Redescription and reassignment of *Ondina semicingulata* to the Pyramidellidae, with review of the occurrence of genus *Evalea* in the Western Atlantic (Gastropoda)

Alexander D. Pimenta¹, Franklin N. Santos², Carlo M. Cunha³

¹ Departamento de Invertebrados, Museu Nacional, Universidade Federal do Rio de Janeiro, Quinta da Boa Vista, São Cristóvão, 20940-040, Rio de Janeiro, Brazil
² Departamento de Educação e Ciências Humanas, Centro Universitário Norte do Espírito Santo, Universidade Federal do Espírito Santo, São Mateus 29932-540, Espírito Santo, Brazil
³ Universidade Metropolitana de Santos. Ave. Conselheiro Nébias 536, 11045-002, Santos, SP, Brazil

http://zoobank.org/AC6F04F4-0E94-44F6-8948-FB19FC09615C

Corresponding author: Alexandre D. Pimenta (alexpim@mn.ufrj.br)

Received 31 July 2018
Accepted 17 October 2018
Published 22 November 2018

Abstract

*Acteon semicingulatus* Dall, 1927, previously known only by its original description is reassigned to the Pyramidellidae, in *Ondina*, based on the collecting of several new specimens along the coast of Brazil, in the same bathymetry as the type locality. Its shell shape variation is discussed and *Odostomia (Evalea) ryclea* Dall, 1927 is considered a synonym. Other Western Atlantic species, previously allocated to other genera are transferred to *Ondina*: *Aclis striata* Verrill, 1880, *Odostomia (Iolaea) hendersoni* Bartsch, 1909, *Evalea stocki* De Jong & Coomans, 1988 and *Odostomia (Evalea) emeryi* Bartsch, 1955 based on conchological comparison to the revision by Hoisaeter (2014), from Northeastern Atlantic. The genus *Evalea* is considered to be absent in the Atlantic Ocean.

Key Words

Heterobranchia
Pyramidelloidea
Taxonomy
Nomenclature
Biodiversity
Southwestern Atlantic

Introduction

The Pyramidellidae Gray, 1840 is a notoriously rich and taxonomically complex gastropod family. It was included in the “big-five” group of the richest mollusks families by Albano et al. (2002) after extensive surveys in New Caledonia. It includes about 3,000 accepted names at the species level which are classified in around 140 accepted genera (MolluscaBase 2018).

Although recent advances and changes in the phylogenetic position of the family within Heterobranchia have been proposed (e.g. Dinapoli and Klussmann-Kolb 2010), the alpha taxonomy of several genera remains to be revised and knowledge of diversity and distribution of species is still far from satisfactory. Taxonomic studies in regions where the Pyramidellidae was poorly studied, generally reveal several new species (e.g. Peñas and Rolán 2010, in the South Pacific region). Knowledge of Pyramidellidae diversity in Brazil grew considerably after several taxonomic works (e.g. Pimenta and Absalão 2001a, b, 2002, 2004a, 2004b, Pimenta et al. 2000, 2008, 2009, 2011, Pimenta 2012), but several genera remain to be revised. Additionally, old published names should be revised in both nomenclature and taxonomy.

This is the case of *Ondina* de Folin, 1870, a genus with 20 valid species (MolluscaBase 2018), mainly from European and west African waters but so far not recorded in the Tropical western Atlantic. The nomenclature of *Ondina* was revised by van Aartsen (1984) and the Eastern Atlantic species (from Europe and Africa) were re-de-
scribed in a series of papers (e.g. van Aartsen 1987, van Aartsen et al. 1996, Peñas et al. 1996, Peñas and Rolán 1999, Warén 1991, Hoisaster 2014).

During a visit to the USNM collection, the type series of Acteon semicingulatus was examined, which led to its reassessment in the Pyramidellidae, genus Ondina, as well as in the review of the previous records of the Pyramidellidae genera Ondina and Evalea in the Western Atlantic.

Material and methods

Taxonomic identification of the new material from Brazil was based on conchological comparison with type specimens and with the recent revision by Hoisaster (2014).

All available material consists of dry shells; in the “Examined material” the number of shells is indicated between brackets.

For detailed examination, shells were prepared following the standard methods to preparation of micromollusc shells for SEM of Geiger et al. (2007) and observed by scanning electron microscopy at the Centro de Microscopia Eletrônica, Departamento de Invertebrados, Museu Nacional/UFRJ, with a JEOL JSM-6390LV microscope.

Measurements were made with the software ImageJ (Rasband 2012).

Institutional Acronyms: ANSP, Academy of Natural Sciences of Drexel University, Philadelphia, USA; MN RJ, Museu Nacional / Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; USNM, National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA; YPM, Yale Peabody Museum—Invertebrate Zoology/Yale University, New Haven, Connecticut, USA; USFC, United States Fish Commission, formally known as the United States Commission of Fish and Fisheries. Shell measurements: H, shell height parallel to coiling axis; D, greatest shell width perpendicular to H; h, aperture height (maximum length parallel to coiling axis); d, greatest width of aperture (maximum width perpendicular to coiling axis).

