, 1866

Superfamily PATELLOIDEA Rafinesque, 1815

Family Patellidae Rafinesque, 1815

Patella candei d'Orbigny, 1840

Patella aspera Röding, 1798

Remarks: Only small and very worn shells were found. These are known shallow water species and their presence in the samples is considered accidental. Alive on IVFC (Martins, 2004). *Patella aspera* has been incorrectly synonymized with *P. ulyssiponensis* Gmelin, 1791. Weber & Hawkins (2005) consider both genetically distinct, the name *P. aspera* referring to the Macaronesian populations whereas *P. ulyssiponensis* is applied to those in the continental coasts.

Superfamily LOTIOIDEA Gray, 1840

Family Lotiidae Gray, 1840

Tectura virginea (O.F. Müller, 1776)

(Figure 3)

Remarks: Worn shells, in various degrees of preservation were found. The abundance, size and freshness of some specimens indicate that they could live on nearby rocky habitats. Ávila *et al.*, 2000. Depth range: 0-100 m (P&G); this study: 14-360 m. Common alive on IVFC (Martins, 2004).

Family Lepetidae Gray, 1840

Propilidium exiguum (Thompson, 1844)

(Figure 4)

Remarks: Only one specimen found. Depth range: 7-600 m (P&G); 1.480-2.190 m (MM&B, as *P. ancylode* Forbes, 1849); this study: 156-360 m.

Suborder VETIGASTROPODA Salvini-Plawén, 1980

Superfamily FISSURELLOIDEA Fleming, 1822

Family Fissurellidae Fleming, 1822

Emarginula sp.

(Figure 5)

Remarks: Only one specimen found, probably

E. rosea Monterosato in Locard, 1892, or a juvenile of *E. guernei* Dautzenberg & Fischer, 1896. Depth range: 0-90 m (P&G); 0 m (MM&B); this study: 117-234 m.

Family Scissurellidae Gray, 1847

Sinezona cingulata (O.G. Costa, 1861)
(Figure 6)

Remarks: Only one specimen found. Bullock *et al.*, 1990 as *Scissurella crispata* Fleming, 1828; Bullock, 1995 as *Schismope fayalensis* Dautzenberg, 1889; Ávila *et al.*, 2000. Depth range: 900 m (MM&B); this study: 117-145 m.

Superfamily HALIOTOIDEA Rafinesque, 1815

Family Haliotidae Rafinesque, 1815

Haliotis coccinea Reeve, 1846
(Figure 7)

Remarks: Only small and worn shells were found. It is possible that the presence of shells in deeper water is accidental. Ávila *et al.*, 2000. Depth range: 2-25 m (P&G; MM&B); this study: 30-360 m. Common alive on IVFC (Martins, 2004).

?*Haliotis* sp.
(Figure 8)

Remarks: The only specimen collected had two holes topically similar to those of *Haliotis* and could be a juvenile. However, the shell morphology differs from that typical of the genus, namely the flattened columellar lip, and, therefore, it is only tentatively referred to *Haliotis*.

Superfamily LEPETELLOIDEA Dall, 1882

Family Lepetellidae Dall, 1882

Lepetella laterocompressa (de Rayneval & Ponz, 1854)
(Figure 9)

Remarks: Common in small fractions of deeper samples. Depth range, this study: 99-234 m.

Family Addisoniidae Dall, 1882

Addisonia excentrica (Tiberi, 1855)
(Figure 10)

Remarks: Only one specimen found. Depth range: 370-3.307 m (MM&B); this study: 117-234 m.

Superfamily TROCHOIDEA Rafinesque, 1815

Family Trochidae Rafinesque, 1815

Clelandella azorica Gofas, 2005

(Figures 11-12)

Remarks: Live specimens found only when the dredge hit hard surface. Endemic. Depth range, this study: 30-360 m; alive: 144-198 m.

Clelandella sp.

(Figure 13)

Remarks: Rare. Depth range: 117-234 m.

Jujubinus pseudogravinae Nordsieck, 1973

(Figures 14-15)

Remarks: Although live specimens were not collected, some shells were fresh, indicating that they could live in nearby habitats. Endemic. Ávila *et al.*, 2000. Depth range: 0-200 m (P&G, MM&B, as *J. exasperatus* (Pennant, 1777)); this study: 18-360 m. Common alive on IVFC (Martins, 2004).

Gibbula delgadensis Nordsieck, 1982

(Figures 16-17)

Remarks: Uncommon. Not collected alive but some shells were fresh, indicating that they could live in nearby habitats. Endemic. Depth range, this study: 38-234 m. Common alive on IVFC (Martins, 2004).

Gibbula magus (Linnaeus, 1758)

(Figures 18-22)

Remarks: Common on sandy bottoms. The specimens from the Azores are smaller than their European conspecifics. Bullock *et al.*, 1990; Ávila *et al.*, 2000. Depth range: 0-70 m (P&G); this study: 14-360 m; alive: 18-360 m. Common alive on IVFC (Martins, 2004)

Margarites sp.

(Figure 23)

Remarks: A few rolled specimens collected. Depth range, this study: 99-198 m.

Family Solariellidae Powell, 1951

Solariella azorensis (Watson, 1886)

(Figures 24-26)

Remarks: Relatively common. Some ultra-juvenile specimens collected (Figure 26) fit the description provided by Adam & Knudsen (1969) for *Rhodinoliotia roseotincta* (Smith, 1871); since specimens of the latter species were not available for comparison, a decision on synonymy is not warranted.

PLATE I

1. *Leptochiton cimicoides* (Monterosato, 1879) (Sta37)
2. *Acanthochitona fascicularis* (Linnaeus, 1767) (Sta31)
3. *Tectura virginea* (O.F. Müller, 1776) (Sta28)
4. *Propilidium exiguum* (Thompson, 1844) (Sta41)
5. *Emarginula* sp. (Sta37)
6. *Sinezona cingulata* (O.G. Costa, 1861) (Sta28)
7. *Haliotis coccinea* Reeve, 1846 (Sta26)
8. ?*Haliotis* cf. *coccinea* Reeve, 1846 (juvenile) (Sta29)
9. *Lepetella laterocompressa* (Rayneval & Ponzi, 1854) (Sta38)
10. *Addisonia excentrica* (Tiberi, 1855) (Sta37)
11. *Clelandella azorica* Gofas, 2005 (Sta29)
12. *Clelandella azorica* Gofas, 2005 (Sta53)
13. *Clelandella* sp. (Sta37)
14. *Jujubinus pseudogravinae* Nordsieck, 1973 (Sta44)
15. *Jujubinus pseudogravinae* Nordsieck, 1973 (Sta27)

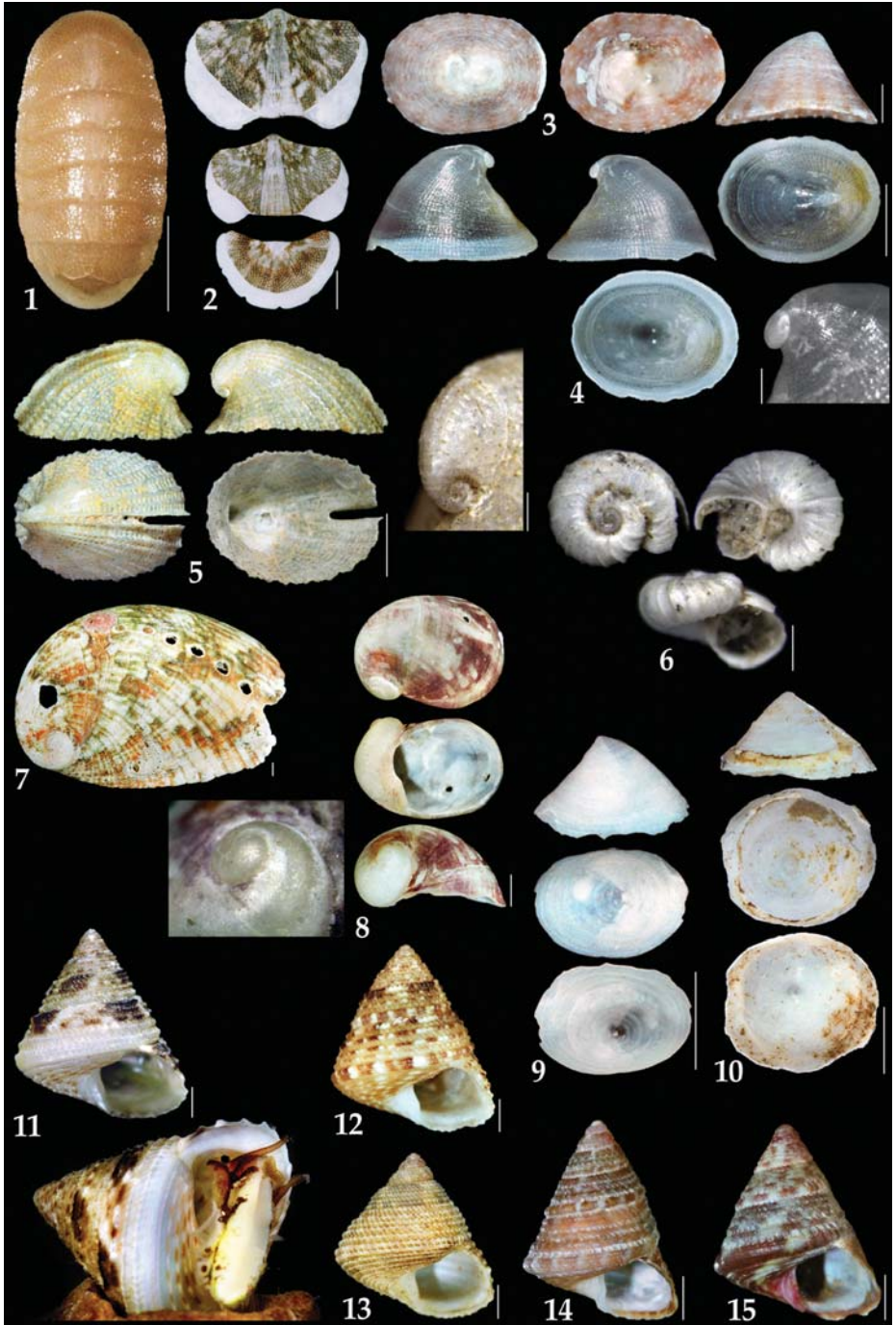


PLATE II

16. *Gibbula delgadensis* Nordsieck, 1982 (Sta6)
17. *Gibbula delgadensis* Nordsieck, 1982 (Sta46)
18. *Gibbula magus* (Linnaeus, 1758) (Sta44)
19. *Gibbula magus* (Linnaeus, 1758) (Vila Franca do Campo, 1991)
20. *Gibbula magus* (Linnaeus, 1758) (Sta15)
21. *Gibbula magus* (Linnaeus, 1758) (Sta15)
22. *Gibbula magus* (Linnaeus, 1758) (Sta15)
23. *Margarites* sp. (Sta29)
24. *Solariella azorensis* Watson, 1886 (Sta29)
25. *Solariella azorensis* Watson, 1886 (ultrajuvenile) (Sta12)
26. *Solariella azorensis* Watson, 1886 (ultrajuvenile) (Sta12)
27. *Calliostoma hironellei* Dautzenberg & Fischer, 1896 (Sta37)
28. *Calliostoma lividum* Dautzenberg 1927 (Sta37)
29. *Calliostoma lividum* Dautzenberg 1927 (Sta45)
30. *Cirsonella gaudryi* (Dautzenberg & Fisher, 1896) (Sta37)
31. *Tricolia pullus azorica* (Dautzenberg, 1889) (Sta56)
32. *Tricolia pullus azorica* (Dautzenberg, 1889) (Sta38)



PLATE III

33. *Bittium* cf. *latreillii* (Payraudeau, 1826) (Sta1)
34. *Bittium* cf. *latreillii* (Payraudeau, 1826) (Sta40)
35. *Bittium latreillii* (Payraudeau, 1826) (Sta32)
36. *Fossarus ambiguus* (Linnaeus, 1758 (Sta28)
37. *Fossarus ambiguus* (Linnaeus, 1758 (Sta2)
38. *Cheirodonta pallescens* (Jeffreys, 1867) (Sta1)
39. *Cheirodonta pallescens* (Jeffreys, 1867) (Sta12)
40. *Cheirodonta pallescens* (Jeffreys, 1867) (Sta18)
41. *Cheirodonta pallescens* (Jeffreys, 1867) (Sta28)
42. *Similiphora similior* (Bouchet & Guillemot, 1978) (Sta18)
43. *Similiphora similior* (Bouchet & Guillemot, 1978) (Sta25)
44. *Similiphora similior* (Bouchet & Guillemot, 1978) (Sta56)
45. *Similiphora similior* (Bouchet & Guillemot, 1978) (Sta40)
46. *Similiphora similior* (Bouchet & Guillemot, 1978) (Sta6)
47. *Marshallora adversa* (Montagu, 1803) (Sta13)
48. *Marshallora adversa* (Montagu, 1803) (Sta44)
49. *Marshallora adversa* (Montagu, 1803) (Sta56)

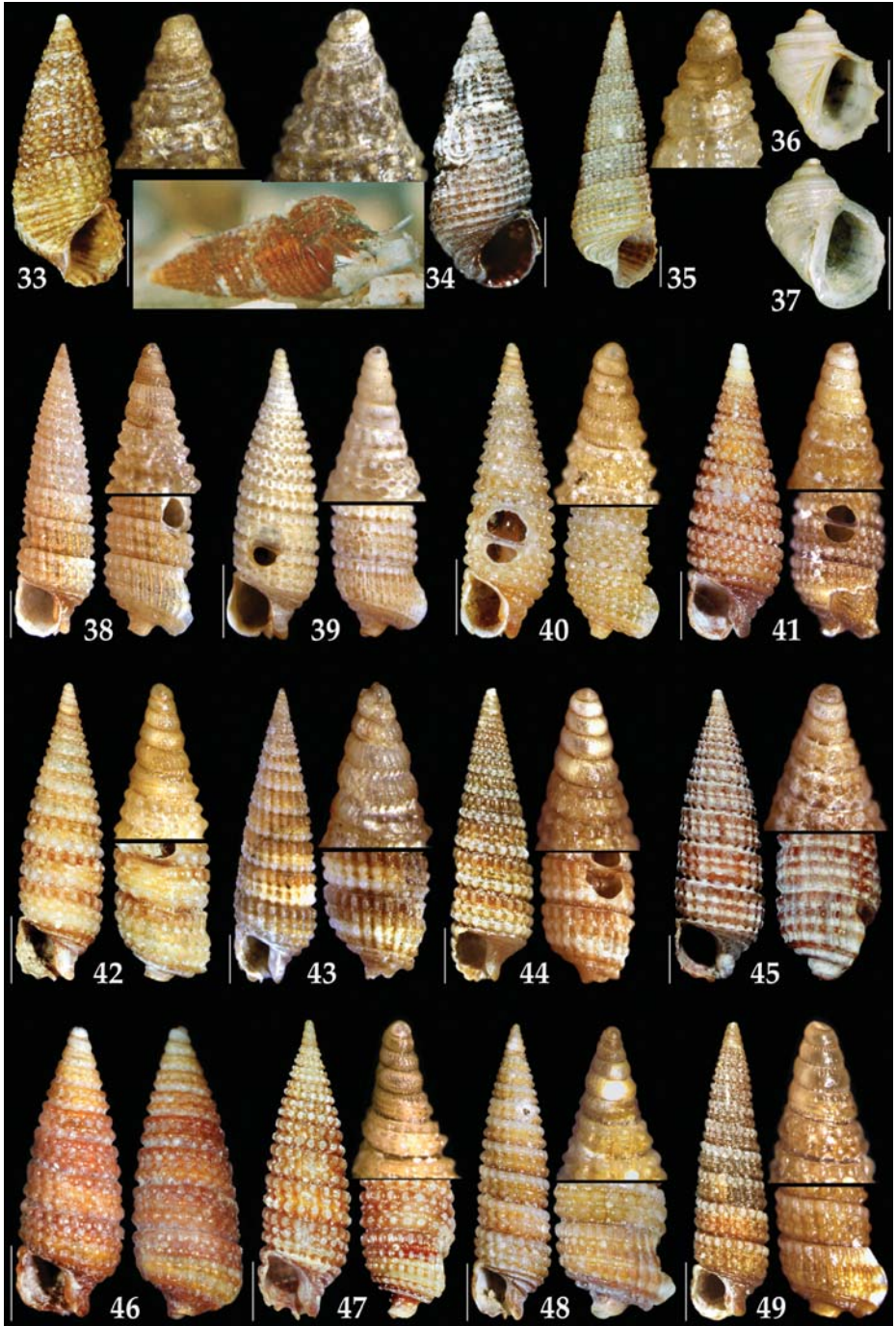


PLATE IV

50. *Marshallora adversa* (Montagu, 1803) (Sta1)
51. *Marshallora adversa* (Montagu, 1803) (Sta38)
52. *Marshallora adversa* (Montagu, 1803) (Sta56)
53. *Marshallora adversa* (Montagu, 1803) (Sta1)
54. *Marshallora adversa* (Montagu, 1803) (Sta37)
55. *Marshallora cf. adversa* (Montagu, 1803) (Sta32)
56. *Monophorus sp.* (Sta1)
57. *Monophorus erythrosoma* (Bouchet & Guillemot, 1978) (Sta54)
58. *Monophorus erythrosoma* (Bouchet & Guillemot, 1978) (Sta56)
59. *Monophorus erythrosoma* (Bouchet & Guillemot, 1978) (Sta40)
60. *Monophorus erythrosoma* (Bouchet & Guillemot, 1978) (Sta24)
61. *Pogonodon pseudocanaricus* (Bouchet, 1985) (Sta1)
62. *Monophorus thiriotae* Bouchet, 1985 (Sta32)
63. *Monophorus thiriotae* Bouchet, 1985 (Sta1)
64. *Monophorus thiriotae* Bouchet, 1985 (Sta1)
65. *Strobiliger a brychia* (Bouchet & Guillemot, 1978) (Sta37)

