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RESPONSES OF SMALL MAMMAL COMMUNITIES TO ENVIRONMENT AND AGRICULTURE IN A RURAL MOSAIC LANDSCAPE

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ABSTRACT

Intensification of agriculture is an increasing threat for biodiversity. Central Romania still preserves a traditional rural landscape with a matrix of small plots of crops and large surfaces covered by grasslands and forests, but its biodiversity is very poorly studied. Small mammals are key components of agrarian and semi-natural ecosystems but rodents are also viewed as major pests. Knowledge of the driving factors of small mammal communities in agricultural landscapes may enable taking management measures that pursue both conservation and economic goals. Here we evaluate the response of small mammals to environmental variables, including vegetation characteristics, land use and geographic position. We conducted live trapping between June and October in habitats with different environmental characteristics and land uses. We found that vegetation traits were the most important factors influencing small mammal communities. Species composition was shaped mainly by tree cover, shrub cover had strong effects on community diversity and abundance, while the height of the herbaceous layer significantly influenced all the parameters. Among the agrarian land uses maize crops stood out for the abundance of mice, especially *Mus musculus*, and hayfields for *Microtus arvalis*. Land fallowing was linked to the increase of diversity and total abundance to the maximum values but did not significantly alter species composition. Species with low tolerance to tree cover were more prone to be abundant in agricultural lands, whereas the habitat generalists prevailed in non-agrarian lands. Our results suggest that preservation of the mosaic of farmed and semi-natural habitats and actions targeted for vegetation management, such as interspersing woody vegetation in the crop matrix and mowing

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