

## CRETACEOUS CORALS AS INDEX FOSSILS ?

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Post-Paleozoic coral genera of the order Scleractinia are known to be long-lived genera. Past monographs refer only to „Jurassic“ or „Early Cretaceous“ when describing the stratigraphic distribution of a genus. A lack of knowledge of the exact stratigraphic extent limits the capacity of coral genera to assist in dating. More exact knowledge on the stratigraphic distribution of coral genera would facilitate dating sediments that contain almost exclusively corals mixed with other organisms such as gastropods or bivalves that serve as poor index fossils (except for rudist bivalves).

To estimate the stratigraphic extent of Cretaceous coral genera, a large computer database of about 5,500 Cretaceous coral specimens (1,500 type specimens) was analysed. All samples were assigned to a genus on the base of the characteristics of the (type of the) type species or traditional understanding (e.g. *Calamophyllopsis*, *Meandraraea*, *Stylina*, *Thamnoseris*). Not all genera could be used since for many the type specimen is lost or is too poorly preserved to allow a clear determination of the genus. Determination of which genera should be included depended on how well the genera were defined. For example, *Microsolena* is much better defined than *Placocoenia*, where the type of the type species is a mould.

All samples were assigned to a locality with more or less exact stratigraphic age. To be as exact as possible, the original stratigraphic data of the localities of the samples have been updated using the more recent literature. Still poorly dated localities (e.g., „Neocomian“, „Senonian“, „Aptian to Albian“) were discarded, as well as localities that are dated solely on the bases of the coral faunas.

The stratigraphic extent of the included genera was calculated on the bases of the samples assigned both to a genus and locality. The literature were used only when the described material was not available, but could be clearly assigned to a genus, and when the publication in question included a well-confined stratigraphy of the locality from where the material was described. Cases in which the stratigraphic extent of a genus reported in the literature clearly exceeded the assessed extent were investigated in detail. The literature was also used to try to reconstruct whether a genus originated in the Jurassic and/or reached into the Tertiary.

A total of 104 (of 610) genera (orders *Scleractinia* and *Coenothecalia*), covering 1,785 (of 3,045) Cretaceous species (sensu Löser 2000, Löser et al. 2002) are included in the analysis. This corresponds only to 17 percent of the Cretaceous genera, but to 68 percent of all indications of these genera in the literature.

The results of this study are clearly limited by the definition of genera; many of them could not be used because both their contemporary and historical nature remains unclear (e.g., *Barysmilia* and *Latomeandra*). The aim of this study is to present a highly concise list of genera, in terms of stratigraphy and taxonomy, rather than a long list of genera that are poorly described and whose inclusion is dubious.

### References

- Löser, H. 2000: Repertoire of Species. -- Catalogue of Cretaceous Corals, 1: 137 pp.; Dresden (CPress Verlag).  
Löser, H. et al. 2002: List of citations. -- Catalogue of Cretaceous Corals, 2: 2 vols., 784 pp.; Dresden (CPress Verlag).