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**CAMAENIDAE VIETNAM, LAOS & INDONESIEN,
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A New Species of *Lunovula* from the South Pacific (Gastropoda: Ovulidae, Pediculariinae)

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With 5 Figures on Plates 1 and 2

Keywords

Ovulidae, Pediculariinae, *Lunovula serrata*, French Polynesia, Tarava Seamounts, new species.

Abstract

Lunovula serrata n. sp. from the Tarava Seamounts differs from its congeners by having a smooth dorsum as well as distinct spiny processes framing the labral margin like a saw.

Zusammenfassung

Lunovula serrata n. sp. von den Tarava Seamounts unterscheidet sich von den anderen Arten der Gattung *Lunovula* sowohl durch ein glattes Dorsum als auch durch deutlich stachelige Fortsätze welche sägeartig um die Lippe stehen.

Introduction

The Society Islands stretch over 500 kilometres, emerging from a 3,000 meters deep seafloor, and range in age from 4.3 my in the North (Maupiti) to a volcano last active in 1986 in the South-East (Meetia) that marks the current position of the hotspot that gave rise to the archipelago. The age of Tahiti itself ranges from 0.45 to 1.3 my old.

The Society Islands were colonized by Polynesians in AD 300, and “discovered” and mapped by western navigators in the 1760ies-1770ies. However, unknown to local fishermen and western scientists, a new chain of seamounts was discovered in 1996 by R. V. *Atalante* 200 kilometres to the South of the Society Islands. This chain extends over 700 km and comprises a dozen seamounts rising from seafloor 4,000 to 4,500 meters deep. Six of these are volcanic cones that never reached the surface, culminating at depths of ca. 1,000 meters; five are flat-topped guyots with summit areas in the 500-800 m depth range that are hypothesized to have once been islands. This chain was named Tarava Seamounts, and for the individual seamounts a call for ideas in the schools of Tahiti resulted in Tahitian names

such as Punu Taipu, Arii Moana, Otaha, Ati'Apiti, Otu'eroa and others.

Two of the Tarava seamounts have been dated 36 and 43 my, and the age of the whole chain is apparently in the order of 35 to 45 my old, i. e. ten times older than the Society Islands (CLOUARD et al. 2003). Thirteen years after their discovery by geophysicists, the Tarava Seamounts were biologically sampled for the first time in 2009 during MNHN research cruise TARASOC [for TARAVA and SOCIETY] on board R. V. *Alis*. A total of 50 hauls (mostly dredging; and a couple of beam trawls) were carried on the summit areas of the seamounts, at depths between 480 and 1,050 meters.

The Tarava Seamounts did not prove to be the treasure trove of new species that had been hoped for; haul after haul, the dredge brought up black, barren, volcanic rocks and pteropod ooze, with disappointingly little diversity of benthic macro-invertebrates. However, the sieving of the bottom samples and their careful sorting by MICHEL BOUTET, of Papara, Tahiti, revealed a distinctive fauna of small and minute molluscs. New species of propeamussiids (DIJKSTRA & MAESTRATI 2013), brachiopods (BITNER 2014) and crabs (NG & RICHER DE FORGES 2013) have already been named from the Tarava Seamounts. Numerous empty shells of the Pediculariidae genus *Lunovula* are present in the material. The majority of these consist of small-sized *Lunovula finleyi* ROSENBERG 1990, but there is a single specimen of a species hitherto unseen. It is here described as:

Lunovula serrata n. sp.

Type Material: Holotype MNHN IM-2000-33614.

Description

The well-preserved holotype is rather lightweight, elegantly pyriform, slender with a deeply umbilicate spire. The protoconch shows a smooth

first whorl and two coarsely cancellate whorls. The labrum is slightly thickened, bordering the inflated body whorl outwards and somewhat flanged at the extremities. The posterior extremity is blunt, slightly curved upwards terminally and distinctly projecting from the shell's outline in dorsal view. The anal canal is short and wide. The anterior extremity is evenly tapering, forming a short, thin anterior canal. The labrum is bent outwards, showing 60 pointed spines of variable strength along its thin edge. These are prolongations of the indistinct labral teeth that are discernible along the inner, somewhat flattened part of the labral flange. The aperture has the shape of a half circle. The anterior columellar section forms a calloused ridge, which shows five indistinct ridges bordering the anterior canal. In the posterior portion, there is a rather distinct, slightly projecting funiculum with four irregular tubercles. The midway part of the columella is smooth and minimally calloused. The dorsal surface of the shell is glossy and completely smooth in the midsection. There are deeply incised striae becoming gradually more distinct and wider towards the posterior slope and the anterior, where they gradually change into transverse ribs. The entire shell is plain white, only the protoconch is orange.

