Title: The structure and dynamics of common dormouse (*Muscardinus avellanarius)* populations in Lithuania. *Hystrix, 1995*

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Background to study

Long term empirical studies on common dormice populations are rare across the species distributional range. As such our understanding of the structure and dynamics of populations over time is limited, reducing our ability to identify true declines and direct conservation efforts when required. Data on a <10 year study on dormice populations in Lithuania is presented here.

Method

- Capture-mark-recapture study of dormice using nestboxes within 2 forests in Lithuania. Study sites A & B equated to 22% and 17%, of areas occupied by dormice. Site A consists of mid aged diverse forest with Norway spruce and black alder dominating the canopy. Site B consists of mature oak, spruce and aspen. Both have a hazel understorey.
- Nestboxes were placed every 50 m, at 4/ha and checked once monthly from April-October and twice monthly in May and September. Annual surveys were conducted from 1984 until 1990 and 1993 at Sites A and B respectively. Individuals were weighed, sexed and classed as adults if they had survived hibernation. All adults were marked with rings and juveniles with toe clips.

Key results

- Population density ranged from 0.4-1.5 ind/ha in spring and 0.9-3.8 ind/ha in autumn. Annual variation was small, varying by a maximum factor of 4 at Site B. A larger decrease in autumn density however was observed in 1987 at Site B which followed a long breeding season in 1986.
- Offspring sex ratios ranged from 5:0 to 0:4 in separate litters but did not significantly depart from 1:1 male and female offspring across years. Evidence in 1987 at Site B of female bias offspring when population density is low. Adult sex ratio did not significantly depart from 1:1.
- One year old dormice were dominant across years (67% and 70% at Sites A and B respectively). Two years olds were the second most frequently encountered and four year old dormice were the least encountered. Two animals lived for 5 and 6 years.
- Age structure varied across years and was dependent on the previous year's reproductive success and mortality. Young of the year commonly dominated in autumn (48-85%).
- The proportion of reproductive females ranged from 24% to 83% and increased when population density was low with an exception in 1987 at site B when this was not observed.
- Half of young were born May-July and the remaining in August-September. Average litter sizes were between 3.4 and 4.4 with no significant variation across years.
- High overwinter mortality (70%) was characteristic and was highest when autumnal populations comprised of a higher proportion of young. Higher mortalities reduced spring population size.
- Changes in territorial distributions changed only at low population densities (0.4-0.6 ind/ha).
- Results are comparable to a 7 year study on dormice populations in Moscow.

Key messages to landowners and managers derived from these results

- Dormice self regulate population size and variations in population structure and size vary across years by some degree. When analysing temporal changes in dormouse abundance to identify changes in conservation status, these natural fluctuations need to be accounted for.

Key words/phrases

Muscardinus avellanarius; Lithuania; nest boxes; population dynamics; capture-mark-recapture