ACTA PALAEONTOLOGICA POLONICA

Chemosymbiotic bivalves from the late Pliocene Stirone River hydrocarbon seep complex in northern Italy

Steffen Kiel and Marco Taviani
Acta Palaeontologica Polonica 63 (3), 2018: 557-568 doi:https://doi.org/10.4202/app.00473.2018

Seven species of chemosymbiotic bivalves are described from the late Pliocene Stirone River hydrocarbon seep complex in northern Italy, including one new species and two in open nomenclature. The known species are the solemyid *Acharax doderleini*, the lucinids *Lucinoma persolida* and *Megaxinus ellipticus*, and the vesicomyid *Isorropodon* aff. *perplexum*; in open nomenclature we report two lucinids, including the largest species of Lucinoma known from the Italian Pliocene to date, and a strongly inflated, large *Anodontia* sp. The most abundant species at the Stirone seep complex is the lucinid *Megaxinus stironensis* sp. nov. This Pliocene seep fauna differs from that of the well-known Miocene "Calcari a Lucina" seep deposits by lacking large bathymodiolin mussels and vesicomyid clams; instead, the dominance of the lucinid *Megaxinus stironensis* gives this fauna a unique character. We speculate that at the Stirone seep complex, *Megaxinus* had occupied the ecological niche that *Meganodontia* occupied at the Miocene "Calcari a Lucina" seep sites in the Mediterranean basin, and that the dominance of *Megaxinus* could be a wide-spread feature of Pliocene chemosynthesis-based ecosystems in Mediterranean Pliocene.

Key words: Bivalvia, Lucinidae, Vesicomyidae, hydrocarbon seep, chemosymbiosis, Pliocene, Italy, Apennines.

Steffen Kiel [steffen.kiel@nrm.se], Swedish Museum of Natural History, Department of Palaeobiology, Box 50007, 10405 Stockholm, Sweden.
Marco Taviani [marco.taviani@bo.ismar.cnr.it], Institute of Marine Sciences, Italian National Research Council, Via Gobetti 101, 40129 Bologna, Italy; Stazione Zoologica Anton Dohrn, Villa Comunale, 80121 Napoli, Italy, and Biology Department, Woods Hole Oceanographic Institution, 266 Woods Hole Rd, Woods Hole, MA 02543, USA.


Full text (989.6 kB)