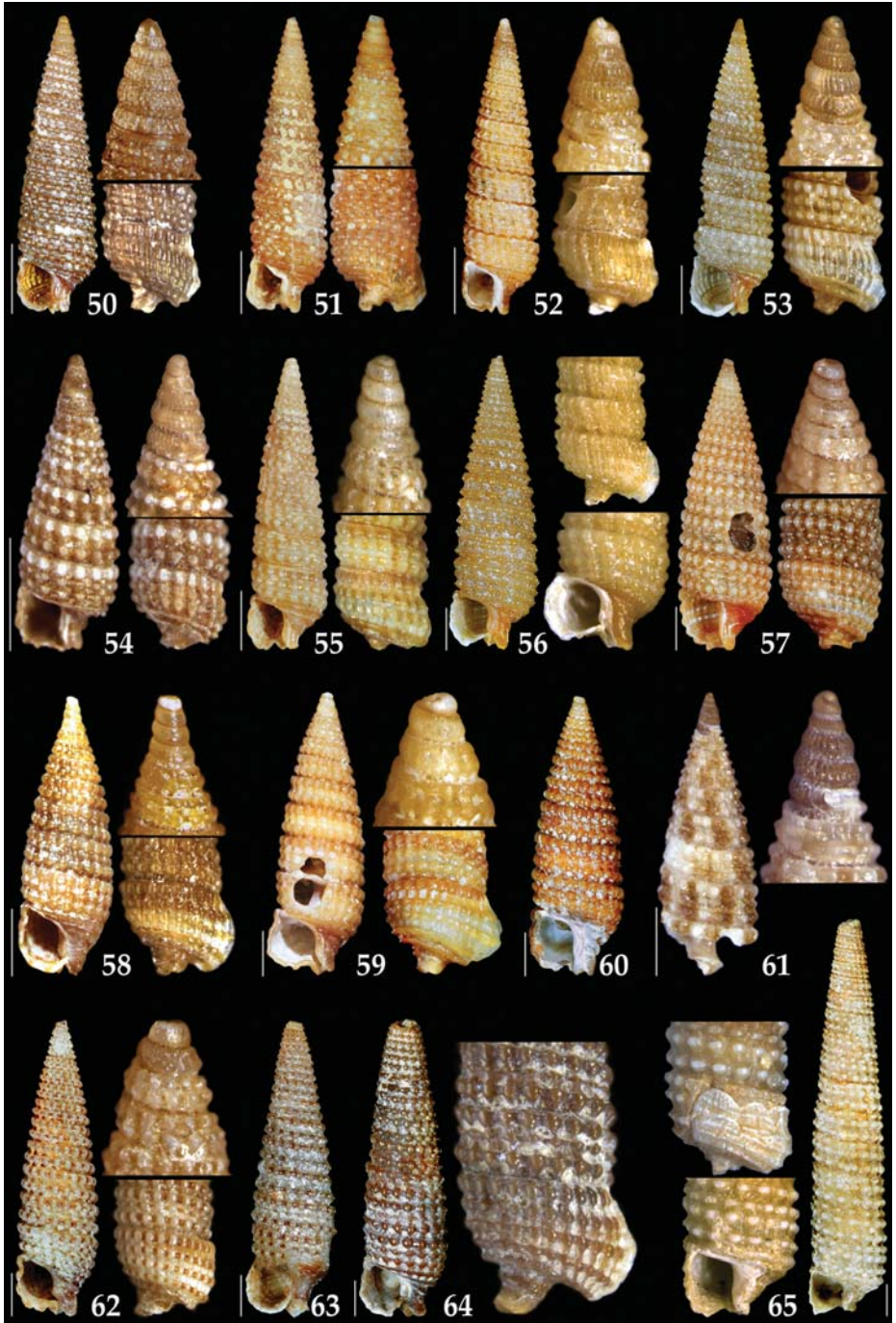


PLATE V

66. *Metaxia cf. abrupta* (Watson, 1880) (Sta38)
67. *Cerithiopsis tubercularis* (Montagu, 1803) (Sta2)
68. *Cerithiopsis tubercularis* (Montagu, 1803) (Sta56)
69. *Cerithiopsis tiara* (Monterosato, 1874) (Sta38)
70. *Cerithiopsis jeffreysi* Watson, 1885 (Sta28)
71. *Cerithiopsis scalaris* Locard, 1892 (Sta1)
72. *Cerithiopsis scalaris* Locard, 1892 (Sta1)
73. *Cerithiopsis scalaris* Locard, 1892 (Sta38)
74. *Cerithiopsis scalaris* Locard, 1892 (Sta29)
75. *Cerithiopsis minima* (Brusina, 1865) (Sta40)
76. *Cerithiopsis minima* (Brusina, 1865) (Sta15)
77. *Cerithiopsis cf. minima* (Brusina, 1865) (Sta2)
78. *Cerithiopsis cf. minima* (Brusina, 1865) (Sta1)
79. *Cerithiopsis fayalensis* Watson, 1886 (Sta28)
80. *Cerithiopsis fayalensis* Watson, 1886 (Sta37)
81. *Krachia cf. guernei* (Dautzenberg & Fischer, 1896) (Sta37)

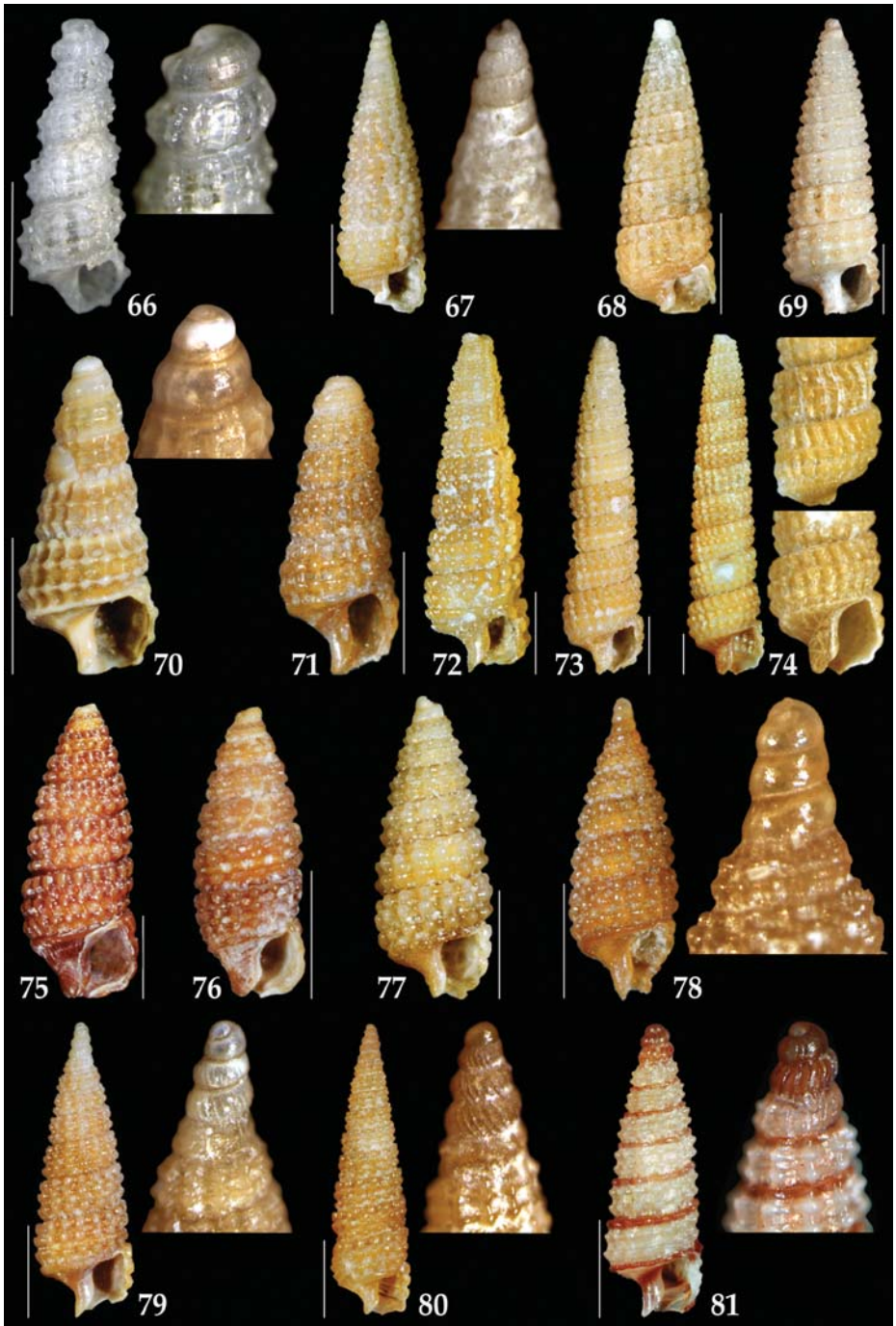


PLATE VI

82. *Epitonium turtonis* (Turton, 1819) (Sta44)
83. *Epitonium clathrus* (Linnaeus, 1758) (Sta44)
84. *Epitonium pulchellum* (Bivona, 1832) (Sta12)
85. *Epitonium pulchellum* (Bivona, 1832) (Sta27)
86. *Epitonium pulchellum* (Bivona, 1832) (Sta56)
87. *Epitonium celesti* (Aradas, 1854) (Sta7)
88. *Epitonium celesti* (Aradas, 1854) (Sta44)
89. *Epitonium celesti* (Aradas, 1854) (Sta1)
90. *Epitonium celesti* (Aradas, 1854) (Sta1)
91. *Punctiscalia cerigottana* (Sturany, 1896) (Sta38)
92. *Opaliopsis atlantis* (Clench & Turner, 1952) (Sta7)
93. *Cirsotrema* cf. *cochlea* (Sowerby, 1844) (Sta31)
94. *Cirsotrema* cf. *cochlea* (Sowerby, 1844) (Sta18)
95. *Acirsa subdecussata* (Cantraine, 1835) (juvenile) (Sta1)
96. *Opalia hellenica* (Forbes, 1844) (Sta48)
97. *Opalia* sp. 1 (Sta27)
98. *Opalia* sp. 2 (Sta38)

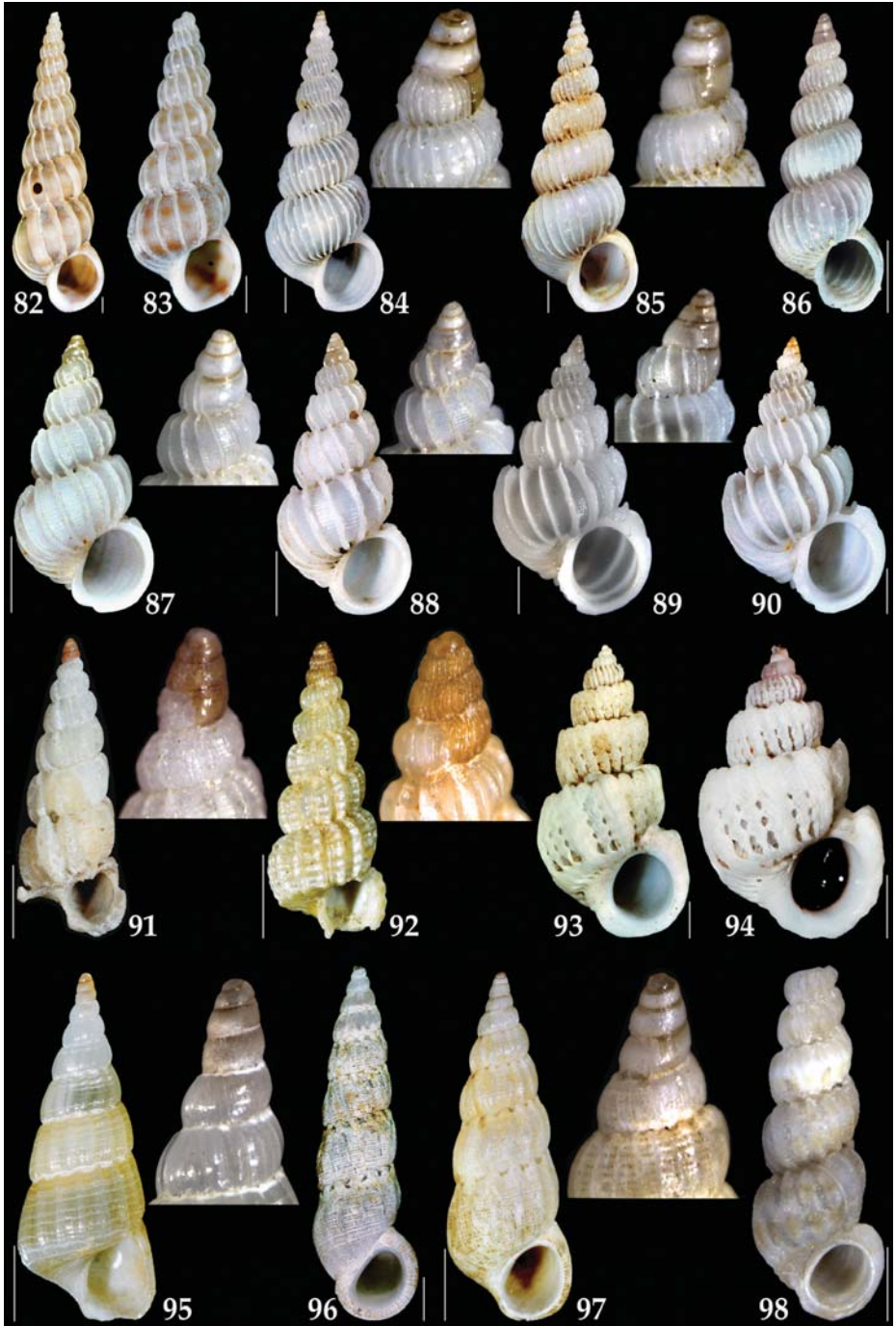


PLATE VII

- 99. *Melanela bosci* Payraudeau, 1826 (Sta37)
- 100. *Melanella* cf. *croseana* (Brusina, 1886) (Sta13)
- 101. *Melanella* cf. *croseana* (Brusina, 1886) (Sta2)
- 102. *Melanella* cf. *trunca* (Watson, 1897) (Sta40)
- 103. *Parvioris microstoma* (Brusina, 1864) (Sta2)
- 104. *Parvioris* sp. (Sta2)
- 105. *Crinophtheiros collinsi* (Sykes, 1903) (Sta37)
- 106. *Sticteulima jeffreysiana* (Brusina, 1869) (Sta12)
- 107. *Vitreolina* sp. (Sta2)
- 108. *Vitreolina curva* (Monterosato, 1884) (Sta1)
- 109. *Vitreolina curva* (Monterosato, 1884) (Sta32)
- 110. *Pelseneeria minor* Koehler & Vaney, 1908 (Sta28)
- 111. *Skeneopsis planorbis* (Fabricius, 1870) (Sta1)

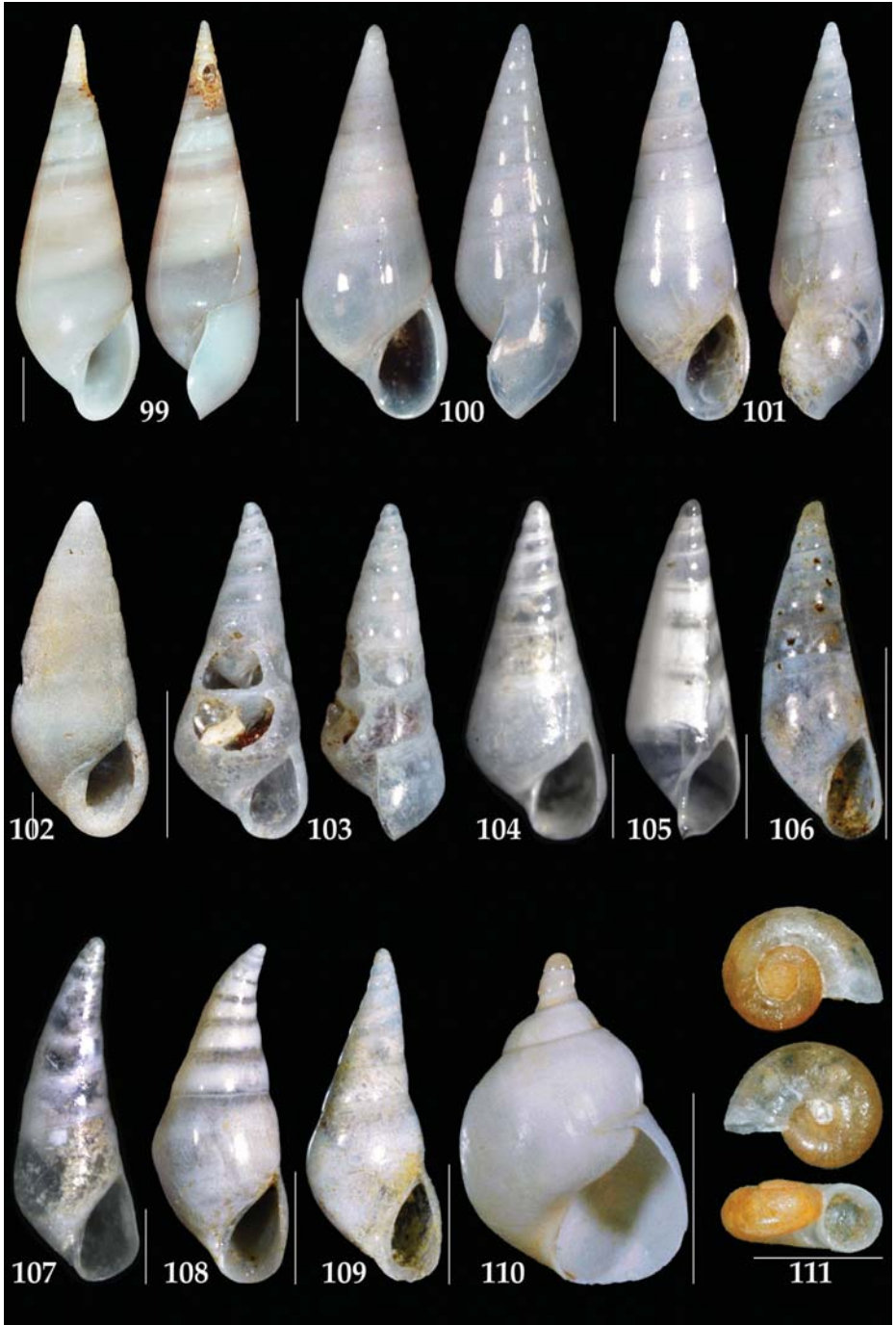


PLATE VIII

112. *Rissoa guernei* Dautzenberg, 1889 (Sta27)
113. *Rissoa guernei* Dautzenberg, 1889 (Sta44)
114. *Rissoa guernei* Dautzenberg, 1889 (Sta28)
115. *Rissoa* sp. 1 (Sta28)
116. *Rissoa* sp. 2 (Sta28)
117. *Setia subvaricosa* Gofas, 1991 (Sta27)
118. *Setia subvaricosa* Gofas, 1991 (Sta27)
119. *Setia* cf. *quisquiliarum* (Watson 1886) (Sta41)
120. *Crisilla postrema* (Gofas, 1991) (Sta27)
121. *Crisilla* cf. *postrema* (Sta27)
122. *Crisilla* cf. *postrema* (Sta28)
123. *Pseudosetia azorica* Bouchet & Warén, 1993 (Sta18)
124. *Pseudosetia azorica* Bouchet & Warén, 1993 (Sta38)
125. *Cingula trifasciata* (Adams, 1798) (Sta2)
126. *Manzonia unifasciata* Dautzenberg, 1889 (Sta1)
127. *Manzonia unifasciata* Dautzenberg, 1889 (Sta37)
128. *Manzonia unifasciata* Dautzenberg, 1889 (Sta1)
129. *Onoba moreleti* Dautzenberg, 1889 (Sta12)
130. *Onoba moreleti* Dautzenberg, 1889 (Sta2)
131. *Onoba moreleti* Dautzenberg, 1889 (Sta37)
132. *Onoba moreleti* Dautzenberg, 1889 (Sta37)

