

Title: Influence of body weight on hibernation of the common dormouse (*Muscardinus avellanarius*), *Acta Zoologica*, 2003

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Background to study

Common dormice commonly hibernate from November to April, however this behaviour may be different for smaller animals as in a study on garden dormice. The survival of hibernating dormice is likely to be highly influenced by weight loss during hibernation and as such, information on the influence of weight on dormouse mortality is important for understanding the life history and conservation.

Method

- A total of 18 dormice were captured from a planted middle-aged oak forest and a young opened oak forest in Hungary and taken into captivity for laboratory tests on hibernation mortality.
- Before and after hibernation, animals were housed externally and continuously fed.
- Animals showing signs of entering hibernation were transferred to a controlled environment of $5\pm 2^{\circ}\text{C}$ where dormouse weight was monitored on alternate days between December 2000 and April 2001 (108 days).
- Weight loss was correlated to body mass prior to hibernation and the behaviour of weight loss was assessed over time.

Key results

- A total of 44% of individuals died during hibernation which is lower than that observed in nature.
- Weight loss shows a linear decrease over time and the mean weight loss was 29% of body mass for the whole population and 31.3% of body mass for individuals that died.
- There was no significant difference between the weights of surviving and perished individuals; however surviving dormice had a higher initial body weight (18.19 g) than those that perished (15.26 g).
- Surviving animals used their reserve energy more smoothly during hibernation than those that died.
- Hibernation periods of 11 days (range 4-26 days) were observed.

Key messages to landowners and managers derived from these results

- Dormouse overwinter mortality is relatively high when temperatures remain stable over winter. Fluctuations in temperatures are likely to increase hibernation mortality and therefore improving woodland habitat to ensure adequate food availability during autumn is recommended. Planting and/or managing canopy trees to ensure a diverse understorey of autumn fruiting trees and shrubs such as hazel and bramble would be beneficial.

Key words/phrases

Dormice; *Muscardinus avellanarius*; laboratory; hibernation; Hungary; body weight