

Abstract

The topography of the Milešov part of the České středohoří Mts represents a suitable model for study of spatial distribution of diversity and the effects of ecological factors on species diversity and composition. Near-natural forest vegetation was sampled at eleven hills by stratified-randomly sited relevés. Soil samples were collected in relevés at nine hills also. The soil samples were used for maximal capillary capability, pH, carbon and nitrogen volume analyses. These ecological factors, as well as tree cover, altitude and *heat load index*, were used for examination of the correlation of ecological factors with diversity, species richness and species composition. Positive relationship between species richness and *heat load index* and soil reaction was identified. Species diversity (Shannon index) positively correlates with soil reaction also. After partialling out geographic components in the samples, a significant correlation between the *heat load index*, tree cover and altitude and species composition of the herb and shrub layer was found. Values of alpha and beta components were rated using partitioning of diversity to alpha and beta components at four levels (relevé - aspect - hill - landscape). The beta component at the aspect level and the beta component at the hill level were significant higher compared to expected values. The alpha component at the aspect level and the alpha component at the hill level were significant lower compared to expected values. The results of the thesis document the unique character of the vegetation of each hill in the landscape of the České středohoří Mts.