

Title: Monitoring and a population study of the common dormouse (*Muscardinus avellanarius*) in Flanders (Belgium). *Peckiana, 2012*

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Background to study

In Flanders the common dormouse is classified as 'threatened' and is protected by the Flemish decree of 2009. Studies in 2003-2006 revealed that the dormouse population in the Eastern Voeren is reduced. Here it is connected to the Dutch population and information on population trends, viability and isolation is required for improving the conservation of dormice in the area.

Method

- Annual nest counts, using 16 transect routes (0.4-3.7km in length) were carried out within forest edges in Eastern Voeren from 2007. Transects carried out twice from September to November. Nest type, status, size, composition, height, host plant and no. and age of dormice, if present, were recorded, alongside any changes in habitat quality. Annual trend indices were calculated.
- A capture, mark, recapture study was conducted within 3 connected forests and 2 railroad verges occupied by dormice, using 156 nest boxes spaced at c. 100 m intervals.
- Nestboxes were erected August 2010 and checked fortnightly to date, from March to December. Weight, sex, reproductive status and fur colour were recorded for captured individuals. Dormice >10 g were PIT tagged and their movements in one forest were additionally monitored using PIT tag registering automatic decoders installed into 6 nest boxes.
- Two hazelnuts were placed in each nest box to monitor their use by other forest species.
- 128 nest tubes erected at c. 100 m intervals were placed along forest edges where dormouse presence was undetermined. These were replaced by nest boxes once dormice were present.
- Hair pluck samples were obtained from captured individuals and from an additional 4 forest areas across Voeren where 10-15 samples, per site were obtained. DNA was extracted and the genetic structure of dormice assessed using microsatellite DNA analysis.

Key results (Preliminary)

- Number of dormouse nests varied annually with habitat quality, peaking in 2011 when 297 nests were recorded. Additional nests were located in surrounding hedgerows during this year. 50 to 60% of nests were along railroad verges and 10-20% were found in Flemish forest reserves.
- Dormice were encountered in 34 independent nest boxes, 12 additional boxes had dormice nests and 16 had hazelnuts gnawed by dormice. New born dormice were found in June and July and young dormice were encountered from September to December.
- 37 dormice were PIT tagged by November 2011, 26 were reencountered within the same next box 2 weeks on, and 7 utilised the same box for <2 months.
- Distance moved varied between 40 and 165 m and automatic decoders registered 2 dormice making multiple visits to nestboxes 50 m away in April and a single dormice travelled 360 m over railroad bridge (12 m) or a road (8 m) and a forest track (3 m) to another nest box in one night.
- Preliminary genetic results using 70 hair samples suggest 2 genetic clusters with low gene flow between groups of forest separated by >700 m.

Key messages to landowners and managers derived from these results

- Monitoring dormice nests and habitat quality using replicated transect routes provide a useful measure for determining the effects of management on the suitability of sites for dormice.
- Railroad verges provide suitable habitat for dormice and should be managed accordingly.

- Hedgerows provide a valuable dispersal route for dormice when population densities are high and woodland gaps <12 m may not present a barrier for movement.
- Woodlands separated by >700m can isolate dormice populations. Connectivity between woodlands is recommended by planting and/or maintaining hedgerows between isolated sites.

Key words/phrases

Dormice; *Muscardinus avellanarius*; nest counts; trend index; capture-mark-recapture; microsatellite DNA