Title: Trophic habits of *Muscardinus avellanarius*, (Mammalia Gliridae) as revealed by multiple stable isotope analysis, *Ethology Ecology & Evolution, 2007*

Author: M Sara and G Sara

Country: Sicily

Background to study

It is widely accepted that common dormice rely primarily on vegetal organic matter, however a number of studies have reported dormice consuming food of animal origin, namely insects, nestlings and birds eggs. The role of nestlings and birds eggs in the common dormouse diet is largely unresolved as most records are from artificial nest boxes which are utilised by birds, dormice and other woodland dwelling mammals. Insights into the composition of organic and animal matter in the common dormice diet would help understand the role and impact dormice have at different trophic levels within the woodland environment.

Method

- Nest boxes were positioned within four 1 ha grid areas among holly forest comprised of evergreen species and deciduous oaks in northern Sicily. The canopy coverage of tree species surrounding each nest box (20 m x 20 m) was recorded.
- The remains of deceased dormice, dead birds (*Parus spp*) and eggs found within the nest boxes were collected alongside 10 forms of organic matter (leaves, flowers, acorns) that potentially contribute to the diet of resident dormice due to their occurrence within sampled plots. The concentration of isotopes (such as carbon or nitrogen elements) found in the food sources obtained were compared to the concentrations found within dormouse tissue to investigate the relative contributions of different animal and plant matter in the diet of dormice.

Key results

- Dormice fed primarily on vegetation and exploited dominant and seasonally available foods including flowers from beech *(F. sylvatica)*, hawthorn *(C. oxyacantha)* and oak *(Q. Robur)* in spring and berries from holly *(I. aquifolium)* and acorns from oak in autumn.
- Dormice showed a particular preference for soft mast and utilised these trees in a significantly different proportion to their percentage cover.
- Dormice did consume birds eggs but to a lesser extent than vegetation. Eggs were an important source during spring and consisted of the majority of food transferred to lactating juveniles.

Key messages to landowners and managers derived from these results

- Establishing and/or maintaining high species diversity of soft and hard mast trees and shrubs is important in providing suitable food resources for dormice throughout their activity season.
- Dormice may compete with birds for nesting sites and result in nest failures for bird species occupying the same woodland patch. Increasing nest box density for monitoring purposes may increase the number of bird nest failures and therefore should be a consideration when managing woodlands for both dormice and rarer bird species.
- Competition for nest boxes is likely to increase in sub-optimal habitats where soft mast producing species are less abundant and during years when fruit productivity is poor due to weather conditions. Increasing tree and shrub species diversity and density of tree and shrub species may help to minimize the impact dormice may have on bird abundance.

Key words/phrases

- Dormice; *Muscardinus avellanarius;* Sicily; stable isotope analysis; Purus spp; organic matter; animal matter; eggs; trophic habits; soft mast; hard mast