

Thirteen new records of marine invertebrates and two of fishes from Cape Verde Islands

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The sea anemones *Actinoporus elegans* Duchassaing, 1850 and *Anthothoe affinis* (Johnson, 1861) are new records from Cape Verde Islands. Also new to the marine fauna of Cape Verde are an undescribed mysid species of the genus *Heteromysis* that lives in association with the polychaete *Branchiommia nigromaculata*, the shrimp *Tulearicoaris neglecta* Chace, 1969 that lives in association with the sea urchin *Diadema antillarum*, an undescribed nudibranch of the genus *Hypselodoris*, and two undescribed species of the parasitic gastropod genus *Melanella* and *Melanella* cf. *eburnea*. An undescribed plathelminth of the genus *Pseudobiceros*, the nudibranch *Phyllidia flava* (Aradas, 1847) and the parasitic gastropod *Echineulima leucophaes* (Tomlin & Shackleford, 1913) are recorded, based on colour photos taken in the field. The crab *Nepinnotheres viridis* Manning, 1993 was encountered in the bivalve *Pseudochama radians*, which represents the first host record for this pinnotherid species. The nudibranch *Tambja anayana*, previously only known from a single animal, was reencountered and photographed alive. The sea anemone *Actinoporus elegans*, previously only known from the western Atlantic, is also reported here from São Tomé Island. In addition, the bythiid fish *Grammonus longhursti* and an undescribed species of the genus *Apletodon* are recorded from the Cape Verde Islands for the first time.

Key words: Anthozoa, Gastropoda, marine biodiversity, Plathelminthes, São Tomé

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INTRODUCTION

During the last five years, a number of unrecorded marine invertebrate species has caught my attention when diving in the Cape Verde Islands. Similar to previous publications (e.g. Wirtz 2001; Wirtz & d'Udekem d'Acoz 2001; McCosker & Wirtz 2008; Schliewen & Kovacic 2008), thirteen marine invertebrates and two fishes new for the fauna of the Cape Verde archipelago are reported in this paper.

MATERIAL AND METHODS

Most records were made in the area of Tarrafal, north-west coast of Santiago Island, and at the

south and west coasts of Sal Island during numerous dives during daytime and at night. Tide pools at Tarrafal were also surveyed during low tide. Animals were photographed in the field, collected, preserved and sent to specialists for identification or verification of provisional identifications (see Acknowledgments). Specimens are deposited in the collections of Oxford University Museum under the numbers OUMNH.ZC.2004-15-0008 (*Nepinnotheres viridis*), OUMNH.ZC.2006-17-002 (*Tuleariocaris neglecta*), at the Swedish Museum of Natural History under the numbers SMNH 93968 (*Melanella* n. sp. 1), SMNH 89485 and 93967 (*Melanella* n. sp. 2) and SMNH 55378 (*Melanella* cf. *eburnea*), and at the Naturkundemuseum Stuttgart (Germany) under the number SMNS

26446 (*Grammonus longhursti*). In addition, underwater photos of unmistakable species taken by three photographers (see Acknowledgements) also provided new records for Cape Verde Islands.

RESULTS

CNIDARIA, ANTHOZOA

Actinoporus elegans Duchassaing, 1850

This sea anemone was photographed at night, on sandy bottom in about 18 m depth near the dive site “Três Grutas” (16,5825° N - 22,9189° W), at Sal Island, in November 2006 (Fig. 1a). The author had already photographed this species at Bonaire and Brazil in the western Atlantic and photographed and collected it at São Tomé and Príncipe Islands in 2004 and in 2006. The preserved specimens from São Tomé Island have been identified by Oscar Ocaña. The species is characterized by very short warty tentacles, which make it appear tentacle-less. *Actinoporus elegans* has so far only been recorded from the tropical western Atlantic, from the Caribbean to Brazil. The records from Cape Verde Islands and from São Tomé and Príncipe reported here are thus the first records of this species from the eastern Atlantic.