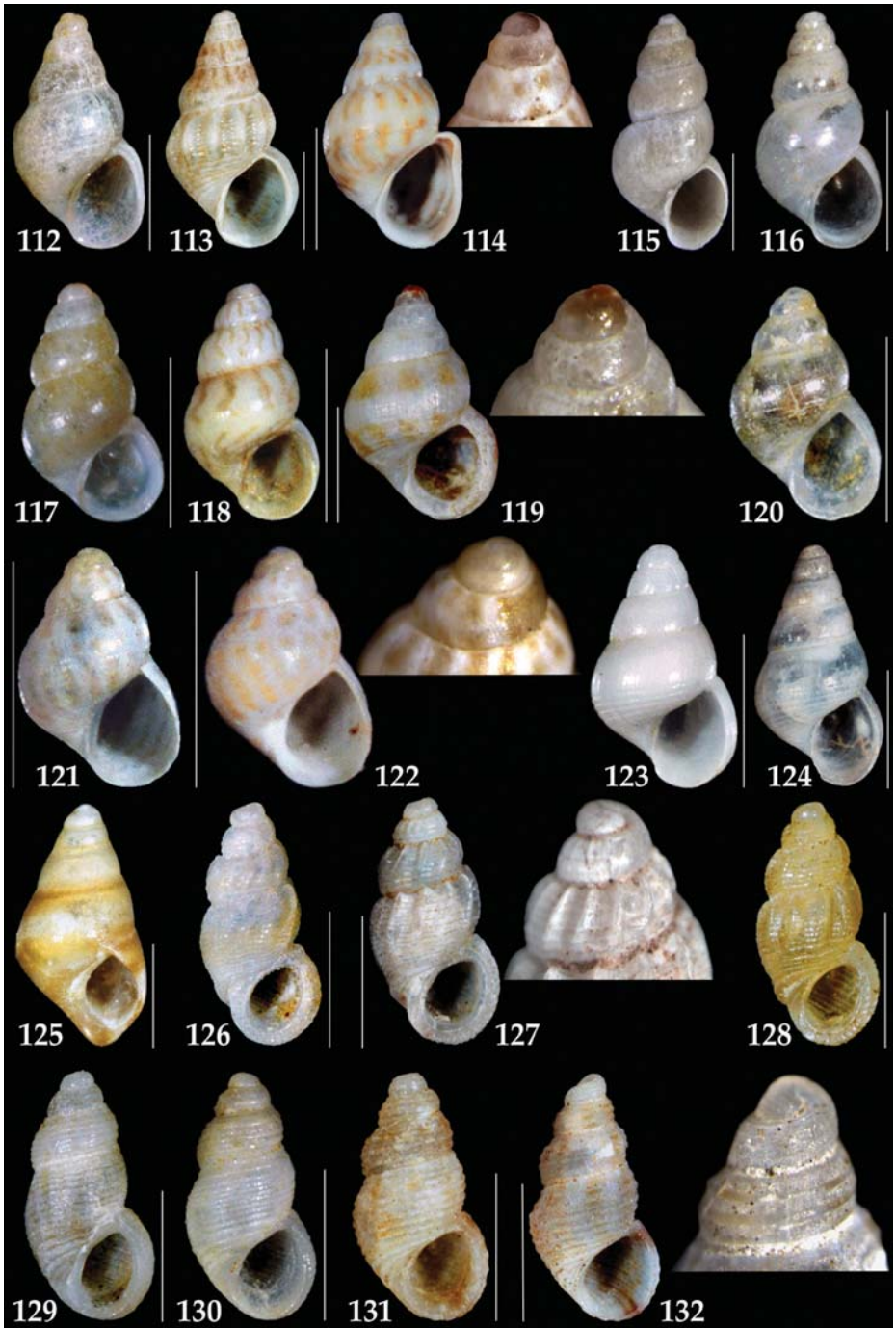


PLATE IX

133. *Alvania angioyi* van Aartsen, 1982 (Sta1)
134. *Alvania angioyi* van Aartsen, 1982 (Sta28)
135. *Alvania poucheti* (Dautzenberg, 1889) (Sta1)
136. *Alvania poucheti* (Dautzenberg, 1889) (Sta27)
137. *Alvania poucheti* (Dautzenberg, 1889) (Sta32)
138. *Alvania mediolittoralis* Gofas, 1989 (Sta1)
139. *Alvania punctura* (Montagu, 1803) (Sta37)
140. *Alvania* sp. (?*tarsodes* Watson, 1886) (Sta1)
141. *Alvania sleursi* (Amati, 1987) (Sta1)
142. *Alvania sleursi* (Amati, 1987) (Sta37)
143. *Alvania cancellata* (da Costa, 1778) (Sta1)
144. *Alvania cancellata* (da Costa, 1778) (Sta58)
145. *Alvania cancellata* (da Costa, 1778) (Sta44)
146. *Alvania cancellata* (da Costa, 1778) (Sta44)
147. *Alvania cancellata* (da Costa, 1778) (Sta37)
148. *Alvania platycephala* Dautzenberg & Fisher, 1896 (Sta41)
149. *Alvania platycephala* Dautzenberg & Fisher, 1896 (Sta41)
150. *Alvania platycephala* Dautzenberg & Fisher, 1896 (Sta37)
151. *Alvania platycephala* Dautzenberg & Fisher, 1896 (Sta37)
152. *Alvania cimicoides* (Forbes, 1844) (Sta37)
153. *Alvania cimicoides* (Forbes, 1844) (Sta37)
154. *Alvania* cf. *cimicoides* (Forbes, 1844) (Sta41)



PLATE X

155. *Caecum wayae* Pizzini & Nofroni, 2001 (Sta12)
156. *Caecum wayae* Pizzini & Nofroni, 2001 (Sta18)
157. *Talassia cf. tenuisculpta* (Watson 1873) (Sta37)
158. *Talassia cf. tenuisculpta* (Watson 1873) (Sta27)
159. *Capulus ungaricus* (Linnaeus, 1758) (Sta7)
160. *Lamellaria perspicua* (Linnaeus, 1758) (Vila Franca do Campo, 1991)
161. *Lamellaria perspicua* (Linnaeus, 1758) (Sta56)
162. *Trivia pulex* (Solander in J.E. Gray, 1828 (Vila Franca do Campo, 1991)
163. *Trivia pulex* (Solander in J.E. Gray, 1828 (Sta56)
164. *Trivia pulex* (Solander in J.E. Gray, 1828 (Sta56)
165. *Trivia candidula* (Gaskoin, 1835) (Sta44)
166. *Erato* sp. (juvenile) (Sta2)
167. *Erato* sp. (juvenile) (Sta38)
168. *Aperiovula juanjosensii* Perez & Gomez, 1987 (Sta38)
169. *Notocochlis dillwynii* (Payraudeau, 1826) (Sta53)
170. *Natica prietoi* (Hidalgo, 1873) (Sta15)
171. *Natica prietoi* (Hidalgo, 1873) (Sta40)
172. *Natica prietoi* (Hidalgo, 1873) (Sta56)
173. *Natica cf. prietoi* (Hidalgo, 1873) (Sta57)



PLATE XI

174. *Atlanta peronii* Lesueur, 1817 (Sta13)
175. *Protatlanta souleyeti* (E.A. Smith, 1888) (Sta13)
176. *Ocenebra erinaceus* juvenile (Linnaeus, 1758) (Sta27)
177. *Ocenebra* sp. (Sta56)
178. *Ocinebrina aciculata* (Lamarck,1822) (Sta40)
179. *Ocinebrina* cf. *aciculata* (Payraudeau, 1826) (Sta41)
180. ? *Ocinebrina aciculata* (Lamarck,1822) (Sta40)
181. ?*Ocinebrina* cf. *aciculata* (Payraudeau, 1826) (Sta27)
182. ?*Ocinebrina* sp. (Sta15)
183. *Orania fusulus* (Brocchi, 1814) (Sta1)
184. *Orania fusulus* (Brocchi, 1814) (Sta1)
185. *Orania fusulus* (Brocchi, 1814) (Sta41)
186. *Trophonopsis barvicensis* (Johnston, 1825) (Sta29)
187. *Trophonopsis barvicensis* (Johnston, 1825) (Sta29)
188. *Trophonopsis barvicensis* (Johnston, 1825) (Sta29)
189. *Trophonopsis barvicensis* (Johnston, 1825) (Sta44)
190. *Trophonopsis barvicensis* (Johnston, 1825) (Sta27)

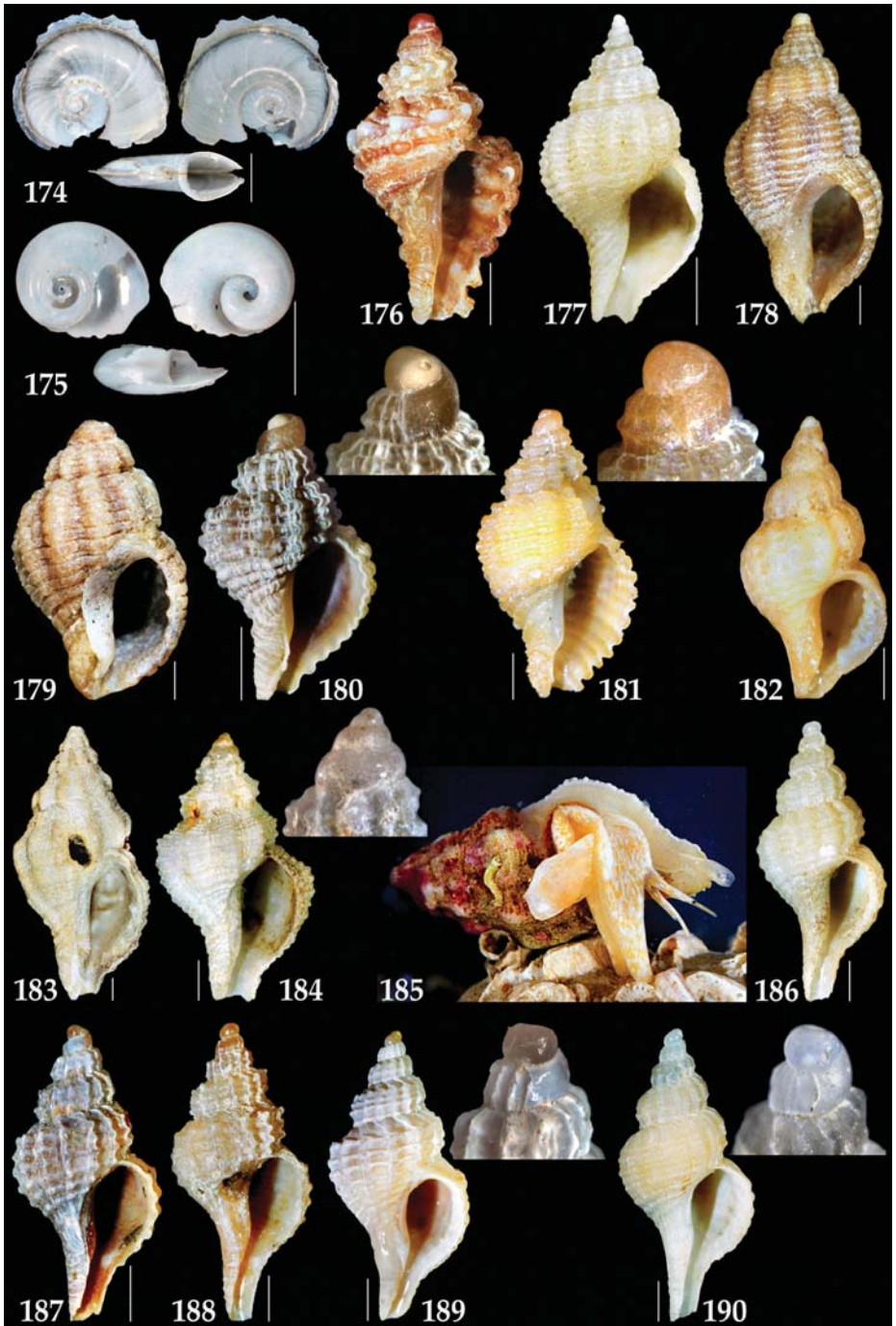


PLATE XII

191. *Trophonopsis barvicensis* (Johnston, 1825) (Sta46)
192. *Trophonopsis barvicensis* (Johnston, 1825) (Sta15)
193. *Trophonopsis cf. muricatus* (Montagu,1803) (Sta5)
194. *Trophonopsis cf. muricatus* (Montagu,1803) (Sta27)
195. *Coralliophila cf. meyendorffii* (Calcara, 1845) (Sta7)
196. *Coralliophila panormitana* (Monterosato, 1896) (Sta37)
197. *Stramonita haemastoma* (Linnaeus, 1767) (Sta27)
198. *Gibberula vignalii* (Dautzenberg & Fischer 1896) (Sta41)
199. *Gibberula cf. lazaroii* Contreras, 1992 (Sta37)
200. *Mitra cornea* Lamarck, 1811 (Sta31)
201. *PolLIA dorbignyi* (Payraudeau, 1826) (Sta45)
202. *PolLIA dorbignyi* (Payraudeau, 1826) Ilhéu de Vila Franca do Campo.
203. *Nassarius incrassatus* (Ström, 1768) (Sta40)
204. *Nassarius incrassatus* (Ström, 1768) (Sta30)
205. *Nassarius incrassatus* (Ström, 1768) (Sta26)
206. *Nassarius incrassatus* (teratology) (Ström, 1768) (Sta40)
207. *Nassarius cf. cuvierii* (Payraudeau, 1826). Juvenile (Sta44)
208. *Nassarius recidivus* (Martens, 1876) (Sta53)
209. *Columbella adansonii* Menke, 1853 (Sta44)
210. *Mitrella pallaryi* (Dautzenberg, 1927) (Sta37)
211. *Anachis avaroides* Nordsieck, 1975 (Sta44)
212. *Anachis avaroides* Nordsieck, 1975 (Sta1)



PLATE XIII

213. *Brocchinia clenchi* Petit, 1986 (Sta49)
214. *Brocchinia clenchi* Petit, 1986 (Sta1)
215. *Mitromorpha azorensis* Mifsud, 2001 (Sta46)
216. *Mitromorpha azorensis* Mifsud, 2001 (Sta1)
217. *Bela nebula* (Montagu, 1803) (Sta56)
218. *Bela nebula* (Montagu, 1803) (Sta1)
219. *Bela nebula* (Montagu, 1803) (Sta1)
220. *Bela nebula* (Montagu, 1803) (Sta56)
221. *Bela nebula* (Montagu, 1803) (Sta56)
222. *Bela nebula* (Montagu, 1803) (Sta18)
223. *Mangelia cf. costata* (Donovan, 1804) (Sta25)
224. *Mangelia cf. costata* (Donovan, 1804) (Sta29)
225. *Mangelia cf. costata* (Donovan, 1804) (Sta29)
226. *Mangelia cf. costata* (Donovan, 1804) (Sta30)
227. *Mangelia cf. costata* (Donovan, 1804) (Sta1)
228. *Mangelia cf. costata* (Donovan, 1804) (Sta1)
229. *Mangelia cf. costata* (Donovan, 1804) (Sta18)
230. *Raphitoma purpurea* (Montagu, 1803) (Sta56)
231. *Raphitoma linearis* (Montagu, 1803) (Sta40)

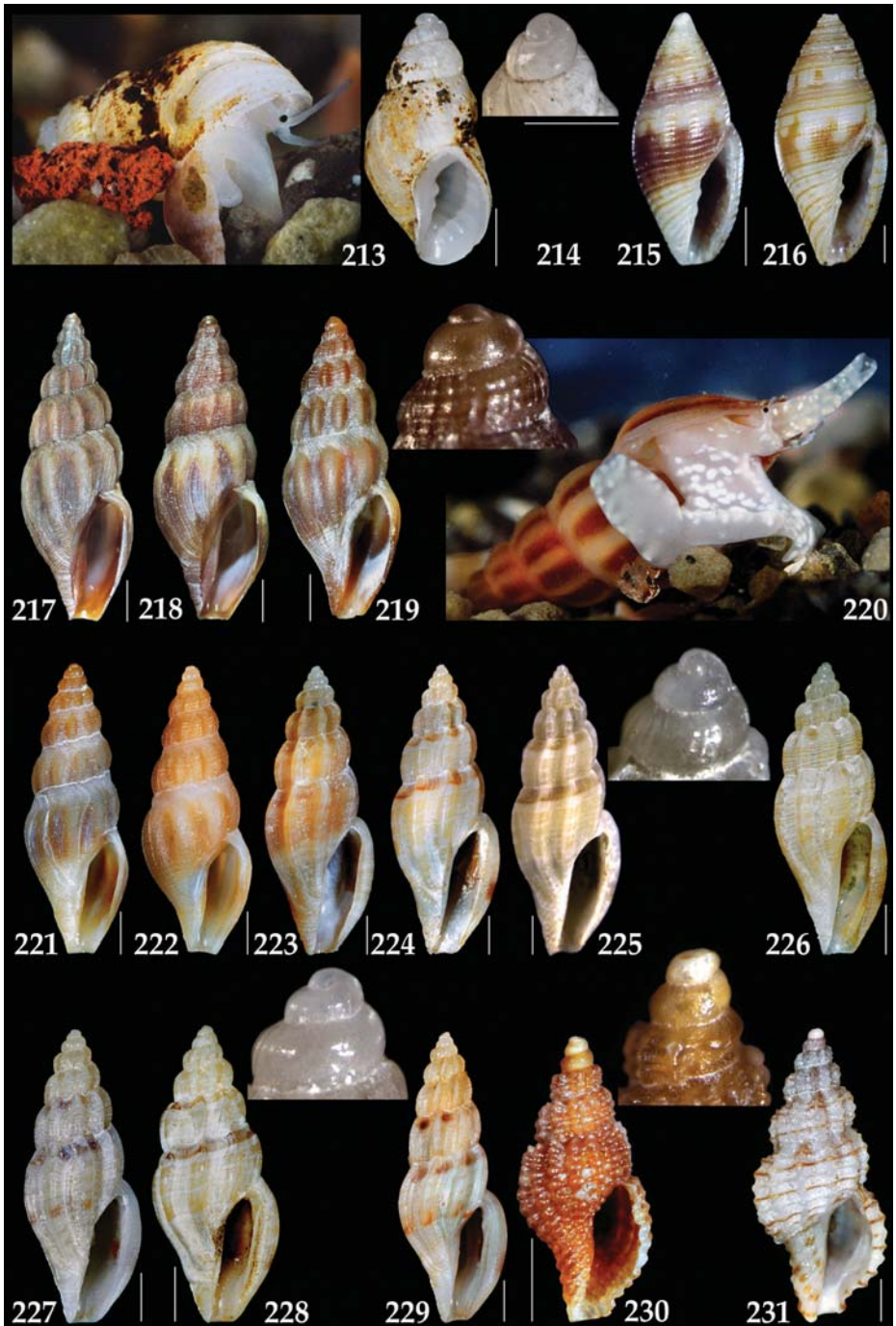


PLATE XIV

- 232. *Raphitoma* cf. *aequalis* (Jeffreys, 1867) (Sta56)
- 233. *Raphitoma* cf. *aequalis* (Jeffreys, 1867) (Sta27)
- 234. *Raphitoma* cf. *aequalis* (Jeffreys, 1867) (Sta57)
- 235. *Raphitoma* cf. *aequalis* (Jeffreys, 1867) (Sta56)
- 236. *Raphitoma* cf. *aequalis* (Jeffreys, 1867) (Sta40)
- 237. *Raphitoma* cf. *aequalis* (Jeffreys, 1867) (Sta5)
- 238. *Raphitoma* cf. *aequalis* (Jeffreys, 1867) (Sta56)
- 239. *Raphitoma* cf. *aequalis* (Jeffreys, 1867) (Sta30)
- 240. *Raphitoma* cf. *aequalis* (Jeffreys, 1867) (Sta40)
- 241. *Raphitoma* sp. (Sta58)
- 242. *Pleurotomella gibbera* Bouchet & Warén, 1980 (Sta29)
- 243. *Pleurotomella gibbera* Bouchet & Warén, 1980 (Sta32)
- 244. *Pleurotomella gibbera* Bouchet & Warén, 1980 (Sta27)
- 245. *Pleurotomella* cf. *gibbera* Bouchet & Warén, 1980 (Sta29)
- 246. *Teretia teres* (Reeve, 1844) (Sta28)
- 247. *Teretia teres* (Reeve, 1844) (Sta27)

