

# Ten new records of marine invertebrates from the Azores

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The sea anemones *Telmatactis cricoides* (Duchassaing, 1850) and *Actinia* n. sp., the molluscs *Tonna galea* Linnaeus, 1758, *Vitreolina philippi* (de Rayneval & Ponzi, 1854), *Melanella* n. sp., *Phidiana lynceus* (de Rayneval & Ponzi, 1854) and *Anomia patelliformis* (Linnaeus, 1761), the nemertine *Baseodiscus delineatus* (DelleChiaje, 1825) and the echinoderms *Leptosynapta inhaerens* (O. F. Müller, 1776) and *Stichopus regalis* (Cuvier, 1817), are here recorded from the Azores for the first time. The presence of the two starfish species *Chaetaster longipes* (Retzius, 1805) and *Luidia ciliaris* (Philippi, 1837) in the Azores is confirmed and the spawning behaviour of the sea urchin *Echinocyamus pusillus* (O. F. Müller, 1776) is described.

Key words: Anthozoa, Echinodermata, Gastropoda, marine biodiversity, Nemertini

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## INTRODUCTION

During SCUBA dives in the Azores from 1999 to 2008, the presence of a number of species hitherto unrecorded from the region were observed. Similar to previous publications, several species are reported here as new for the Azores (Wirtz & Martins 1993; Wirtz 1998; Wirtz 1999; d'Udekem d'Acoz & Wirtz 2002; Wirtz et al. 2003).

Wirtz et al. (2003) listed eight species of sea anemones from the Azores; two more species are now added. Avila (2000) gave a list of the shallow water marine molluscs of the Azores; Calado (2002) and Wirtz (in Wirtz and Debelius 2003) added numerous opisthobranch species. Six more species of molluscs (one bivalve and five gastropods) are now recorded. Strand (2002) gave a first account of Nemertini from the Azores; Strand & Sundberg (2005) identified to species one of the specimens previously identified only to genus level; one species of a nemertine is added here. Two species of holothurians, not included in the check-list of littoral echinoderms of the Azores by Pereira (1997), are reported as new for the Azores and the presence of two starfish

species, not listed by Pereira but previously recorded, is confirmed. The spawning behaviour of the small burrowing sea urchin *Echinocyamus pusillus* (O.F. Müller, 1776) is described.

## MATERIAL AND METHODS

The animals were photographed in the field during SCUBA dives in a depth range of 0-60 m and in case of doubt, collected for identification. Voucher specimens of some of the species are in the collection of the Department of Oceanography and Fisheries (DOP) of the University of the Azores or in other institutions (see species accounts).

## RESULTS

### CNIDARIA, ANTHOZOA

#### *Telmatactis cricoides* (Duchassaing, 1850)

This large and colourful sea anemone is known from the eastern and central Mediterranean Sea and from the subtropical and tropical areas of both sides of the Atlantic. In the eastern Atlantic

the northern limit appeared to be Madeira Island but a group of *Telmatactis cricoides* was seen at a rocky outcrop near Maia (36°56,635' N, 25° 00,495' W) in 20 m depth at Santa Maria Island, Azores (Fig. 1a). The species is extremely variable in colour (Wirtz 1996) and harbours a large number of crustacean symbionts (Wirtz 1997). No symbionts were seen near the group of *Telmatactis cricoides* at Santa Maria Island. Robert Minderlein, the owner of the Wahoo diving base, who pointed out the anemones to me, stated that this was the only place where he had ever seen them. It is not known whether this species has been present in the Azores for a long time, or whether it has recently colonised.

***Actinia n. sp.***

An *Actinia* with dark double stripes (see Fig. 1b) was found below stones in shallow water at the old whaling station near Maia (36°55,708' N, 25° 01,051' W), Santa Maria Island. The species was common at this place. Numerous specimens were collected, preserved in alcohol and in formol, and sent to Oscar Ocaña, who wrote that this is an undescribed species.

MOLLUSCA, GASTROPODA

***Tonna galea* Linnaeus, 1758**

A trap placed into the canal between the islands of Pico and Faial caught a large individual of the hermit crab *Dardanus arrosor* in the shell of a *Tonna galea*. This amphiatlantic gastropod species has not yet been recorded from the Azores. A colour photo of *Tonna galea* can be found in Wirtz & Debelius (2003).

***Vitreolina philippi* (de Rayneval & Ponzi, 1854)**

This is a common species at the Azores, parasitic on *Paracentrotus lividus* and on *Sphaerechinus granularis* and was found on these sea urchins when diving around the islands of São Miguel, Flores and Pico. The photo in Wirtz & Debelius (2003) shows an animal on *Sphaerechinus granularis* from Pico Island. Specimens are in the collection of the Swedish Museum of Natural History, Stockholm.

