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THE NEW TEMNOSPONDYL FOSSILS FROM THE RHAETIAN (LATE TRIASSIC) OF BONENBURG (NORTH-RHINE WESTPHALIA, GERMANY) AND THEIR IMPLICATIONS FOR TEMNOSPONDYL EXTINCTION

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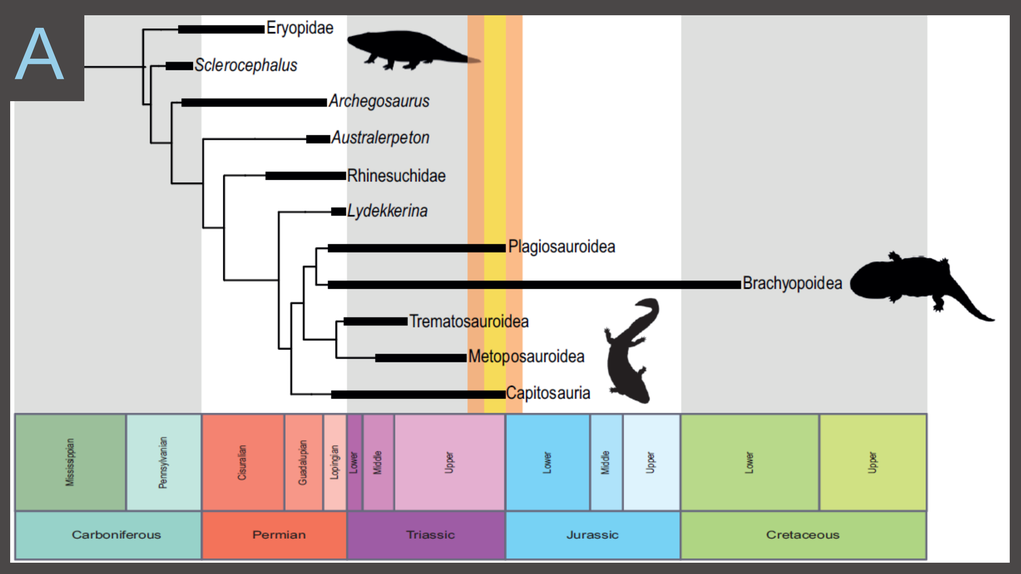
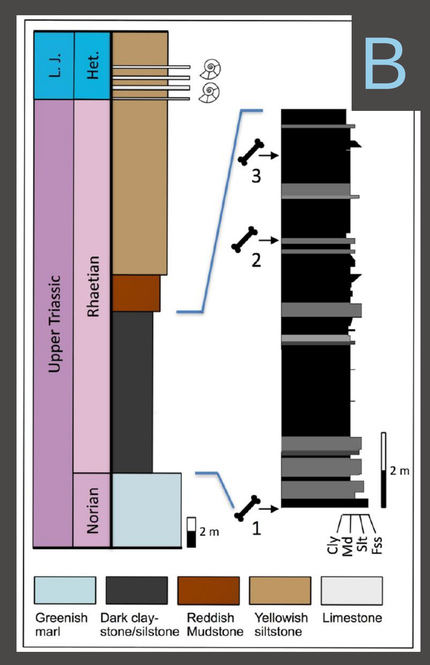
Introduction