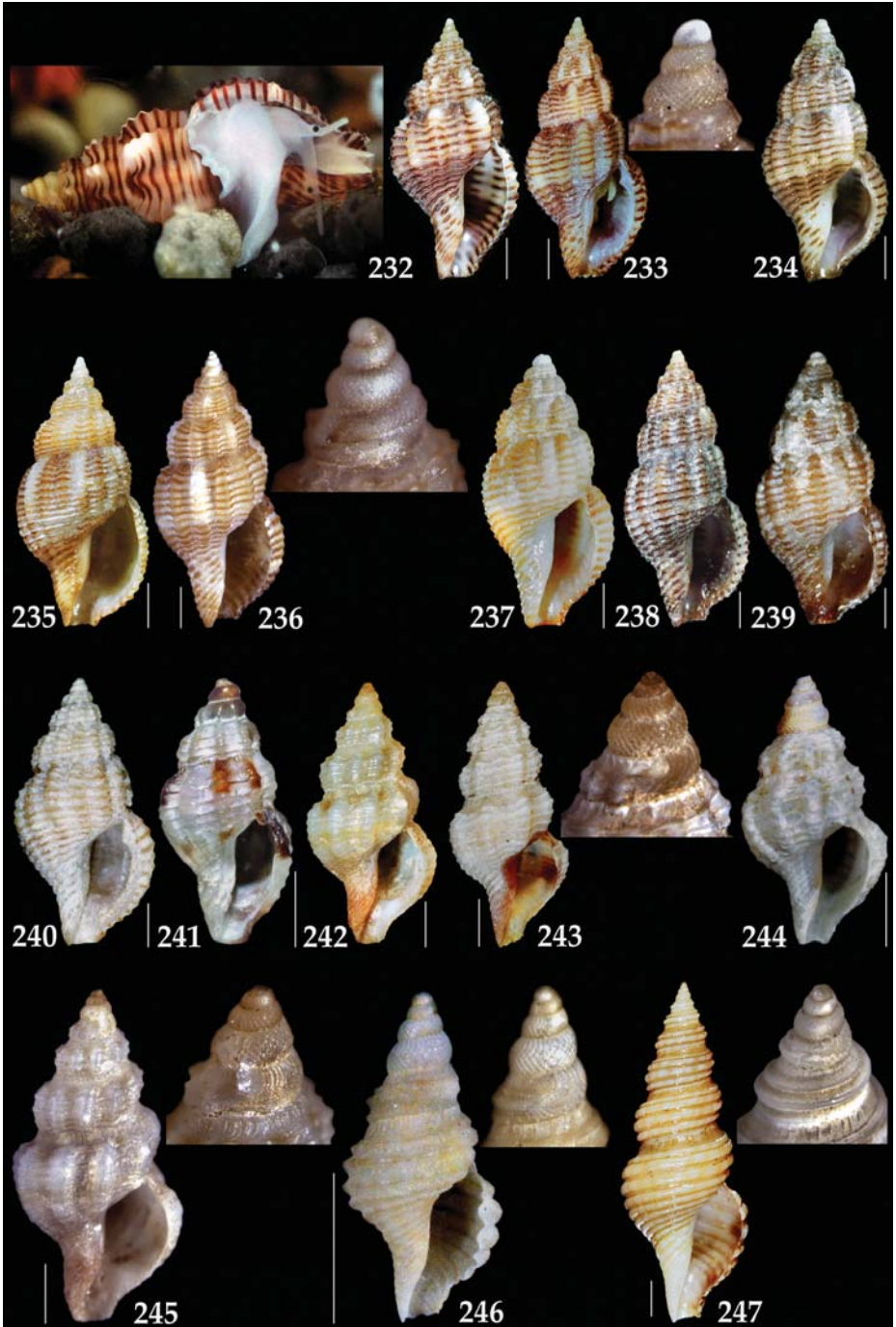


PLATE XV

248. *Crassopleura maravignae* (Bivona, 1838) (Sta56)
249. *Crassopleura maravignae* (Bivona, 1838) (Sta50)
250. *Crassopleura maravignae* (Bivona, 1838) (Sta37)
251. *Haedropleura septangularis* (Montagu, 1803) (Sta15)
252. *Haedropleura septangularis* (Montagu, 1803) (Sta56)
253. *Philippia krebsi* (Mörch, 1875) (Sta46)
254. *Pseudotorinia architae* (O.G. Costa, 1841) (Sta32)
255. *Pseudomalaxis zanclaeus* (Philippi, 1844) (Sta37)
256. *Mathilda cochlaeformis* Brugnone, 1873 (Sta29)
257. *Mathilda retusa* Brugnone, 1873 (Sta37)

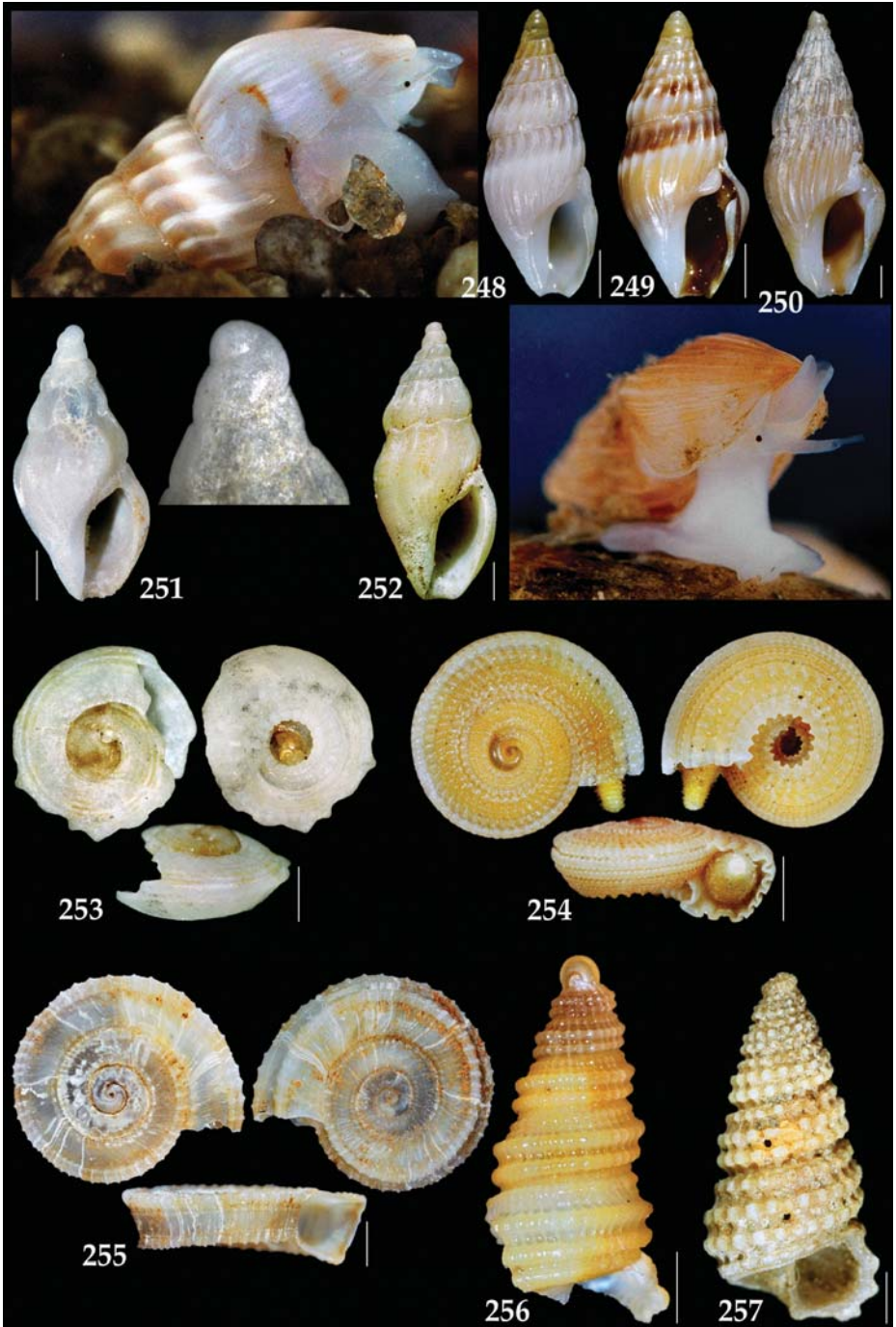


PLATE XVI

258. ?*Rissoella* sp. 1 (Sta41)
259. ?*Rissoella* sp. 2 (Sta2)
260. *Omalogyra atomus* (Philippi, 1841) (Sta28)
261. *Odostomella doliolum* (Philippi, 1844) (Sta37)
262. *Odostomella doliolum* (Philippi, 1844) (Sta32)
263. *Chrysallida* cf. *flexuosa* (Monterosato, 1874 ex Jeffreys) (Sta41)
264. *Odostomia bernardi* Aartsen, Gittenberger & Goud, 1998 (Sta58)
265. *Odostomia* cf. *verhoeveni* Aartsen, Gittenberger & Goud, 1998 (Sta1)
266. *Odostomia duureni* Aartsen, Gittenberger & Goud, 1998 (Sta15)
267. *Odostomia* cf. *striolata* Forbes & Hanley, 1850 (Sta18)
268. *Eulimella* sp. (Sta38)
269. *Turbonilla rufa* (Philippi, 1836) (Sta1)
270. *Turbonilla lactea* (Linnaeus, 1758) (Sta56)
271. *Turbonilla* sp. 1 (Sta38)
272. *Turbonilla* sp. 2 (Sta38)
273. *Turbonilla* sp. 3 (Sta37)
274. *Turbonilla* sp. 4 (Sta38)
275. *Ebala nitidissima* (Montagu, 1803) (Sta28)
276. *Ebala nitidissima* (Montagu, 1803) (Sta18)

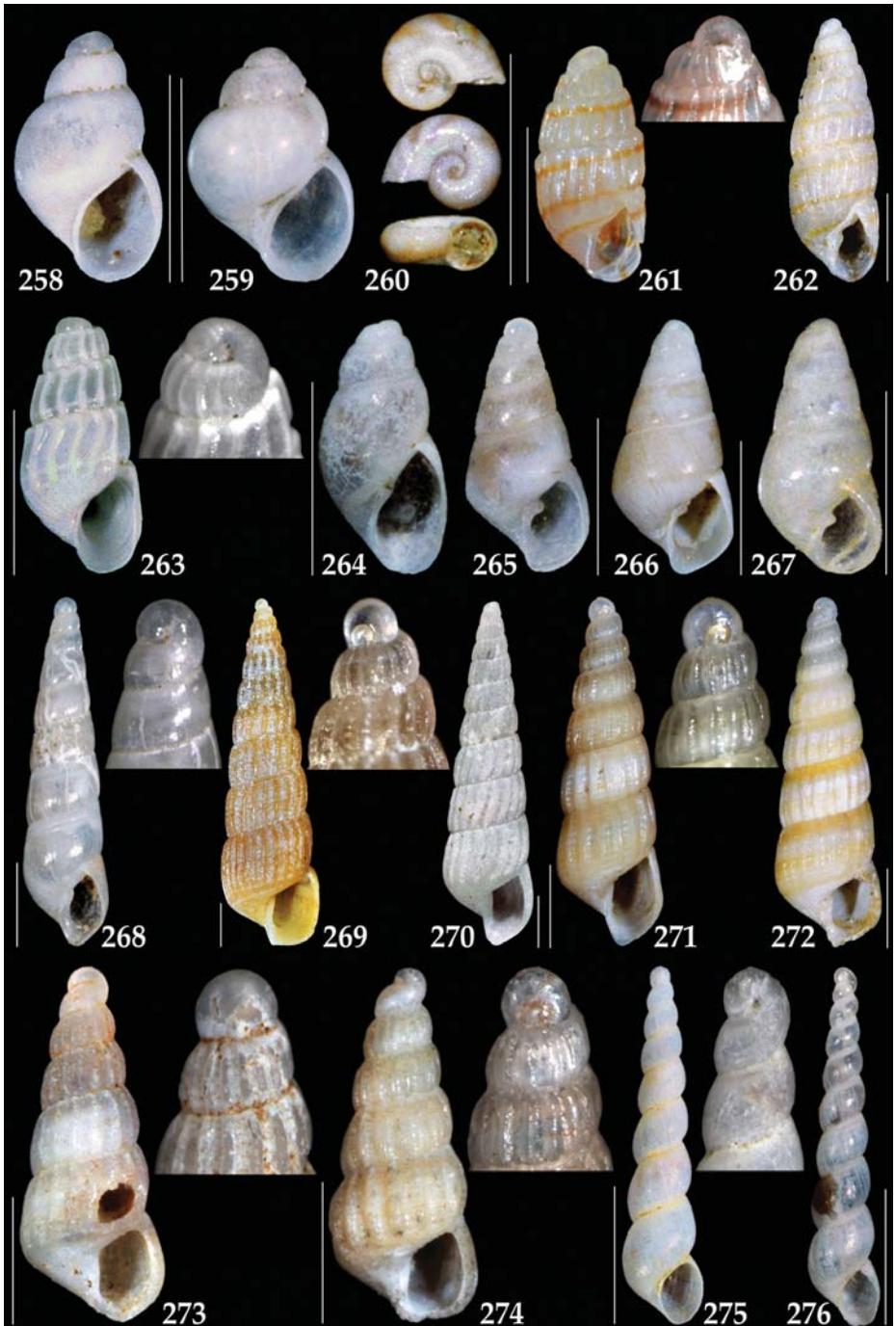


PLATE XVII

277. *Colpodaspis pusilla* Sars, 1870 (Sta7)
278. *Retusa truncatula* (Bruguière, 1792) (Sta27)
279. *Retusa truncatula* (Bruguière, 1792) (Sta1)
280. *Haminoea cf. ortei* Talavera, Murillo & Templado, 1987 (Sta58)
281. *Atys macandrewi* E.A. Smith, 1872 (Sta56)
282. *Atys sp.* (Sta15)
283. *Philine approximans* Dautzenberg & Fischer, 1896 (Sta13)
284. *Philine sp.* (Sta18)
285. ?*Chelidonura africana* Pruvot-Fol, 1953 (Sta37)
286. *Cavolinia inflexa* (Lesueur, 1813) (Sta56)
287. *Cavolinia inflexa* (Lesueur, 1813) (Sta29)
288. *Cavolinia tridentata* (Forsk., 1775) (Sta37)
289. *Diacria trispinosa* (Lesueur, 1821) (Sta50)
290. *Diacria trispinosa* (Lesueur, 1821) (Sta12)
291. *Cuvierina atlantica* (Bé, MacClintock & Currie, 1972) (Sta38)
292. *Clio pyramidata* Linnaeus, 1767 (Sta29)
293. *Clio pyramidata* Linnaeus, 1767 (Sta12)
294. *Limacina cf. helicina* (Phipps, 1774) (Sta32)
295. *Limacina inflata* (d'Orbigny, 1836) (Sta1)
296. *Umbraculum umbraculum* (Lightfoot, 1786) (Sta31)
297. *Tyrodina perversa* (Gmelin, 1791) (Sta28)
298. *Williamia gussonii* (O.G. Costa, 1829) (St12)



Endemic. Depth range, this study: 14-360 m; alive from 14-207 m.

Calliostomatidae Thiele, 1924

Calliostoma hironellei Dautzenberg & Fisher, 1896

(Figure 27)

Remarks: Rare. Depth range, this study: 72-234 m.

Calliostoma lividum Dautzenberg, 1927
(Figures 28-29)

Remarks: Sometimes subtidal in the Azores. Endemic. Ávila *et al.*, 2000 as *C. cf. conulus* (Linnaeus, 1758). Depth range: 20-200 m (P&G and MM&B, as *C. conulum* (L.)); this study: 30-360 m. Alive on IVFC (Martins, 2004).

Superfamily TURBINOIDEA Rafinesque, 1815

Family Turbinidae Rafinesque, 1815

Cirsonella gaudryi (Dautzenberg & Fisher, 1896)

(Figure 30)

Remarks: Rare. Depth range, this study: 117-234 m.

Family Phasianellidae Swainson, 1840

Tricolia pullus azorica (Dautzenberg, 1889)
(Figures 31-32)

Remarks: Some specimens were fresh, indicating that they could live in nearby habitats. Endemic. Bullock *et al.*, 1990, Bullock, 1995 and Knudsen, 1995 as *T. pullus* (Linnaeus, 1758); Ávila *et al.*, 2000. Depth range: intertidal-35 m (P&G, as *T. pullus* (L.)); this study: 14-360 m. Common alive on IVFC (Martins, 2004).

Order APOGASTROPODA Salvini-Plawén & Haszprunar, 1987

Suborder CAENOGASTROPODA Cox, 1959

Superfamily CERITHIOIDEA Fleming, 1822

Family Cerithiidae Fleming, 1822

Bittium cf. latreillii (Payraudeau, 1826)

(Figures 33-34)

Remarks: This form of *Bittium* has been questionably ascribed to *B. latreillii*, and awaits further study to clarify its taxonomic status. Shells are very common. Bullock *et al.*, 1990 and Bullock, 1995 as *B. reticulatum* (da Costa,

1779); Ávila *et al.*, 2000. Depth range: littoral (MM&B); this study: 14-360 m; alive at 38 m. Common alive on IVFC (Martins, 2004).

Bittium latreillii (Payraudeau, 1826)
(Figure 35)

Remarks: Very rare. This specimen conforms to the description of *B. latreillii*. Depth range: littoral (MM&B); this study: 180 m.

Family Planaxidae Gray, 1850

Fossarus ambiguus (Linnaeus, 1758)
(Figures 36-37)

Remarks: Occurs regularly in the samples. Houbriek, 1990; Bullock, 1995; Knudsen, 1995; Ávila *et al.*, 2000. Depth range: littoral (MM&B); this study: 30-180 m. Common alive on IVFC (Martins, 2004).

