

Title: The influence of high nestbox density on the common dormouse (*Muscardinus avellanarius*) population, *Acta Theriologica*, 2005

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Background to study

Studies have found the dormice show a preference to nesting in tree hollows and nestboxes in the UK and where tree standards are absent, the majority of nests are frequently found in nestboxes opposed to natural nests in scrub. As such, the density of dormice is believed to increase in response to the presence of nestboxes due to a suspected influx of immigration and an increase in survival of litters. If this is the case, the layout of nestboxes within an area could influence dormice population size and related parameters and as such could influence future monitoring protocols.

Method

- Capture-mark-recapture study of dormice in 60 ha area of forest in Lithuania which covered 22% of total area of forest occupied by dormice and was delimited by forest edge or rides on all sides. The forest was highly diverse with an extensive hazel and buckthorn understorey and old trees with natural hollows were absent.
- 262/74 nestboxes were placed in 50 x 50 m grid from 1985-1989 forming a control plot of 51 ha. 85 additional nestboxes were put up between 2001 and 2003 in 25 x 25 m grid within the corner of the study site as an 11 ha experimental plot. Boxes were checked twice monthly between May and September.
- Encountered individuals were weighed, sexed, uniquely marked and classed as adults if survived hibernation. Independent juveniles were recorded depending on weight and fur.
- Density was calculated by dividing the number of individuals by each study plot area

Key results

- Dormouse density more than doubled in response to the increased density of nestboxes (2.5 adults/ha compared with 0.8 adults/ha).
- Dormouse density increased in response to increasing nest box density and the number of immigrants was statistically lower in years 2 and 3 compared to the first year.
- Dormouse homerange size decreased by approximately half after additional nestboxes were erected and statistical differences were observed between males and females whose homerange decreased from 0.73 and 0.25 ha to 0.32 to 0.14 ha respectively.
- Nestbox density did not influence the proportion of breeding females, but did influence the number of females producing two litters which was statistically higher in the 25 m x 25 m grid. The number of young-of-the-year females that produced litters was lower in comparison to the 50 m x 50 m grid.

Key messages to landowners and managers derived from these results

- The provision of nestboxes clearly influences the density of dormice occupying an area; however this may only be apparent where natural nest sites such as tree hollows are absent.
- Nestboxes may be a useful tool when displacing dormice to allow management or development works to be undertaken within areas of occupied sites. Individuals from neighbouring woodland appear to immigrate into areas where nestboxes are located; however more detailed work is needed to establish whether dormice actually become absent from the neighbouring area.

Key words/phrases

Common dormouse; *Muscardinus avellanarius*; Lithuania; nest box; density; home range; breeding