Relationships between climate variables, seed production and reproduction of the Edible Dormouse (*Glis glis*) in mixed oak forests of the Iberian Peninsula

Carme Bartrina[‡], Daniel Oro[§], Sílvia Míguez[‡], Lídia Freixas[‡]

‡ Natural Science Museum of Granollers, Granollers, Spain
§ Centre d'Estudis Avançats de Blanes (CEAB-CSIC), Blanes, Spain

Corresponding author: Carme Bartrina (cbartrina@mcng.cat)

Abstract

The Edible Dormouse (*Glis glis*) is a small arboreal mammal that lives in deciduous forests in much of Europe, the Iberian Peninsula being one of the southern limits of its distribution. Some studies have shown that this species uses the strategy of anticipatory reproduction, which means that it adapts its reproductive effort to seed production, such as beech mast and acorns, which varies greatly from year to year. The Edible Dormouse anticipates future seed availability of the coming autumn and modulates its reproductive effort, as beech mast and acorns are a crucial resource for the young to survive their first hibernation.

This work aims to determine the correlations between annual variations in climate and seed production, and their effect on Edible Dormouse reproduction using 9 years of data (2012–2020) in two natural parks in Catalonia (Montseny and Montnegre-Corredor). These are located at the southernmost limit of the distribution of this species in the Iberian Peninsula. The results show that the productivity of Beech trees (*Fagus sylvatica*) is conditioned by local meteorological conditions and pollen availability, and that the acorn production by oak trees (*Quercus sp.*) is also affected by local meteorological conditions, but not by pollen availability. Additionally, breeding by the Edible Dormouse in Montseny has shown high synchrony with acorn production and that the presence of beech seeds increases the number of offspring per female. These results encourage us to conduct future studies to predict how Edible Dormouse populations will be impacted by climate change.

Keywords

seed production, climate, Edible Dormouse, Iberian Peninsula

Presenting author

Carme Bartrina

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