

The roots of sea-turtle fouling barnacles (Chelonibiidae, Cirripedia, Balanomorpha)

Harzhauser, M.¹, Newman, W.A.² & Grunert, P.³

¹Natural History Museum Vienna, Geological-Paleontological Department, Burgring 7, A-1014 Vienna, Austria, e-mail: mathias.harzhauser@nhm-wien.ac.at

²Scripps Institution of Oceanography, California, USA. E-mail: wnewman@ucsd.edu

³Institute for Earth Sciences, University of Graz, Heinrichstraße 26, A-8010 Graz, Austria. E-mail: patrick.grunert@uni-graz.at

The geological evidence for the phylogeny of sessile barnacles comes predominately from intertidal and shallow sublittoral records. Therefore, numerous balanoid species of genera such as *Acasta*, *Concavus*, *Perforatus* and *Balanus* are described. This wealth in data is contrasted by an extremely poor knowledge of open marine taxa which obligatorily cling to free swimming objects such as gars, cetaceans, sirenians, turtles and even sea snakes . This group is mainly represented by members of the coronuloid barnacles (chelonibiids, platylepadids & coronulids). The origin of the mainly sea-turtle fouling balanomorph family Chelonibiidae is still poorly documented. Aside from an erratic Eocene occurrence, assigned to an extinct subfamily, the extant subfamily Chelonobiinae did not appear in the fossil record before the Late Miocene. Now, a new lineage is recorded as an extinct sister-group of the Chelonobiinae. It is based on a 21-million-year-old fossil colony from Pucking (Ebelsberg Formation; Upper Austria). The new subfamily is known so far only from the proto-Mediterranean and the Paratethys seas and ranged from Early Miocene to Late Pliocene times. Members of the subfamily are characterised by large walls with tripartite rostra which display distinct sutures on the external surface. The tripartite rostrum, however, has evolved independently several times in the evolution of the balanomorphs and cannot be treated as synapomorphy. The subfamily comprises one new genus and two species.

The sculpture of the host substratum is preserved as imprints along the carino laterals of one specimen. Although the pattern of ridges and furrows cannot be identified with certainty, the similarities with the sculpture of the carapax of modern *Caretta* suggests the new genus as earliest record of sea-turtle fouling in balanids. The co-existence of members of both subfamilies during the Miocene and Pliocene documents a higher diversity of chelonibiids in pre-Pleistocene times and indicates that Chelonobiinae were able to outcompete their supposed sister-group with the onset of the glacial cycles.