

Title: Does the occurrence of hazel dormouse (*Muscardinus avellanarius*) in East-Saxony (Germany) depend on habitat isolation and size? *Peckiana*, 2012

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Background to study

The arboreal nature of hazel dormice mean they are vulnerable to habitat loss and fragmentation, however empirical research has found conflicting results regarding the ability and preference of dormice to cross open ground and disperse between isolation woodlands. Further research on the effects of habitat size and fragmentation on the presence of dormice is required.

Method

- The presence of dormice was investigated within 66 woodland sites (<20 ha to >200 ha in size) within a 330 km² area in Saxony. Larger woodlands were primarily coniferous and small woodlots were traditionally coppice-with-standards. All woods varied in isolation.
- A total of 1,300 nest tubes were erected in 20 m grids (25/ha) and were checked fortnightly between July and November 2009 for dormouse presence.
- Gnawed hazel nut searches were conducted for 20 minutes in 5, 10 x 10 m plots in each site and nest searches were conducted in the understorey and woodland edges from September 2009.

Key results

- Hazel dormice were present in 27 of 66 woodland sites. Dormice were significantly more likely to occupy larger woodlands (median 19.2 ha) than smaller woodlands (median 3.5 ha).
- Up to 70% of woodlands >20 ha were occupied by dormice and occupancy decreased <60% in 10-20 ha woodlands and below 40% in smaller woodlands.
- Dormice were significantly more likely to be present in woodlands which were isolated by <15 m and to be absent when woodlands were isolated by 569 m.
- Sites isolated by <20 m are more likely to have dormice.
- Dormice were recorded in one 2 ha woodland that was isolated by 669 m.
- Summer dormouse nest searches were the most successful method for determining presence when accounting for effort.

Key messages to landowners and managers derived from these results

- To improve connectivity and dispersal of dormouse populations woodlands <20 ha and isolated by >20 m that are occupied by dormice should be expanded and/or connected to further habitat by woodland planting and hedgerow establishment to ensure populations remain viable.
- Coniferous woodlands in Germany are capable of supporting dormice populations and the presence of dormice should be considered prior to forestry operations and maintenance works.
- Small woodlands <20 ha that are isolated by >500 m from a dormice occupied woodland may support a dormouse population and surveys to establish presence in isolated woodlands is recommended, especially in view of proposed developments.
- Summer nest searches in autumn winter in woodland understorey and edge habitat is a suitable method for establishing dormouse presence.

Key words/phrases

Dormice; *Muscardinus avellanarius*; habitat fragmentation; habitat size; nest searches; nut searches; nest tubes