***Melanella n. sp.***

A *Melanella* parasitic on *Holothuria tubulosa* was not uncommon in the bay of Porto Pim, Faial Island in about 15 m depth (Fig. 1c). Specimens were collected and sent to Anders Warén, who wrote that this is an undescribed species. Specimens are in the collection of the Swedish Museum of Natural History.

***Phidiana lynceus* Bergh, 1867**

This nudibranch was common on the hydroid *Pennaria disticha* in about 20 m depth in the area of Monte da Guia, Faial Island (Fig. 1d). Specimens were sent to Leopoldo Moro, who identified the species, which is known from the tropical Western Atlantic and in the Eastern Atlantic from the Canary Islands and from Ghana.

MOLLUSCA, BIVALVIA

***Anomia (Pododesmus)***

***patelliformis* (Linnaeus, 1761)**

A large shell of *Charonia lampas*, containing the hermit crab *Dardanus calidus* was collected by hand in 20 m depth at Faial Island. The hermit crab was extracted to study the fauna also living in this shell and an individual of *Anomia patelliformis* was found attached near the mouth of the shell. The specimen was sent to Jørgen Knudsen who confirmed the author's provisional identification.

NEMERTINI

***Baseodiscus delineatus* (DelleChiaje, 1825)**

When turning over a stone at Madalena, Pico Island, in 2 m depth, this ribbon worm was encountered. The species, which can be recognized by its colour pattern, is moderately common all over the world in temperate to tropical latitudes (e.g. Strand et al. 2006) but has apparently not yet been recorded from the Azores. Colour photos of individuals from Madeira and from the Canary Islands can be found in Wirtz and Debelius (2003).

ECHINODERMATA

***Luidia ciliaris* (Philippi, 1837)**

According to Clark and Downey (1991), *Luidia ciliaris* has been recorded from the Azores but it

