

Title: Dispersal of common dormice *Muscardinus avellanarius* in a habitat mosaic, *Acta Theriologica* 53, 2008

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Background to study

Woodland fragmentation has been considered a major factor leading to the local extinction of dormouse populations that commonly live at low densities, have poor dispersal ability and show a reluctance to cross even small gaps of open ground. However the occurrence of dormice in numerous small woodlands isolated within agricultural landscapes in Germany, poses the question as to how these dormice are surviving in such small habitats with a high level of isolation.

Method

- 14 small isolated woodlands were surveyed for dormouse presence by checking tit nest boxes and by nest tubes (20/ha) and gnawed hazel nut searches in 1995 and 1996 respectively.
- Dormice occupying two isolated woodlands of 0.66 ha and 1.25 ha and within a 4.25 ha area of larger neighbouring woodland were studied using capture-mark-recapture. Isolated woodland sites were separated from the larger woodlands by 250 m of agricultural fields for c. 100 years.
- Nest boxes (30 m intervals) and live traps were set up in the 3 study sites and nest boxes were additionally placed along the edges of surrounding woods at 30 m intervals. Boxes were checked fortnightly between March and November/December in 1996 and 1997 respectively. Live traps were set overnight, between 1 and 2.5 m above ground during both summers.
- Encountered individuals were sexed, weighed and their age (adult >15 g) and reproductive condition determined. Each individual was marked with a unique ear tattoo.

Key results

- Evidence of dormice were found in ten small woodlands (>0.66 ha) isolated from neighbouring forest by <450 m.
- 204 individual dormice were encountered across all 3 study sites, of which 34, primarily juveniles, were found and marked within the two small isolated wood, indicating breeding.
- Dormice were not present each month within the small isolated woods.
- Evidence of immigration and emigration between woods was observed and minimum distances of open field crossed between recapture points varied from 250 m to 500 m. The majority of migrants were juveniles.

Key messages to landowners and managers derived from these results

- Dormice inhabiting small isolated woodlands are likely to be utilizing neighbouring woodlands when they are separated by <500 m. Positive management to encourage a diverse and dense understorey should be practised within the network of woodland patches.
- Surveys of to confirm dormouse presence in small isolated woodlands should not be confined to one survey and sites should be revisited throughout the season and if possible over two years to ensure absence is not falsely determined.
- Increasing connectivity between woodland patches by establishing and/or managing a network of hedgerows will increase the survival of migrant dormice and viability of populations occupying small woodland patches.

Key words/phrases

Dormice; *Muscardinus avellanarius*; Germany; fragmentation; migration; nest box; nest tube; live trapping; hazel nuts