FORS²D

FORESTRY SCIENCE FOR SUSTAINABLE DEVELOPMENT

BOOK OF ABSTRACTS

"Perspectives of forestry and related sectors as drivers of sustainable development in the post-Covid era"

Banja Luka, the Republic of Srpska / Bosnia and Herzegovina
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CHANGED FLORISTIC COMPOSITION AND PLANT DIVERSITY DUE TO THE SUBSTITUTION OF CONIFEROUS CULTURES FOR HUNGARIAN OAK-TURKEY OAK FORESTS (*QUERCETUM FRAINETTO-CERRIDIS* RUDSKI 1949.)

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ABSTRACT

The selection of tree species in forest management can have long-term economic and environmental consequences. If we replace an autochthonous forest with a new tree species, we change site conditions, which entails changes affecting edaphic and hydrological conditions as well as the light regime. They are directly or indirectly reflected in plant species. In most cases, the changes affect the floristic composition and diversity of plants. This research aimed to determine how the introduction of some coniferous species affected the floristic composition and diversity parameters (species richness and *Shannon-Wiener* diversity index) of artificially-established stands in the protected area of Kosmaj (Serbia).

The research included four artificially-established stands of different coniferous species: a) Norway spruce (*Picea abies*), Atlas cedar (*Cedrus atlantica*) and Douglas fir (*Pseudotsuga menziesii*); b) Douglas fir (*Pseudotsuga menziesii*); c) Austrian pine (*Pinus nigra*); d) Austrian and Scots pine (*Pinus nigra, Pinus sylvestris*). The stands are located at altitudes of 360 to 462 m, with different aspects and slopes ranging from 11 to 19º. They all grow on eutric cambisol overlying a flysch bedrock.

The largest total number of species was registered in the artificially-established stand of Norway spruce, cedar and Douglas fir (41). The highest Shannon-Wiener diversity index was found in the artificially-established Douglas fir stand (3.22) and the lowest in the pine stands (2.95-2.97). Cluster analysis showed that the highest degree of floristic similarity (above 40%) was in the artificially-established stands of Austrian pine (*Pinus nigra*) and of Austrian and Scots pines (*Pinus nigra, Pinus sylvestris*).

Key words: Substitution, floristic diversity, conifers, Kosmaj

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