Due to the fire in the Museu Nacional, in September 2018, the non type material of Ondina semicingulata was destroyed.

Systematics

Family Pyramidellidae Gray, 1840
Subfamily Odostominae Pelseneer, 1928
Genus Ondina de Folin, 1870

Ondina de Folin, 1870: 200.

Type species. Ondina semiornata de Folin, 1872 [= Ondina warrenii (Thompson, 1845)] by subsequent designation (van Aartsen 1984: 134). Atlantic coast of France.

Ondina semicingulata (Dall, 1927), comb. n.

Figures 1a-n, 2a-c

Acteon semicingulatus: Dall 1927: 19–20; Poirier 1954: 102; Marcus 1974: 319; Abbott 1974: 311.

Odostomia (Evalea) rylea: Dall 1927: 85. New synonym.

Type material. Ondina semicingulata — Syntypes: USNM 107913 [5 shells], from type locality; Odostomia (Evalea) rylea — Holotype: USNM 108365, R/V Albatross, sta. 2415, off Georgia (30°44' N 79°26' W, 805.2 m depth) depth, on broken coral, coarse sand and broken shell bottom).

Type locality. R/V Albatross, sta. 2668, off Fernandina, Florida [Cumberland Island, off Georgia], (30°58'30" N, 79°38'30" W, 538 m depth).

Material examined. The syntypes and: Off Barbados: 183 m depth, USNM 87264, [1], Blake Expedition; Upper Pliocene (Lower Pince Gret) of Sarasota Co, Florida, USA: Harry Lee Private Collection [1], Brazil: Amapá state: off Cape Orange, (4°27'54".0', 49°58'.05"W', 160 m depth), MN RJ 26217, [2], R/V Sartro 25 coll., 13/x/2000, off Maracá Island, (2°21'00".0', 48°29'54".0', 72 m depth), MN RJ 27809, [2], R/V Columbus Iselin coll., 22/x/1991; Ceará state: off Camocim, (2°08'9", 41.084W, 390 m depth): MN RJ 27823, [9], MN RJ 27830, [1], R/V Natureza coll., 30/x/2001; Rio Grande do Norte state: off Touroso, (4.861S, 35.134W, 384 m depth), MN RJ 27821, [7], R/V Natureza coll., 24/xi/2001; off Sibatéma, (6.234S, 34.876W, 510 m depth), MN RJ 27834, [2], R/V Natureza coll., 26/x/2001; Bahia state: off Itacaré, (14.482S, 38.901W, 278 m depth), MN RJ 28264, [1], R/V Natureza coll., 02/vii/2001; off Salvador, (13.238S, 38.578W, 316 m depth), MN RJ 26258, [1], R/V Astro Garoupa, 25/vi/2002; Santa Catarina state: off Itajai, (26°38'44.9"S, 46°51'54.2"W, 150 m depth), MN RJ 15318, [3], ii/2004.

Redescription. Shell small, thin, up to 3.2 mm, width ~50% of length; oblong ovate to biconical; color translucent white; spire regularly conical, ~30° angled, ~40% of shell length. Protoconch heterostrophic, helicoidal, with about one smooth whorl, intorted, oriented ~180° to teleoconch axis, immersed into first teleoconch whorl, with no visible nucleus; width about 210 μm; transition with teleoconch weak, hardly discernible. Teleoconch up to four stepped whorls, each whorl slightly convex, last whorl somewhat globose; suture deep, forming a narrow furrow. Axial sculpture absent, except for growth lines; spiral sculpture with very narrow spiral grooves of variable distribution and number; usually restricted to the periphery, near the area of implantation of the outer lip, extending anteriorly up to about 1/3 of last whorl and on the base; young shells with three-four very thin furrows; some adult shells with up to 20 furrows covering all base surface and extending anteriorly on last whorl more than half of its length, but not reaching anterior suture; adult shells with visible furrows just above suture; spiral furrows covered by microscopic axial threads. Aperture
Figure 1. Shells of *Ondina semicingulata*. A. Syntype (USNM 107913), in apertural view; B. same in lateral view; C. same in ventral view; D. same, detail of protoconch in apical view. E. From Rio Grande do Norte state (MNRJ 27821), in apertural view; F. same, lateral view; G. same, adapertural view; H. same, detail of protoconch in apical view; I. same, detail of sculpture. J. From Brazil, Amapá state (MNRJ 27809), shell #1 in apertural view; K. same, shell #2 in ventral view. L. From Brazil, Bahia state, MNRJ 28264, in apertural view. M. From Brazil, Amapá state (MNRJ 26217), in ventral view. N. From Brazil, Rio Grande do Norte state (MNRJ 27834), in apertural view. Scale bars: whole shells (vertical bar): 1 mm; details (horizontal bar): 200 μm.
elliptical-oblong, length about half of last whorl length, anteriorly elongated-rounded, posteriorly narrow and somewhat acute. Columellar margin slightly concave, without tooth. Outer lip thick. Umbilicus deep and wide, ranging from circular to wide chink.

