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Habitat edges affect mesocarnivores' spatio-temporal occurrence patterns in eucalypts dominated landscapes

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Changes in landscape structure linked to Human activities often lead to habitat fragmentation, which induces an increase in the amount of habitat edges. Edge effect can affect species diversity, distribution, abundance and movement. Such modifications add to those already associated with anthropic systems, such as forestry plantations. In the present study, we assessed if and how habitat edges influence mesocarnivores spatio-temporal ecology.

The study was implemented in Central Portugal, in two farmsteads dominated by eucalypts plantations, but that also include several fragments of natural habitats, leading to a very heterogeneous landscape, where habitat edges are common. In each farmstead, we set 18 camera-traps: nine in habitat edges and nine in the habitat interiors, active between July 2020 and January 2021 to monitor mesocarnivores (Red fox *Vulpes vulpes*, Stone marten *Martes foina*, European badger *Meles meles* and Common genet *Genetta genetta*).

Habitat edges seem to affect the temporal and spatial dimensions of Mediterranean mesocarnivores ecology, but the effect is species-specific, with some species responding more positively than others. Edge density was one of the drivers promoting occupancy at the species and community level, probably because they can also provide alternative or higher availability of resources (e.g., food, due to complementarity of environmental conditions in contiguous landscape components), or act as travel corridors within the landscape. We also detected that, in general, mesocarnivores show a spatial aggregation and a greater activity overlap within interior habitats (less disturbance), where they show less pronounced peaks of activity, often occurring later than at the edges of the habitats (probably used to move to and from feeding patches). This knowledge contributes to the design of better habitat management measures in human-altered ecosystems to guarantee the conservation of biodiversity while maintaining economic profitability.

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