

NAVIGATING THE LANDSCAPES OF FEAR AND FOOD

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While it is widely recognized that primate space use is primarily driven by the presence of predators and the distribution of resources, these two environmental factors have never been quantified simultaneously in a single study system. Moreover, since most primate species live in a multi-predator environment, a more thorough understanding of how predation shapes primate socio-ecology may critically hinge upon the individual assessment of the impact of different predator guilds. Here, in a novel approach, predator guild-specific landscapes of fear were constructed on the basis of naturally occurring alarm responses of a habituated group of wild vervet monkeys (*Cercopithecus aethiops*) in South Africa. We show how these landscapes of fear can be combined with field data on the distribution of resources within the powerful modeling environment of a Geographical Information System (GIS). A mixed regressive-spatial regressive analysis subsequently revealed how the observed variation in space use by the study group could be understood as an adaptive response to perceived predation risk by some (but not all) predators as well as the spatial distribution of key resources. Baboons and, most notably, leopards were found to strongly affect the way in which vervet monkeys utilize their spatial environment. Interestingly the effect of fear exceeded the effect of resource availability, thereby underlining the importance of certain predator guilds in understanding fundamental aspects of primate socio-ecology.

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