Anthothoe affinis (Johnson, 1861)

This species was found at Sal Island, near Palmeira (16,7575° N - 22,9888° W) in August 2007. The specimen was attached to the shell of the gastropod *Phyllonotus duplex*, which contained the hermit crab *Dardanus pectinatus*, and came from a depth of about 17 m. The sea anemone was preserved and sent to Dr. Oscar Ocaña, who confirmed my provisional identification. The species has previously been recorded only from the Azores, Madeira and the Canary Islands (cf. Wirtz et al. 2003, using the name *Sagartia affinis*). A colour photo of an animal from the Azores is given by Wirtz and Debelius (2003, page 53).

PLATHELMINTHES

Pseudobiceros new species

Luis Quintino Duarte photographed this species at the dive site called “Chinese Wall” near Tarrafal,

Santiago Island (15°17'14'' N, 23°45' W) in about 10 m depth. Animals from Madeira were called *Pseudoceros* n. sp. in Wirtz (1995, page 69) and Wirtz & Debelius (2003, page 84) but Newman and Cannon (2003, page 84) identified it as genus *Pseudobiceros*. The species is also known from the Canary Islands (photo in Sánchez & Batet 1990, page 101).

CRUSTACEA, MYSIDA

Heteromysis new species

An undescribed mysid shrimp of the genus *Heteromysis* was observed cruising inside the opened fans of the polychaete worm *Branchiomma nigromaculata* (Baird, 1865) at night at Sal Island (November 2006 and August 2007) and at Santiago Island (August 2007) in 6 to 16 m depth. The species will be described by Karl Wittmann of Vienna University.

CRUSTACEA, DECAPODA

Tuleariocaris neglecta Chace, 1969

One specimen of this shrimp, which lives in association with the sea urchin *Diadema antillarum*, was collected in 15 m depth at Santa Maria, Sal Island, in November 2006, and deposited in Oxford University Museum. The species is known from the Caribbean in the Western Atlantic and from Madeira, the Canary Islands and São Tomé and Príncipe in the eastern Atlantic (Wirtz 2004) but had not yet been recorded from Cape Verde.

Nepinnotheres viridis Manning, 1993

This pinnotherid crab turned out to be quite common in the bivalve *Pseudochama radians* in Murdeira Bay, Sal Island (16°40'36.5'' N, 022°56'09.8'' W), in 3 to 7 m depth (Fig. 1c). Eight specimens, apparently all female, were deposited in Oxford University Museum. The species was described by Manning (1993) from the Cape Verde Islands. To find it in *Pseudochama radians* provides the first host record for the species.

MOLLUSCA, GASTROPODA

Melanella new species 1 “big white”

In a cave near Palmeira, Sal Island (16,455° N, 22,593° W) this large white eulimid was encountered attached to a *Holothuria sanctori*

