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A New Species of the Eulimid Genus *Pelseneeria* Koehler & Vaney, 1908 (Mollusca: Gastropoda) from Staten Island, Argentina

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Abstract. A new species of the eulimid genus *Pelseneeria* is described from Punta Laserre (63°52′49″W, 54°45′06″S), Staten Island, Argentina. *Pelseneeria* ***sudamericana***, sp. nov. lives attached to the test of the echinoid *Pseudechinus magellanicus* (Philippi, 1857). Adults, juveniles, and egg capsules of the new species are illustrated, described, and compared with other living species of the same genus. This is the first report of the genus *Pelseneeria* in South America, and the first record of a eulimid as a parasite of *Pseudechinus magellanicus*.

INTRODUCTION

Few modern papers deal specifically with species of Eulimidae from Argentine waters. Strebel (1908) described *Eulima antarctica* from Burdwood Bank and *Volutaxiella transluscens* and *V. subantarctica*, from South Georgia Island. *Volutaxiella subantarctica* was included in the genus *Balcis* Gray, 1847, by Linse (1997) who recorded this species and *Strombiformis carforti* (Rochebrune & Mabille, 1889) from the Beagle Channel, Tierra del Fuego, Argentina. Castellanos (1981) reported *Strombiformis auricinctus* Abbott, 1958, from off Mar del Plata (38°30′S, 57°27′W) in 57 m, *Balcis subcarinata* (d'Orbigny, 1842) from 41°46′08″S, 63°13′05″W in 65 m, and *B. solitaria* (Smith, 1915) from off Bryde Island, Antarctic Peninsula. Later, Castellanos et al. (1987) described several new microgastropods, among them a single eulimid, *Melanella salvadori* from off Golfo San Jorge, 46°S, 60°W in 600 m depth. Dell (1990) recorded five species of eulimids from Antarctica and pointed out the difficulty of understanding the family without knowing soft parts and host species. *Stilifer polaris* Hedley, 1916, described from the Shackleton Ice Shelf (96°13′E) was included in the genus *Toledonia* Dall, 1902, by Warén (1980) and in *Stilapex* Iredale, 1925, by Dell (1990). In northern South America, Cantera & Neira (1987) recorded the presence of the genus *Echineulima* Lutzen & Nielsen, 1975, from the Colombian Pacific without descriptions of new species. Rios (1994) cited *Stilifer subulatus* Broderip & Sowerby, 1832, and *Pisolamia brychia* (Watson, 1833) as living in Brazilian waters among other species of eulimids.

To date, there have been no reports of the genus *Pelseneeria* from South America. The small size and distinctive habitat of this group, as ectoparasites of echinoderms, probably have contributed to the lack of knowledge.

The genus *Pelseneeria* Koehler & Vaney, 1908, groups eulimids that are external parasites on sea urchins (Warén, 1983, Warén et al., 1984; Smith, 1998). Koehler & Vaney (1908) described three species together with the new genus, all from the Azores. Two of these species parasitize the echinoid *Echinus affinis* Mortensen, 1903, and the third lives on *Genocidaris maculata* (Agassiz, 1869). *Pelseneeria hawaiiensis* Warén, Burch & Burch, 1984, from the Hawaiian Islands, lives attached by its proboscis to the echinoid *Aspidodiadema hawaiiensis* Mortensen, 1939. Smith (1998) mentioned *P. brunnea* (Tate, 1889) as a parasite of *Heliocidaris erythrogramma* (Valenciennes, 1846), a common sea urchin in Australia. Powell (1939) created the genus *Venustilifer* to include the species *V. bountyensis* (= *Pelseneeria bountyensis*) which he previously (Powell, 1933) described in the genus *Hypermastus* Pilsbry, 1899. Climo (1971) described the external morphology of *P. bountyensis* and pointed out differences with the genus *Stilifer* Broderip, 1832. In a generic revision of the family Eulimidae, Warén (1983) regarded the following genera as synonyms of *Pelseneeria*: *Parastilifer* Ivanov, 1952; *Turtonia* Rosén, 1910; *Rosenia* Schepman, 1914; and *Venustilifer* Powell. A good account of the genus *Pelseneeria* with remarks on the characters of the whole family is given by Bouchet & Warén (1986) who reviewed the deep water Eulimidae of the northeastern Atlantic.

In this paper a new species of the genus *Pelseneeria* Koehler & Vaney, 1908, the first from Argentine waters, is described.

MATERIALS AND METHODS

Eleven adult shells (most of them severely damaged), and dozens of larval specimens and egg capsules of *Pelseneeria* ***sudamericana***, sp. nov. still attached to two dry specimens of the regular echinoid *Pseudechinus magellanicus* (Philippi, 1857) were found in the mollusk collection of the Museo Argentino de Ciencias Naturales.

