



### *Severnsia strombeulima* n. gen. & sp. from Hawaii (Mollusca, Gastropoda: Caenogastropoda: Eulimidae)

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The malacofauna of Hawaii is rather well-known, owing to Kay (1979) and Severns (2011). Both works stand out because they include a large number of the generally under-represented micromollusks (<5 mm). Here a striking new genus and species of a microsnail is reported from that region.

Eulimidae is a diverse family of generally small to minute snails living as parasites of Echinodermata (Smith 1998). Approximately 93 Recent genera are considered valid (Marshall & Bouchet 2015). For the Hawaiian malacofauna, Kay (1979) reported 22 species in five genera, while Severns (2011) documented 48 species in fourteen genera.

Grunge material was collected by Mike Severns using a dredge from a small boat. Approximately 2 kg of ~0.5–3 mm size grunge was sorted from each station and specimens were imaged by scanning electron microscopy following techniques in Geiger *et al.* (2007).

SBMNH: Santa Barbara Museum of Natural History, California. USA.

#### **Eulimidae Philippi, 1853**

#### ***Severnsia* new genus**

(Fig. 1)

**Type species.** *Severnsia strombeulima* new species.

**Etymology.** The genus is named for Mike Severns, the collector of the grunge material yielding the specimens, for his contributions to the malacofauna of Hawaii (Severns 2011). Gender feminine.

**Diagnosis.** Shell small, high-spired, smooth, protoconch indistinct, lip strongly flared, spur of parietal thickening up-turned.

**Remarks.** The placement of the genus in Eulimidae follows the smooth, feature-less protoconch, and the smooth teleoconch with fine axial marks typical seen in Eulimidae. While Eulimidae show a broad range of shell morphologies, the flared lip with upturned spur of the parietal callus is not known from any genus, Recent or fossil. *Severnsia* is as distinct from any described and currently accepted genus as those accepted genera differ amongst each other. Forcing the species into any existing genus would make any genus extraordinarily heterogeneous.

*Goriella* Moolenbeek, 2008 (monotypic: *G. sandroi* Moolenbeek, 2008) from the Maldive Islands shares the flared lip, but is proportionally smaller (33% vs 58% of shell height), and lacks the upturned parietal spur; additionally it has a strong peripheral carination on the teleoconch not seen in *Severnsia*.

*Goubinia* Dautzenberg, 1923 [monotypic: *G. insueta* (Dautzenberg, 1923)] from French Polynesia shares the flared lip, which is, however, proportionally smaller (34% vs 58% of shell height), lacks the upturned spur of the parietal wall, has spines on the teleoconch in the plane of the lip, and has a curved teleoconch.

*Crinophtheiros collinsi* (Sykes, 1903) from the Mediterranean Sea has a much less flared lip compared to *Severnsia*.

#### ***Severnsia strombeulima* new species**

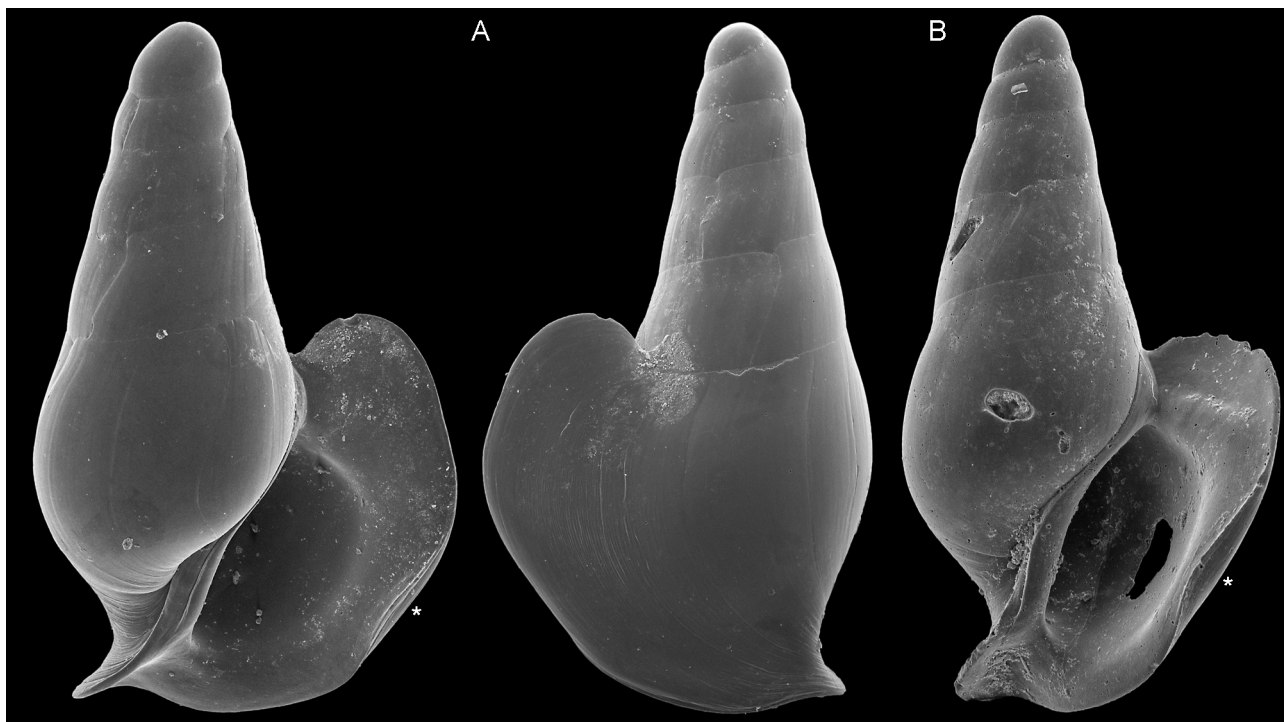
(Fig. 1)

