

Title: Activity patterns of the common dormouse (*Muscardinus avellanarius*) in different Mediterranean ecosystems. *Journal of Zoology, London, 2004*

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Background to study

The common dormouse occupies a variety of woodland types throughout Europe which are associated with different climatic conditions. In the northern part of its range, the common dormouse shows a winter phase of dormancy which is likely to be influenced by climatic conditions and availability of food resources. In Italy however, previous research suggests that the species occupies nest-boxes in late autumn and in winter, suggesting different yearly rhythms of activity.

Method

- Dormice were monitored in three different woodlands, representing two climatic zones in central Italy; a temperate deciduous beech dominated woodland where winters are cold and rainy and summers are cool; and in 2 woodlands dominated by a) turkey oak and b) holm oak which were within the Mediterranean climatic zone with mild winters and dry summers.
- 50 nest boxes were placed in a grid at 20 m intervals, 1.5 m above ground within each study site and were inspected monthly for 2 years in the beech and turkey oak woodlands and for 1 year within the evergreen holm oak wood.
- Encountered dormice were weighed, sexed, aged (adult, juvenile, newborn) and marked on the belly with dye for identification. Individuals were recorded as 'active' or in 'daily torpor'.

Key results

- The number of dormice observed in year 1 (n=13) was statistically lower than in year two within the beech and turkey oak woodlands (n = 98). Sex ratios and birth weights remained consistent between sites. A higher ratio of juveniles and newborns was observed in the turkey oak wood.
- In the temperate beech wood, the numbers of dormice peaked in spring, declined in summer, peaked again in autumn and dormice were not observed over winter.
- Within the Mediterranean climatic zone, the number of dormice peaked in autumn, decreased from winter to spring and dormice were absent in summer (July and September) in the turkey oak wood. In the holm oak wood the number of dormice peaked in summer and autumn. Data was not collected overwinter.
- There was evidence of differences in breeding and juvenile occurrence between the two climatic regions. Spring births were recorded in the temperate beech wood where juveniles made up the largest proportion of the population in spring-summer. Conversely breeding occurred in autumn in the oak woods where juveniles made up a larger proportion in winter.
- Climatic conditions affected daily torpor. The percentage of 'in torpor' individuals in the temperate region was statistically higher in spring than in summer and autumn, yet in the oak woods, daily torpor was recorded in early spring (Feb/March). Daily torpor correlated to the minimum daily temperature in the holm oak wood.

Key messages to landowners and managers derived from these results

- The hibernation periods of dormice varies depending on the climatic conditions and subsequent resource availability. Monitoring programmes and surveys for dormouse presence, especially in response to development plans, should be adapted accordingly.

Key words/phrases

Muscardinus avellanarius, nest-boxes, activity patterns, hibernation, Mediterranean ecosystem