Shell ultrastructure data were procured from freshly fractured shell fragments of two broken specimens. The fragments were cut out from the central lip of the last whorl, and examined by SEM. Non-coated material was digitized with a digital scanning camera: All pictures were processed with the software Adobe Photoshop v. 5.02. The material is deposited in the invertebrate collection of the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia," Buenos Aires, Argentina (MACN).

SYSTEMATICS

Family EULIMIDAE H. & A. Adams, 1853

Genus *Pelseneeria* Koehler & Vaney, 1908

Pelseneeria ***sudamericana*** Pastorino & Zelaya, sp. nov.

(Figures 1–12)

Type locality: Punta Lasserre, Staten Island, Argentina (54°45′06″S, 63°52′49″W); collected in 55 m by the ship A.R.A. *San Luis* in 1933 (Figure 13).

Type material: Holotype (MACN 22028) and two paratypes (MACN 22028-1), all from the type locality (Table 1).

Etymology: From South America because it is the first species of the genus *Pelseneeria* described from this region.

Description: Shell small, suboval, brittle, very thin, bright white in color; protoconch white, blunt, and mucronate, of 2½ whorls; axis in the same angle as that of the adult shell. Teleoconch of 3½ slightly convex whorls; spire less than ¼ of total shell length. Suture shallow, slightly impressed; subsutural ramp present, periphery of last whorls angulate. Aperture large, ovate, interior glossy white. Columella thin and smooth, no callus evident in parietal wall. Axial ornamentation of very faint and regular growth lines, slightly inclined.

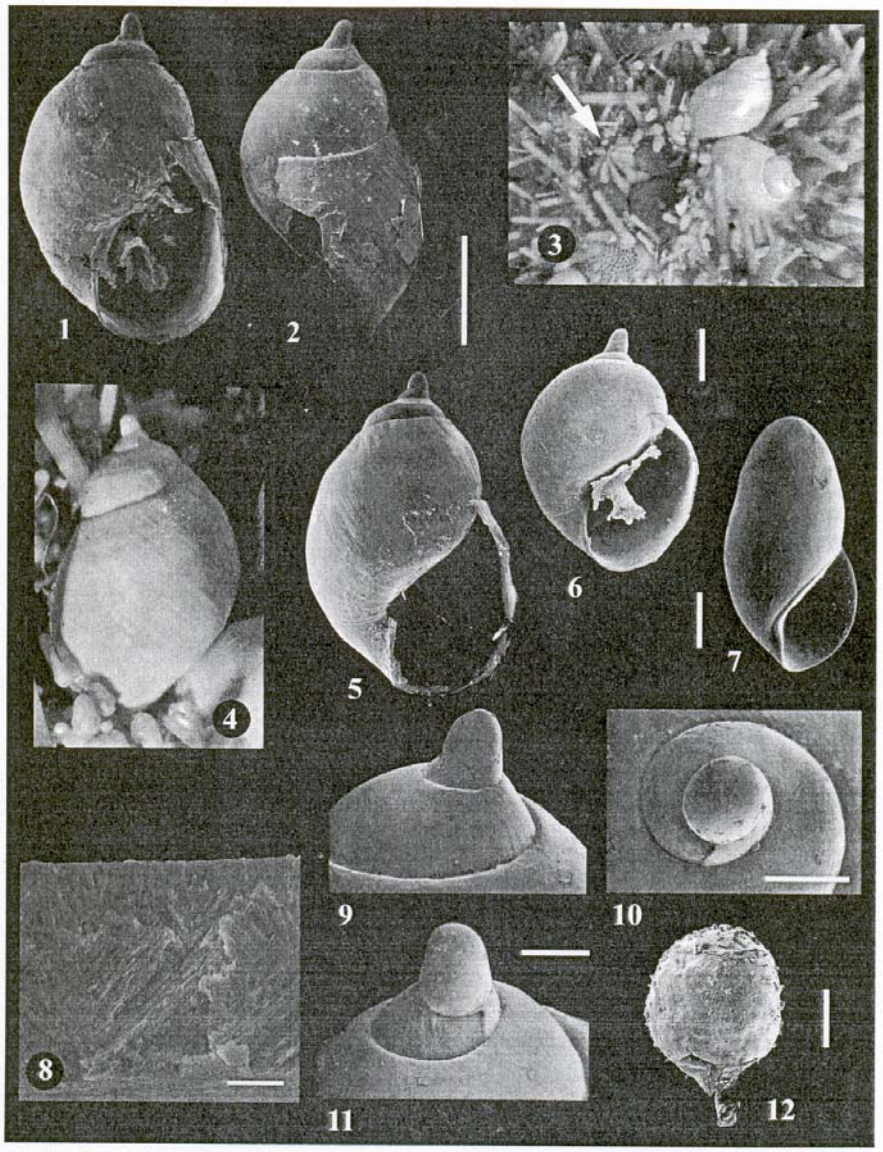
Operculum and radula lacking. Soft parts very badly preserved. Some specimens still attached by the snout to the test of the host. Snout conical with irregular edges. Shell ultrastructure (Figure 8) of two distinguishable layers, innermost layer (0.75 shell thickness), composed of aragonite with the crystal planes oriented parallel to the growing edge; the outer layer of crossed lamellar aragonite with crystal planes oriented perpendicular to growing edge (0.25 shell thickness).