Geographic distribution. USA: Florida (type locality); Barbados (present study); Brazil: Amapá, Ceará, Rio Grande do Norte, Bahia and Santa Catarina states (present study).

Remarks. Except for the features of soft parts, absent in the type specimens of Acteon semicingulatus, all characteristics agree with the diagnose provided by Hoisæter (2014) for Ondina, including the oblong-ovate shell, oblong aperture and intorted protoconch. In comparison to the Eastern Atlantic species, which usually have more elongate shells, O. semicingulata has a wider shell, with biconical general shape. The original allocation in Acteon is rejected since Acteonids have a solid shell, with columellar tooth and rounded protoconch (Valdés 2008).

Hoisæter (2014) discussed the high variability of the surface of the shell, being smooth or with variable incised spirals. According to this author, in a single species, the spirals may cover uniformly the whole shell, they may be confined to the lower half of each teleoconch whorl or the shell may be smooth and shiny.

Ondina semicingulata (Figures 1a–n, 2a–c) is strongly sculptured with spiral furrows (Figure 1i) restricted to the anterior 1/3 to half of the whorls. On earlier whorls, these lines are visible only above suture (Figure 1e–g), but on the last whorl, they are visible also below the periphery of whorl (Figure 1e), extending to the base (Figure 1g). The amount of lines on the last whorl (including the base) is variable, both ontogenetically and between shells with the same number of whorls.

Figure 1j–n illustrates shells of O. semicingulata in a growth series. The amount of spiral lines and strength of the spiral sculpture increase from shells of younger specimens (Fig. 1j–k) to adult ones (Fig. 1l–n). Besides these three adult specimens, with same number of whorls, exhibit variation in the sculpture, covering almost entire last whorl of the shell in Figure 1m.

Odostomia (Evalea) ryclea with type locality off Georgia is here considered a synonymy name of Ondina semicingulata, since it has identical shell shape and protoconch. Despite the eroded shell surface of the holotype (Figure 2a–c), the original description (Dall 1927) states the presence of spiral lines in the teleoconch whors.

Ondina striata (Verrill, 1880), comb. n.

Figure 2d–h

Actis striata: Verrill 1880: 377; 1882: 528, pl. 58, fig. 13; Johnson 1989: 66, pl. 11, fig. 7.
Odostomia (Menestho) striata: Bartsch 1911: 435.

Type material. Lectotype (designated by Johnson 1989: 66): YPM 15757; missing; paralecotype: USNM 44820, USFC sta. 873, 183 m depth, off Newport, Rhode Island.

Type locality. Bay of Fundy, near Eastport, Maine, Verrill coll. 1868.

Material examined. Photographs of the paralecotype and of: USFC sta. 863, 33 m, Vineyard Sound, Rhode Island: YPM 15704 [1]; ANSP 102517 [1].

Geographic distribution. USA: Rhode Island (type locality), Maine.

Remarks. Actis striata was described (Verrill 1880) based on two shells: from shallow water in the Bay of Fundy; and from deep-water off Newport, Rhode Island, by the USFC. Two years later, Verrill (1882) referred to the same two shells, adding station number information (USFC sta. 873) to the deep-water shell. In this work, Verrill (1882: pl. 58, fig. 13) presented the drawing of a shell without indicating which one of the two syntypes.

The type material of Actis striata was studied by Johnson (1989: 66, pl. 11, fig. 7), who designated and figured the lectotype (YPM 15757, from the Bay of Fundy), and listed YPM 15704, from USFC sta. 873, as a paralecotype (but see comments below about its type status). After searching the YPM Molluscan Collection (E. Lazo-Wasen pers. comm.), it was noticed that the lectotype was missing (the vial was empty) and the label of the supposed paralecotype YPM 15704 (Figure 2h) mentions ‘USFC sta. 863’ (which is a shallow water station in the Vineyards Sounds, 33 m depth).

According to Johnson (1989: 15), Verrill sent the samples (types and other specimens) of the species described by himself to the National Museum of Natural History (USNM), keeping nevertheless, some duplicate specimens with him, which he later sold to YPM (Lazo-Wasen pers. comm.). Thus, it seems that the two original syntypes of Actis striata were split by Verrill between the USNM and the YPM collections.