Superfamily TRIPHOROIDEA Gray, 1847

Triphoridae Gray, 1847

NOTE: Triphorids were present in most samples. No living specimens were collected, although some shells appeared to be fresh; commonly, they exhibited clear signs of predation. The species of this family are difficult to identify without information on the animal and the larval shell; the granulation of the spiral and basal cords is often less distinct and intermediate. Although tentatively identified to species, they are however illustrated profusely to record their variability, and to provide a basis for further, perhaps more accurate identifications. Information on www.naturamediterraneo.com, based on Bouchet & Guillemot (1978) and Bouchet (1984), was helpful for species identification.

Cheirodonta pallescens (Jeffreys, 1867)
(Figures 38-41)

Remarks: Shell light-brown to whitish, uniformly coloured; protoconch bi-carinated; spiral cord 4 and basal cords smooth; supranumerary cords on last whorl. Depth range, this study: 30-145 m.

Similiphora similior (Bouchet & Guillemot, 1978)
(Figures 42-46)

Remarks: Shell brownish, variously coloured; 1st whorl of protoconch uni-carinated, remaining bi-carinated; spiral cord 4 granulated, basal

cords smooth; supranumerary cords on last whorl. Depth range, this study: 14-360 m.

Marshallora adversa (Montagu, 1803)
(Figures 47-54)

Remarks: Shell brownish, variously coloured; protoconch bi-carinated; spiral cord 4 and basal cords smooth; tubercles on last whorl elongated; absence of supranumerary cords on last whorl. Depth range, this study: 30-234 m.

Marshallora cf. adversa (Montagu, 1803)
(Figure 55)

Remarks: The presence of brownish markings between tubercles is reminiscent of *M. thiriota*, but other characters indicate affinity with *M. adversa*. Depth range, this study: 46 m.

Monophorus sp.
(Figure 56)

Remarks: Depth range, this study: 40-135 m.

Monophorus erythrosoma (Bouchet & Guillemot, 1978)
(Figures 57-60)

Remarks: Shell brownish, unicoloured or variously coloured; protoconch bi-carinated; spiral cord 4 granulated, basal cords 1-2 granulated, 3 smooth; supranumerary cords on last whorl. Depth range, this study: 38-243 m.

Monophorus thiriota Bouchet, 1985
(Figures 62-64)

Remarks: Shell brownish, variously coloured; protoconch bi-carinated; spiral cord 4 granulated, basal cords 1-2 granulated, 3 smooth; absence of supranumerary cords on last whorl; brownish intertubercular markings. Depth range, this study: 30-207 m.

Pogonodon pseudocanaricus (Bouchet, 1985)
(Figure 61)

Remarks: Shell whitish, brown vertical markings; protoconch redish, bi-carinated; spiral cord 4 granulated, basal cords 1-2 granulated. Only one apparently fresh specimen, but with last whorl crushed. Depth range, this study: 57 m.

Strobiliger a brychia (Bouchet & Guillemot, 1978)
(Figure 65)

Remarks: Tubercles of spiral cord 1 smaller than

those of remaining cords. Rare. Depth range, this study: 117-234 m.

Metaxia cf. abrupta (Watson, 1880)
(Figure 66)

Remarks: Only one specimen collected, apparently a juvenile. Depth range, this study: 129-207 m.

Family Cerithiopsidae Adams H. & A., 1853
Cerithiopsis tubercularis (Montagu, 1803)
(Figures 67-68)

Remarks: Relatively rare. Depth range: littoral-100 m (MM&B); this study: 41-207m.

Cerithiopsis tiara (Monterosato, 1874)
(Figure 69)

Remarks: Rare. Depth range, this study: 129-207 m.

Cerithiopsis jeffreysi Watson, 1885
(Figure 70)

Remarks: Rare. Depth range, this study: 117-207 m.

Cerithiopsis scalaris Locard, 1892
(Figures 71-74)

Remarks: Shells uncommon but some specimens appeared fresh. Depth range, this study: 57-234 m.

Cerithiopsis minima (Brusina, 1865)
(Figures 75-76)

Remarks: Uncommon. Depth range, this study: 38-207 m.

Cerithiopsis cf. minima (Brusina, 1865)
(Figures 77-78)

Remarks: Uncommon. Depth range, this study: 57-135 m.

Cerithiopsis fayalensis Watson, 1886
(Figures 79-80)

Remarks: Shells uncommon but some specimens appeared fresh. Depth range, this study: 99-234 m.

Krachia cf. guernei (Dautzenberg & Fischer, 1896)
(Figure 81)

Remarks: Rare. Depth range, this study: 117-234 m.

Superfamily JANTHINOIDEA Gray, 1847

Family Epitoniidae S.S. Berry, 1910 (1812)

Gyroscala lamellosa (Lamarck, 1822)

Remarks: Only one fragment. Depth range: Infralittoral to 620 m (MM&B); this study: 56 m.

Epitonium turtonis (Turton, 1819)
(Figure 82)

Remarks: Rare. Depth range: 5-70 m (P&G); this study: 66m.

Epitonium clathrus (Linnaeus, 1758)
(Figure 83)

Remarks: Rare. Depth range: 5-70 m (P&G); this study: 66-72 m.

Epitonium pulchellum (Bivona, 1832)
(Figures 84-86)

Remarks: Not uncommon. Depth range: 20-40 m (P&G; MM&B); this study: 58-145 m.

Epitonium celesti (Aradas, 1854)
(Figures 87-90)

Remarks: Not uncommon. Depth range: 50-1250 m (P&G; MM&B); this study: 57-207 m.

Punctiscala cerigottana (Sturany, 1819)
(Figure 91)

Remarks: Rare. Only one damaged specimen found. Depth range: 50-600 m (MM&B); this study: 129-207 m.

Opaliopsis atlantis (Clench & Turner, 1952)
(Figure 92)

Remarks: Rare. Only one damaged specimen found. Depth range: 810-825 m (MM&B); this study: 167-189 m.

Cirsotrema cf. cochlea (Sowerby, 1844)
(Figures 93-94)

Remarks: Uncommon. The Azorean specimens are stouter and more globose than the illustrations consulted (P&G). Depth range: Infralittoral-60 m (MM&B); this study: 40-318 m; alive: 66-72 m.

Acirsa subdecussata (Cantraine, 1835)
(Figure 95)

Remarks: Only one fresh specimen collected. Depth range: 12-500 m (P&G; MM&B); this study: 57 m.

Opalia hellenica (Forbes, 1844)

(Figure 96)

Remarks: Uncommon. Ávila *et al.*, 2000. Depth range: 20-770 m (MM&B); this study: 63-234 m; alive: 66-81 m.

Opalia sp. 1
(Figure 97)

Remarks: Rare. Depth range, this study: 99-108 m.

Opalia sp. 2
(Figure 98)

Remarks: Only one shell collected, with broken tip. Depth range, this study: 129-207 m.

Superfamily EULIMOIDEA Philippi, 1853

Family Eulimidae Philippi, 1853

Melanella bosci Payraudeau, 1826
(Figure 99)

Remarks: Rare. Depth range: 10-150 m (P&G); this study: 45-234 m.

Melanella cf. crosseana (Brusina, 1886)
(Figures 100-101)

Remarks: Uncommon. Depth range, this study: 73-145 m.

Melanella cf. trunca (Watson, 1897)
(Figure 102)

Remarks: Rare. Depth range, this study: 30-38 m.

Parvioris microstoma (Brusina, 1864)
(Figure 103)

Remarks: Rare. Depth range, this study: 135 m.

Parvioris sp.
(Figure 104)

Remarks: Rare. Depth range, this study: 135-207 m.

Crinophteiros collinsi (Sykes, 1903)
(Figure 105)

Remarks: Rare. Depth range, this study: 117-234 m.

Sticticulima jeffreysiana (Brusina, 1869)
(Figure 106)

Remarks: Rare. Depth range, this study: 95-121 m.

Vitreolina sp.

(Figure 107)

Remarks: Rare. Depth range, this study: 135 m.*Vitreolina curva* (Monterosato, 1884)

(Figures 108-109)

Remarks: Rare. Depth range, this study: 57-180 m.*Pelseeneeria minor* Koehler & Vaney, 1908

(Figure 110)

Remarks: Only one specimen collected. Depth range: 90-185 m (MM&B); this study: 117-145 m.

Superfamily LITTORINOIDEA Children, 1834

Family Littorinidae Children, 1834

Littorina striata King & Broderip, 1832*Remarks:* This is a supralittoral species, and its presence in the dredged material is accidental.*Melarhaphe neritoides* (Linnaeus, 1758)*Remarks:* This is a supralittoral species, and its presence in the dredged material is accidental.

Family Skeneopsidae Iredale, 1915

Skeneopsis planorbis (Fabricius, 1870)

(Figure 111)

Remarks: Uncommon. Reported as very common (Bullock *et al.*, 1990; Bullock, 1995). Knudsen, 1995; Ávila *et al.*, 2000. Depth range: Infralittoral to 70m (P&G; MM&B); this study: 32-145 m. Common alive on IVFC (Martins, 2004).

Superfamily RISSOOIDEA Gray, 1847

Family Rissoidae Gray, 1847

Rissoa guernei Dautzenberg, 1889

(Figures 112-114)

Remarks: Uncommon but some specimens appeared fresh. Endemic. Reported as very common (Bullock *et al.*, 1990; Ávila, 2000). Gofas, 1990; Knudsen, 1995; Ávila *et al.*, 2000. Depth range, this study: 32-234 m. Common alive on IVFC (Martins, 2004).*Rissoa* sp. 1

(Figure 115)

Remarks: Rare. Depth range, this study: 117-145 m.*Rissoa* sp. 2

(Figure 116)

Remarks: Rare. Depth range, this study: 99-180 m.*Setia subvaricosa* Gofas, 1990

(Figures 117-118)

Remarks: Rare. Endemic. This species is common in 15-20 m (Gofas, 1990; Ávila, 2000). Ávila *et al.*, 2000. Depth range, this study: 99-135 m. Collected alive at IVFC (Martins, 2004).*Setia* cf. *quisquiliarum* (Watson 1886)

(Figure 119)

Remarks: Rare. Endemic. Depth range, this study: 237-360 m.*Crisilla postrema* (Gofas, 1990)

(Figure 120)

Remarks: Rare. Endemic. Infralittoral to 20 m; collected alive at IVFC (Gofas, 1990). Bullock *et al.*, 1990 as *Rissoa pulcherima* (Jeffreys, 1848); Bullock, 1995 as *Alvania postrema*. Depth range, this study: 56-360m.*Crisilla* cf. *postrema* (Gofas, 1990)

(Figures 121-122)

Remarks: Rare. Depth range, this study: 99-207 m.*Pseudosetia azorica* Bouchet & Warén, 1993

(Figures 123-124)

Remarks: Rare. Endemic. Depth range, this study: 72-207 m.*Cingula trifasciata* (Adams, 1798)

(Figure 125)

Remarks: Rarely collected. Specimens eroded, probably transported from the intertidal, where it is common. Depth range, this study: 38-180 m.*Manzonina unifasciata* Dautzenberg, 1889

(Figures 126-128)

Remarks: Relatively common; probably transported from infralittoral zone where it is very common from 0-10 m (Ávila, 2003). Bullock *et al.*, 1990 and Bullock, 1995 as *M. crassa* (Kanmacher, 1798); Gofas, 1990; Knudsen, 1995; 1995; Ávila *et al.*, 2003. Depth range, this study: 237-360 m. Collected alive at IVFC (Martins, 2004).*Onoba moreleti* Dautzenberg, 1889

(Figures 129-132)

Remarks: Uncommon. Endemic. Depth range, this study: 95-234 m.

Alvania angioyi van Aartsen, 1982

(Figures 133-134)

Remarks: Rare. Endemic. Infralittoral to 20 m (Gofas, 1990). Bullock *et al.*, 1990 as *A. watsoni* (Schwartz MS) Watson, 1873; Bullock, 1995; Knudsen, 1995; Ávila *et al.* 2000. Depth range, this study: 57-360 m. Collected alive at IVFC (Martins, 2004).

Alvania poucheti Dautzenberg, 1889

(Figures 135-137)

Remarks: Relatively common; some specimens appeared fresh. Endemic. Gofas, 1990; Bullock *et al.*, 1990; Bullock, 1995; Knudsen, 1995; Ávila *et al.* 2000. Depth range, this study: 38-207 m. Collected alive at IVFC (Martins, 2004).

Alvania mediolittoralis Gofas, 1989

(Figure 138)

Remarks: Rare. Common intertidally (Gofas, 1990). Depth range, this study: 30-207 m.

Alvania punctura (Montagu, 1803)

(Figure 139)

Remarks: Very rare. Depth range, this study: 117-234 m.

Alvania sp. (?*tarsodes* Watson, 1886)

(Figure 140)

Remarks: Very rare. Depth range, this study: 57 m.

Alvania sleursi (Amati, 1987)

(Figures 141-142)

Remarks: Common; some specimens appeared fresh. Infralittoral, common at 20 m (Gofas, 1990; Knudsen, 1995). Depth range, this study: 30-234 m.

Alvania cancellata (da Costa, 1778)

(Figures 143-147)

Remarks: Common; some specimens appeared fresh. Infralittoral, most common at 20 m (Gofas, 1990; Knudsen, 1995). Depth range, this study: 30-360 m.

Alvania platycephala Dautzenberg & Fischer,

1896

(Figures 148-151)

Remarks: Rare. Endemic. Depth range, this study: 129-360 m.

Alvania cimicoides (Hoenselaar & Goud,

1998)

(Figures 152-153)

Remarks: Rare. Depth range, this study: 99-360 m. Collected alive at 117-234.

Alvania cf. *cimicoides* (Hoenselaar & Goud,

1998)

(Figure 154)

Remarks: Only one specimen collected. Depth range, this study: 156-360 m.

Family Caecidae Gray, 1850

Caecum wayae Pizzini & Nofroni, 2001

(Figures 155-156)

Remarks: Common. Depth range, this study: 57-171 m.

Superfamily VANIKOROIDEA Gray, 1840

Family Vanikoridae Gray, 1840

Talassia cf. *tenuisculpta* (Watson, 1873)

(Figures 157-158)

Remarks: Rare. Depth range, this study: 99-234 m.

Superfamily CAPULOIDEA Fleming, 1822

Family Capulidae Fleming, 1822

Capulus ungaricus (Linnaeus, 1758)

(Figure 159)

Remarks: Rare. Depth range: sublittoral to 850 m (P&G). Depth range, this study: 117-189 m.

Superfamily VELUTINOIDEA Gray, 1850

Family Velutinidae Gray, 1850

Lamellaria perspicua (Linnaeus, 1758)

(Figures 160-161)

Remarks: Uncommon. Depth range: littoral to 200 m (P&G; MM&B.) Depth range, this study: 58-135 m. Collected alive at about 20 m, in previous workshop.

Family Triviidae Troschel, 1863

Trivia pulex (Solander in J.E. Gray, 1828)

(Figures 162-164)

Remarks: Common. Depth range, this study: 30-234 m. Ávila *et al.*, 2000. Collected alive at about 20 m, during previous workshop.

Trivia candidula (Gaskoin, 1835)

(Figure 165)

Remarks: Common; some specimens appeared fresh. Intertidal (MM&B). Ávila *et al.*, 2000. Depth range, this study: 12-360 m.

Erato sp.

(Figures 166-167)

Remarks: Rare; the specimens herein represented are tentatively identified as juveniles. Depth range, this study: 135-207 m

Family Ovulidae Fleming, 1822

Aperiovuva juanjosensis Perez & Gomez, 1987

(Figure 168)

Remarks: Only a fragment was collected. Depth range, this study: 129-207 m.

Superfamily NATICOIDEA Guilding, 1834

Family Naticidae Guilding, 1834

Notocochlis dillwynii (Payraudeau, 1826)

(Figure 169)

Remarks: Rare. Depth range: 1-25 m (MM&B; P&G); this study: 318 m

Natica prietoi Hidalgo, 1873

(Figures 170-172)

Remarks: Common, variable. Previously cited as *Natica adansonii* de Blainville, 1825 (Ávila *et al.*, 2000). Depth range: infralittoral to 200 m (MM&B); this study: 14-360 m; alive: 18-318 m.

Natica cf. *prietoi* Hidalgo, 1873

(Figure 173)

Remarks: Rare. Depth range, this study: 32 m.

Superfamily TONNOIDEA Suter, 1913

Family Tonnidae Suter, 1913

Phalium undulatum (Gmelin, 1791)

Remarks: Only fragments. Depth range: 8-80 m (P&G); infralittoral to 115 m (MM&B); this study: 32-207 m.

Superfamily PTEROTRACHEOIDEA Rafinesque, 1814

Family Atlantidae Rang, 1829

Atlanta peroni Lesueur, 1817

(Figure 174)

Remarks: Pelagic.

Protatlanta souleyeti (E.A. Smith, 1888)

(Figure 175)

Remarks: Pelagic.

Superfamily MURICOIDEA Rafinesque, 1815

Family Muricidae Rafinesque, 1815

Ocenebra erinaceus (Linnaeus, 1758)

(Figure 176)

Remarks: Rare. Only juveniles collected. Depth range: intertidal to 150 m (P&G); this study: 32-207 m.

Ocenebra sp.

(Figure 177)

Remarks: Uncommon. Depth range, this study: 58-189 m.

Ocenebrina aciculata (Lamarck, 1822)

(Figure 178)

Remarks: Relatively common. Ávila *et al.*, 2000. Depth range: intertidal to at least 25 m (P&G); this study: 30-360 m.

Ocenebrina cf. *aciculata* (Lamarck, 1822)

(Figure 179)

Remarks: Relatively common. Depth range, this study: 38-360 m.

? *Ocenebrina* cf. *aciculata* (Lamarck, 1822)

(Figures 180-181)

Remarks: Uncommon. Depth range, this study: 45-207 m.

? *Ocenebrina* sp.

(Figure 182)

Remarks: Rare. Depth range, this study: 45-47 m.

Orania fusulus (Brocchi, 1814)

(Figures 183-185)

Remarks: Depth range: 95-920 m (MM&B); 100-150 m (P&G); this study: 30-360 m; alive: 30-57 m.

Trophonopsis barvicensis (Johnston, 1825)

(Figures 186-192)

Remarks: Commonly found. Depth range: 440-550 m (MM&B); this study: 32-207 m.

Trophonopsis cf. *muricatus* (Montagu, 1803)

(Figures 193-194)

Remarks: Commonly found. Ávila *et al.*, 2000. Depth range: 10-200 m, with records down to 2000 m (MM&B; P&G); this study: 41-108 m.

Coralliophila cf. *meyendorffii* (Calcare, 1845)

(Figure 195)

Remarks: Uncommon. Depth range: infralittoral to circalittoral (MM&B); this study: 30-189 m.

Coralliophila panormitana (Monterosato, 1896)

(Figure 196)

Remarks: Rare. Depth range: below low tide to 640m (P&G); this study: 99-234 m.

