

Monkeys in the Middle: Modeling ecological flexibility and niche construction in African cercopithecoid primates

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Niche construction is broadly defined as an organism's influence over its environment, ranging from the depletion of local resources to the intentional modification of landscapes and ecosystems. While modern humans excel at the latter, the exact timing and nature of our transition to being complex cultural niche constructors remains to be determined. Here I use methods taken from community ecology to develop a baseline model of minimal niche construction within a group of primate generalists. This serves as an important comparison for interpretations of the hominin fossil record and broader paleontological record to determine when and how our hominin ancestors began to diverge from this pattern.

Dental metric data were used in principal components analysis to reconstruct the dietary ecomorphological niches of a sample African cercopithecoid primates from the Plio-Pleistocene to today. Potential niche construction is identified through the displacement of co-occurring species indicating that the focal taxon has excluded potential competitors through resource depletion. Overall, fossil taxa are shown to occupy a more restricted niche than their extant relatives, but otherwise exhibit similar patterns of dispersion and overlap within and across communities. The lack of consistent trends within the Plio-Pleistocene sample — either through time or in response to potential confamilial competition — supports the idea that these generalized primates are not exerting a significant influence over their local environments. I conclude with some suggestions on expanding these analyses to look for evidence of niche construction in other paleontological and paleoanthropological contexts.

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