Capsules. More than 50 egg capsules in all stages of development have been found on a single urchin. Capsules are elliptical with irregular edges, attached directly to the test or spines of the urchin by means of a short, thin stalk. Each immature capsule is about 600 × 700 μm in size (Figure 12). Mature capsules are larger and contain several ovoidal embryos each about 440 μm in length and 235 μm in width (Figure 7).

Remarks: There is no record of any species of *Pelseneeria* from the Magellanic region; however, two species from Australian waters are comparable: *P. bountyensis* (Powell) and *P. brunnea* (Tate). The holotype of *P. bountyensis* was illustrated by Warén (1983:figs. 224, 225), and two paratypes of *P. brunnea* housed at the Australian Museum (#C.006589 from Port Phillip, 38°7′S, 144°48′E) were available for comparison purposes. Both Australian species are more globose than *P.* ***sudamericana***, with their protoconchs heavily covered by the first whorls of the teleoconch. The new species has a subquadrate profile showing a characteristic subsutural ramp that is absent in most of the previously known species. The protoconch is covered only under the middle of the outer lip. The axis of the protoconch of *P.* ***sudamericana*** is slightly inclined backward, whereas the protoconchs of *P. bountyensis* and *P. brunnea* are smaller and inclined laterally.

Smith (1998) reported the occurrence of several individuals of *P. brunnea* attached to the center of the aboral surface, each with its long proboscis inserted through a hole in the test of the echinoderm. Three of the largest specimens of *P.* ***sudamericana*** were found around the periproctal area with the snout attached to the test of the urchin (Figure 3). Two of them had the snout covering the enlarged gonopores, while the third penetrated the test through an elliptical hole. Warén et al. (1984) mentioned *P. hawaiiensis* and *Pelseneeria* sp. (*Stilifer* sp. in Schepman & Nierstrasz, 1909) as the only species of *Pelseneeria* with this particular mode of attachment to the gonopores. As far as we can see on the dry specimens, *P.* ***sudamericana*** has the same behavior as well as the ability to penetrate the test. *Hypermastus* Pilsbry, 1899, another eulimid genus that parasitizes irregular echinoids is well known for its ability to drill holes in the test of its host, although details of the drilling process remain unknown (Warén & Crossland, 1991).

Coloration of most of the *Pelseneeria* species is translucent yellowish or brown (Bouchet & Warén, 1986; Warén, 1983). Adult dry specimens of *P.* ***sudamericana*** still attached to the echinoid test are opaque white, although one juvenile had a translucent shell. The protoconch is always white.



Figures 1–12. *Pelseneeria* ***sudamericana*** Pastorino & Zelaya, sp. nov. Figures 1, 2. Holotype MACN 22028. Figure 3. Holotype (down) and paratype (up) in life position, arrow: head the anal area of the sea urchin. Figures 4, 5. MACN 22028-1. Scale bar for figures 1, 2, 4, 5 = 1 mm. Figure 6. Paratype MACN 22028-1, juvenile specimen, scale bar = 400 μm. Figure 7. Larval specimen free living on the urchin surface, scale bar = 100 μm. Figure 8. Ultrastructure of the shell, scale bar = 5 μm. Figures 9–11. Protoconch, three different views, scale bar = 200 μm. Figure 12. Dry immature egg capsule attached to the test of the urchin, scale bar = 250 μm.

Table 1

Measurements of the type specimens of *Pelseneeria* ***sudamericana***, sp.nov. in mm.

Specimens	Total Length	Total Width	# Whorls	MACN #
Holotype	2.93	1.87	3½	22028
Paratype 1	2.87	1.91	3½	22028-1
Paratype 2	2.137	1.47	2½	22028-1

The host: *Pseudechinus magellanicus* (Philippi, 1857), a very common species ranging from 35°S, off Rio de la Plata, Argentina, through the Magellan Strait and throughout Tierra del Fuego, to Puerto Montt, Chile. The depth range is also very large, from intertidal pools, to 340 m. According to Bernasconi (1953), this is the most common species of sea urchin in South America. Amazingly, only two specimens among several hundred examined were found to be parasitized by *Pelseneeria* ***sudamericana***. It is not known if some special condition for the development of the parasite exists at the type locality.

