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First report of the family Laubierinidae Warén & Bouchet, 1990 (Gastropoda: Tonnoidea) in the southwestern Atlantic

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ABSTRACT

The presence of *Laubierina peregrinator* Warén & Bouchet, 1990 (Tonnoidea: Laubierinidae) is reported for the first time in the continental slope of Argentina at a depth of 2934 m. This constitutes the first mention of the species in the literature other than the original description. Minor differences of shell and radula are compared with the original description. This record, together with two others from southwestern Africa and Mozambique Channel, suggest that *L. peregrinator* is a southern hemisphere species.

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Introduction

The Tonnoidean family Laubierinidae was proposed more than two decades ago to include two deep sea genera: *Laubierina* Warén & Bouchet, 1990 and *Akibumia* Kuroda & Habe, 1959. The authors Warén and Bouchet (1990) proposed *Laubierina peregrinator* as the type species of the genus *Laubierina*, which is also the type genus of the family. As with several tonnoideans, the species included in both genera *Laubierina* and *Akibumia* have extraordinarily large geographic distributions. *Akibumia* so far includes only two species, *A. flexibilis* Kuroda & Habe, 1959 (with its synonym *A. schepmani* Habe, 1962) from deep waters off Japan, Australia and Tanzania, and *A. orientalis* (Schepman, 1909) from Indonesia, Australia, New Zealand and Japan. *Laubierina* was cited from very distant localities (i.e., South Africa, Mozambique, New Zealand and Australia, northeastern Atlantic and the Gulf of Mexico).

In this note, the first record of the genus *Laubierina* Warén & Bouchet, 1990 and the family Laubierinidae from southwestern Atlantic deep waters is reported.

Materials and methods

The material herein described was collected on 5 September 2013 at station 45 (38°01' S, 53°39' W) at a depth of 2934 m, during a cruise to the continental slope of Argentina on board the R/V *Puerto Deseado*. Two specimens were collected with a bottom trawl net at the same station, one of 64 stations in the same area. One specimen, an intact animal, was fixed in 96% ethanol and the other, with the shell partially broken, was collected dead. Radulae and jaws were dissected and, photographed under the scanning electron microscope (SEM; Philips XL30) at the Museo Argentino

de Ciencias Naturales 'Bernardino Rivadavia' (MACN). Both specimens are housed in the invertebrate collection of the MACN under the number MACN-In39572.

Results

Despite the large geographic distance from the other records, both shells agree well with the original description of *L. peregrinator*. Minor differences exist in the axial ornamentation of the protoconch of the larger specimen. This specimen has numerous very closely arranged axial ribs in the second and third whorls of the protoconch (Figures 1E, 2C–E) and the first one, somewhat eroded, appears to be smooth. The fourth and fifth whorls have the ribs weakly defined and more spaced than in the original illustrated material and there are four spiral ribs which are weaker. There is some variation in the number of spirals on the teleoconch. The Argentinian specimens varied between 9–8 and 22–15 (Figure 1A–D) above and below the keel respectively, instead of 12 and 20 cited in the original description. The size of the protoconch in straightened position is 3.22 × 2.35 mm width and height respectively. In addition, the jaws are pyriform, subtriangular with rods of rhomboidal shape (Figure 2F–G). The operculum is thin, translucent, subcircular with a subcentral nucleus and with thick growth lines on the whole surface. The attachment area is large without a conspicuous rim. Neither opercula nor jaws were previously illustrated for adults of *L. peregrinator*. The operculum of the larva figured by Warén and Bouchet (1990: figure. 71) is similar but the nucleus is nearly central.

The general anatomy agrees with that of the original description (Warén and Bouchet 1990). However, the radula of the material reported here (Figure 2A, B)



Figure 1. *Laubierina peregrinator* Warén & Bouchet, 1990. **A–D**, Four views of adult specimen, MACN-In39572, 38°01' S, 53°39' W, in 2934 m depth; **E**, detail of the protoconch of MACN-In39572; **F**, two views of the operculum; **G–H**, two views of a juvenile, MACN-In39572. Scale bars: A–D, G–H = 1 cm; E–F = 5 mm.

presented minor differences with that illustrated in the original description (Warén and Bouchet 1990: figures 43, 44). The authors showed the rachidian teeth wider and lower with the main cusp longer and sharper. The number of small denticles is basically the same as those in the lateral teeth and the undifferentiated marginal teeth.

Discussion

In the original description of *L. peregrinator* the authors reported it as a species from the southeastern Atlantic

and southwestern Indian Oceans. However, they also mentioned two unidentified species of *Laubierina* from several isolated localities, *Laubierina* sp. 'A' from the northern Atlantic, including the surrounds of the Azores and Canary Islands and the Gulf of Mexico, and *Laubierina* sp. 'B' from Australia and New Zealand. Both the latter species are known only by larval shells, with or without post-larval growth. All species are restricted to deep water.