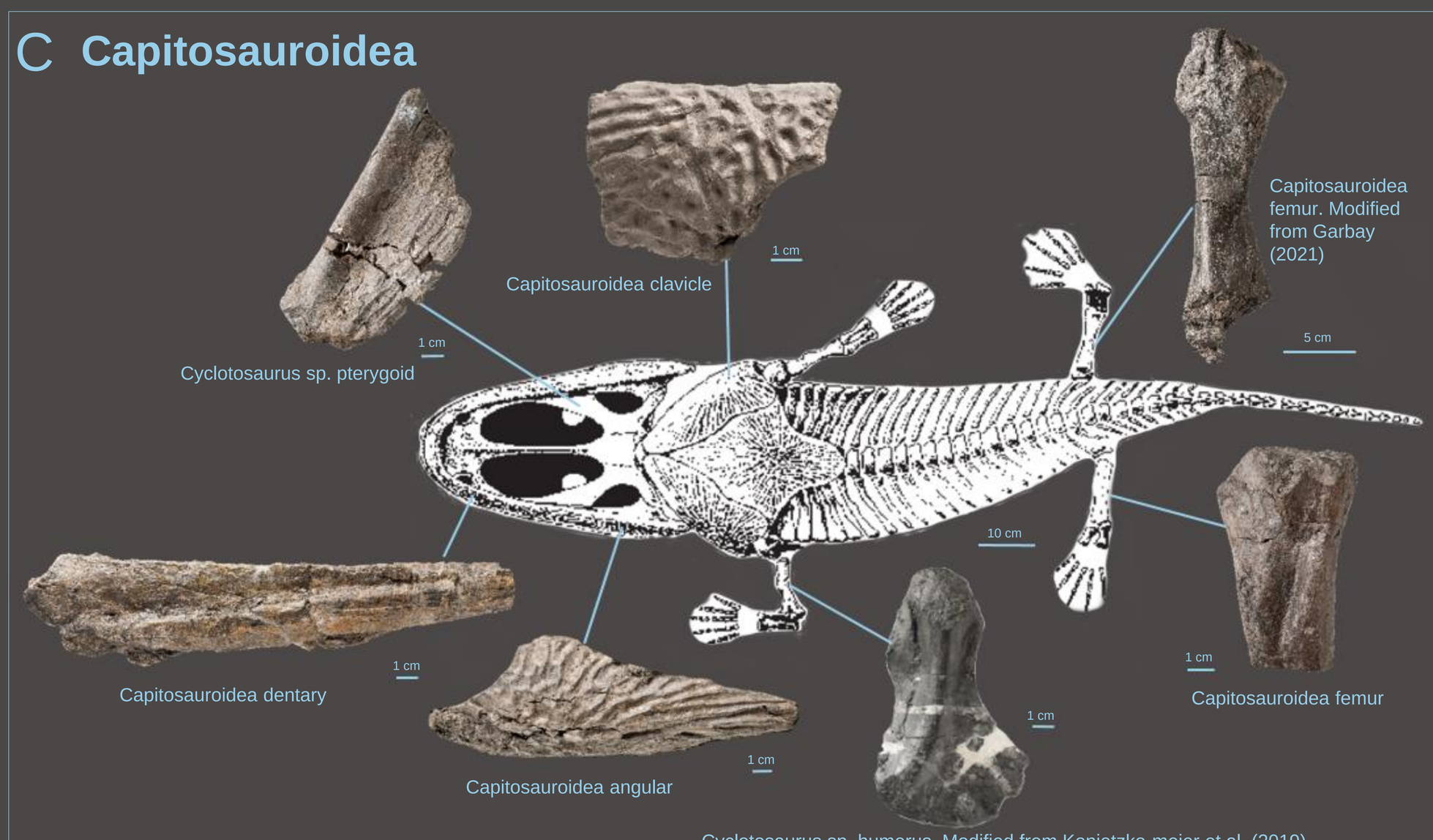
The majority of **temnospondyls**, a group of extinct amphibians, was thought to have disappeared gradually through the Late Triassic instead of being involved in the **end-Triassic mass extinction**. This hypothesis was reinforced by the absence of well-dated localities bearing fossils of Temnospondyli from the last stage of the Triassic, the **Rhaetian**. This void was filled with the discovery of **Bonenburg**, a quarry in North-Rhine Westphalia bearing fossils of temnospondyls assigned to the group Capitosauroidea. Here we illustrate the latest temnospondyls findings from this locality.



A) time-calibrated philogeny of Temnospondyli. The yellow bar indicates the Rhaetian while the black bars indicate the known fossil record of the associated taxa. Plagiosauroidea, Brachyopoidea, Trematosauroidea, Metoposauroidea and Capitosauria are the only major taxa of temnospondyls present in the Triassic. Only Brachyopoidea survived after. Modified from Garbay (2021).



B) Measured section of the outcrop of Bonenburg. Modified from Wintrich et al. (2017).



E) Histological section of clavicle fragment; F) Histological section of femur (modified from Garbay, 2021); G) Histological section of femur; H) Histological section of humerus (modified from Konietzko-Meier et al., 2019).

Materials and Methods

All the specimens have been studied and described from a morphological perspective and identified through a comparison with fossils described in other pubblications or preserved at the Staatliches Museum für Naturkunde Stuttgart. To help with the identification, some of the fossils have been sectioned to observe their histology and microanatomy

Results and Discussions

The new temnospondyls findings in Bonenburg belong to two major clades: **Capitosauroidea** and **Plagiosaurinae**. Some of the fossil of capitosauroids have been identified as representatives of the genus Cyclotosaurus. The histological and microanatomical study helped identifying the specimens as Temnospondyli, but it was not decisive for a more precise diagnosis. For both groups, these remains represent the **most recent findings** in their fossil record. This extends the lifetime of these lineages up to the end of the Triassic, when they disappeared in the mass extinction.

Acknowledgments

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