This is corroborated by the original label of USNM 44820 (Figure 2g) that states: “Actis striata V. Off Newport, R. I. U.S.F.C. 1880”. This label has a hand-written indication of “figd. type” that corresponds to Verrill’s calligraphy (E. Lazo-Wasen pers. comm.); such “figd. type” (Figure 2d–e) matches perfectly the figured syntype by Verrill (1882: pl. 58, fig. 13), and thus, it must be considered the paralecotype from deep-water (USFC sta. 873), while the missing lectotype (figure in Johnson 1989: pl. 11, fig. 7), by the other hand, is a smaller shell.

Thus, the shell YPM 15704 (Figure 2h), considered by Johnson to be a paralecotype has no type status. As indicated by its label, it was dredged by USFC is sta. 863, in which an additional shell (ANSP 102517) was also collected.

The only remaining question is the reference to USFC sta. 863 in the original label of specimen USNM 44820 (Figure 2g). We believe that such information was mistakenly inserted by someone later since it has a different
Figure 2. A. Shell of Odostomia (Evalea) ryclea, holotype (USNM 108365) in ventral view. B. same, in adapertural view. C. same, detail of protoconch in apical view. D. Shell of Ondina striata, paralectotype (USNM 44820), in apertural view. E. same, in adapertural view. F. same, detail of protoconch in apical view. G. Original label of USNM 44820, showing a hand-written indication of “figd. type” by A. E. Verrill. H. Ondina striata, a non-type shell (YPM 15704) erroneously indicated as lectotype by Johnson (1989). Scale bars: whole shells (vertical bar): 1 mm; detail (horizontal bar): 200 µm.
handwriting and Verrill (1880, 1882) did not list material from that station.

*Ondina striata* was originally described as belonging to *Aeslin* due to its spiral striae and was later transferred to the Pyramidellidae genus *Odostomia (Menestho)* by Bartsch (1911: 435) without any comments on this taxonomic rearrangement. The species has all features that characterize the genus *Ondina* (Hoisæter 2014) and is very similar to the type species of the genus.

**Ondina hendersoni** (Bartsch, 1909), comb. n.

*Ondina hendersoni* (Bartsch, 1909) was described from Texas as *Amoura cf. hendersoni* but the drawing of the shell (Ode (1994: 39, fig. 4)) exhibits a slender shell, with few spiral lines above suture, which resembles *O. stocki* (see below).

*Ondina stocki* (De Jong & Coomans, 1988), comb. n.

Photographs of the holotype (Figure 3c) and of a young and an adult paratypes (Figure 3d–e) clearly shows that this species belong in the genus *Ondina*. The shell shape is similar to *Ondina hendersoni*, but the shell is narrower, and the spiral grooves are less numerous.

Lee (2009) recorded *Evalea stocki* from Jacksonville Beach, Florida, (USA) based on a young specimen. The author, in the same work, referred to a color illustration of that species, published by Gundersen (1998), but named by Gundersen (1998) as *Amoura hendersoni*. The figured shells from Sanibel Island in Gundersen (1998) and that from Jacksonville in Lee (2009) clearly can be ascribed to the genus *Ondina*, but the images provided by the authors as well as the drawing of *Amoura cf. hendersoni* by Ode (1994), do not allow a precise separation between *O. stocki* or *O. hendersoni*. Also, the simple drawing of *Amoura cf. hendersoni* from Texas in Ode (1994) does not allow a conclusive identification, in spite of the pattern of spiral grooves resembling that found in *O. stocki*.

Therefore, we consider that the only confirmed occurrence of *O. stocki* is that restricted to the type locality area.

**Ondina emeryi** (Bartsch, 1955), comb. n.

*Ondina emeryi* (Bartsch, 1955) was described as *Odostomia (Evalea) emeryi* Bartsch, 1955: 84, pl. 17, fig. 1. *Evalea emeryi* : Ode and Speers (1972: 11, figs 13–14); Tunnel Jr. et al. (2010: 364, figured); Rosenberg et al. (2009: 672).

*Ondina emeryi* (Ode: 1994: 40, fig. 5).

*Evalea emeryi* : Ode and Speers (1972: 11, figs 13–14); Tunnel Jr. et al. (2010: 364, figured); Rosenberg et al. (2009: 672).

Type material. Holotype: USNM 561672 (Bartsch 1955: pl. 17, fig. 1); paratype: ANSP IP 31335. All from type locality.

*Evalea emeryi* : Ode and Speers (1972: 11, figs 13–14); Tunnel Jr. et al. (2010: 364, figured); Rosenberg et al. (2009: 672).

Type locality. Pliocene of North St. Petersburg, Florida (type locality); Texas (Ode and Speers (1972), Ode (1994), Tunnel Jr. et al. (2010), Rosenberg et al. (2009).

Remarks. This species was originally described from the Pliocene of Florida and later recorded from the Gulf of Mexico by Ode and Speers (1972), Ode (1994), Tunnel Jr. et al. (2010) and Rosenberg et al. (2009).