**Type material.** Holotype SBMNH 454737. Paratype SBMNH 457572, from type locality.

**Type locality.** 5.1 km W of Makena, Maui, Hawaii, USA, 20° 39.290'N, 156° 29.561'W, 433–407 ft [= 144–136 m]. Leg. Mike Severns, July 4, 2013.

**Etymology.** Referring to the flared lip as commonly seen in *Strombus*, and *Eulima* for the systematic affinity. Noun in apposition.

**Description.** Shell small (holotype  $1.57 \times 0.97$  mm, paratype  $1.67 \times 0.91$  mm), off-white, transparent, high-spined. Protoconch rounded, without sculpture. Teleoconch of approximately four whorls, overall smooth; axial, opisthoclinal growth lines, more or less aligned along teleoconch. Aperture oval-lenticular, slanted. Parietal thickening distinct, pleated, covering umbilicus, forming broadened up-turned spur. Anal notch sharp, shallow. Aperture strongly flared, at widest approximately  $\frac{3}{4}$  width of last whorl, with downturn below periphery (Fig. 1: \*).



**FIGURE 1.** *Severnsia strombeulima* n. gen. & sp. Off Maui, Hawaii, USA,  $20^{\circ} 39.290'N$ ,  $156^{\circ} 29.561'W$ , 433–407 ft [= 144–136 m]. A. Holotype. SBMNH 454737. 1.57 mm B. Paratype SBMNH 457572. 1.67 mm. \* indicates the downturn of the flared apertural lip.

**Distribution.** Currently only known from type locality.

**Remarks.** The pitting of the shell in the paratype is evidently a post-mortem alteration, not seen in the fresh dead holotype. The pleating of the parietal thickening is variable; in the holotype it is evident as a thin line in the middle of the callus, while in the paratype it is a stronger fold.

The function of the flared lip remains enigmatic. In strombids it may help to support the relatively heavy shell on soft sediments. However, most eulimids are parasites on echinoderms. Whether *S. strombeulima* is parasitic and its potential host is unknown. One may speculate, that the flared lip helps to form a continuous surface with the body of the host as an alternative approach to the limpet shape in some groups (e.g., Eulimidae: *Thyca* H. & A. Adams, 1854). However, the up-turned, parietal spur, seen in identical form in both known specimens, does not fully support such an interpretation.

With respect to the faunal assemblage, the shells were obtained from a thanatocoenosis. The species assemblage recovered is a typical cross section of tropical micromollusks. A full list can be examined in the SBMNH on-line collections database ([www.sbcollections.org](http://www.sbcollections.org)) by searching for the type locality.

Habitat information was obtained from M. Severns (pers. comm. 12/2015): “The area the specimens came from is pretty much defined by its depth as far as the sediment and habitat is concerned. It is shallow by Hawaii standards, which made it very interesting right from the beginning. The bottom is a series of rounded hills that were surely islands just 10,000 years ago with several relatively flat “bays” between them as well as “channels”. Near the upper slopes we found fossil corals and avoided the summits of the hills due to rock so most collecting was done on the lower slopes, in the channels and on the flat sand and silt bottom pockets between the hills which had only occasional hard substrate. A couple deeper areas with large flat expanses must have been bays at one time. Three are very obvious on Google Earth. If I remember correctly the samples came from one of those flat areas which had numerous calcareous red algae “balls” which quickly filled the dredge.”

The genus and species are described based on few specimens. The justification for erecting the new taxa is borrowed from statistics: strong, highly consistent differences permit to show significance with few data points. The species is as distinct from any existing genus, as member of existing species are from each other. Accordingly, it is better to introduce a new genus rather than to force it into an existing genus where it does not fit.

Describing species based on few specimens can have a positive effect on reporting it by others; without an available name it is difficult to refer to the species. An example is the pea crab commensal in abalone, *Orthotheres haliotidis* Geiger & Martin, 1999. It was first critically viewed as a potential collecting artifact, but after the publication of the description, it was suddenly found at infestation rates of up to 50% (E. Capinpin, pers. comm.). Similarly, *Depressizona exorum* Geiger, 2003 was erected as a monotypic genus and species based on few specimens; now a second species (*Depressizona axiosculpta* Geiger, 2009) is known from two specimens.

Mike Severns kindly sent grunge samples from Hawaii. Anders Warén generously shared his knowledge on Eulimidae. Reviewers (Marta deMaintenon and anonymous) helped to improve the quality of the manuscript.

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