sets to extract, reconstruct and visualize morphological information in fossil vertebrates. With the exception of isolated and crushed cranial remains, the holotype skull of *Erlikosaurus* represents the only articulated and largely complete skull of a therizinosaur. It is therefore not only of special importance in terms of therizinosaur anatomy and phylogeny, but also a unique specimen, which cannot be disarticulated or prepared further without the risk of permanent damage.

Although well preserved and nearly complete, not all cranial elements of the skull of *Erlikosaurus* are equally preserved or unaffected by deformation. The articulation of the respective elements further obscures aspects. However, corresponding elements of the left and the right side can be individually traced and segmented. Both elements are then mirrored and registered as a single object to combine all anatomical information, creating a composite, yet complete element, which shows the full extent of its morphology. In the same manner, it is possible to mirror larger cranial regions to reconstruct the complete skull. This method allows the detailed visualization, study and description of both the single elements, as well as the articulated skull. The latter can then further be used as a model for finite element analyses, morphometric studies or as a data set for rapid prototyping.

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Studentenpreisposter

Intergeneric competition in pycnodont fishes (Actinopterygii, Neopterygii) from the Late Jurassic of Lower Saxony

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Pycnodontiform fishes (Actinopterygii, Neopterygii) are a monophyletic group of fishes, which lived predominantly during the Mesozoic. Their geological record spans about 175 million years, ranging from Late Triassic to Eocene. Some species of pycnodont fishes have a worldwide distribution, especially those living after the sea level rise of the Oxfordian and Kimmeridgian.

This work analyzes the influence of intergeneric competition and habitat on body length for the four pycnodont genera *Eomesodon*, *Gyrodus*, *Proscinetes*, and *Ocloedus*. 209 fossil prearticulars, which are deposited in the Museum of the Geoscience Centre of the University of Göttingen and in the Niedersächsisches Landesmuseum Hannover, were examined. All studied pycnodont dentitions were collected from localities in Lower Saxony, NW-Germany, namely Ahlem, Lindenerberg, Tönjesberg, Holzen, Duingen, Thüster Berg, and Lauenstein. These localities have a Late Jurassic and Early Cretaceous age. At this time the area of Lower Saxony was a shallow continental shelf with reefs. To reconstruct the standard length from the prearticular length, a method after Licht (2009) is used. Statistical tests were performed using R 2.13.0.

In modern reefs, reasons for intergeneric competition with influence on standard length are population density and overlapping distribution territories which lead to competition for nutrition resources. Competition among adults is largest because they require more energy and consequently larger territories. It is known that competition generally occurs between individuals of similar size and that body size is a determinant for dominance behaviour between related taxa.

A conspicuous observation for the Lower Saxony localites is the generally large size of *Gyrodus* that always exceeds the size of the congeneric *Eomesodon*. There seems to be a general trend for intergeneric competition, which could indicate that *Gyrodus* is more aggressive than *Eomesodon*, and thus might have been more dominant as seen in similar forms in modern coral fishes. Furthermore, this is reflected by the diversity patterns of pycnodontiforms in Lower Saxony. The data for the two small genera indicate that *Proscinetes* might have been more aggressive/dominant than *Ocloedus* as inferred from size distributions among the localities. This study indicates that individuals of small sized taxa interacted directly with each other. In contrast, small and large sized genera influenced each other only a little.

The habitat had a strong influence on the prearticular length/standard length of Lower Saxony pycnodonts. In Tönjesberg, the four genera are smaller than in close neighbouring locations (e.g. Lindenerberg and Ahlem). The Tönjesberg site might represent a retreat area for juvenile or subadult individuals similar to retreat areas known from modern reef fishes. This assumption is supported by the fact that in Tönjesberg the number of nutrition rivals and/or predators is low, whereas in other areas with a higher abundance of rivals and predator, they appear to have a high influence on the length.

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