Stramonita haemastoma (Linnaeus, 1767)
(Figure 197)

Remarks: Uncommon; specimens rolled, mostly juvenile, probably transported from the littoral. Knudsen, 1995 as *Thais haemastoma floridana* (Conrad, 1837); Ávila *et al.*, 2000. Depth range: intertidal to 3 m (P&G); this study: 32-360 m. Alive on IVFC (Martins, 2004).

Family Cysticidae Stimpson, 1865

Gibberula vignalii (Dautzenberg & Fischer 1896)
(Figure 198)

Remarks: Rare. Depth range, this study: 156-360m.

Gibberula cf. lazaroii Contreras, 1992
(Figure 199)

Remarks: Rare. Could be a juvenile of *G. vignalii*, but resembles *Gibberula lazaroii*, described from the intertidal of Pico and Terceira islands (Contreras, 1992). Depth range, this study: 117-234 m.

Family Mitridae Swainson, 1831

Mitra cornea Lamarck, 1811
(Figure 200)

Remarks: Uncommon; specimens rolled, mostly juveniles. Knudsen, 1995 as *M. nigra* (Gmelin, 1791); Ávila *et al.*, 2000. Depth range: intertidal to 40 m (MM&B, as *M. cornicula* (Linnaeus)); this study: 30-207 m; alive at IVFC (Martins, 2004).

Superfamily BUCCINOIDEA Rafinesque, 1815

Family Buccinidae Rafinesque, 1815

Pollia dorbignyi (Payraudeau, 1826)
(Figures 201-202)

Remarks: one fresh fragment. Depth range: in and just above littoral zone (MM&B; P&G); this study: 30 m; alive at IVFC (Martins, 2004).

Family Nassariidae Iredale, 1916

Nassarius incrassatus (Ström, 1768)
(Figures 203-206)

Remarks: Common, mostly fragmented shells. Ávila *et al.*, 2000. Depth range: intertidal to 200 m (MM&B; P&G); this study: 18-360 m.

Nassarius cf. cuvierii (Payraudeau, 1826)
(Figure 207)

Remarks: One juvenile specimen collected. Depth range: in and just above littoral zone (MM&B; P&G); this study: 66 m.

Nassarius recidivus (Martens, 1876)
(Figure 208)

Remarks: Rare. Depth range, this study: 167-318 m. Family Columbellidae Swainson, 1840

Columbella adansonii Menke, 1853
(Figure 209)

Remarks: Uncommon, mostly fragmented shells; some juveniles appeared fresh. Knudsen, 1995; Ávila *et al.*, 2000. Depth range: 4-1402 m (MM&B, as *C. rustica* (Linnaeus)); this study: 30-360 m; common alive at IVFC (Martins, 2004).

Mitrella pallaryi (Dautzenberg, 1758)
(Figure 210)

Remarks: Rare. Depth range: 40-200 m (MM&B; P&G); this study: 129-360 m.

Anachis avaroides Nordsieck, 1975
(Figures 211-212)

Remarks: Common. Ávila *et al.*, 2000. Depth range: infralittoral (MM&B), this study: 30-207 m; common alive at IVFC (Martins, 2004).

Superfamily CANCELLARIOIDEA Forbes & Hanley, 1851

Family Cancellariidae Forbes & Hanley, 1851

Brocchinia clenchi Petit, 1986
(Figures 213-214)

Remarks: Frequent in some samples. Depth range, this study: 40-07 m; alive: 58-81 m.

Superfamily CONOIDEA Fleming, 1822

Family Conidae Fleming, 1822

Mitromorpha (Mitrolumna) azorensis Mifsud, 2001
(Figures 215-216)

Remarks: Uncommon. Bullock, 1995 as *Mitrolumna olivoidea* (Cantraine, 1835); Ávila *et al.*, 2000. Depth range, this study: 30-207 m

Bela nebula (Montagu, 1803)
(Figures 217-222)

Remarks: Common throughout the sampled depth range. Ávila *et al.*, 2000. Depth range: 10-30 m (P&B); this study: 14-360 m; alive: 38-169 m.

Mangelia cf. costata (Montagu, 1803)
(Figures 223-229)

Remarks: Common. Depth range: infralittoral 40 m (MM&B); this study: 14-360 m; alive: 66-189 m.

Raphitoma purpurea (Montagu, 1803)
(Figure 230)

Remarks: Uncommon. Depth range, this study: 30-207 m

Raphitoma linearis (Montagu, 1803)
(Figure 231)

Remarks: Uncommon. Depth range: Intertidal to 200 m (P&G); this study: 38-234 m.

***Raphitoma cf. aequalis* (Jeffreys, 1867)**

(Figures 232-240)

Remarks: Common. Depth range: intertidal (MM&B); this study: 14-360 m; alive: 46-58 m.

Raphitoma sp.
(Figure 241)

Remarks: Rare. Depth range, this study: 32-207 m.

Pleurotomella gibbera Bouchet & Warén, 1980
(Figures 242-244)

Remarks: Rare. Depth range, this study: 72- 234 m.

Pleurotomella cf. gibbera Bouchet & Warén, 1980
(Figure 245)

Remarks: Rare. Depth range, this study: 144-198m.

Teretia teres (Reeve, 1844)
(Figures 246-247)

Remarks: Rare. Depth range: 30-1385 (MM&B); this study: 99-234 m.

Family Drilliidae Olsson, 1964

***Crassoleura maravignae* (Bivona, 1838)**
(Figures 248-250)

Remarks: Common at deeper sandy bottoms. Ávila *et al.*, 2000. Depth range, this study: 14-360 m; alive at: 58-234 m.

Family Turridae H. & A. Adams, 1853

Haedropleura septangularis (Montagu, 1803)
(Figures 251-252)

Remarks: Uncommon. Ávila *et al.*, 2000. Depth range: 7-70 m (P&G); this study: 30-207 m

Subclass HETEROBRANCHIA Gray, 1840

Order HETEROSTROPHA Fischer P., 1885

Superfamily ARCHITECTONICOIDEA Gray, 1850

Family Architectonicidae Gray, 1850

Philippia krebsi (Mörch, 1875)
(Figure 253)

Remarks: Rare. Depth range, this study: 56-207 m.

***Pseudotorinia architae* (Costa O.G., 1841)**
(Figure 254)

Remarks: Rare. Ávila *et al.*, 2000. Depth range, this study: 180-234 m; alive at: 180m.

Pseudomalaxis zancleus (Philippi, 1844)
(Figure 255)

Remarks: Rare. Depth range: 644 m (MM&B); this study: 117-234 m.

Superfamily MATHILDOIDEA Dall, 1889
Family Mathildidae Semper, 1865

Mathilda cochlaeformis Brugnone, 1873
(Figure 256)

Remarks: Rare; only one fresh, broken shell. Depth range: 1205 m (MM&B); this study: 144-198 m.

Mathilda retusa (Brocchi, 1814)
(Figure 257)

Remarks: Rare; only one specimen collected. Depth range, this study: 117-234 m.

Superfamily RISSOELLOIDEA Gray, 1850

Family Rissoellidae Gray, 1850

?*Rissoella* sp. 1
(Figure 258)

Remarks: Rare. Depth range, this study: 156-360m.

? *Rissoella* sp. 2
(Figure 259)

Remarks: Rare. Depth range, this study: 135 m.

Superfamily OMALOGYROIDEA Sars, 1878

Family Omalogyridae Sars, 1878

Omalogyra atomus (Philippi, 1841)
(Figure 260)

Remarks: Rare; only one specimen; however, the rarity of minute species can be seen as an artefact of sampling, for most of the fine fraction was discarded. Bullock *et al.* (1990) reported it to be very common on algal samples. Bullock, 1995; Knudsen, 1995; Ávila *et al.*, 2000. Depth range: intertidal to 20 m (MM&B); this study: 117-145 m.

Superfamily PYRAMIDELLOIDEA Gray, 1840

Family Pyramidellidae Gray, 1840

Ostomella doliolum (Philippi, 1844)
(Figures 261-262)

Remarks: Rare; one very fresh shell collected. Ávila *et al.*, 2000. Depth range: 10-800 m (MM&B); this study: 180-234 m.

- Chrysallida* cf. *flexuosa* (Monterosato, 1874 ex Jeffreys)
(Figure 263)
Remarks: Rare. Depth range, this study: 156-300 m.
- Odostomia bernardi* Aartsen, Gittenberger & Goud, 1998
(Figure 264)
Remarks: Common in fine fractions. Endemic. Depth range, this study: 30-360m.
- Odostomia* cf. *verhoeveni* Aartsen, Gittenberger & Goud, 1998
(Figure 265)
Remarks: Uncommon. Depth range, this study: 30-207 m.
- Odostomia duureni* Aartsen, Gittenberger & Goud, 1998
(Figure 266)
Remarks: Rare. Depth range, this study: 57 m.
- Odostomia* cf. *striolata* Forbes & Hanley, 1850
(Figure 267)
Remarks: Rare. Depth range, this study: 72-234 m.
- Eulimella* sp.
(Figure 268)
Remarks: Rare. Depth range, this study: 129-207 m.
- Turbonilla rufa* (Philippi, 1836)
(Figure 269)
Remarks: Rare. Depth range, this study: 57-234 m.
- Turbonilla lactea* (Linnaeus, 1758)
(Figure 270)
Remarks: Regularly present. Ávila, 2000. Depth range: Infralittoral to 80 m (MM&B); this study: 30-207 m.
- Turbonilla* sp. 1
(Figure 271)
Remarks: Rare. Depth range, this study: 129-207 m.
- Turbonilla* sp. 2
(Figure 272)
Remarks: Rare. Depth range, this study: 144-234 m.
- Turbonilla* sp. 3
(Figure 273)
Remarks: Rare. Depth range, this study: 129-207 m.
- Turbonilla* sp. 4
(Figure 274)
Remarks: Rare. Depth range, this study: 129-207 m.
- Family Murchisonellidae Casey, 1905
Ebala nitidissima (Montagu, 1803)
(Figures 275-276)
Remarks: Uncommon. Depth range, this study: 57-145 m.
- Subclass OPISTHOBRANCHIA Milne-Edwards, 1848
Order CEPHALASPIDEA Fischer P., 1883
Family Diaphanidae Odhner, 1914
Colpodaspis pusilla Sars, 1870
(Figure 277)
Remarks: Rare. Depth range, this study: 135-189 m.
- Family Retusidae Thiele, 1925
Retusa truncatula (Bruguère, 1792)
(Figures 278-279)
Remarks: Common. Mikkelsen, 1995. Depth range: below low tide to 200 m (P&G); this study: 38-145 m.
- Family Haminoeidae Pilsbry, 1895
Haminoea cf. *orteai* Talavera, Murillo & Templado, 1987
(Figure 280)
Remarks: Uncommon. Mikkelsen, 1995. Depth range, this study: 32-145 m.
- Atys macandrewi* E.A. Smith, 1872
(Figure 281)
Remarks: Uncommon. Mikkelsen, 1995. Depth range, this study: 58-145 m.
- Atys* sp.
(Figure 282)
Remarks: Rare. Depth range, this study: 46-47 m.
- Family Philinidae Gray, 1850
Philine approximans Dautzenberg & Fisher, 1896
(Figure 283)
Remarks: Rare. Depth range, this study: 86-234 m.

Philine sp.

(Figure 284)

Remarks: Rare. Depth range, this study: 72 m.

Family Aglajidae Pilsbry, 1895

?*Chelidonura africana* Pruvot-Fol, 1953

(Figure 285)

Remarks: Rare. Depth range, this study: 117-234 m.

Order THECOSOMATA de Blainville, 1824

Family Cavoliniidae Gray, 1850

Cavolinia inflexa (Lesueur, 1813)

(Figures 286-287)

Remarks: Common; it is a pelagic species.

Cavolinia tridentata (Forskål, 1775)

(Figure 288)

Remarks: Common; it is a pelagic species.

Diacria trispinosa (Lesueur, 1821)

(Figures 289-290)

Remarks: Rare; it is a pelagic species.

Cuvierina atlantica (Bé, MacClintock & Currie, 1972)

(Figure 291)

Remarks: Rare; it is a pelagic species.

Clio pyramidata (Lesueur, 1821)

(Figures 292-293)

Remarks: Rare; it is a pelagic species.

Family Limacinidae Gray, 1840

Limacina cf. *helicina* (Phipps, 1774)

(Figure 294)

Remarks: Rare. *Limacina helicina* is a boreal, pelagic species; the specimens of the Azores, however, resemble those reported to this species elsewhere (Rolán, 2005).

Limacina inflata (d'Orbigny, 1836)

(Figure 295)

Remarks: Rare; it is a pelagic species.

Order NOTASPIDEA Fischer P., 1883

Family Umbraculidae Dall, 1889

Umbraculum umbraculum (Lightfoot, 1786)

(Figure 296)

Remarks: Uncommon. Depth range, this study: 52-198 m.

Family Tylodinidae Gray, 1847

Tyloдина perversa (Gmelin, 1791)

(Figure 297)

Remarks: Rare. Depth range, this study: 117-145 m.

Subclass PULMONATA Cuvier, 1817

Superfamily SIPHONARIOIDEA Gray, 1827

Family Siphonariidae Gray, 1827

Williamia gussonii (O.G. Costa, 1829)

(Figure 298)

Remarks: Uncommon. Ávila *et al.*, 2000. Depth range, this study: 40-180 m.

Order ARCHAEOPULMONATA

Superfamily ELLOBIOIDEA Pfeiffer, 1854

Family Ellobiidae Pfeiffer, 1854

Ovatella vulcani (Morelet, 1860)

Remarks: Only one shell; this is a supratidal pulmonate.

Pedipes pedipes Bruguière, 1789

Remarks: Only one shell; this is a supratidal pulmonate.

Class BIVALVIA Linnaeus, 1758

Order PTEROMORPHIA Beurlen, 1944

Superfamily ARCOIDA Stoliczka, 1871

Family Arcidae Lamarck, 1809

Arca tetragona Poli, 1795

(Figure 299)

Remarks: Common. This species lives on hard substrates. Bullock, 1995; Ávila *et al.*, 2000. Depth range: intertidal to 900 m (MM&B); low tide to 120 m (P&G); this study: 30-360 m.

Asperarca nodulosa (O.F. Müller, 1776)

(Figure 300)

Remarks: Rare. Depth range: low tide to 1000 m (P&G); intertidal to 3300 m (MM&B); this study: 117-234 m.

Family Noetiidae Stewart, 1930

Bathyarca philippiana (Nyst, 1848)

(Figures 301-302)

Remarks: Rare. Depth range: around 150 m (P&G); 60-1200 m (MM&B); this study: 117-360 m.

Family Limopsidae Dall, 1895

Limopsis minuta Philippi, 1836

(Figure 303)

Remarks: Rare. Depth range: 40-1400 m

PLATE XVIII

299. *Arca tetragona* Poli, 1795. Loose valves (Sta8)
300. *Asperarca nodulosa* (O.F. Müller, 1776). Loose valves (Sta37)
301. *Bathyarca philippiana* (Nyst, 1848) (Sta41)
302. *Bathyarca philippiana* (Nyst, 1848) (juvenile) (Sta37)
303. *Limopsis minuta* Philippi, 1836 (Sta1)
304. *Gregariella semigranata* (Reeve, 1858) (Sta28)
305. *Rhomboidella prideauxi* (Leach, 1815) (Sta13)
306. *Pecten jacobeus* (Linnaeus, 1758) (Sta26)
307. *Pecten jacobeus* (Linnaeus, 1758) (juvenile) (Sta18)

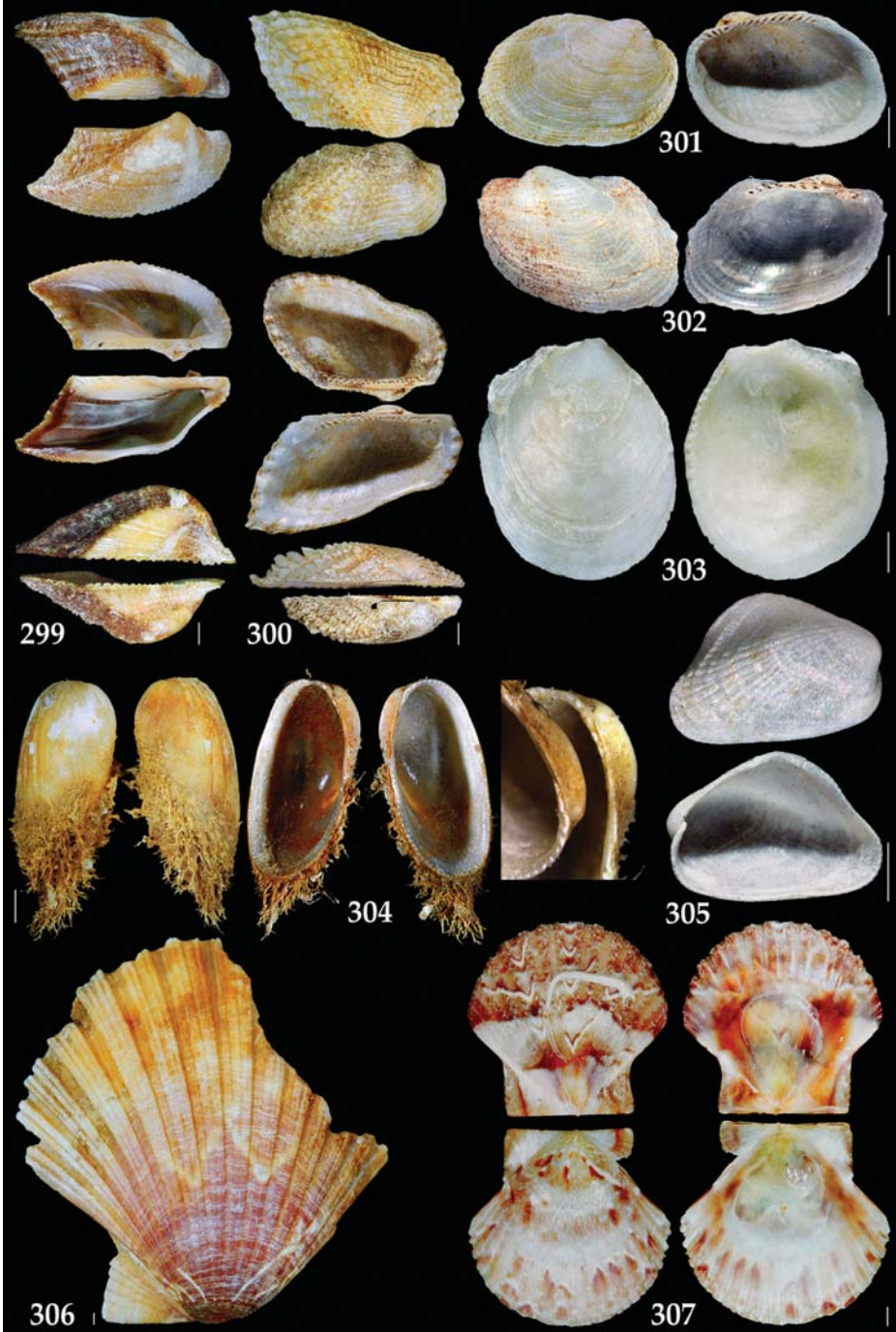


PLATE XIX

- 308. *Aequiptecten commutatus* (Monterosato, 1875) (Sta29)
- 309. *Aequiptecten commutatus* (Monterosato, 1875) (Sta23)
- 310. *Aequiptecten opercularis* (Linnaeus, 1758) (Sta8)
- 311. *Aequiptecten opercularis* (Linnaeus, 1758) (Sta5)
- 312. *Bractechlamys corallinoides* (d'Orbigny, 1840) (Sta26)
- 313. *Bractechlamys corallinoides* (d'Orbigny, 1840) (Sta5)
- 314. *Bractechlamys corallinoides* (d'Orbigny, 1840) (Sta23)
- 315. *Palliolulum incomparabile* (Risso, 1826) (Sta29)
- 316. *Palliolulum incomparabile* (Risso, 1826) (Sta29)
- 317. *Palliolulum incomparabile* (Risso, 1826) (Sta7)

