



Slice to meat you: a tour of carnassial tooth diversity and function



Melvin Vankelst

Doctorant, Laboratoire de Dynamique de l'Évolution et de la
Diversité, Université de Liège, Unité de Recherche en Géologie,
Institut royal des Sciences naturelles de Belgique



After the end-Cretaceous mass extinction, multiple clades worked their way toward the top of the food chain. On land, multiple mammalian lineages achieved this through the parallel evolution of a new structure: the carnassial tooth. Working in pairs in a scissor-like motion, these sharp and angular teeth became a key factor in the ecological success of their bearers. Initially designed to shear through flesh and tendons, carnassial teeth would eventually diversify into an astonishing diversity of forms. But how do these shapes reflect adaptations to diverse diets, and what are their functional implications? The answer lies in a jawesome journey in carnivore territory!

PhD student at the University of Liège and the Royal Belgian Institute of Natural Sciences in Brussels, I study the evolution of carnivorous mammals.

More specifically, the aim of my PhD is to understand the relationships among Cenozoic carnivorous mammals in order to better understand the reasons behind the ultimate success of Carnivora, the clade of carnivorous mammals that dominates present-day ecosystems. I primarily investigate competition between early carnivoramorphans, hyaenodonts, and oxyaenodonts around the Eocene-Oligocene transition, as this period appears to have been critical in the establishment of modern carnivore assemblages. To do so, I work primarily on the evolution of jaw and dental morphology, as well as the biomechanical capabilities of these animals, in order to infer functional and ecological information.