Beu (2010), in his thorough study of the Neogene tonnoidean gastropods from tropical and South America, mentioned the presence of several

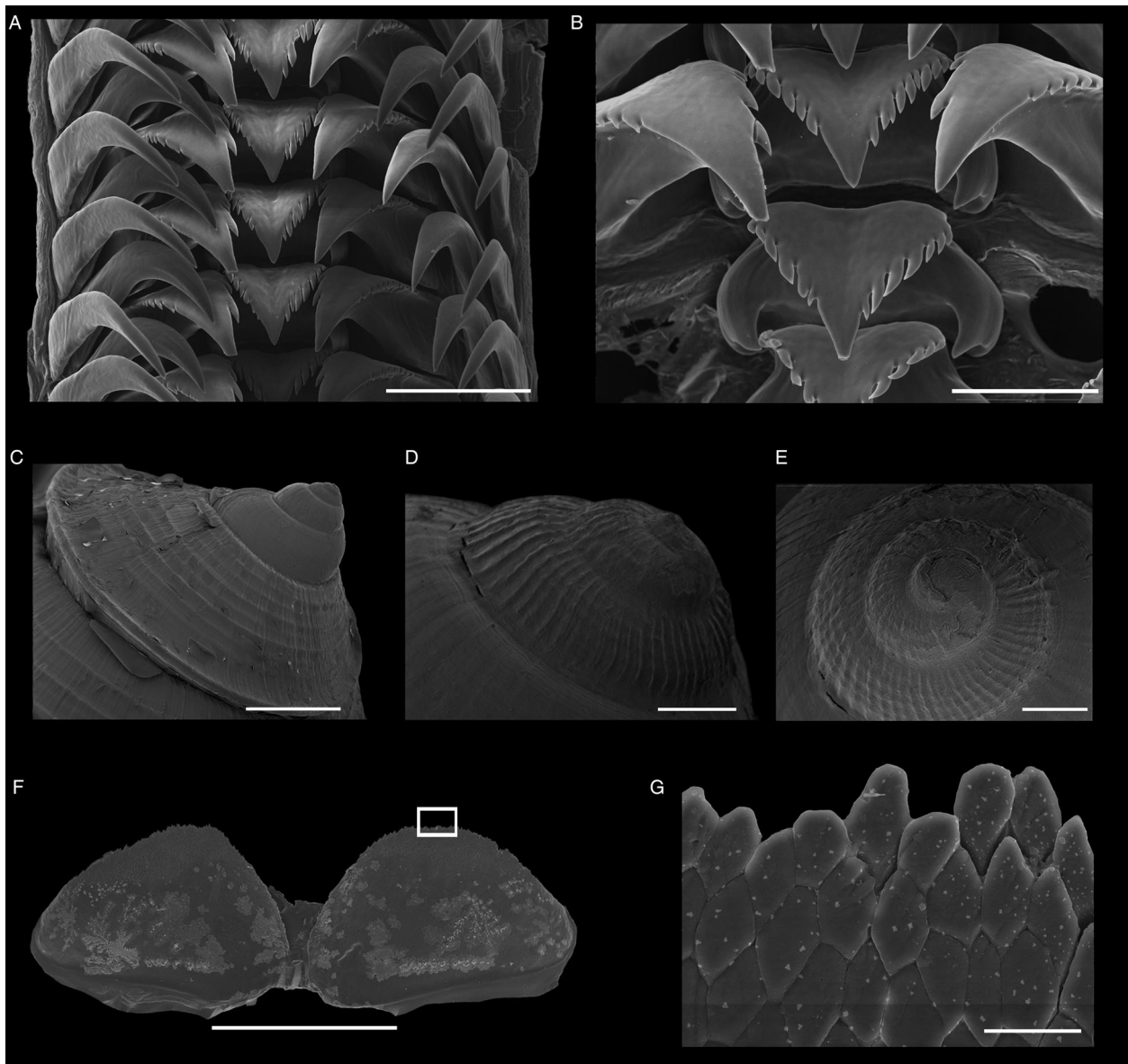


Figure 2. SEM pictures of radula, protoconch and jaws of *Laubierina peregrinator* Warén & Bouchet, 1990. **A**, Radula, dorsal view; **B**, detail of the rachidian teeth; **C–E**, three views of uncoated protoconch; **F**, jaws; **G**, detail of the jaws in F. Scale bars: A, D–E = 200 μ m; B = 100 μ m; C = 2 mm; F = 1 mm; G = 20 μ m.

undescribed species of Laubierinidae from French Polynesia and the Philippines as part of ongoing research, as did Beu et al. (2012). Other than that, so far, only three species have been recorded in the literature as belonging in the genus *Laubierina*, but only *L. peregrinator* is known from adult specimens and therefore formally described as a different species. All these records are from deep waters, between 775 and 3550 m.

Laubierina peregrinator was previously recorded by Warén and Bouchet (1990) from two other distant localities, southwestern Africa and Mozambique Channel, at depths of 2300–3550 m. As well as the specimens described in this article, these records suggest that *L. peregrinator* may be a southern hemisphere species with an extremely large distribution. This is not surprising as it has been pointed out by previous authors that the larvae of other tonnoideans are

capable of living as long as 4.5 years as plankton before undertaking metamorphosis (Scheltema 1971; Pechenik et al. 1982; Strathman and Strathman 2007; Beu et al. 2012). Other than tonnoideans, there are few species with a comparable distribution. One tonnoidean thought to have a large southern distribution, including the southwestern Atlantic, is *Fusitriton magellanicus* (Röding, 1798). However, according to Beu (2010, and other authors cited therein), this is actually a complex of at least five species, all living offshore at depths of c. 100–600 m. More specimens collected in intermediate localities could show a similar pattern to *Laubierina peregrinator*.

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Disclosure statement

No potential conflict of interest was reported by the author.

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