

FUNCTIONAL ANALYSIS OF MAMMALIAN HUMERI FROM THE LATE  
CRETACEOUS OF UZBEKISTAN

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Mammalian humeri recovered from the Bissekty Formation, Dzharakuduk, Kyzylkum Desert, Uzbekistan (90 MYA) were analyzed from a functional perspective. Isolated elements were sorted into groups that likely correspond to species (or genera). These groups were allocated to taxa known mostly from the dentition, petrosals, and/or tarsals at this site. The multituberculate humerus has a semispherical radial condyle that is separated from a narrow, rounded ulnar condyle by an intercondylar groove; a very large medial epicondyle; and a deep, spiraling ulnar condyle. The terrestrial eutherian taxa have a trochlea that is continuous with the capitulum. The zalambdalestid humerus is extremely similar to that of the Late Cretaceous Mongolian zalambdalestid *Barunlestes* in possessing a large capitular tail separated from a cylindrical capitulum by a shallow groove, a large medial trochlear ridge, and a deep trochlea. Some eutherian humeri have been tentatively assigned to Zhelestidae based on their dissimilarity to zalambdalestids and the abundance of zhelestids in the dental record. These humeri differ from those of zalambdalestids in having a shorter capitulum (that is less spherical than in the metatherians), a shorter capitular tail, a smaller medial trochlear ridge, and a shallower trochlea. The two arboreal metatherian taxa, which have been differentiated by size and morphological characteristics, possess a spherical capitulum; a trochlea separated from the capitulum by a short, grooved zona conoidea; and a well-developed lateral epicondylar crest. The smaller metatherian has a short medial trochlear ridge; a narrow, shallow trochlea; and a large medial epicondyle. The medial side of the larger metatherian humerus is broken. Although the dental record suggests thirteen eutherian species and only one metatherian, crurotarsal evidence supports the presence of at least four metatherian species at Dzharakuduk. The humeri analyzed here also provide support for the presence of multiple metatherians in the fauna, further demonstrating that postcrania are critical to understanding the taxonomic diversity present at these Late Cretaceous localities.