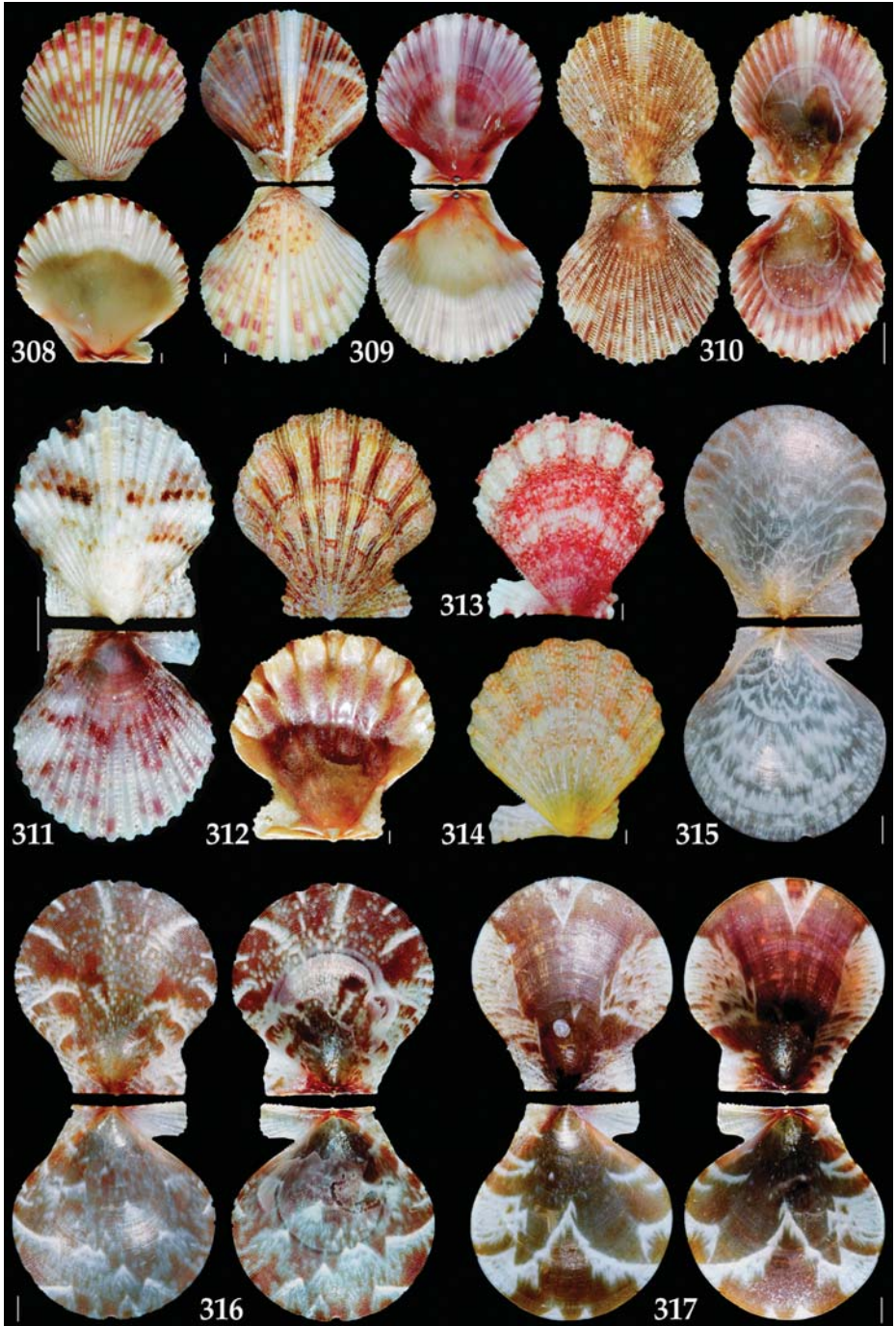


PLATE XX

- 318. *Chlamys flexuosa* (Poli, 1795) (Sta7)
- 319. *Talochlamys pusio* (Linnaeus, 1758) (Sta26)
- 320. *Talochlamys pusio* (Linnaeus, 1758) (Sta26)
- 321. *Pododesmus patelliformis* (Linnaeus, 1761) (Sta56)
- 322. *Limaria hians* (Gmelin, 1791) (Sta56)
- 323. *Neopycnodonte cochlear* (Poli, 1795) (Sta55)
- 324. *Myrtea spinifera* (Montagu, 1803) (Sta37)
- 325. *Lucinoma borealis* (Linnaeus, 1767) (Sta37)
- 326. *Lucinoma borealis* (Linnaeus, 1767) (Sta37)
- 327. *Thyasira flexuosa* (Montagu, 1803) (Sta7)
- 328. *Diplodonta berghi* (Dautzenberg & Fischer, 1897) (Sta32)
- 329. *Diplodonta berghi* (Dautzenberg & Fischer, 1897) (Sta40)
- 330. *Diplodonta berghi* (Dautzenberg & Fischer, 1897) (Sta46)
- 331. *Diplodonta trigona* (Scacchi, 1835) (Sta56)
- 332. *Diplodonta trigona* (Scacchi, 1835) (Sta29)



PLATE XXI

- 333. *Chama gryphoides* (Linnaeus, 1758) (Sta55)
- 334. *Chama gryphoides* (Linnaeus, 1758) (Sta37)
- 335. *Kurtiella pellucida* (Jeffreys, 1881) (Sta27)
- 336. *Kurtiella pellucida* (Jeffreys, 1881) (Sta7)
- 337. *Basterotia clancula* von Cosel, 1995. Loose valves (juvenile) (Sta28)
- 338. *Basterotia clancula* von Cosel, 1995. Loose valves (Sta12)
- 339. *Cardita calyculata* (Linnaeus, 1758) (Sta24)



PLATE XXII

340. ?*Crassatina* sp. (Sta46)
341. *Papillicardium papillosum* (Poli, 1791) (Sta47)
342. *Papillicardium papillosum* (Poli, 1791) (Sta57)
343. *Papillicardium papillosum* (Poli, 1791) (Sta56)
344. *Papillicardium papillosum* (Poli, 1791) (Sta15)
345. *Papillicardium papillosum* (Poli, 1791) (Sta5)
346. *Papillicardium papillosum* (Poli, 1791) (Sta5)
347. *Parvicardium vroomi* van Aartsen, Menkhorst & Gittenberger, 1984. Loose valves (Sta27)

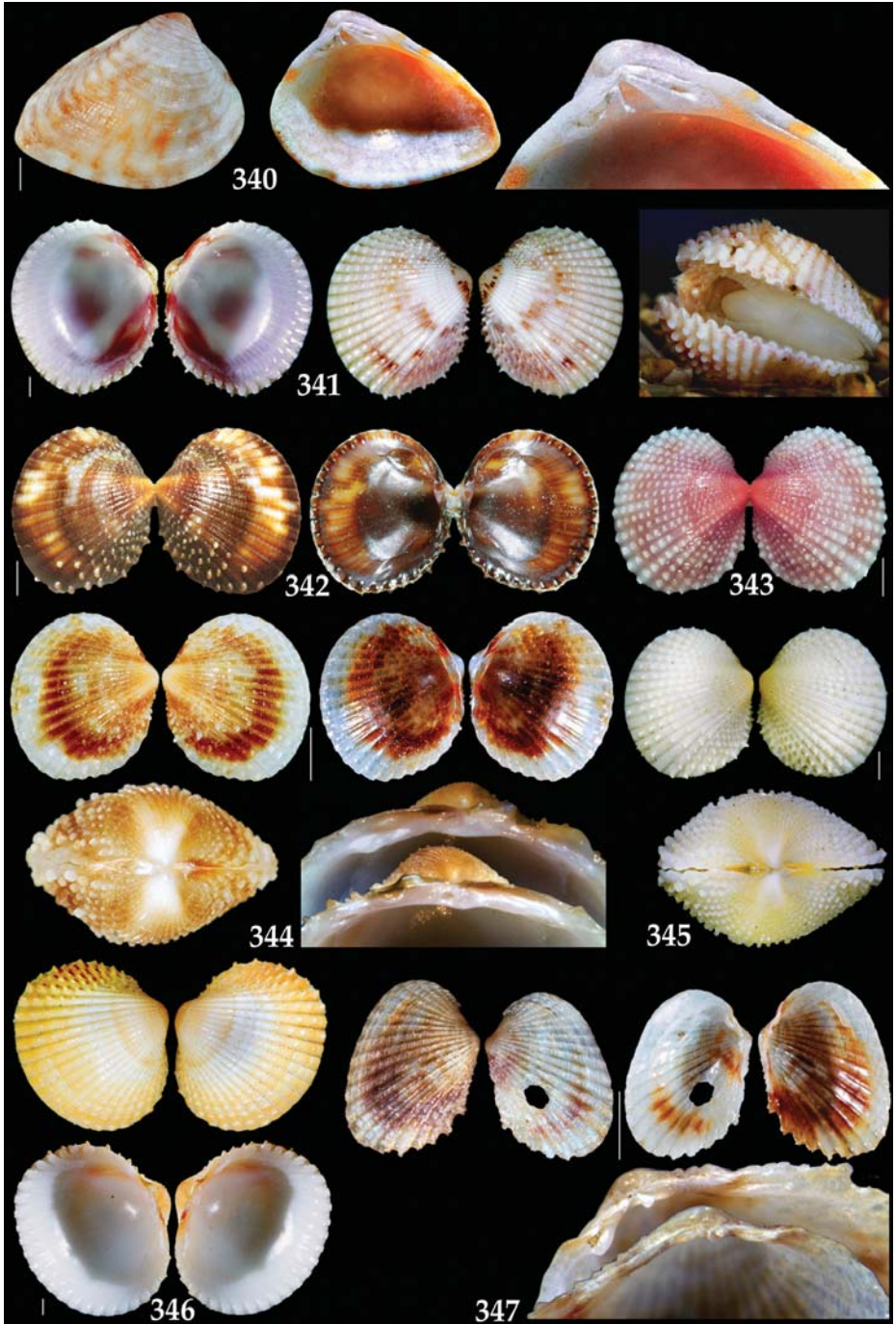


PLATE XXIII

348. *Tellina incarnata* Linnaeus, 1758 (Sta57)
349. *Tellina pygmaea* Lovén, 1846 (Sta48)
350. *Tellina pygmaea* Lovén, 1846 (Sta12)
351. *Tellina pygmaea* Lovén, 1846 (Sta57)
352. *Tellina pygmaea* Lovén, 1846 (Sta5)
353. *Tellina pygmaea* Lovén, 1846 (Sta57)
354. *Arcopagia balaustina* (Linnaeus, 1758) (Sta43)
355. *Arcopagia balaustina* (Linnaeus, 1758) (Sta37)
356. *Arcopagia balaustina* (Linnaeus, 1758) (Sta7)
357. ?*Tellina* sp. (Sta28)



PLATE XXIV

358. *Gari costulata* (Turton, 1822) (Sta15)
359. *Gari costulata* (Turton, 1822) (Sta31)
360. *Ervilia castanea* (Montagu, 1803) (Sta26)
361. *Ervilia castanea* (Montagu, 1803) (Sta31)
362. *Azorinus chamasolen* (da Costa, 1778) (juvenile) (Sta44)
363. *Azorinus chamasolen* (da Costa, 1778) (Sta40)



PLATE XXV

364. *Coralliophaga lithophagella* (Lamarck, 1819) (Sta37)
365. *Coralliophaga lithophagella* (Lamarck, 1819) (Sta37)
366. *Coralliophaga lithophagella* (Lamarck, 1819) (juvenile) (Sta53)
367. *Coralliophaga lithophagella* (Lamarck, 1819) (juvenile) (Sta37)
368. *Venus casina* Linnaeus, 1758 (Sta54)
369. *Venus verrucosa* Linnaeus, 1758 (Sta1)
370. *Venus verrucosa* Linnaeus, 1758 (Sta26)
371. *Globivenus effossa* (Philippi, 1836) (Sta41)

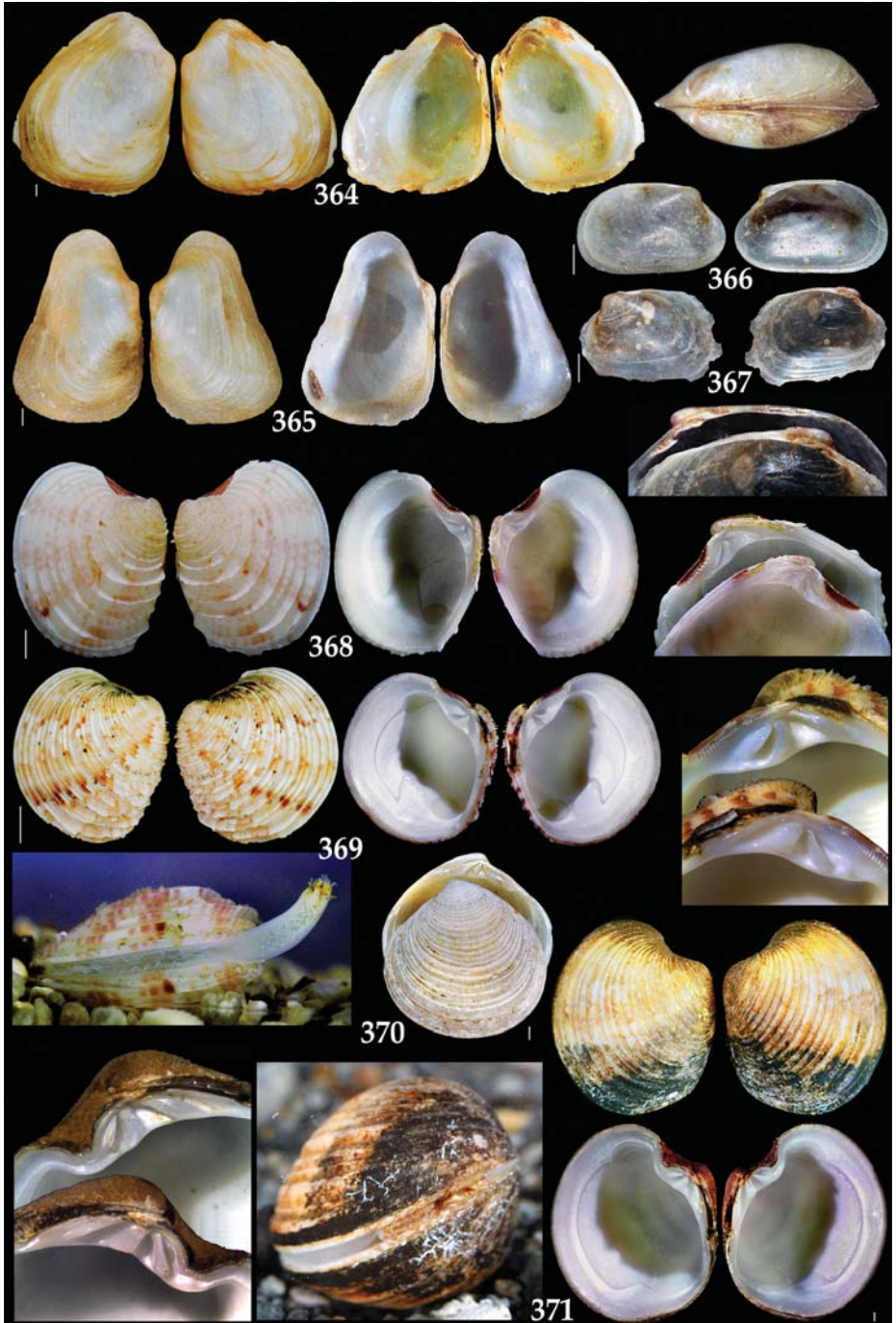


PLATE XXVI

- 372. *Timoclea ovata* (Pennant, 1777) (Sta48)
- 373. *Timoclea ovata* (Pennant, 1777) (Sta56)
- 374. *Timoclea ovata* (Pennant, 1777) (Sta15)
- 375. *Gouldia minima* (Montagu, 1803) (Sta5)
- 376. *Gouldia minima* (Montagu, 1803) (Sta56)
- 377. *Gouldia minima* (Montagu, 1803) (Sta15)
- 378. *Gouldia minima* (Montagu, 1803) (Sta15)
- 379. *Gouldia minima* (Montagu, 1803) (Sta27)
- 380. *Callista chione* (Linnaeus, 1758) (Sta40)

