Title: Abundance dynamics and reproduction success in the common dormouse, *Muscardinus avellanarius*, populations in Lithuania, *Folia Zool, 2003*

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Background to study

Few long term studies on the population dynamics of the common dormouse have been conducted. There are a number of factors that influence population abundance including breeding success, survival, social organisation and environmental conditions, however to date very few studies have been conducted to establish long term abundance dynamics of the common dormouse. This study aims to determine the influence of reproduction success on longitudinal trends in abundance.

Method

- Capture-mark-recapture study of dormice in two isolated forests in Lithuania. Study sites were 60 ha and 85 ha which covered 22% and 17% of total area of forest occupied by dormice. Both forests had extensive hazel understorey and varied in the species composition of canopy trees.
- 262 and 341 nestboxes were placed at 50 m intervals in a grid and were checked monthly from April to October and twice monthly in May and September. Study was carried out for 9-11 yrs.
- 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.
- The percentage juveniles in autumnal population were used to estimate reproductive success.

Key results

- The average population density in spring was 0.9 ind/ha and 0.6 ind/ha at both sites and 2.8 ind/ha and 2.3 ind/ha in autumn and abundance showed longitudinal stability.
- Higher proportions of juveniles in autumnal populations significantly reduced the abundance of dormice the following spring at one site.
- The proportion of breeding adults had the most influence on reproductive success and this was influenced by population density. Lower spring densities related to a higher proportion of breeding females and often included young of the year, as well as an increase in late breeding incidences. Whereas high spring densities resulted in fewer records of breeding females.
- One instance, where low spring densities did not result in higher reproductive sex occurred and may relate to undetermined extrinsic factors.

Key messages to landowners and managers derived from these results

- Dormice appear to exploit breeding to counteract low densities and reducing breeding output when densities are high. This suggests that dormice abundance is self-regulating and may remain relatively stable, reducing pressure on their genetic composition and population viability. An increase in breeding output is only likely to be achieved in response to resource availability and managing woodlands to provide high diversity of shrub and tree species which provide successional resources throughout the year is advised.

Key words/phrases

Common dormouse; *Muscardinus avellanarius;* Lithuania; population density; breeding; population dynamics