Geographic distribution. USA: Pliocene of Florida (type locality);

**Discussion**

Knowledge of species richness, geographic distribution and accurate taxonomic status of marine molluscan fauna from Brazil is still far from satisfactory. Traditionally, the marine molluscan diversity was compiled in catalogues (e.g. Rios 1994, 2009), with the main purpose of working as identification guides, with a brief description of each taxa, and an image. Despite the recent contributions to the Brazilian molluscan diversity (e.g. Pimenta et al. 2004a), several taxa remain poorly known, and the revision of
genera usually gives rise to the discover of new records and/or new species (e.g. Fernandes and Pimenta 2011). This is especially true to the marine micromollusks, as discussed by Pimenta and Geiger (2015).

In the last two decades, the Pyramidellidae species richness from Brazil raised from 35 previously recorded species (Rios 1994) to 94 species, including several new species, after the works by Pimenta (2012), Pimenta and Absalão (2001, 2002, 2004a, 2004b), Pimenta et al. (2008, 2009, 2011). Nevertheless, there is still many species of this family to be described, especially from deep-water (Pimenta pers. obs.).

On the other hand, acteonids also lack dedicated studies in the Western Atlantic, where few works have been published (Rehder 1939, Marcus 1972, 1974, Cunha 2011, Zelaya et al. 2011). Interestingly, recent studies have revealed new genera (Bouchet 1975, Salvador and Cunha 2016) and species (Smriglio and Mariottini 1996, Valdés 2008, Cunha and Simone 2018) from around the world. For both families, re-examination of type material is imperative and in the case of Acteon semicingulatus, its reassignment to the Pyramidellidae revealed the first record of the genus Ondina in the Western Atlantic.

On the occurrence of Ondina in the Western Atlantic
The most complete and recent account on the taxonomy of Ondina was provided by van Aartsen (1987), Waren (1991) and Hoisæter (2014), based on European species. Hoisæter (2014) figured the type species Ondina seminata de Folin, 1870 (= Ondina warrenii) and discussed the intraspecific variation found in the genus.

According to the works by van Aartsen (1987), van Aartsen et al. (1998), Peñas et al. (1996), Peñas and Rolan (1999), Waren (1991), and Hoisæter (2014), Ondina is mainly distributed in the Eastern Atlantic, both in temperate and tropical latitudes, including the Northern European Seas, the Lusitanian, the Mediterranean Sea and West African Transition Provinces, while a single species is known from the temperate northern Pacific, in the coast of Japan (Hori and Fukuda 1999).

The present records of Ondina semicingulata, O. emeryi, O. stocki and O. hendersoni in the western Atlantic broadens the distribution of the genus including geographical areas that go from Georgia (north-western Atlantic) and south Brazil (south western Atlantic), which gives the genus a wider latitudinal range in the western Atlantic when compared to its distribution in the eastern part of the Atlantic. Ondina semicingulata, besides presenting a wider distribution in the western Atlantic, also presents a larger bathymetric range from 72–500 m depth. Ondina mosti van Aartsen, Gittenberger & Goud, 1998 is the only eastern Atlantic species with similar bathymetry (119–105 m), while the other species are restricted to littoral and continental shelf depths (Aartsen et al. 1998).

Evaluation of the occurrence of Evalea in the Western Atlantic
Aartsen (1987) evaluated the generic allocation of several European odostomids species previously included in Evalea and based on the absence of a well-developed col¬lumellar tooth, transferred them to Ondina. This criterion was followed by Hoisæter (2014).

According to Aartsen and Menkhorst (1996: 51–52), Evalea was confused by Nordsieck (1972), most likely because of the lack of an illustration of the type species Odostomia (Evalea) elegans A. Adams, 1860. Aartsen and Menkhorst (1996: fig. 11) designated a neotype for the type species of Evalea which shows a shell with
coarse spiral striae covering all whorls and a visible columellar tooth.

According to MolluscaBase (2018), *Evalea* has 18 species and it is not present in European waters (e.g. East Atlantic and Mediterranean), being restricted to the Pacific coast of Japan, New Zealand, Indian South Africa, and to the western Atlantic.

In the present work, an attempt was made to evaluate the presence of *Evalea* in the western Atlantic by checking the previous species recorded in that genus and comparing them to the type species as illustrated by Aartsen (1996). According MolluscaBase (2018), the following species are recorded from the western Atlantic: *Evalea fernandina* (Bartsch, 1927), *E. ryclea* (Bartsch, 1927), *E. emeryi* (Bartsch, 1955), and *E. stocki* de Jong & Coomans, 1988; besides that, Odé (1994) recorded an additional taxon as “*Evalea* sp. indet. A”.

As demonstrated above, *Evalea stocki*, *E. ryclea* (= *O. semicincguilata*) and *E. emeryi* belong in fact to the genus *Ondina*. As for the other species we do not have at present enough evidence to critically discuss their generic placement.

