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## Spatial and temporal ecology of the Lusitanian pine vole (*Microtus lusitanicus*) in a Mediterranean polyculture

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### Abstract

In this study we report the first data on the spatial ecology of the Lusitanian pine vole (*Microtus lusitanicus*). Data report to the breeding season and to a traditional Mediterranean agricultural landscape in Central Portugal, using radio-telemetry methods. We documented large home range areas with values of 1042 m<sup>2</sup> for males and 862 m<sup>2</sup> for females (MCP method; 95% kernel method with values of 229 m<sup>2</sup> and 159 m<sup>2</sup> for males and females, respectively). Although no significant differences between sexes or reproductive status were found, longer daily movements were observed in reproductively inactive males. Pair bonding and home range overlap was observed between males and females, as well as between females and sub-adults. Voles showed no distinct preference for day or night for activity periods and movements. However, this result was dependent on sex, reproductive status and time of day. Voles revealed habitat preference for both spatial scales of analysis: they selected verges, vines and olives, within the study area, and used more verges within their home ranges, when compared to the other habitat types. The use of space by *Microtus lusitanicus*, in comparison with other microtines, suggests the occurrence of spatial associations between males and females in monogamous pairs. The importance of verges and linear habitats within an agricultural context is apparent, once they provide food and shelter from predators and human interventions.

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### Keywords

Activity pattern; habitat; home range; *Microtus lusitanicus*; radio-tracking; social behaviour

### Introduction

The Mediterranean Peninsulas have favoured the formation of a large number of endemic species of small mammals (Bilton et al., 1998). This has contributed to the importance of the Mediterranean Basin as a biodiversity hotspot (Blondel and Aronson,

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