

## An illustrated list of the seashells from the Gulf of Aqaba: Limidae

Moti KOVALIS

Miriam Street 21, Gan Yavne, Israel  
koko61@gmail.com

**Keywords:** MOLLUSCA, BIVALVIA, LIMIDAE, Red Sea, Gulf of Aqaba, distribution.

**Abstract:** Seven species belonging to the family **Limidae** are conformed from the Gulf of Aqaba (the northern peninsula of the Red Sea). Four species were found by members of the Israeli shell forum (ISF) during the previous twenty years. The other three species are deep water species.

**Introduction:** The family **Limidae** is represented by 10 species in the entire Red Sea as mentioned by Dekker & Orlin (2000). Some species names are possibly synonyms and further studies must confirm their actual status.

During the previous twenty years, members of the ISF only found four species belonging to this family in the Gulf of Aqaba: *Lima (Lima) paucicostata* Sowerby II, 1843, *Limaria (Promantellum) fragilis* Gmelin, 1791, *Ctenoides annulata* (Lamarck, 1819) and *Ctenoides concentrica* (Sowerby, 1888). These species were collected at scuba-dive depth and beach collected. They are discussed below. Three more species were dredged from deep water: *Limatuella viali* Jousseau & Lamy, 1919, *Limea (Isolimea) limopsis* Nomura & Zinbo, 1934 and *Limea juglandula* Melvill & Standen, 1907. The final two species were dredged during an expedition in the Gulf of Aqaba in 1968-1970 and are now permanently stored in the Tel-Aviv University collection. On top of this, a number of unstudied or unidentified minute specimens was collected by the ISF. They will be published in a separate list.

The biggest identification problems concerning **Limidae** from this area is the most common species. Sometimes the name *Lima (L.) lima* (Linnaeus, 1758) is used, which

is the species from the Mediterranean Sea. Other leading names for this bivalve are *Lima (L.) vulgaris* Link, 1807 and *Lima (L.) paucicostata* Sowerby II, 1843 but the study of the original descriptions determines which name is correct for this species (see below).

***Lima (Lima) paucicostata* Sowerby II, 1843**

The species now known as *Lima (L.) lima* from the Mediterranean Sea was described by numerous scientists. Linnaeus' description is valid for this species, but subsequent authors introduced other names to refer to the same species, which are now all considered synonyms of *Lima (L.) lima*: Link (1807), for instance, described it as *L. vulgaris*, thereby referring to Chemnitz's (7<sup>th</sup> add, 1784) unrecognised but comprehensive description (fig. 651). In his work Chemnitz refers to Linnaeus' *Pecten lima*, a taxon described from the Mediterranean Sea. Later on, Sowerby II (1843) named it *L. squamosa* (plate XXI: fig. 1). Sowerby II (1843) also introduced *L. paucicostata*: his brief description mentions the considerably lower number of ribs when compared to (the present) *Lima (L.) lima*, the most important feature to differentiate both species (see below).

It is argued that the morphological differences between shells from the Mediterranean Sea and those from other regions such as the Red Sea do not extend to a degree that allows them to be considered as two different species. Yet, there are clear morphological features between the species (see Figs 2-3): the numbers of ribs, the size of the scales and their shape (raised) and the general adult size (largest surveyed specimen of *L. (L.) paucicostata*: 140 mm, coll. A. Singer). All specimens that were found in the Gulf of Aqaba share the same number of 15-16 strong ribs, whereas the Mediterranean *L. (L.) lima* has got an average of 23 smaller and denser ribs. Since the main morphological feature is the number of ribs (argued above), I suggest *L. paucicostata* as the correct name for this bivalve, thereby agreeing with Hubert (2010).

Note: *L. (L.) vulgaris* Link, 1807 is a taxon of special status: it is widely considered a synonym of *L. (L.) lima*, but Stuardo (1968) considers it a distinct species which is much larger and usually of a pinkish purple coloration on the inside. As no such specimens were retrieved by members of the ISF, the discussion on this taxon's validity is beyond the scope of the present article.



Fig. 1: *L. (L.) paucicostata* in situ.

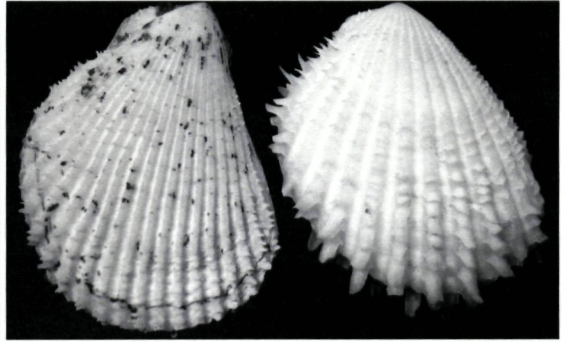


Fig. 2 :  
*L. (L.) lima*.  
Mediterranean Sea

Fig. 3:  
*L. (L.) paucicostata*  
Red Sea



Fig. 4 : *L. (L.) lima*.  
Mediterranean Sea. 55 mm.