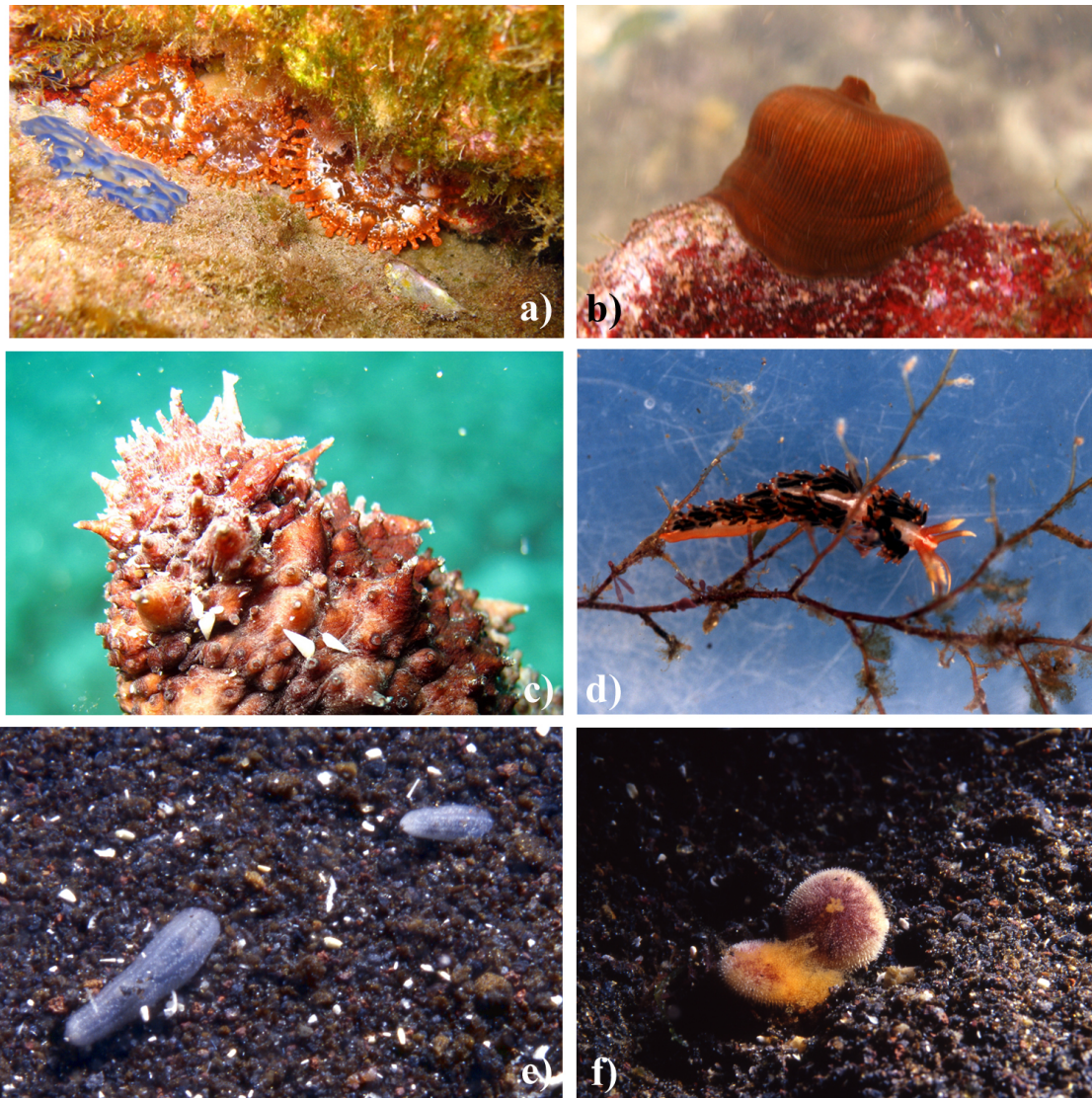


Fig. 1. a) *Telmatactis cricoides*, b) *Actinia* n. sp., c) *Melanella* n. sp., d) *Phidiana lynceus*, e) *Leptosynapta inhaerens*, f) *Echinocyamus pusillus*.

is not listed in Pereira (1997) checklist of Azorean echinoderms. An individual belonging to this species was seen in a large tidal pool ("natural swimming pool") at Varadouro, Faial, in August 1999. The specimen was not preserved. A colour photo of this species can be found in Wirtz and Debelius (2003).

***Chaetaster longipes* (Retzius, 1805)**

The species has been recorded from the Azores by Sladen (1889) but is not listed in Pereira (1997). *Chaetaster longipes* has been occasionally encountered when SCUBA diving in a depth of at least 30 m at the islands of Faial and Flores. The species is known from 18 – 1140 m depth from the Mediterranean Sea and in the eastern Atlantic from the Bay of Biscay to

St. Helena (Clark & Downey 1991; Zibrowius 1991; Wirtz 2006). A colour photo of this species from Faial Island can be found in Wirtz and Debelius (2003).

***Leptosynapta inhaerens*** (O. F. Müller, 1776)

This is a common species in the sandy bottom of two large tide pools (“natural swimming pools”) in Faial, at Varadouro and Castelo Branco (Fig. 1e). The animals are considerably smaller than those reported in the literature and specimens with only 2 cm length were fully mature. Specimens were sent to Dora de Jesus, who identified the species. This is the first record of a synaptid holothurian from the Azores. The species is known from the tide marks to about 200 m depth in the Mediterranean Sea and in the eastern Atlantic from Norway to Portugal (Jesus & Fonseca 1999), but has not been recorded from the Azores.

***Stichopus regalis*** (Cuvier, 1817)

It comes as a surprise that this large species has not yet been recorded from the Azores. It is quite common on the submarine slopes of Monte da Guia, Faial, below a depth of 40 m. A specimen has been deposited in the collection of the DOP. The species is known from a depth of 5 – 400 m in the Mediterranean Sea and in the eastern Atlantic from western Ireland to the Canary Islands (Mortensen 1977).

***Echinocyamus pusillus*** (O. F. Müller, 1776)

This species has been reported from the Azores by various authors (cf. Pereira 1997). Its general biology (but not its spawning behaviour) has been described by Ghiold (1982) and by Telford et al. (1983). We here take the opportunity to describe some observations on its spawning behaviour. Live colour of the animals is a greyish pink, as correctly stated by Picton (1993), not green as stated by Riedl (1983): animals turn green in alcohol. Spawning was observed and photographed in a large tide pool (“natural swimming pool”) at Varadouro, Faial Island, at 22 hours in the night of 20 July 2000. The animals, which normally are hidden in sand, had come to the surface and were extruding gametes. Figure 1d) shows a female. While spawning aggregations have been reported for various sea urchin species,

the *Echinocyamus pusillus* extruding gametes were not aggregated in space. Distribution of the animals on the sandy surface of the pool appeared to be random. The animals were, however, aggregated in time, i.e. they synchronously emerged from the sand and spawned in the same night.

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