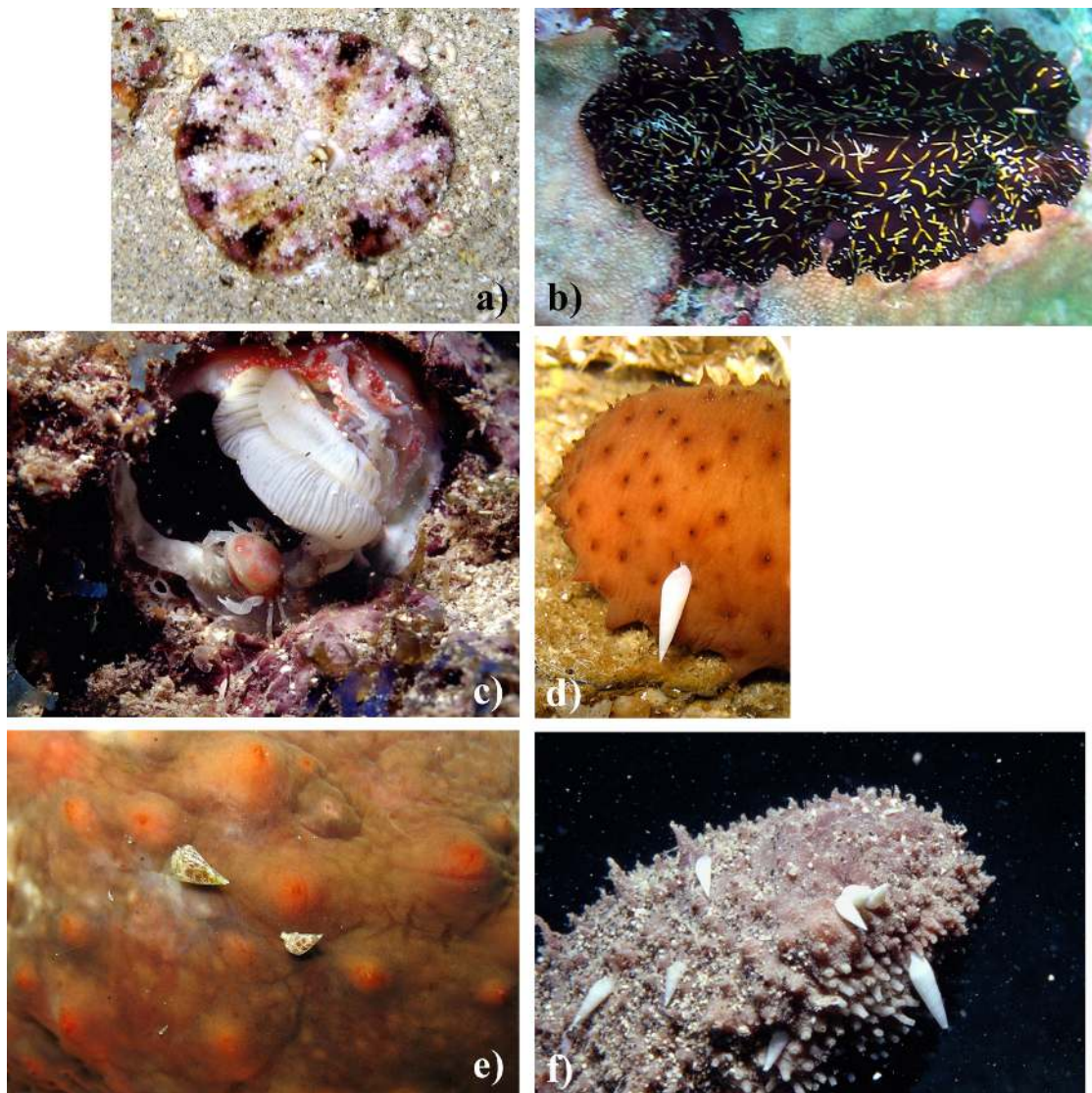


Fig. 1. a) *Actinoporus elegans* from Lagoa Azul, São Tomé Island (photo P. Wirtz); b) Undescrbed *Pseudobiceros* species (photo L. Quintino Duarte); c) *Nepinnotheres viridis* in *Pseudochama radians* at Sal Island (photo P. Wirtz); d) *Melanella* n. sp. 1 on *Holothuria sanctori*, at Palmeira, Sal Island (photo P. Wirtz); e) *Melanella* n. sp. 2 on *Isostichopus badionotus* at Santa Maria, Sal Island (photo P. Wirtz); f) *Melanella* cf. *eburnea* on unidentified sea cucumber at Murdeira Bay, Sal Island (photo P. Wirtz).

(Fig. 1d) in about 20 m depth in August 2007. The species will be described by Anders Warén.

***Melanella* new species 2 “red-spotted”**

On the sea cucumber *Isostichopus badionotus* at a wreck near Santa Maria, Sal Island, (16,36° N - 22,53° W), in about 12 m depth, small red-spotted

eulimids of the genus *Melanella* were encountered in November 2007. The same gastropod species was also collected from the same species of sea cucumber (Fig. 1e) near Tarrafal, Santiago Island in August 2007. The species will be described by Anders Warén.

Melanella* species 3 cf. *eburnea
(Mühlfeld, 1824)

Numerous snails of this *Melanella* species closely resembling the Caribbean species *M. eburnea* (Mühlfeld, 1824) were attached to an unidentified, 17 cm long sea cucumber in 6 m depth in Murdeira Bay, Sal Island, in October 2003 (Fig. 1f). The species will be dealt with in more detail by Anders Warén.