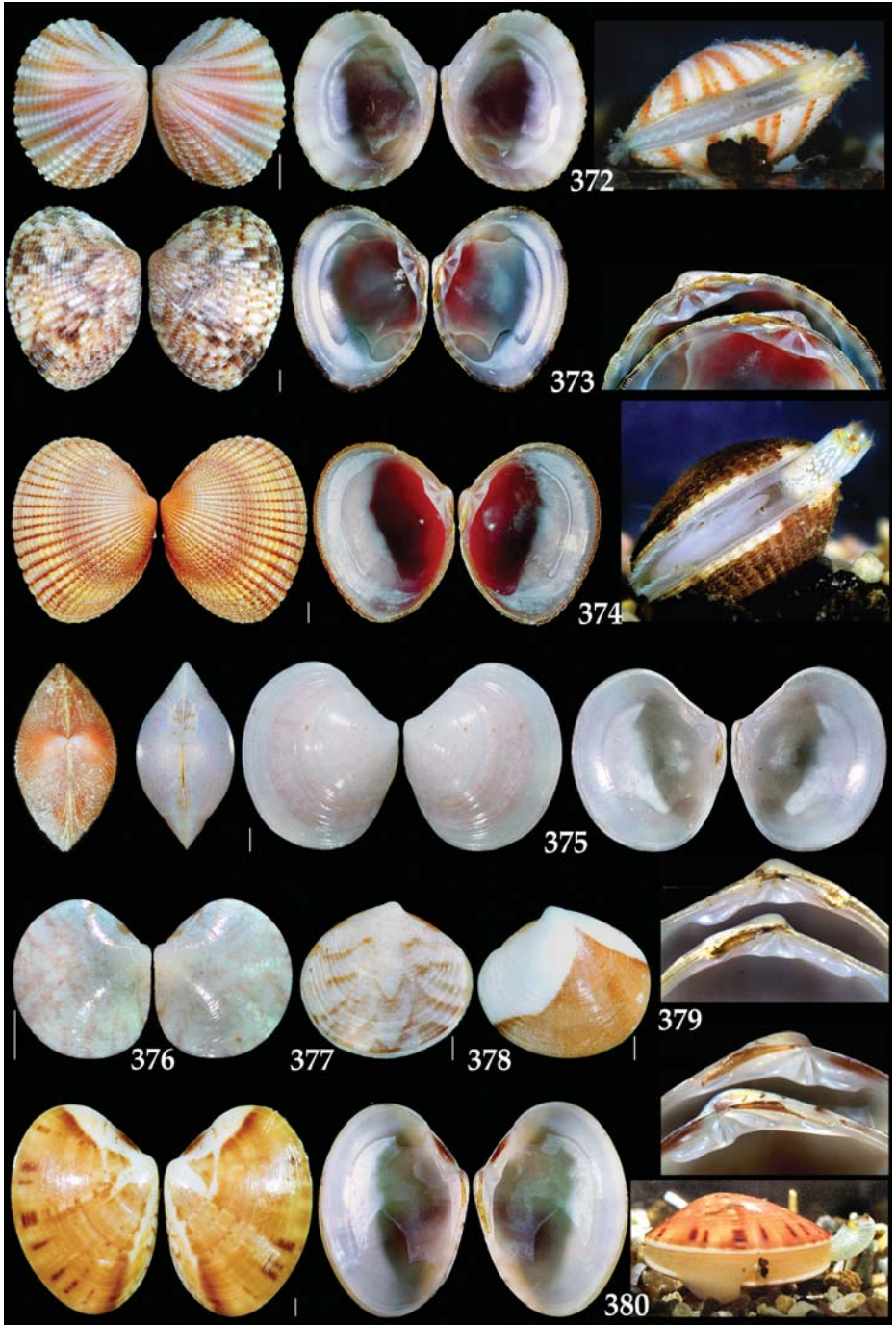
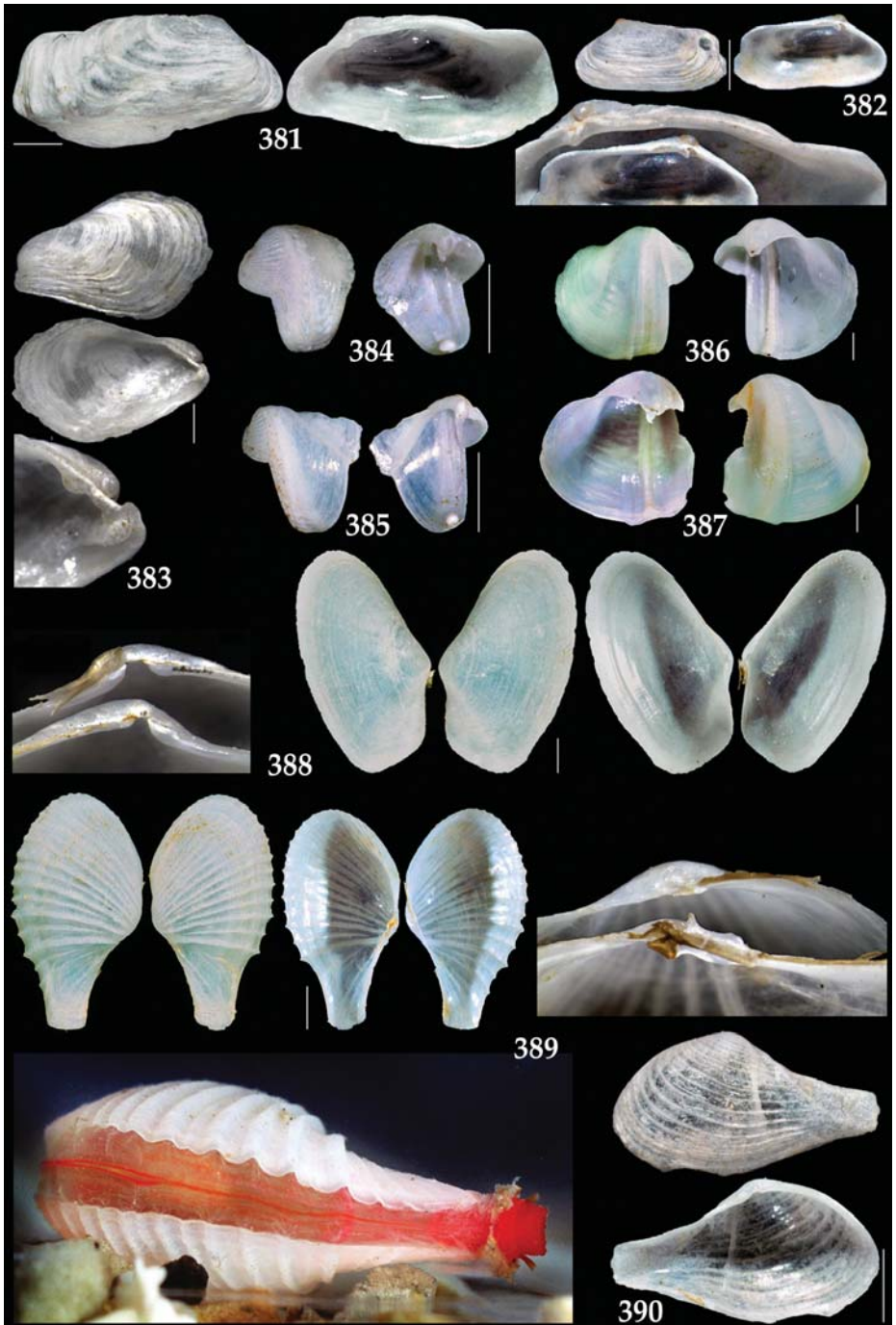


PLATE XXVII

- 381. *Hiatella arctica* (Linnaeus, 1767) (Sta32)
- 382. *Hiatella arctica* (Linnaeus, 1767) (Sta18)
- 383. *Gastrochaena dubia* (Pennant, 1777) (Sta32)
- 384. *Nototeredo norvagica* (Spengler, 1792) (Sta12)
- 385. *Teredora malleolus* (Turton, 1822) (Sta1)
- 386. *Xyloredo* sp. (Sta56)
- 387. *Xyloredo* sp. (Sta56)
- 388. *Thracia papyracea* (Poli, 1791) (Sta13)
- 389. *Cardiomya costellata* (Deshayes, 1835) (Sta23)
- 390. *Cuspidaria atlantica* Allen & Morgan, 1981 (Sta38)



(MM&B); continental shelves down to 900 m (P&G); this study: 57 m.

Superfamily MYTILOIDA de Férussac, 1822
Family Mytilidae Rafinesque, 1815

***Gregariella semigranata* (Reeve, 1858)**
(Figure 304)

Remarks: Common. Morton, 1995 as *Trichomusculus semigranatus*. This species lives on hard substrata. Depth range, this study: 30-360m; alive: 66 m.

Rhomboidella prideauxi (Leach, 1815)
(Figure 305)

Remarks: Rare. Depth range, this study: 73-180 m.

Superfamily PTERIOIDA Newell, 1965
Family Pectinidae Rafinesque, 1815

***Pecten jacobeus* (Linnaeus, 1758)**
(Figures 306-307)

Remarks: Uncommon. Depth range: 25-250 m (P&G); this study: 40-360 m; alive: 72 m.

***Aequipecten commutatus* (Monterosato, 1875)**
(Figures 308-309)

Remarks: Uncommon. Ávila *et al.*, 2000. Depth range: 30-250 m; this study: 40-360 m; alive: 180 m.

***Aequipecten opercularis* (Linnaeus, 1758)**
(Figures 310-311)

Remarks: Common. Ávila *et al.*, 2000. Depth range: low tide to 400 m (P&G; MM&B); this study: 38-360 m; alive: 41-171 m.

Bractechlamys corallinoides (d'Orbigny, 1840)
(Figures 312-314)

Remarks: Common. Depth range: 3-100 m (P&G); this study: 38-360 m.

***Palliolum incomparabile* (Risso, 1826)**
(Figures 315-317)

Remarks: Common. Ávila *et al.*, 2000. Depth range: 10-250 m (P&G); infralittoral to 2000 m (MM&B); this study: 30-360 m.

Chlamys flexuosa (Poli, 1795)
(Figure 318)

Remarks: Very rare. Ávila *et al.*, 2000. Depth range: 30-250 m (P&G); this study: 45-189 m.

Talochlamys pusio (Linnaeus, 1758)
(Figures 319-320)

Remarks: Common. Ávila *et al.*, 2000 as *Crassadoma pusio*. Depth range: from a few meters to 150 m (P&G, as *Hinnites distortus* (da Costa, 1778)); 100-2300 (MM&B, as *Chlamys distorta* (da Costa, 1778)); this study: 30-360 m. Collected alive at IVFC (Martins, 2004).

Family Anomiidae Rafinesque, 1815
Pododesmus patelliformis (Linnaeus, 1761)
(Figure 321)

Remarks: Common. Depth range: intertidal to 50 m (P&G); intertidal to 450 m (MM&B); this study: 14-360 m.

Family Limidae Rafinesque, 1815
Limaria hians (Gmelin, 1791)
(Figure 322)

Remarks: Common. Ávila *et al.*, 2000. Depth range: low tide to 100 m (P&G); low tide to 450 m (MM&B); this study: 30-360 m. Collected alive at IVFC (Martins, 2004).

Superfamily OSTREOIDA de Férussac, 1822
Family Gryphaeidae Vyalov, 1936

***Neopycnodonte cochlear* (Poli, 1795)**
(Figure 323)

Remarks: Common. Ávila *et al.*, 2000. Depth range: 45-250 m (P&G); this study: 41-360 m; alive: 66-162 m.

Order HETERODONTA Neumayr, 1884
Superfamily VENEROIDA H. & A. Adams, 1857

Family Lucinidae Fleming, 1828
Myrtea spinifera (Montagu, 1803)
(Figure 324)

Remarks: Rare. Depth range: 7-250 m (P&G); this study: 117-234 m.

***Lucinoma borealis* (Linnaeus, 1767)**
(Figures 325-326)

Remarks: Common. Bullock, 1995. Range: intertidal to 500 m (P&G); intertidal to 1500 m (MM&B); this study: 30-360 m; alive: 95-351 m. This species was collected alive at IVFC about 20 cm deep into the sandy substratum (pers. obs., AMFM).

Family Thyasiridae Dall, 1900

Thyasira flexuosa (Montagu, 1803)
(Figure 327)

Remarks: Rare. Depth range: 10-2000 m (P&G); infralittoral to 2190 m (MM&B); this study: 135-360 m.

Family Ungulinidae Adams, H. & A., 1857

Diplodonta berthi (Dautzenberg & Fischer, 1897)

(Figures 328-330)

Remarks: Uncommon. Depth range: 130-1360 m (MM&B); this study: 38-234 m.

Diplodonta trigona (Sacchi, 1835)

(Figures 331-332)

Remarks: Common. Depth range, this study: 30-360 m; alive: 30-198 m.

Family Chamidae Lamarck, 1809

Chama gryphoides (Linnaeus, 1758)

(Figures 333-334)

Remarks: Common. Depth range: intertidal to 200 m (P&G; MM&B); this study: 41-360 m; alive: 162-234 m.

Family Montacutidae Clark, 1855

Kurtiella pellucida (Jeffreys, 1881)

(Figures 335-336)

Remarks: Uncommon. Depth range, this study: 40-360 m; alive: 99-207 m.

Family Sportellidae Dall, 1899

Basterotia clancula von Cosel, 1995

(Figures 337-338)

Remarks: Common. Depth range, this study: 18-360 m.

Family Carditidae Fleming, 1828

Cardita calyculata (Linnaeus, 1758)

(Figure 339)

Remarks: Common. Bullock, 1995; Ávila *et al.*, 2000. Depth range: low tide to 200 m (MM&B; P&G); this study: 30-360 m; alive: 38-117 m. Alive at IVFC (Martins, 2004).

Family Crassatellidae Férussac, 1822

?*Crassatina* sp.

(Figure 340)

Remarks: Rare. One valve, tentatively assigned to this genus. Depth range, this study: 56 m.

Family Cardiidae Lamarck, 1809

Papillicardium papillosum (Poli, 1791)

(Figures 341-346)

Remarks: Very common. Ávila *et al.*, 2000. Depth range: infralittoral to 60 m (MM&B); this study: 45-360 m; alive: 45-318 m.

Parvicardium vroomi van Aartsen, Menkhorst &

Gittenberger, 1984

(Figure 347)

Remarks: Common. Ávila *et al.*, 2000. Depth range, this study: 46-360 m.

Family Tellinidae de Blainville, 1814

Tellina incarnata Linnaeus, 1758

(Figure 348)

Remarks: Common. Ávila *et al.*, 2000. Depth range: intertidal to 85 m (MM&B; P&G); this study: 18-360 m; alive: 18-72 m. This species was taken alive at IVFC about 20 cm deep into the sandy substrata (pers. obs., AMFM).

Tellina pygmaea Lovén, 1846

(Figures 349-353)

Remarks: Very common. Depth range: intertidal to 150 m; this study: 18-360 m. Collected alive throughout its range. Authors report *T. donacina* Linnaeus, 1758 as living in the Azores (Ávila *et al.*, 2000); however, all the specimens herein collected conform to the representation of *T. pygmaea* instead.

Arcopagia balaustina Linnaeus, 1758

(Figures 354-355)

Remarks: Common. Depth range: infralittoral to 750 m (MM&B; P&G); this study: 46-360 m; alive: 66-360 m.

? *Tellina* sp.

(Figure 356)

Remarks: Rare; only one valve, tentatively assigned to this genus. Depth range, this study: 117-145.

Family Psammobiidae Fleming, 1828

Gari costulata (Turton, 1822)

(Figures 357-359)

Remarks: Common. Ávila *et al.*, 2000. Depth range: infralittoral to 150 m, most abundant 35-60 m (MM&B; P&G); this study: 18-360 m; alive: 18-66 m.

Family Semelidae Stoliczka, 1870 (1850)

***Ervilia castanea* (Montagu, 1803)**

(Figures 360-361)

Remarks: The commonest bivalve in the Azores (Morton, 1990). Bullock, 1995; Ávila *et al.*, 2000. Depth range: 30-100 m (P&G); intertidal to 1800 m (MM&B); this study: 18-360 m; collected alive throughout its range. Alive at IVFC (Martins, 2004).

Family Solecurtidae d'Orbigny, 1846

***Azorinus chamasolen* (da Costa, 1778)**

(Figures 362-363)

Remarks: Rare. Depth range, this study: 38-66 m; alive: 66 m.

Family Trapezidae d'Orbigny, 1846

***Coralliophaga lithophagella* (Lamarck, 1819)**

(Figures 364-367)

Remarks: Uncommon. Depth range: 33-200 m (MM&B; P&G); this study: 57-360 m; alive: 162-234 m.

Family Veneridae Rafinesque, 1815

***Venus casina* Linnaeus, 1758**

(Figure 368)

Remarks: Common. Ávila *et al.*, 2000. Depth range: 5-200 m (P&G); this study: 32-360 m; alive: 32-180 m.

***Venus verrucosa* Linnaeus, 1758**

(Figures 369-370)

Remarks: Uncommon. Depth range: intertidal to 100 m (MM&B; P&G); this study: 46-360; alive: 32-66 m.

***Globivenus effossa* (Philippi, 1836)**

(Figure 371)

Remarks: Rare. Ávila *et al.*, 2000. Depth range: 50-300 m (P&G); this study: 156-360; taken alive throughout the range.

***Timoclea ovata* (Pennant, 1777)**

(Figures 372-374)

Remarks: Very common. Ávila *et al.*, 2000. Depth range: 4-200 m (P&G); this study: 46-360 m; alive: 30-360 m.

***Gouldia minima* (Montagu, 1803)**

(Figures 375-379)

Remarks: Very common. Ávila *et al.*, 2000. Depth range: intertidal to 200 m (MM&B;

P&G); this study: 18-360 m; alive: 38-360 m.

***Callista chione* (Linnaeus, 1758)**

(Figure 380)

Remarks: Common. Ávila *et al.*, 2000. Depth range: intertidal to 180 m (MM&B; P&G); this study: 18-360 m; alive: 38-81 m.

Superfamily MYOIDA Stoliczka, 1870

Family Hiatellidae Gray, 1824

***Hiatella arctica* (Linnaeus, 1767)**

(Figures 381-382)

Remarks: Uncommon; possibly young specimens of this species. Ávila *et al.*, 2000. Depth range: intertidal to 1400 m (MM&B; P&G); this study: 72-207 m.

Family Gastrochaenidae Gray, 1840

***Gastrochaena dubia* (Pennant, 1777)**

(Figure 383)

Remarks: Rare; one valve tentatively assigned to this species. Depth range, this study: 180 m.

Family Teredinidae Rafinesque, 1815

***Nototeredo norvagica* (Spengler, 1792)**

(Figure 384)

Remarks: Rare. This species lives in drifting wood.

***Teredora malleolus* (Turton, 1822)**

(Figure 385)

Remarks: Rare. This species lives in drifting wood.

Family Xylophagidae Purchon, 1941

***Xyloredo* sp.**

(Figures 396-387)

Remarks: Common. This species lives in sunken wood. Depth range, this study: 32-360 m.

Order ANOMALODESMATA Dall, 1889

Superfamily PHOLADOMYOIDA Newell, 1965

Family Thraciidae Stoliczka, 1870

***Thracia papyracea* (Poli, 1791)**

(Figure 388)

Remarks: Common. Ávila *et al.*, 2000. Depth range: intertidal to 50 m (MM&B; P&G as *T. phaseolina* (Lamarck, 1818)); this study: 30-360 m; alive: 32-198 m.

Family Cuspidariidae Dall, 1886

Cardiomya costellata (Deshayes, 1833)

(Figure 389)

Remarks: Common. Depth range: 18-200 m (P&G); infralittoral to 1400 m (MM&B); this study: 40-360 m; alive: 46-198 m.

Cuspidaria atlantica Allen & Morgan, 1981

(Figure 390)

Remarks: Rare. Depth range, this study: 129-207 m.

Class CEPHALOPODA Schneider, 1784

Subclass COLOIDEA Bather, 1788

Order OCTOPODA Leach, 1818

Suborder INCIRRATA Grimpe, 1916

Family Octopodidae d'Orbigny, 1840

Octopus vulgaris Cuvier, 1797

(Figure 391)

Remarks: One very young specimen collected alive on a crevice of a dredged rock. Depth range, this study: 150 m.

ACKNOWLEDGEMENTS

We thank Serge Gofas, Henk Dijkstra, Emílio Rolán and Marco Oliverio for their kind contributions to the identities of many species. Sérgio P. Ávila was supported by grant SFRH/BPD/22913/2005 (FCT – Fundação para a Ciência e Tecnologia) of the Portuguese government. IMAR-DOP/UAc (UI&D #531 and ISR LA#9) is funded by FCT/MCTES– Lisbon and DRCT/Azores through pluri-annual and programmatic funding schemes (part FEDER).

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FIGURE 391. *Octopus vulgaris* Cuvier, 1797 (Sta42)

