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Abstract

Small Mammal Diversity and Abundance in Commercial Orchards in Relation to Habitat and Agricultural Factors †

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Abstract: The diversity of small mammal communities (SMCs) shows the sustainability of habitats, especially agricultural ones. Gathered over three years, data from 18 sites in Lithuania were used to analyse factors related to several dependent parameters, namely, diversity (Shannon's H, dominance index and number of species trapped); the relative abundance of species in SMCs; and the abundances and proportions of the four most numerous species, specifically common vole, striped field mouse, yellow-necked mouse and bank vole. Using the General Linear Model, we assessed the influence of habitat type (commercial orchards, berry plantations, control meadows and control forests with at least two of these present at every investigation site), age of the orchard or plantation, intensity of agriculture, season and location (central, northern, eastern, southern and western parts of the country). To control temporal data variability, the year was used as a continuous predictor. The model was valid, and explained 14–31% of the listed parameters with $p < 0.005$ or higher, with the exception of the dominance index and the proportion of the common vole. The time factor (year and season, $p < 0.001$), intensity of agriculture and site location ($p < 0.05$) had the highest influences on the model, while those of the habitat type and its age were not significant. Univariate results suggest that old commercial orchards with low intensities of agricultural practice play a role in maintaining the diversity and abundance of SMCs.

Keywords: common vole; striped field mouse; yellow-necked mouse; bank vole; community; diversity indices; orchards; berry plantations

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