*Odostomia* (Evalea) *fernandina* (Dall, 1927: 85) was originally described in *Odostomia* and it has an elongate shell with whorls with an almost rectilinear outline. Although the holotype, USNM 108053, (Figure 4a, b) is eroded and has a partially broken outer lip, it is possible to distinguish from *Evalea* by the absence of spiral sculpture and columellar tooth. However, it does not seem to belong to *Ondina*, because of the different protoconch which is not fully immersed. Thus, until further evidence is available we suggest this species to be kept in the genus *Odostomia*. The record of *Evalea* sp. A by Odé (1994: 46, fig. 8) is considered doubtful because in the drawing provided by the author, characters that could relate the specimen to *Evalea* such as the spiral sculpture throughout the shell and the presence of a columellar fold, are difficult to interpret.

Therefore, based on previous studies (e.g. Hoisæter 2014) and our own results it is here suggested that the genus *Evalea* is absent in the Atlantic Ocean.

Acknowledgements

We thank Ellen E. Strong and Yolanda Villacampa (USNM) for the images of the type specimens and their kind help and hospitality while visiting the museum (CMC). José Carlos N. Barros (UFRPE), for donating some of the material examined from north/northeast Brazil; Harry Lee, for information and image of *Ondina stocki* from Florida; Bram van der Bijl and Jeroen Goud (ZMA / Naturals, Leiden), for the photos and information about the types of *O. stocki*; E. Lazo-Wasen and Daniel Drew (YPM) for the photos of the type specimens in YPM and valuable discussions on the type status of *Aclis striata*; Ellen Wildner (ANSP), for photos of additional material; Leonardo Souza, for photos and notes about the type of *O. striata* when visiting the USNM. We also thank Anne DuPont (Florida, USA) for review and corrections of English grammar and spelling.

This project was partially supported by Capes Foundation proc. 8739/13-7 to C. M. Cunha.

References

Abbott RT (1974) American Seashells. The Marine Mollusca of the Atlantic and Pacific coasts of North America. Van Nostrand Reinhold Company, New York.

Adams A (1860) Mollusca Japonica: New species of *Odostomia*. The Annals and magazine of natural history 4 serie 6(31–36): 20–22. https://biodiversitylibrary.org/page/2267089

Albano PG, Sabelli B, Bouchet P (2011) The challenge of small and rare species in marine biodiversity surveys: microgastropod diversity in a complex tropical coastal environment. Biodiversity and Conservation 20: 3223–3237. https://doi.org/10.1007/s10531-011-0117-x

Bartsch P (1909) Pyramidellidae of New England and the adjacent region. Proceedings of the Boston Society of Natural History 34(4): 67–113

Bartsch P (1911) New mollusks of the genus *Aclis* from the North Atlantic. Proceedings of the United States National Museum 40(1829): 435–438. [pi. 59]

Bartsch P (1955) The pyramidellid mollusks of the Pliocene deposits of North St. Petersburg, Florida. Smithsonian miscellaneous collections 125(2): 1–102.

Bouchet P (2011) Pyramidellidae. MolluscaBase (2018). [accessed through World Register of Marine Species. http://www.marinespecies.org/aphia.php?p=taxdetails&id=162 on 2018-01-23]
Bouchet P (1975) Opisthobranches de profondeur de l’Océan Atlantique. 1. Cephalaspidea = Deep-sea opisthobranches from the Atlantic Ocean. 1. Cephalaspidea. Cahiers de Biologie Marine 16(3): 317–365.

Cunha CM (2011) A new species of Acteon (Opisthobranchia: Acteonidae) from Northeast Brazil. Zoologia 28: 229–232. https://doi.org/10.1590/S1984-46702011000200012

Cunha CM, Simone LRL (2018) A new species of the genus Rapturella (Gastropoda; Acteonidae) from southeast Brazil. Zootaxa. [in press]

Dall WH (1927) Small shells from dredgings off the southeast coast of the United States by the United States Fisheries Steamer ‘Albatross’ in 1885 and 1886. Proceedings of the United States National Museum 70(2667): 1-134. https://doi.org/10.5479/si.00963801.70-2667.1

do de Folin L (1870) D’une méthode de classification pour les coquilles de la famille des Chemnitziidae. Annales de la Société Linneenne de Maine-et-Loire 12: 191-202. http://www.biodiversitylibrary.org/page/34137448

Dinapoli A, Klussmann-Kolb A (2010) The long way to diversity – phylogeny and evolution of the Heterobranchia (Mollusca: Gastropoda). Molecular Phylogenetics and Evolution 55: 60–76. https://doi.org/10.1016/j.ympev.2009.09.019

Fernandes MR, Pimenta AD (2011) Taxonomic review of Metaxia (Gastropoda: Triphoridae) from Brazil, with description of a new species. Zoologica 28(6): 819–830. https://doi.org/10.1590/S1984-46702011000600016

Geiger DL, Marshall BA, Ponder WF, Sasaki T, Waren A (2007) Techniques for collecting, handling, preparing, storing and examining small mollusc specimens. Molluscan Research 27(1): 1–50.

