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Morphological homology, evolution, and proposed nomenclature for bear dentition

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Bears are a group of carnivores with diverse diets and complicated dental structure. Several large rearrangements of dental structures are known in different lineages of bears, making the homology of dental structures between the different bears difficult to evaluate. By tracing the evolutionary processes of the two lineages of bears with the most complicated dental structure, i.e., the giant panda lineage (Ailuropodinae) and cave bear lineage (Ursinae), we were able to clarify the homology of dental structures of the two subfamilies. We define a new assemblage of dental nomenclature (based mainly on the homology to the giant panda) that can be very useful to infer the evolution of fossil bears. The evolutionary positions of some fossil bears are reviewed based on our results.

Key words: Mammalia, Ailuropodinae, Ursinae, dentition, homology, Pleistocene, China.

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