



## **Stratigraphic implications of a new Lower Cretaceous ammonoid fauna from the Puez area (Valanginian – Aptian, Dolomites, Southern Alps, Italy)**

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Lower Cretaceous ammonoids (n = 424) were collected at the Puez locality in the Dolomites of Southern Tyrol. The cephalopod fauna from the marly limestones to marls here indicates Upper Valanginian to Lower Aptian age. The underlying Biancone Formation (Maiolica Formation) is Lower Valanginian, whereas the lowermost Rosso Ammonitico is of Jurassic to Berriasian age. The deposition of the marly limestones and marls in this interval occurred during depositionally unstable conditions. The ammonoid fauna comprises 27 different genera, each apparently represented by 1-2 species. The complete occurrence at the Puez section is dominated by the Phylloceratina (30%) and the Ammonitina (34%). *Phyllopachyceras* (17%) and *Phylloceras* (13%) from the Phylloceratina are the most frequent components, followed by *Lytoceras* (12%) from the Lytoceratina, and *Barremites* (10%) and *Melchiorites* (8%) from the Ammonitina. Phylloceatidae and Desmoceratidae are dominating the cephalopod-fauna.

Some ammonoid zones defined by Hoedemaeker *et al.* (2003) can be recognized. The following index fossils were examined within the collections of the NHMW (Austria) and the NMB (Italy): for the uppermost Valanginian *Criosarasinella furcillata* (*C. furcillata* Zone and Subzone), for the middle Lower Hauterivian *Olcostephanus (Jeannoticereras) jeannoti* (*O.(J.) jeannoti* Subzone) and for the middle Lower Hauterivian *Olcostephanus (Jeannoticereras) jeannoti* (*O. (J.) jeannoti* Subzone) and *Heinzia sayni* for the lowermost Upper Barremian (*H. sayni* Subzone; Reboulet and Hoedemaeker (reporters) *et al.*, submitted).

The ammonoid fauna contains only descendants of the Mediterranean Province (Tethyan Realm). Most affinities of the cephalopod fauna are observed with faunas from the adjacent areas of Italy (Lessini Mountains, Belluno, southern Trento Plateau), the Northern Calcareous Alps and the Bakony, Geresce and Mecsek Mountains of Hungary. This is explained by the neighbouring position of the latter areas during the Early Cretaceous on the Apulian/Adria block and the Alpine-Carpathian microplate.

The frequency of the ammonoids and the richness of the fauna make this section especially suited to accurately study the vertical ammonite distribution. The main focus in the future will be to investigate in detail the stratigraphic framework of the Puez section. Bed-by-bed collecting is required to obtain crucial data on the ammonoid distribution and occurrence (range). A cooperative project with this aim is being planned by the South Tyrol Museum of Natural Sciences Bozen and the Natural History Museum Vienna.

A further study on the the palaeoecology and synecology of the cephalopod fauna of the Puez section is currently under preparation by Lukeneder (in prep). It focuses on the autecological features exhibited by different fossil groups (annelids, bryozoans, foraminifera, corals) on ammonoid shells, which act as cryptic habitats for different encrusters in the Lower Cretaceous of the Puez locality.