SURVEY OF THEROPOD
(DINOSAURIA, SAURISCHIA) DENTITION:
MORPHOLOGY AND FUNCTION

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ABSTRACT

Dental morphology and its significance to theropod (Dinosauria: Saurischia) taxonomy are poorly understood. Dentition morphology is closely linked to feeding; changes in dental morphology could provide a basis for adaptations linked to utilization of new feeding niches. Due to this relationship, it is possible to rely on preservation of dentition in the fossil record to aid in the understanding of theropod evolution. Isolated theropod teeth are fairly widespread in dinosaur-bearing deposits, unfortunately a significant majority of these isolated teeth are shed during hunting or scavenging and lack any root structures. In several previous studies shed teeth have been used to extend pre-existing paleobiographical ranges. A study based solely on isolated dentition must be viewed critically, and to date there are little quantitative data to assign isolated crowns to distinctive theropod taxa. In this study detailed measurements were taken from Allosaurus along with Tyrannosaurus, Carcharodontosaurus, Spinosaurus, Ceratosaurus, Torvosaurus, and Acrocanthosaurus. These measurements and counts were compiled into a database of morphological standards that can be used to identify shed teeth found in rocks of the Late Jurassic age Morrison Formation. Our goal for this project is to discuss in detail the dentition of a single theropod, *Allosaurus fragilis*, and create a database of dentition values from *A. fragilis* and other large theropods. The emphasis will be placed on in-situ dentition, and the use of morphologic standards in the taxonomic identification of isolated teeth.