

Title: "Ambush! The evolutionary and ecological origins of cat predatory behaviors in the fossil record"

Abstract: The fossil record offers direct insights into the evolutionary, ecological, and environmental histories of animal groups, with the potential of better understanding the context in which behavioral strategies originated. However, behavior cannot be directly studied from fossils placing severe limitations on this direct line of evidence into the past. Certain kinds of behaviors can be indirectly inferred, however, when they are linked to functional features that are preserved in the skeleton, teeth, or other fossilizable elements. In mammals, specializations in locomotion can often be inferred from fossils, and locomotion is linked in general ways to behavioral strategies like predation. We will look at how locomotion evolved in mammalian carnivorans in North America, how the variety of locomotor types are distributed in ecological communities, how that distribution differs depending on environmental context, and how strategies changed in response to major changes in past climate and vegetation. Felids, which are known for ambush-style predation, appeared on the scene quite late, changing the repertoire of carnivore predation style. We will look at how the immigration of cats into North America affected the range of locomotor behaviors during the spread of grassland habitats, and how the ambush-style predation of cats themselves changed when the Earth entered into the Ice Ages.