

**Title:** Breeding by young-of-the-year females in common dormouse (*Muscardinus avellanarius*) populations in Lithuania, *Ann. Zool. Fennici*, 2003

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### **Background to study**

Dormice have a low reproductive rate and are long lived (5-6 yrs) in comparison to other small mammal species. Most dormice species produce one litter per year with the exception of those living in the southern part of their range however common dormice may produce two litters irrespective of their locality. Breeding by young of the year females is infrequently encountered; however it may correlate to favourable food resources and low population density.

### **Method**

- Capture-mark-recapture study of dormice in two isolated forests in Lithuania. Study sites A & B were 60 ha and 85 ha which covered 22% and 17% of total area of forest occupied by dormice. Both sites had extensive hazel understorey but varied in the composition of canopy species.
- 262 and 341 nestboxes were placed at 50 m intervals in a grid and checked monthly from April to October from 1984-1990/1997-2002 (Site A) and 1984-1993 (Site B).
- Encountered individuals were weighed, sexed, uniquely marked and classed as adults if survived hibernation. Independent juveniles were recorded depending on weight and fur and females were considered breeding if with litter present or were encountered pregnant or with nipples.
- Overwinter survival was determined by the proportion spring captures of individuals caught in autumn and spring density by the total overwintered individuals divided by study area.

### **Key results**

- Breeding by young-of-the-year females comprised of 12.7% of all breeding incidences recorded across both sites. These females were born in June and had bred by mid-August-September.
- Average litter size (3.63) was significantly smaller than litter sizes of adult females (mean, 4.09).
- Breeding by young-of-the-year females was statistically more frequent at Site B (19.2%) in comparison to Site A (7.5%) as was the density of early born females (25.3% compared to 8.9%).
- Lower spring population densities and overwintered female density significantly increased the proportion of young-of-the-year females that were recorded breeding that year.
- No statistical difference was found between overwinter survival of young-of-the-year, none breeding and breeding females and the latter had slightly higher survival than adult females who gave birth in August-September. Offspring survival from adults and young-of-the-year was low.

### **Key messages to landowners and managers derived from these results**

- Breeding by young-of-the-year female dormice is likely to be more frequent when populations exhibit low densities of females in spring which provides more available space for new females to establish home ranges and breed. Breeding is likely, however to be effected by extrinsic factors such as food resources and environmental conditions. Providing adequate food resources of diverse successional trees and shrubs at high densities is likely to increase the chances of populations responding to low densities by increasing their reproductive rate.
- More studies are required to investigate breeding in young-of-the-year females in relation to weather patterns to enable future predictions for dormice in the face of climate change

### **Key words/phrases**

Common dormouse; *Muscardinus avellanarius*; Lithuania; young-of-the-year; breeding; litter; density; survival

