

Public Abstract

First Name:Corinne

Middle Name:Nicole

Last Name:Rosania

Adviser's First Name:Lee

Adviser's Last Name:Lyman

Co-Adviser's First Name:

Co-Adviser's Last Name:

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Title:Paleozoological Stable Isotope Data for Modern Management of Historically Extirpated Missouri Black Bears (*Ursus americanus*)

Human population growth and intensification of resource extraction during the 19th century changed the American landscape. Deforestation, residential sprawl and hunting activities impacted the behavior and sometimes the existence of native species. By the early 1900s, North American black bears (*Ursus americanus*) were extirpated from Missouri. Modern efforts to restore this species to the region are guided by the assumption that extant extra-local black bear ecology accurately depicts native Missouri ursid ecology. Paleozoological data provide the only means to test this assumption. Stable carbon and nitrogen isotope analysis of skeletal remains of ten late Holocene black bears from Lawson Cave in central Missouri reveals three aspects of native black bear diet: 1) Lawson Cave black bears are isotopically distinct from herbivores and carnivores; 2) There is no clear trend in black bear diet over the past 600 years; and 3) Lawson Cave black bear diet is not significantly different from that of modern black bears. Native Missouri black bears, as reflected by the Lawson Cave ursids, are no different from extra-local modern black bears in terms of diet. Therefore, these ecological data can be applied to future management and conservation planning regarding Missouri black bears by indicating appropriate regions (which can support the resource-use habits of black bears) for relocation programs.