

A serpulid-*Anodontia*-dominated methane-seep deposit from the upper Miocene of northern Italy

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Acta Palaeontologica Polonica 63 (3), 2018: 569-577 doi:<https://doi.org/10.4202/app.00472.2018>

A limestone deposit with an unusual fauna is reported from the late Miocene of northern Italy (Ca' Fornace site). The petrography of the carbonate and its distinct carbon isotope signature (with $\delta^{13}\text{C}$ values as low as -57.6‰) clearly identify this limestone as an ancient methane-seep deposit. The dominant faunal elements are serpulid tubes belonging to *Protis*, and extremely inflated, medium-sized shells of the lucinid bivalve *Anodontia mioinflata* sp. nov. Also common is the small bathymodiolin *Idas* aff. *tauroparva*, plus some large specimens of the lucinid *Lucinoma*, and poorly preserved, medium-sized specimens of a possible vesicomylid bivalve, an arcid bivalve, small gastropods of the genera *Laeviphitus* (Elachisinidae), *Anatoma* (Scissurellidae), as well as desmophyllid and caryophyllid scleractinian corals. This faunal assemblage is quite distinct from the typical Miocene seep faunas in northern Italy, which are dominated by large bivalves of the Lucinidae (Meganodontia), Vesicomylidae (Archivesica), and Bathymodiolinae, possibly due to a shallower depositional depth of the Ca' Fornace site.

Key words: Gastropoda, Scleractinia, Serpulidae, Bivalvia, Lucinidae, Bathymodiolinae, methane seep, Miocene, Italy, Apennines.

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