

# Meso-carnivore diversity and occupancy in an agro-ecological landscape

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## ABSTRACT

Worldwide, anthropogenic activities have caused great declines in mammal diversity and abundance. It has become increasingly important to quantify such declines, as well as how different mammal species respond to such anthropogenic driven changes. This is because diverse animal communities can play important roles in ecosystem stability and associated ecosystem services. Animal communities in agricultural matrixes are playing more important roles as bio-control agents and pollinators. It is therefore necessary to determine the effects agricultural matrixes have on the smaller mammals, like the small carnivores, which may be more abundant in the absence of larger carnivores (meso-predator release hypothesis). In this study, camera trapping was used to investigate the occupancy and diversity of different small carnivores within a gradient of land use change in two different rural settlements in Limpopo. Furthermore, occupancy of small carnivores was modelled using different environmental variables to investigate the effect of land use on small carnivores' presence and abundance within agricultural matrixes. The highest species richness for small carnivores were found to be in the cropping land use, followed by the grazing land use in both villages. The settlement land use had the lowest small carnivore species richness for both villages. The cropping land use also had the largest positive effect on the occupancy of the large-spotted genet and the slender mongoose. The importance of other covariates varied between villages and species. The questionnaire results indicated the need for environmental information to support the community members in management practices.

Keywords: Small carnivores, diversity, occupancy, human-dominated habitats, predation, ecology