Fig. 5: *L. (L.) paucicostata*.  
Red Sea. 53 mm



*Limaria (Promantellum) fragilis* (Gmelin, 1791)

To describe this rare bivalve, Gmelin refers to fig. 650 in the 7<sup>th</sup> add of the unrecognized study by Chemnitz (1784). From Gmelin's brief description it is very hard to find any correlation between the description and the bivalve, but, Chemnitz described this bivalve very accurately in both Latin and German. The main features of this rare *Limaria* are its elliptical elongated shape, the fine long strips, the wide opening on both sides (unsealed), the white colour and the thin and fragile shell of about 30 x 20 mm. During the previous 20-30 years only a handful of specimens were found in the Gulf of Aqaba.



Fig. 6: *Limaria (Promantellum) fragilis*. 34 mm.

*Ctenoides annulata* (Lamarck, 1819)

Lamarck describes this species very briefly and defines its distribution as the "French Isles". The historical French Isles are what is known today as the Madagascar-Mauritius region. Unfortunately, Lamarck does not refer to any particular figure. The distinguishing features are: thin, white, very fragile valve covers with very small raised scales and elongated. It is not so common in the Gulf of Aqaba, but single valves can be found from time to time.

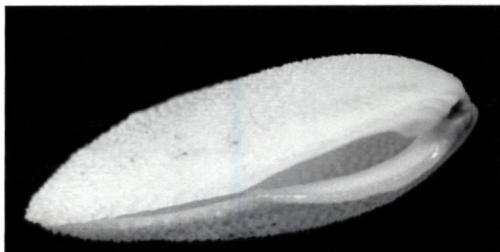


Fig. 7: *Ctenoides annulata*. 38 mm.



Fig 8: *L. (P.) fragilis*  
29 mm.

Fig. 9: *C. annulata*  
38 mm.

***Ctenoides concentrina*** (Sowerby, 1888)

This species has only recently been found by diving in the Eilat/Taba area (two specimens). The senior members of the ISF do not recall any finds of this species in their dives along the coast of Sinai.

This *Ctenoides* can be recognized and differs from the others by its swollen shape and proportionally smaller aperture.

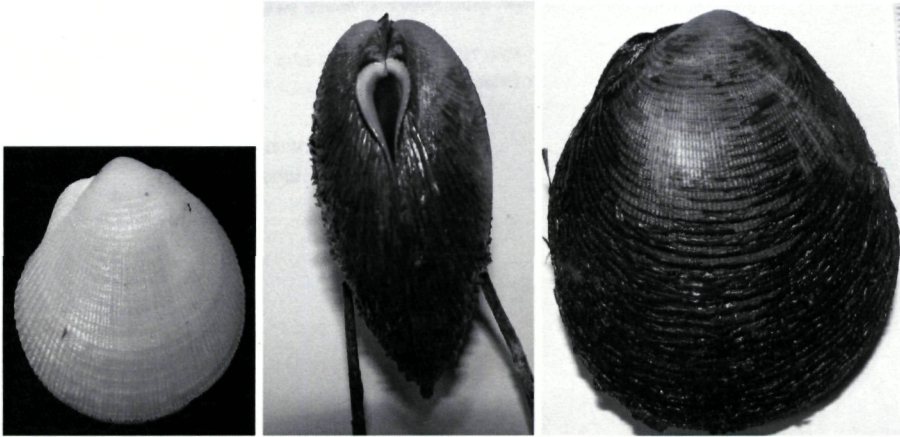


Fig. 10-12: *Ctenoides concentrina*. 28 mm (left) and 50mm (middle and right)

**Acknowledgments:** I would like to thank mr. Henk Mienis, Franck Frydman, Daniel Korkus, Shalom & Itik Geva, Avraham Singer, Dana Vidal and Pieter Bulcke.

**References:**

- Bosch, D.T., Dance, S.P., Moolenbeek, R.G., & Oliver, P.G., 1995.** *Seashells of Eastern Arabia*. Motivate Publishing, London
- Chemnitz, J.H., 1784** *Conchylien Cabinet. Siebender Band.* in der Kaspischen Buch-bandlung, Nürnberg.
- Dekker, H. & Orlin, Z. , 2000.** Check-list of Red Sea Mollusca. *Spirula* 4, (Supplement):1-46.
- De Lamarck, P.M.C., 1819.** *Histoire Naturelle des Animaux sans Vertebres*. Paris
- Gmelin, J. F., 1791.** *Caroli a Linné, systema naturae. Tom. I. Pars VI.* Lipsiae.
- Hubert, M., 2010.** *Compendium of Bivalves*. Conchbooks, Hackenheim.
- Oliver, G.P., 1992** *Bivalved Seashells of the Red Sea..* Hemmen, Wiesbaden & National Museum of Wales, Cardiff
- Link, H.F., 1807.** *Beschreibung der Naturalien Sammlung der Universitaet Rostock.* Adlers Erben.

- Rusmore-Villaume, M.L.**, 2008. *Seashells of the Egyptian Red Sea.* The American University in Cairo Press, Cairo New York.
- Sharabati, D.**, 1984. *Red Sea Shells.* KPI, London, Boston, Melbourn, Henley.
- Tucker, A. & Dance, S.P.**, 1982. *Compendium of Seashells.* Odyssey Publishing.