Title: Analysis of the hazel dormouse, *Muscardinus avellanarius*, distribution in a Mediterranean fragmented woodland, *Italian Journal of Zoology, 2002*

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Background to study
Research suggests that dormice have a low dispersal ability and low reproductive output making them vulnerable to woodland fragmentation. Surveys in the UK have found habitat fragmentation to have a detrimental impact on hazel dormouse populations, however very little is known about its effects on populations within Mediterranean ecosystems.

Method
- 38 woodlots within 6 pre-specified size classes ranging from 1 ha to >48 ha were surveyed for dormouse presence using hair tubes and dormouse nest searches in 1995.
- A total of 30 hair tubes, baited with hazel cream and apples and lined with sticky fly paper were placed between 1.5-2.5 m above ground on trees and shrubs along 5, 25 x 4 m transects within each woodlot. Tubes were left in situ for 2 months between August/September and November.
- Searches for dormouse nests were conducted for 0.5 hrs along each transect per woodlot.
- Woodlot area, % of residual forested habitat within 10 km^2 of woodlot and number of fencerows radiating from woodlot were recorded, alongside management type and grazing pressure. Habitat variables along each transect were also recorded including floristic diversity, tree diameter and height, number of vegetation strata and vegetation density.

Key results
- Hair-tubing identified the presence of dormice in 26 woodlots and nest-searches yielded presence in 14. Failure to identify presence using nest-searches related to sites which had a lower shrub density and higher tree height where nest sites were likely to be out of visible range.
- Grazing significantly reduced the incidence of dormice in woodlots, whilst woodlots with a 4 m vegetation layer positively influenced the presence of dormice
- Dormice were more likely to be found in woodlots, managed on rotation and as coppice rather than high forest however these factors were not significant and absence in high forests related to intensity of management rather than habitat type.
- Dormice did not show any specific preference to woodlots with different tree assemblages, however they were absent from woodlots dominated by cork-oak stands.
- All sizes of woodlots if well connected by hedgerows had a higher probability of finding dormice.

Key messages to landowners and managers derived from these results
- Nest searches are an inadequate method when solely applied to assess the presence of dormice in woodlands. Hair capture tubes provide an alternative technique but are subject to bi-catch.
- Intensive grazing of woodland reduces its suitability for dormice as it causes gaps in the understorey, reducing the availability of food, cover and suitable nest sites. Intensive grazing should not be carried out in woodlands with dormice or woodlands connected by hedgerows to occupied sites as dormice are likely to disperse between fragments.
- Maintain and/or establish diverse 4 m woodland understorey to increase suitability for dormice.
- When managing woodland fragments for dormice it is important to maintain connectivity between patches by planting /conserving hedgerows to provide safe dispersal routes.

Key words/phrases

Hazel dormouse; *Muscardinus avellanarius;* Italy; hair tubes; nest; woodland grazing; habitat fragmentation