

Title: Isolation and characterisation of 10 microsatellite loci in the common dormouse *Muscardinus avellanarius*. *Molecular Ecology Resources*, 2009

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Background to study

In Britain, the widespread loss of native woodland has caused a dramatic decline in the common dormouse and the species is now threatened by isolation and habitat fragmentation. Microsatellites are a useful tool for determining the genetic variation and dispersal between populations.

Method

- Genetic samples were obtained from tail clips of 3 dormice that died of natural causes and DNA was extracted using a high salt method, enriched and purified using a standard kit.
- Microsatellite loci, which are short repeat motifs within non-coding regions of DNA, were identified and those which showed a high variation between individuals were retained.
- The unique flanking regions located before and after the microsatellite loci and are consistent for the species were identified and developed into 'primers' allowing the DNA of dormice to be amplified at the region of interest to enable genetic differences and similarities between individuals and populations to be obtained.

Key results

- 10 microsatellite loci were identified as variable to enable genetic structuring of dormouse populations to be established.
- The mean observed and expected diversity (if populations were randomly mating) was calculated for each microsatellite loci. Results indicated that approximately 70% of individuals had two different alleles showing the inheritance of distinct genes from both parents and subsequent diversity. There was no statistical difference between the expected and observed diversity suggesting, for the purpose of primer design, all 10 primers performed adequately to detect the population structure of dormice.

Key messages to landowners and managers derived from these results

- The development of microsatellite markers for dormice is a useful tool for establishing if populations are small, spatially isolated, dispersing or inbreeding and can establish genetically distinct populations which may be locally adapted to their environment. Advice can be provided from organisations such as the Peoples Trust for Endangered Species if genetic research may be beneficial locally and regionally.

Key words/phrases

Dormice; *Muscardinus avellanarius*; microsatellites; genetic diversity; dispersal