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RESEARCH ARTICLE

# Assessing landscape functional connectivity in a forest carnivore using path selection functions

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## Abstract

*Context*  Understanding connectivity patterns in relation to habitat fragmentation is essential to landscape management. However, connectivity is often judged from expert opinion or species occurrence patterns, with very few studies considering the actual movements of individuals. Path selection functions provide a promising tool to infer functional connectivity from animal movement data, but its practical application remains scanty.

*Objectives*  We aimed to describe functional connectivity patterns in a forest carnivore using path-level analysis, and to explore how connectivity is affected by land cover patterns and road networks.

*Methods*  We radiotracked 22 common genets in a mixed forest-agricultural landscape of southern Portugal. We developed path selection functions discriminating between observed and random paths in relation to landscape variables. These functions were used together with land cover information to map conductance surfaces.

*Results*  Genets moved preferentially within forest patches and close to riparian habitats. Functional connectivity declined with increasing road density, but increased with the proximity of culverts, viaducts and bridges. Functional connectivity was favoured by large forest patches, and by the presence of riparian areas providing corridors within open agricultural

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