Apparently there is no obvious host specificity for species of the genus *Pelseneeria* around the world (see Table 2). *Pelseneeria hawaiiensis* parasitizes echinoids of the genus *Aspidodiadema* Agassiz, 1879, which belongs to a different order than *Heliocidaris* Agassiz & Desor, 1846, which is the host of the Australian *P. brunnea* (Tate, 1889). However, *P.* ***sudamericana***, parasitizes the only species of *Pseudechinus* Mortensen, 1903, in the southwestern Atlantic, and, *P. bountyensis* from New Zealand lives on another species of the same genus. In general, the hosts belong to different taxonomic groups of sea urchins. As far as we know, no *Pelseneeria* species were recorded as parasites of irregular sea urchins.

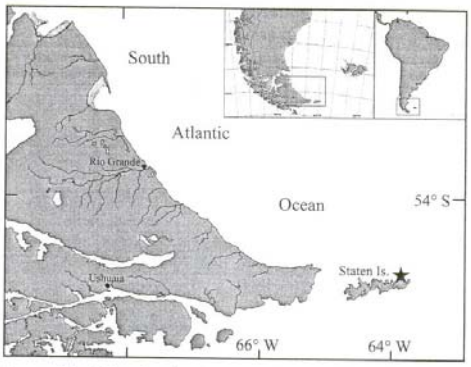


Figure 13. Map showing the type locality (★) of *Pelseneeria* ***sudamericana*** Pastorino & Zelaya, sp. nov.

Agassiz & Clark (1908) pointed out the presence of more numerous spines on the genital plates of *Aspidodiadema hawaiiensis* Mortensen, 1939, where the parasites (*Pelseneeria hawaiiensis* Warén, Burch & Burch, 1984)

Table 2

Species of *Pelseneeria*, with their hosts and collection depths when known.

Pelseneeria sps.	Hosts and Depth	Source
P. ***sudamericana***, sp. nov.	*Pseudechinus magellanicus*, 55 m	This paper
Pelseneeria sp.	*Caenopedina cubensis*, 541 m	Bingham & Young, 1993
Pelseneeria sp. (as *Stilifer* sp.)	*Aspidodiadema tonsum*, ?	Schepman & Nierstrasz, 1909, Warén et al., 1984
Pelseneeria sp.	*Stereocidaris hawaiiensis*, 520 m	Warén et al., 1984
P. bountyensis (Powell, 1933)	*Pseudechinus novaezelandiae*, 311–840 m	Powell, 1979, Climo, 1971
P. brunnea (Tate, 1889)	*Heliocidaris erythrogramma*, ?	Smith, 1998
P. castanea (Dall, 1925)	*Strongylocentrotus nudus, S. intermedius*, 15–18 m	Musashi & Habe, 1991, Habe, 1992
P. hawaiensis Warén, Burch & Burch, 1984	*Aspidodiadema hawaiiensis*, 470–580 m	Warén et al., 1984
P. media Koehler & Vaney, 1908	*Echinus affinis*, 1085–1919 m	Koehler & Vaney, 1908, Bouchet & Warén, 1986
P. minor Koehler & Vaney, 1908	*Genocidaris maculata*, 67–185 m	Koehler & Vaney, 1908
P. minuta (Dall, 1927)	?, 678 m	Dall, 1927, Bouchet & Warén, 1986
P. profunda Koehler & Vaney, 1908	*Echinus affinis*, 1940 m	Koehler & Vaney, 1908
P. sibogae (Schepman, 1909)	*Temnotrema maculatum, Salmacis dussumieri, Prionechinus sagittiger*, 32–835 m	Schepman, 1909, Warén, 1983
P. striata Bouchet & Warén, 1986	*Trigonocidaris albida*, 275 m	Bouchet & Warén, 1986
P. stylifera (Turton, 1825)	*Strongylocentrotus, Echinus esculentus, E. elegans, Psammechinus miliaris*, 0–800 m	Lebour, 1932 (as *Stilifer stylifer*)
P. thurstoni (Winckworth, 1936)	?, 18 m	Winckworth, 1936, Warén, 1983

were attached. Warén et al. (1984) suggested that despite the low number of observations (two specimens) these spines could be an adaptive protection from fishes. We cannot distinguish differences in the spines of the genital plates from parasitized and non-parasitized sea urchins.

Most of the species of *Pelseneeria* live at bathyal depths (see Table 2). However, *P.* ***sudamericana*** was found in 55 m. The whole collection of echinoderms of the Museums of La Plata (MLP) and Argentino "Bernardino Rivadavia" (MACN) was searched. Among 600 specimens of *Pseudechinus magellanicus* and other species of urchins of different genera, only two specimens from the same lot of six were found to harbor the ectoparasites. This fact leads us to suggest that this species either normally has a deeper bathymetric range and only rarely occurs in shallow waters, or it is very uncommon.

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