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Abstract

Old-growth forests: An ecosystem approach

Stand dynamics of Dinaric old-growth forest in Slovenia: Are indirect human influences relevant?

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Abstract:

Understanding forest stand structural change is crucial for forest ecosystem research and management. The aim of our research was to identify structural and compositional changes and possible natural and anthropogenic causes of these changes in an old-growth silver fir-beech forest in the Dinaric mountains of Slovenia. Data on stand structure of the Rajhenavski Rog (51.14 ha) forest reserve originated from traditional methods, including five successive full callipering (1957-2007), two regeneration inventories and analysis of developmental phases (1984, 2007). A drastic decrease in the silver fir proportion in the last 50 years was probably caused by two indirect anthropogenic factors: polluted air and heavy browsing damage of silver fir regeneration. Nevertheless, other factors including reciprocal replacement of fir and beech and climate change also influenced the species composition, as similar processes were documented in the past with less air pollution. Furthermore, the alternation of fir and beech often developed asynchronously, regardless of ungulate density. Although the vertical profile of the old-growth forest was opened due to the loss of fir trees during past decades, the establishment of more light-demanding species was uncommon, primarily because the growing stock and forest climate were sustained. The results suggest a high stability of mixed Dinaric old-growth

forest ecosystems.

forest management

forest structure: stand

forest stand structure: community structure

climate: microclimate, climate of stand

game ecology

Notes

Abies alba Mill., *Fagus sylvatica* L., old-growth forest, reciprocal replacement, species coexistence, structural changes

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