

# Catalogue of Cretaceous Corals

## Volume 4 – Systematic Part

Hardcover, 710 pages and 1763 figures

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The fourth volume of the *Catalogue of Cretaceous Corals* is a taxonomic revision of all Cretaceous coral genera (Hexacorallia and Octocorallia), with an emphasis on the order Scleractinia, which constitutes 96% of the included genera. The revision concentrates on the genus level, but it encompasses as well a critical consideration of the higher taxonomic levels such as order, superfamily, and family. A new classification system and evolutionary model for the order Scleractinia is proposed.

The catalogue covers all genera to which coral species with a stratum typicum in the Cretaceous are currently – following the published literature up to 2015 assigned, – correctly or not (listed material is not taken into account). Therefore, also Jurassic, Cenozoic and even some extant coral genera are considered. Genera to which Cretaceous species were originally assigned (but not anymore), are not included. Current genera of species with a stratum typicum in the Triassic that were – erroneously or not – indicated in the Cretaceous, are excluded. Genera with a type species of which the types have a Cretaceous age are included, whether species were originally or currently assigned to them or not. Some genera are included even if they do not fulfil these conditions, e.g. in the case that Cretaceous species were assigned to a genus which turns out to be a junior synonym of a Jurassic or Cenozoic genus, or in the case a genus is poorly defined and a so-called junior synonym is better documented but does not occur in the Cretaceous. No difference is made between synonymous or non-synonymous genera. Invalid (nom. nud.) genera are not included. The total number of included genera is 714 (131 Jurassic, 461 Cretaceous, 55 Cenozoic, 61 Extant, remaining with unknown age).

The volume is subdivided into seven chapters and an appendix. The short **Introduction** encompasses an introduction to the book and the acknowledgements. The relatively abridged **Historical Aspects** gives an account on the research history of the group. The chapter **Morphology** presents a detailed introduction to the morphology of the Scleractinian corals. In **Methods**, the preparation of the fossil coral material, its description, the

preparation of images, and the process of determination are described. The species concept is discussed here. In **Classification**, the new classification system is introduced, giving a detailed account of each family. **Discussion** reports data on the diversity, evolution, abundance pattern, endemism, palaeoecology, and palaeobiogeographical distribution of corals. The largest portion of the catalogue is **Systematic part** that presents an alphabetic list of all genera with descriptions, remarks and illustrations. The **Appendices** explain abbreviations, give an explanation of the applied stratigraphic framework and include the reference list.

The chapter **Systematic part** is the far largest in the revision and contains an alphabetical list of all Cretaceous genera (according to the limitations given above). The list is alphabetically arranged because the classification system proposed here is somehow preliminary and will surely be modified in the future. It seems therefore easier to separate the classification from the genera. The access to the genera will remain the same, even if the classification system may change. For each genus data on synonyms (senior and junior, objective and subjective), the type species, the types of the type species, a description based on the type material and/or topotypical material, remarks on the morphology, relationships, synonymy, the taxonomic position, the abundance, the stratigraphic and geographic distribution, and a species list is provided. Most genera are illustrated. The illustrations are preferably taken from the type material, or if not available, from topotypical material. We attempted to obtain images from thin sections, peels, or polished surfaces. In some cases, pictures of complete specimens were used. If a type specimen had no thin sections, and no polished sections, and if it was possible to collect or loan topotypical material, and identify this material positively with the type species in question, this topotypical material was used to obtain thin sections for illustrations. If all attempts failed, the type was refigured from the literature. If available, transversal and longitudinal sections are provided, and where necessary a close-up of one corallite or important features.