Gunderson R (1998) The seashells of Sanibel and Captiva Islands. Published privately, Racine, Wisconsin, 1–32.

Heisæter T (2014) The Pyramidellidae (Gastropoda, Heterobranchia) of Norway and adjacent waters. A taxonomic review. Fauna Norv 34: 7–78. https://doi.org/10.5324/fn.v34i01.1672

Hori S, Fukuda H (1999) New species of the Pyramidellidae (Orthogastropoda: Heterobranchia) from the collections of the Yanaguchi Museum and the Hagi City Museum. Venus 58(4): 175–190.

Johnson RI (1989) Mollusk taxa of Addison Emsry Verrill and Katharine Jeannette Bush, including those introduced by Sanderson Smith and Alpheus Hyatt Verrill. Occasional papers on mollusks 5(67): 1–144.

Jong KM de, Coomans HE (1988) Marine Gastropods from Curacao, Aruba and Bonaire. E. J. Brill, Leiden, 261 pp. [47 pls]

Lee HG (2009) Marine shells of Northeast Florida. Shell Club, Jacksonville, 204 pp. [19 pls]

Marcus E (1972) On some Acteonidae (Gastropoda, Opisthobranchia). Papéis Avulsos de Zoologia 25(19): 167–188.

Marcus E (1974) On some Cephalaspidea (Gastropoda: Opisthobranchia) from the Western and middle Atlantic warm waters. Bulletin of Marine Science 24(2): 300–371.

MolluscaBase (2018) MolluscaBase. http://www.molluscabase.org [2018-09-18]

Nordsieck F (1972) Die Europäischen Meeresschnecken Opisthobranchia mit Pyramidellidae; Rissoacea. Gustav Fischer, Stuttgart, 327 pp.

Odé H, Speers AB (1972) Notes concerning Texas beach shells – Superfamily Pyramidellacea, Part II. The odostomid genera and the genus Longichaus. Texas conchologist 9(1): 11–17.

Odé H (1994) Distribution and records of the marine Mollusca in the Northwest Gulf of Mexico (A continuing monograph; Superfamily Pyramidellacea, Family Pyramidellidae Part III). Texas conchologist 30(2): 38–50.

Peñas A, Templado J, Martinez JL (1996) Contribucion al conocimiento de los Pyramidelloidea (Gastropoda; Heterostropha) del Mediterráneo español. Iberus 14: 1–82.

Peñas A, Rolán E (1999) La familia Pyramidellidae Gray, 1840 (Mollusca, Gastropoda, Heterostropha) en Africa Occidental. 4. los géneros Megastonia, Odostoma, Noemiamea y Symiola. Iberus 5(suppl): 1–150.

Peñas A, Rolán E (2010) Deep water Pyramidelloidea of the tropical South Pacific: Turbonilla and related genera. In: Gofas S (Ed.) Tropical Deep Sea Benthos 26. Mémoires du Museum National d’Histoire Naturelle 200: 436–446.

Pimenta AD (2012) Four new species and two new records of Odostominae (Gastropoda: Pyramidellidae) from Brazil. Zoologia 29(5): 439–450. https://doi.org/10.1590/S1984-46702012000500007

Pimenta AD, Absalão RS (2001a) Taxonomic revision of the species of Turbonilla Risso, 1826 (Gastropoda, Heterobranchia, Pyramidellidae) with type localities in Brazil, and description of a new species. Basteria 65(1–3): 69–88.

Pimenta AD, Absalão RS (2001b) The genera Bacterium Thieler, 1929 and Coretopsis Mörch, 1875 (Gastropoda: Pyramidellidae) from the east coast of South America. Bolletino malacologico 37(1–4): 41–48.

Pimenta AD, Absalão RS (2002) On the taxonomy of Turbonilla puncta (C. B. Adams, 1850) (Gastropoda, Pyramidellidae), with the description of a new species from Brazil and remarks on other western Atlantic species. Zootaxa 78: 1–16. https://doi.org/10.11646/zootaxa.78.1.1

Pimenta AD, Absalão RS (2004a) Fifteen new species and ten new records of Turbonilla Risso, 1826 (Gastropoda, Heterobranchia, Pyramidellidae) from Brazil. Bolletino malacologico 39(5–8): 113–140.

Pimenta AD, Absalão RS (2004b) Review of the genera Enlimastoma Bartsch, 1916 and Egidia Dall & Bartsch, 1904 (Mollusca, Gastropoda, Pyramidellidae) from Brazil. Zoosystema 26(2): 157–177.

