## **Population Dynamics – Session 2**

# Small mammals in montane forests: not where, but when? Ana Maria Benedek, Ioan Sîrbu

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Community dynamics is a well documented topic concerning the ecology of small mammals, but very few studies have focused simultaneously on its temporal and elevational patterns. Here we report the multiannual dynamics of small mammal communities along an elevational gradient in relation to the habitat characteristics. During a five-year faunistical inventory in Retezat National Park, Romania we live-trapped small mammals in different forested and shrubby habitats at elevations between 770 m and 2,080 m. Because small mammal communities in mountains face more severe climatical and habitat- related limiting factors, we hypothesized that: 1. these communities undergo significant year-to-year changes; 2. elevation interferes with the patterns of community dynamics; 3. the effect of habitat selection is eclipsed by the temporal changes. We used ANOVA and partial constrained multivariate analysis with habitat factors, year, elevation, and their interaction as predictors and trapping site as covariate. All community metrics differed significantly among years. Species composition was predicted not only by year but also by its interaction with elevation, but not by elevation itself. The elevational pattern of the community dynamics shifted direction each year. The dominant rodent species, Myodes glareolus and Apodemus flavicollis showed opposite patterns, possibly as a strategy to avoid competition. Overall, their abundances were negatively correlated. Moisture, human disturbance and proportion of the conifers in the canopy were best predictors of species composition, but the variation explained was lower than that caused by the yearly changes. Human impact on montane habitats is currently increasing because of forest exploitation and the global warming will lead to decreased moisture and cover of conifers. Thus, the further study of the interaction of these habitat changes with the time is important in order to understand and predict their synergistic effects on small mammal communities, their mechanisms and consequences.

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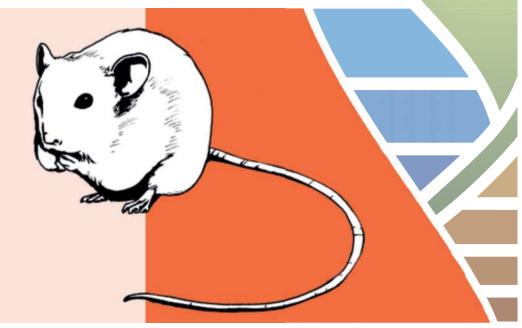
Jens Jacob, Jana Eccard (Editors)

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