

Title: Abundance and survival of hazel dormouse *Muscardinus avellanarius* in temporary shrub habitat: a trapping study, *Ann. Zool. Fennici*, 1999

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Background to study

Ecological studies on dormice have primarily focussed on habitat preferences and distribution using nest boxes; however few studies have been conducted using trap based methods to establish the abundance and survival of dormice in different habitat types. Expansion in the Swedish distribution of dormice, potentially in response to increasing succession of deciduous vegetation on abandoned farmlands suggests these temporary habitats may be important to dormouse conservation.

Method

- 5 year capture mark recapture study using rat traps (9 x 9 x 26 cm) placed 1.5-2 m above ground and baited with hazel and apple. Traps were checked each morning for 3 days, monthly from May to September. Captured individuals were sexed, weighed, aged and marked using ear clips.
- Traps placed in 5 x 5 and 4 x 5 grids and spaced at 10 m and 20 m intervals. A total of 7 grids were used over the study period with 2-7 grids being surveyed in any one year.
- 3.2 ha study site within 5 ha 20 yr old spruce plantation on old pasture in Östergötland, Sweden. Spruce and 50% young deciduous species formed continuous shrub layer with no high canopy.

Key results

- Approximately 175 trap nights per ha was found to be most effective trapping effort for capturing most adults and trapping efficiency (mean = 17%) increased later in the season.
- Dormouse density was high and varied between years (3.3 to 10.2 individuals per ha) and adult captures were male biased. Juveniles most frequently trapped from late August/September.
- Recapture rate between years correlated to trap effort and was high overall, 56% and 46% for adult male and females and 54% and 34.5% for juvenile male and females. Recapture rates were reduced in individuals captured within 20 m of the edge of the survey area.
- Estimated survival between years was 74% and 56% for adult males and females and males (inc. Juveniles) had a significantly higher survival rate.
- Movement of individuals between years was small (mean = 51 m) but males ranged significantly further than females (mean = 61 m and 37.4 m) and juveniles significantly further than adults (mean = 68.2 m and 41.8 m) when both sexes were combined.
- The proportion of non-reproducing adult females was 61% and their survival was higher than reproducing females (35.5%).

Key messages to landowners and managers derived from these results

- Live trapping of dormice in shrubby habitats without high canopy is an effective method for studying dormice density and survival. A trapping effort of 175 trap nights per ha is recommended but may be reduced by trapping later in the season (August/September) and trapping in plots larger than 3.2 ha will improve estimates by reducing edge effects.
- Temporary shrub habitat can support a high density of dormice and as such the distribution and creation of this habitat should be an important consideration in dormouse conservation.
- Species diversity and structure should be maintained in woodland habitats to provide adequate resources for dormice who exhibit small ranges.

Key words/phrases

Dormice; *Muscardinus avellanarius*; Sweden; density; survival; live trapping; trapping effort; movement patterns; shrub habitat