Pimenta AD, Absalão RS, Alencar AS (2000) Odostomella carcerulis spec. nov. from Ilha Grande, SE Brazil (Gastropoda: Heterobranchia, Pyramidellidae). Basteria 64: 65–70.

Pimenta AD, Santos FN, Absalão RS (2008) Review of the genera Ividia, Folinella, Oscilla, Pseudoseilla, Trypticus and Peristichia (Gastropoda, Pyramidellidae) from Brazil, with descriptions of four new species. Veliger 50(3): 171–184.

Pimenta AD, Absalão RS, Miyaji C (2009) A taxonomic review of the genus Iovina, Cheychailla, Parthenina, Ivara, Fargosa, Musiola, Odostomella and Trabecula (Gastropoda, Pyramidellidae, Odostomiidae) from Brazil. Zootaxa 2049: 39–66.

Pimenta AD, Geiger DL (2015) Taxonomic revision of the Anatidae (Mollusca: Gastropoda: Vetigastropoda) from Brazil, with description of four new species. Malacologia 59(1): 135–175. https://doi.org/10.4002/040.059.0109

Pimenta AD, Santos FN, Absalão RS (2011) Taxonomic revision of the genus Enlimastella (Gastropoda, Pyramidellidae) from Brazil, with description of three new species. Zootaxa 3063: 22–38.

Poirier HP (1954) An up-to-date systematic list of 3200 seashells from Greenland to Texas: translation, explanation, and gender of their names. Brooklyn[7], 434 pp.

Rashid WS (2012) Irregular U. S. National Institutes of Health, Bethesda. Rehder HA (1939) New marine molluscs from the Western Atlantic. Nautilus 53(1): 16–21

Rios E (1994) Seashells of Brazil. Second edition. Editora da Fundação Universidade Rio Grande, Rio Grande, 368 pp.

Rios E (2009) Compendium of Brazilian sea shells. Evangraf, Rio Grande, 668 pp.
Van Aartsen JJ, Menkhorst HPMG (1996) Nordsieck's Pyramidellidae (Gastropoda: Prosobranchia): a revision of his types. Part 1: The genera Chrysalidea, Ondina (s. n. Evalea) and Menetello. Basteria 60: 43–56.

Van Aartsen JJ, Gittenberger E, Goud J (1998) Pyramidellidae (Mollusca, Gastropoda, Heterobranchia) collected during the Dutch CANCAP and MAURITANIA expeditions in the south-eastern part of the North Atlantic Ocean (part 1). Zoologische Verhandelingen 321: 1–57.

Verrill AE (1880–1881) Notice of recent addition to the marine Invertebrata of the northeastern coast of America, with descriptions of new genera and species and critical remarks on others. Part II - Mollusca, with notes on Annelida, Echinodermata, etc, collected by the United States Fish Commission. Proceedings of the United States National Museum 3: 356–409. [pp. 356–400 issued December 1880, 401–409 January 1881]

Verrill AE (1882) Catalogue of marine Mollusca added to the fauna of the New England region, during the past ten years. Transactions Connecticut Academy of Arts and Sciences 5(2): 447–587. [pl. 57–58]

Zelaya DG, Schejter L, Ituarte C (2011) Neactaeonina argentina, new species, and family placement of the genus Neactaeonina Thiele, 1912 (Mollusca: Gastropoda). Malacologia 53(2): 251–263. [https://doi.org/10.4002/040.053.0204]

Waren A (1991) New and little known Mollusca from Iceland and Scandinavia. Sarsia 76(1–2): 53–124. [https://doi.org/10.1080/00364827.1991.10413466]
Pimenta, Alexandre, Santos, Franklin Noel, and Cunha, Carlo Magenta. 2018. "Redescription and reassignment of Ondina semicingulata to the Pyramidellidae, with review of the occurrence of genus Evalea in the Western Atlantic (Gastropoda)." Zoosystematics and evolution 94(2), 535–544. https://doi.org/10.3897/zse.94.28765.

View This Item Online: https://www.biodiversitylibrary.org/item/276125
DOI: https://doi.org/10.3897/zse.94.28765
Permalink: https://www.biodiversitylibrary.org/partpdf/291823

Holding Institution
Museum für Naturkunde, Berlin

Sponsored by
Museum für Naturkunde, Berlin

Copyright & Reuse
Copyright Status: In copyright. Digitized with the permission of the rights holder.
Rights Holder: Copyright held by individual article author(s).
License: https://creativecommons.org/licenses/by/4.0/
Rights: https://biodiversitylibrary.org/permissions

This document was created from content at the Biodiversity Heritage Library, the world’s largest open access digital library for biodiversity literature and archives. Visit BHL at https://www.biodiversitylibrary.org.

This file was generated 15 April 2022 at 16:58 UTC