

Was everything better in the good old days? Declining body mass in the Garden Dormouse (*Eliomys quercinus*)

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Abstract

Garden Dormouse (*Eliomys quercinus*) populations have shown a drastic decline over the last 20-30 years, the reasons for this decline are still unknown. In wild animals, body mass is a good indicator of fitness and survival probability, especially in hibernating species like dormice. Fat accumulation before the onset of hibernation and juvenile growth are crucial to survive the following winter. We conducted a capture-mark-recapture study in the Black Forest (south-western Germany) between 2018 and 2021 and compared the body mass of captured Garden Dormice with data collected between 2003 and 2005. Furthermore, we investigated the dietary spectrum of this species by faecal analyses.

The results show that adult Garden Dormice nowadays have a significantly lower body mass (difference 11 ± 2.8 g) before the onset of hibernation than two decades ago. Furthermore, juveniles showed a significantly lower body mass gain in the years 2018-2021 compared to juveniles in 2003-2005. Dietary analyses have revealed that insects represent the main food resource for juvenile Garden Dormice and also in adults during pre-hibernation fattening.

This study shows, that the body mass of the Garden Dormice in the Black Forest has decreased over the last two decades, which could reduce their reproductive success and their survival rate, especially during hibernation. A reason for this body mass reduction could be the severe decline of insects leading to an insufficient availability of the key food resource of this species. In particular, reproductive females might not be able to cover their investment during gestation and lactation.

Keywords

ecology, long-term study, pre-hibernation fattening

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