Echineulima leucophaea

(Tomlin & Shackelford, 1913)

A pair of this eulimid snail sucking on the sea urchin *Diadema antillarum* was photographed at Tarrafal in about 15 m depth. No specimens were collected. The species is known from Madeira, the Canary Islands and São Tomé Island (Rolan 2005) but this is the first record from Cape Verde Islands. See Wirtz (1995, p.151) and Wirtz and Debelius (2003, p.168) for colour photos of this species.

Phyllidia flava (Aradas, 1847)

The species is documented by a photo taken by Filomena Sá Pinto at a dive site near Tarrafal, Santiago Island, in 21 to 25 m depth (Fig. 2a). Previously known from the Mediterranean Sea and from Canary Islands (Cervera et al. 2006).

Tambja anayana Ortea, 1989

When turning a stone in about 8 m depth near Tarrafal, Santiago Island, in July 2008, a small (about 2 cm long), greenish nudibranch was encountered. The preserved specimen was identified by Lucas Cervera as being *Tambja anayana*, a species described by Ortea (1989) on the basis of a single small specimen from Boavista Island. This is the second record of this species, from another island in the Cape Verde archipelago. Figure 2b) shows the live colour before preservation.

***Hypselodoris* new species**

A photo taken by José Fernandes at 12 m depth near Tarrafal (Fig. 2c) shows an undescribed species of the genus *Hypselodoris*. Emanuel de Oliveira, collected an individual of the same species of dark blue *Hypselodoris* with many small round yellow spots (Fig. 2d); the animal of about 5 cm length was crawling on a large, bushy

black coral in 23 m depth at Tarrafal; water temperature 23° - 24° C. No other species in the genus has the colour pattern shown in Figures 2c and 2d). The specimen was sent to Lucas Cervera, who will describe the species.

PISCES, TELEOSTEI

Grammonus longhursti (Cohen, 1964)

This species, belonging to the family Bythitidae was recorded in lava tunnels near Palmeira, Sal Island in about 20 m depth, in September 2003 and August 2007 (Fig. 2e). A captured specimen was identified by Joergen Nielsen. It will be deposited in the collection of the Natural History Museum at Stuttgart, Germany. The species has previously been recorded from tropical West Africa (Nigeria, São Tomé) and from the Canary Islands (Nielsen 2007; Wirtz et al. 2007).

***Apletodon* new species**

This little clingfish is common between algae in shallow water. The males have conspicuous white barbels. The species was collected in 5 to 8 m depth by visual search and by spraying the anaesthetic Quinaldine. Most animals collected were drab brown in colour; territorial males are carmine red and occupy empty tests of the giant barnacle *Megabalanus tintinnabulum*. Females can also be green with small blue spots on the back. The white barbels are in stark visual contrast with the dark head of the males (Fig. 2f) and probably serve as a signal. The species will be described by Fricke, Wirtz, and Brito.

DISCUSSION

Morri et al. (2000) gave a preliminary description of the marine zoogeography of the Cape Verde Islands. The area is characterized by a mixture of temperate and tropical species. While the upper littoral zone shows stronger Atlantic-Mediterranean affinities, the infralittoral zone is predominated by a larger component of tropical species. The new records provided here are also an association of species already known from the north and from the south of the Cape Verde Islands with a large component of species that are probably endemic to the archipelago.

