

**Title:** Winter mortality of the common dormouse, *Muscardinus avellanarius* in Lithuania. *Folia Zool*, 1999

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### **Background to study**

Few studies have aimed to establish the factors influencing dormouse mortality during overwinter hibernation, however survival forms a vital parameter related to the long term viability of populations. Understanding what factors influence mortality are important in increasing our knowledge of dormouse demographics and to help to establish how, where possible, factors influencing survival can be mitigated against.

### **Method**

- Capture-mark-recapture study of dormice within a 60 ha and 85 ha area of two forests in Lithuania.
- Nest boxes were placed in a grid at 50 m intervals and were checked regularly throughout the activity season of dormice and surveys were conducted annually from 1984 until 1990/1993. Individuals were weighed, sexed and categorised into three different age classes (adults if they had survived hibernation; early litter juveniles born May-July; late litter juveniles born August-September. All individuals were uniquely marked (adults with rings, juveniles with toe clips).
- Individuals that were captured and marked in August and October were used to estimate winter mortality and individuals not recaptured the following year were treated as dead.

### **Key results**

- The average overwinter mortality rate was high in both sites 72% and 64%.
- There was no statistical difference between male and female winter mortality, however there were differences in the survival of the three different age categories. Late litter juveniles and early litter juveniles had a statistically lower survival rate compared to the other age classes.
- The winter mortality of early litter juveniles was dependent on site and adults at the larger site exhibited a higher survival rate; however no difference was observed at the other site.
- There was a 2 g difference in weight between late litter juveniles that survived and those that did not. Weight differences were not observed in adult and early litter juveniles groups.

### **Key messages to landowners and managers derived from these results**

- Ensure late fruiting trees and shrubs are available within dormouse habitat to provide autumnal food sources for dormice to accumulate enough weight to overwinter.
- Weather patterns are likely to have a large influence over autumnal food availability impacting the survival of dormice hibernating at ground level. Highly unfavourable conditions are intermittent frosts and thaws rather than an early deep snow cover on dry ground. With climate change and more unpredictable weather patterns it is likely that dormice will become increasingly vulnerable to changes in winter weather.
- Exclude dogs and grazing stock from woodlands occupied by dormice to reduce predation risk and to maintain understorey.
- In the UK, reintroductions of wild boar should be discouraged from dormouse sites as they are likely to predate hibernating dormice in winter and damage the understorey reducing the supply of seasonal food resources, cover and potential summer nest sites.

### **Key words/phrases**

Common dormouse; *Muscardinus avellanarius*; Lithuania; nest box; overwinter mortality; demographics; woodland grazing; climate