

Title: The Population Ecology and Monitoring of the Dormouse *Muscardinus avellanarius*: Growth, spread and viability of reintroduced populations: population management to improve the dormouse's conservation status, *PhD Thesis, Royal Holloway, University of London, 2004*

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Background to study

In response to a widespread decline in hazel dormice populations in the UK, a reintroduction programme was initiated in the early 1990's to reinstate dormice within their historical range. The success of reintroductions, such as establishment, viability and spread of the population, is commonly influenced by the habitat quality of the release site and the size of the founding populations. Optimizing reintroduction success is integral to future reintroduction programmes.

Method

- Capture-mark-recapture dormouse data (May-Oct) from 6 reintroduction sites where 27-60 dormice had been released at least 2 years previously was obtained. No dormice had been present within or near to any of the release sites prior to the reintroduction.
- To establish the spread of dormice from release sites, <50 dormouse nest tubes were erected in 2002 within 21 different sites (spread sites) of suitable habitat within 500 m, 1 km and 1.5 km from the release sites. Tubes were checked Sept and Oct.
- To identify habitat influences on dormice reintroductions, surveys were conducted at all occupied sites (release and spread sites) using 20 random 10 m quadrats. % cover edible shrub spp and all tree spp, field layer height and max height and width of understorey shrubs were recorded. Sites were separated into oak and hazel NVC woodland types and their habitat suitability derived based on the habitat variables that most effect dormouse abundance.
- Connectivity of the spread sites with release sites was recorded.
- Data was used to establish the likelihood of reintroduced dormice establishing and spreading and to assess what factors would maximise their longer term viability.

Key results

- Habitat quality was the only factor affecting the successful establishment of introduced populations with increasing abundance relating to increases in habitat quality.
- Reintroduced populations initially spread at a maximum rate of 250 m per annum which slowed down in relation to the number of years the population had established.
- Adult dormice were found 500 m from their release site within 4 yrs post-release
- Dormouse abundance at spread sites was positively influenced by reintroduction year, the size of the founder populations, the quality of habitat and the presence of continuous woodland cover between release and spread sites. Abundance reduced with distance from release site.
- Larger founding populations are likely to be more viable in the initial years following release, but may be less important than habitat quality in increasing the population's long-term viability.

Key messages to landowners and managers derived from these results

- Release sites and the surrounding woodlands should be of high habitat quality and well connected by hedgerows to facilitate the dispersal and spread of dormice.
- Release sites should be larger and include well connected compartments of different structural and species diversity. This will encourage different sub-populations of dormice to establish whose survival and productivity are likely to differ, promoting a more viable population overall.
- Introducing larger cohorts (c. 20 pairs) of dormice is recommended to encourage population stability, growth and their spread into the surrounding landscape.

Key words/phrases

Dormice; *Muscardinus avellanarius*; National Dormouse Monitoring Programme; reintroductions; habitat quality; population viability; population spread