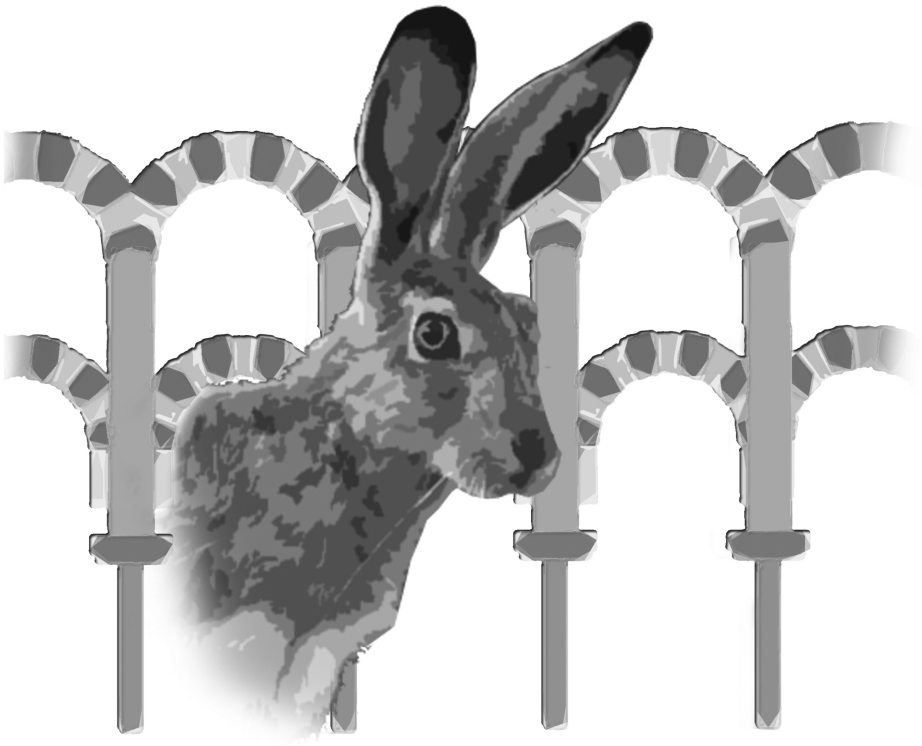

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Patterns and drivers of rodent abundance across a South African multi-use landscape

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South Africa's decentralized approach to conservation entails that wildlife outside formally protected areas inhabit complex multi-use landscapes, where private wildlife business (ecotourism and/or hunting) co-exist in a human-dominated landscape matrix. Under decentralized conservation, wildlife is perceived to benefit from increased amount of available habitat, however it is crucial to understand how distinct management priorities and associated landscape modifications impact noncharismatic taxa, such as small mammals. We conducted extensive ink-tracking-tunnel surveys to estimate heterogeneity in rodent distribution and investigate the effect of different environmental factors on abundance patterns of two size-based rodent groups (small- and medium-sized species), across three adjacent management contexts in NE KwaZulu-Natal, South Africa: a private ecotourism game reserve, mixed farms and traditional communal areas (consisting of small clusters of houses interspersed with grazing areas and seminatural vegetation). Our hypotheses were formulated regarding the (1) area typology, (2) vegetation structure, (3) ungulate pressure and (4) human disturbance. Using a boosted-regression-tree approach, we found considerable differences between rodent groups' abundance and distribution, and the underlying environmental factors. The mean relative abundance of medium-sized species did not differ across the three management contexts, but small species mean relative abundance was higher in the game reserves, confirming an influence of the area typology on their abundance. Variation in rodent relative abundance was negatively correlated with human disturbance and ungulate presence. Rodent abundance seems to be influenced by environmental gradients that are directly linked to varying management priorities across land uses, meaning that these communities might not benefit uniformly by the increased amount of habitat promoted by the commercial wildlife industry.

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