

POSTCRANIAL ANALYSIS AND FUNCTIONAL MORPHOLOGY OF LATE HEMPHILLIAN CARNIVORA FROM NORTH CENTRAL OREGON

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This study describes locomotory adaptations and prey-capture techniques of one of the most diverse Hemphillian carnivoran faunas in the United States, from Oregon. Fossil genera are compared with extant genera of known locomotor type: *Canis*, *Vulpes*, *Ursus*, *Bassariscus*, *Procyon*, *Taxidea*, *Martes*, *Mustela*, *Gulo*, *Felis*, *Lynx*, *Acinonyx*, *Panthera*, and *Equus* using specific postcranial measurements to determine locomotor type (arboreal, cursorial, or fossorial). Length of m1 was used graphically to determine body size. Postcranial measurements include several on the distal humerus, proximal radius, and proximal ulna reflecting amount of pronation-supination of the manus; on the astragalar trochlea, reflecting amount of movement allowed of the pes; and metapodial compactness, reflecting cursorial ability. Eight fossil genera of Carnivora and their locomotory adaptations are discussed including: *Canis*, *Agriotherium*, *Bassariscus*, *Pliotaxidea*, *Martes*, *Plesiogulo*, *Barbourofelis*, and *Pseudailurus*. Body size was used to exclude a fossil genus from a certain locomotor type (arboreal or fossorial). Measurements from the humerus in fossils of *Canis*, *Pliotaxidea*, *Martes*, *Barbourofelis*, and *Pseudailurus* reflect those of extant locomotor types. Locomotor type could not be determined from the humerus for *Agriotherium*, *Bassariscus*, and *Plesiogulo* due to the lack of fossils. Measurements from the radius and ulna show the felids to have the highest amount of pronation-supination and fossorial animals to have the least, with cursorial animals intermediate. These results are counterintuitive and require further investigation. Measurements from the astragalus and appression of metapodials in fossil *Canis*, *Bassariscus*, *Martes*, and *Barbourofelis* reflect extant locomotor types. Locomotor type could not be determined from the astragalus for *Agriotherium*, *Pliotaxidea*, *Plesiogulo*, and *Pseudailurus* due to the lack of material. For each genus studied, modern lifestyles were reflected in the fossil bones of related taxa, suggesting that the ancient lifestyles were similar to extant lifestyles of related taxa.