

ECOLOGICAL AND FLORISTIC DIFFERENCES OF TWO TYPES OF BROAD-LEAVED FOREST COMMUNITIES ON THE MIDDLE-RUSSIAN UPLAND

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Abstract. *Background.* The purpose of this article is to demonstrate the floristic and ecological differences between the two types of forest vegetation in the forest-steppe part of the Central Russian Upland. Ecological and floristic differentiation of the types of forest communities (mesophytic and xeromesophytic) is necessary when carrying out botanical-geographical zoning, as well as when updating the general classification systems of Eastern Europe. *Materials and methods.* The research was carried out on the example of forests located on the territory of the State Museum-Reserve "Kulikovo Pole" (Tula Region, Russia). To demonstrate the ecological and floristic differences between the two studied types of forests, indicators of species richness were analyzed. The comparison of the heterogeneity of the floristic composition by the spectral method is carried out. The diversity of ecological regimes of habitats was revealed using H. Ellenberg's scales. The differentiation factors of syntaxa were determined by the method of DCA. The possible influence of the leading ecological factors on the species richness of communities was analyzed by the method of regression analysis. *Results.* Under mesophytic conditions, communities of the ass. **Fraxino-Quercetum**, which are confined to leveled areas of watersheds and are characteristic of moderately moist and nitrogen-supplied neutral soils. In xeromesophytic conditions, in river valleys and on gullies, on carbonate substrates, often with close bedding or outcropping of limestones, communities of ass. **Lathyro-Quercetum** are formed. The ecological specificity of the biotopes of the established associations is the reason for their differences in species composition. The main factors of differentiation of communities of the ass. **Lathyro-Quercetum** are light and temperature, and for the ass. **Fraxino-Quercetum** – soil moisture and mineral nitrogen richness. The species richness of communities increases with an increase in light under the forest canopy, values of the temperature and soil reaction; decreases with an increase in soil moisture and its richness in mineral nitrogen. The most obvious statistically significant relationship was found between the species richness and the soil richness of mineral nitrogen. *Conclusions.* In the Central Russian forest-steppe, there are two types of forest communities that are well differentiated in terms of ecological and floristic characteristics, which can be conditionally attributed to the groups of mesophytic and xeromesophytic forests. The differences in the floristic composition, the spectra of ecobiomorphs, geoelements and polyzonal groups, phytosociological spectra, as well as the DCA described above, make it possible to interpret the established classification units as different associations with a set of units of a lower rank.

Keywords: forest vegetation, ecological factors, Forest-Steppe zone, Middle-Russian Upland

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