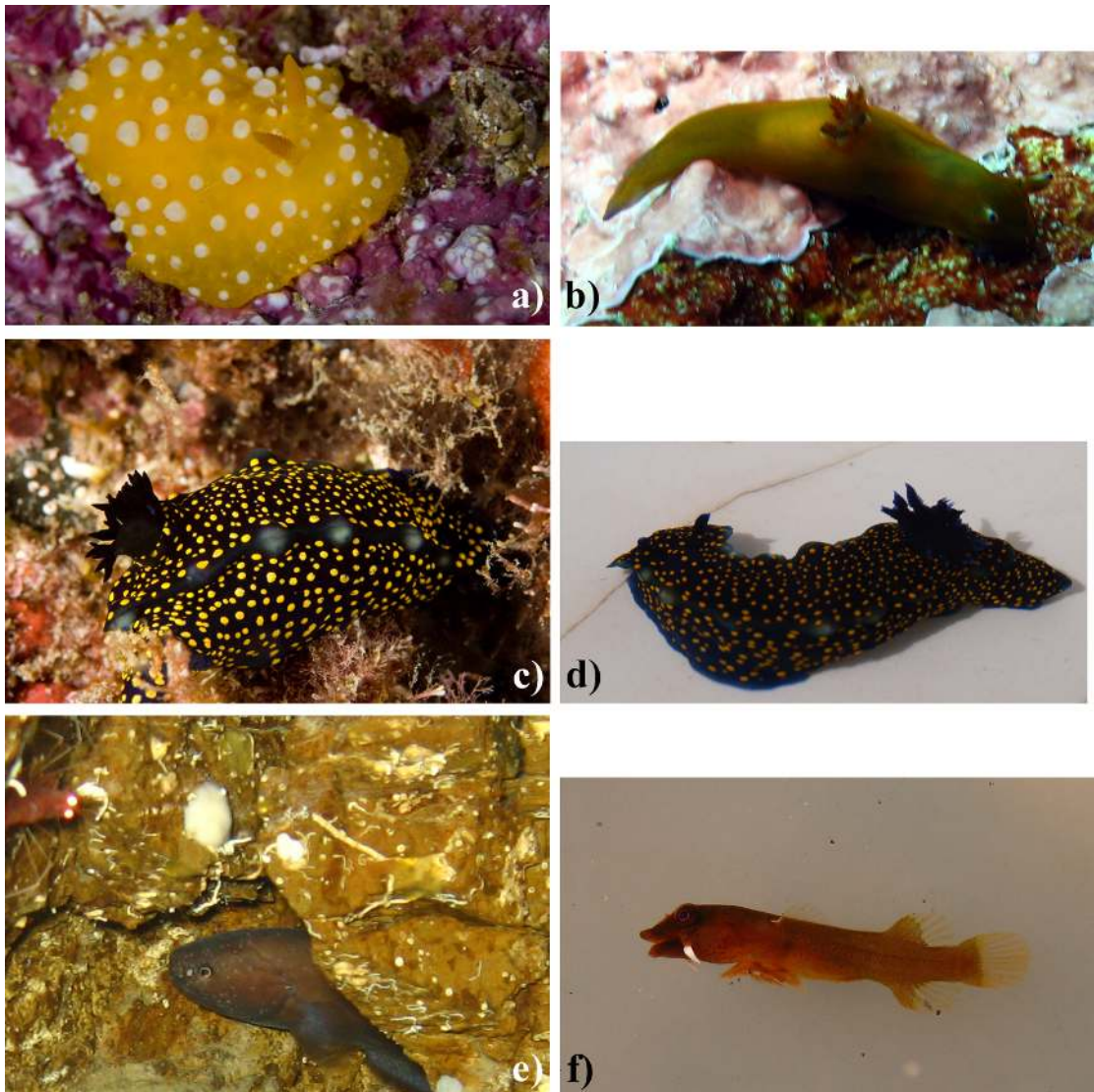


Fig. 2. a) The nudibranch *Phyllidia flava*, Tarrafal, Santiago Island (photo Filomena Sá Pinto); b) *Tambja anayana* at Tarrafal, Santiago Island (photo P. Wirtz); c) Undescribed *Hypselodoris* species from Tarrafal, Santiago Island (photo Zé Fernandes); d) Undescribed *Hypselodoris* species from Tarrafal, Santiago Island (photo Emanuel de Oliveira); e) *Grammonus longhursti* in a lava tunnel near Palmeira, Sal Island (photo P. Wirtz); f) Male of *Apletodon* n. sp. from Tarrafal, Santiago Island (photo P. Wirtz).

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