

Developing an environmental DNA protocol for Hazel Dormouse surveys

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Abstract

Recording Hazel Dormouse (*Muscardinus avellanarius*) presence allows conservation and mitigation efforts to be effectively directed towards populated sites. As it is a protected species, licences are required for survey methods which disturb the animals or their habitat. Therefore, reliable low disturbance survey techniques are desirable.

In this study, we tested the potential of detecting environmental DNA (eDNA) from soil as a survey method for dormice. Firstly, we designed species-specific primers and the associated PCR protocol using tissue samples from Hazel Dormice. To ensure specificity, we also checked the protocol against tissue samples from non-target species. Next, we collected soil samples from occupied sites in England to test the methodology with environmental samples. This included testing site-level heterogeneity of dormouse DNA distribution and localised level DNA distribution surrounding occupied nest boxes. Finally, we tested the soil for DNA presence changes over time, after removal from the site.

Using eDNA for dormouse surveys is promising. Our results indicate that a usable survey methodology can be developed, providing a relatively low cost and time-efficient tool when compared to existing dormouse survey methods. Future work should aim to further understand the changes of dormouse eDNA through time. Through identifying populated sites, eDNA could support mitigation projects and help to direct dormouse conservation efforts.

Keywords

environmental DNA; Hazel Dormouse; surveys; monitoring

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Conflicts of interest