

eDNA and ultrasound as alternatives to traditional monitoring techniques of hazel dormouse

Introduction

Hazel dormouse is a small, nocturnal mammal and the only dormouse species that occurs naturally in Denmark. It's protected by EU law and is listed as endangered on the Danish Red List. Because of this, it's important to know where the species is present, so that human activities do not harm its populations or destroy its habitats.

The purpose of this project is to test new and efficient ways of monitoring the hazel dormouse. Today, monitoring mainly relies on searching for nests in vegetation and in special nest tubes. This method takes a long time, must be carried out over several months, and depends heavily on the experience of the person doing the survey. In addition, hazel dormouse nests can be difficult to recognise and may be confused with nests from other small animals. As the species is rare and hard to detect, there is a risk that it may be present even when it's not found.

Methods

The project will be carried out in Southern Funen, in an area where hazel dormice are already known to live. Fieldwork will take place during the active season of the species, especially during the mating period, when the animals are most active and easier to detect.

Two new monitoring methods will be tested. The first method uses ultrasound detectors, which are commonly used to monitor bats. Hazel dormice also produce ultrasonic sounds, especially when males produce mating calls during breeding season. By placing detectors in the area, it may be possible to record these sounds and confirm the presence of the species. The second method involves collecting eDNA from the air. Special devices will collect air samples at night, and the samples will later be analysed in a laboratory to identify if hazel dormice are present in the area.

Purpose

The reason for testing these methods is to improve the quality and efficiency of hazel dormouse monitoring. If successful, the methods could reduce the amount of manual fieldwork and limit observer bias, while providing more reliable results.

In the long term, the project could lead to a new standardised way of monitoring hazel dormouse populations across Denmark. This would make it easier to protect the species and to plan construction and land-use projects responsibly. The methods could also be adapted to monitor other protected species in the future.