Dimensions: $9.8 \times 6.5 \times 4.4$ mm.

Type locality

Tarava Seamounts: Mount Punu Taipu, $19^{\circ}18'S$, $151^{\circ}01'W$, 700-990 m, Sept. 22nd 2009 [TARASOC Station DW 3301].

Etymology

The Latin name *serratus*, -a, -um, [= serrated, jagged] refers to the numerous spiny processes along the labral margin resembling a saw.

Discussion

Four species of *Lunovula* ROSENBERG 1990 are known, all from deep water in the Pacific Ocean: *L. superstes* (DOLIN 1991) [type locality: New Caledonia], *L. finleyi* ROSENBERG 1990 [type locality: Hawaii], *L. boucheti* LORENZ 2007 [type locality: New Caledonia], and *L. cancellata* LORENZ 2007 [type locality: Solomon Islands]. In New Caledonia, *Lunovula superstes* lives on deep-water stylasterids on hard bottoms, and it is probable that all *Lunovula* species also live on stylasterids, just as the shallow water pediculariines.

The general appearance and texture of the rather lightweight shell of *Lunovula serrata* n. sp. resembles *L. boucheti* LORENZ 2007, a larger-shelled species known from New Caledonia (1,000 m), the Solomon Islands (900 m), and also Mount Otaha on the Tarava Seamounts (800 m). *L. boucheti* differs from the new species by less developed and less numerous labral teeth and the lack of spiny structures along the labral edge.

The widespread *L. finleyi* ROSENBERG 1990 can be similar to *L. serrata* in size and the shape of the aperture, but is more distinctly and coarsely denticulated, has a cancellate dorsum and a swollen labrum, as well as well-developed callosities towards the extremities. Also in *L. finleyi*, the labral teeth may form tiny spines along the edge of the labrum. It was originally described from Hawaii, and has been found at La Réunion and Fiji. During the TARASOC cruise, numerous small-sized specimens of *L. finleyi* were found in various sites in the Tuamotus, Tahiti and Moorea, but not on the Tarava Seamounts: DW3349 (25 spms), Stn 3401 (1), DW 3429 (1), DW3484 (2), DW3372 (5), DW3459 (1), DW3351 (8), DW3354 (1), DW3349 (6), DW3380 (2). Two eroded specimens of *L. boucheti* were found on the Tarava Seamounts (DW3330) and one at Huahine (DW3434). These are shown on Pl. 2.

L. serrata differs from these and all other species in the genus by the combination of a smooth dorsum and a distinctly serrated labrum, which makes it unmistakable and easily recognizable.

Acknowledgements

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Plate 1 (below)

Fig. 1: *Lunovula boucheti* LORENZ 2007: 13.5 mm, Mount Otaha, Tarava Seamounts, DW3330, 18°45'S 152°16'W, 717-794 m.

Fig. 2: *Lunovula boucheti* LORENZ 2007: 16.1 mm, Huahine, Society Islands, DW3434, 16°42'S 151°03'W, 700-785 m.



Plate 2 (on p. 18)

Fig. 1: *Lunovula serrata* n. sp.: 9.8 mm, Mount Punu Taipu, Tarava Seamounts (700-990 m). Holotype, MNHN IM-2000-33614.

Fig. 2: *Lunovula finleyi* ROSENBERG 1990: 5.3 mm, Tikehau, Tuamotu (976-997 m), 15°05'S 148°03'W, Stn. DW3349, coll. MNHN.

Fig. 3: *Lunovula boucheti* LORENZ 2005: 16.6 mm, Zorro Bank, Norfolk Ridge, New Caledonia (650-1,000 m). Holotype, MNHN IM-2000-9994.

Plate 2



Explanation on p. 17