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Összefoglalás

Old-growth forests: An ecosystem approach
Stand characteristics and biodiversity indicators along the productivity gradient in boreal forests: Defining a critical set of indicators for the monitoring of habitat nature quality
J. Liira & K. Kohv

Abstract:
We quantified the effects of anthropogenic disturbances on the structure and biodiversity of boreal forests on acidic soils and created a statistically supported rational set of indicators to monitor the stand "naturalness". For that, we surveyed various traits of tree layer, understory, herb layer, forest floor and several widely accepted biodiversity epiphytic indicators in 252 old-aged boreal stands in Estonia, mostly dominated by Scots pine or Norway spruce. Multifactorial general linear model analyses showed that many forest characteristics and potential indicators were confounded by the gradient of soil productivity (reflected by the forest site type), local biogeographic gradients and also by stand age. Considering confounding effects, boreal forests in a near-natural state have more large-diameter trees (diameter at breast height > 40 cm) and larger variety of diameter classes, higher proportion of spruce of deciduous trees, a larger amount of coarse woody debris in various stages, a more closed

tree canopy and denser understory than managed mature forests. By increasing light availability above the field layer, forest management indirectly increases the coverage of herbs and lichens on the forest floor but reduces the alpha- and beta-diversity of herbs and the proportion of graminoids. Human disturbances reduce the relative incidence of many commonly accepted biodiversity indicators such as indicator lichensl, woodpeckers, wooddwelling insects or fungi on trees. The test for the predictive power of characteristics reacting on disturbance revealed that only a fraction of them appeared to be included in a diagnostic easy-to-apply set of indicators to assess the nature quality of boreal forest: the amount of dead wood, the proportion of deciduous trees, the presence of specially shaped trees and woodpeckers and, as an indicator of disturbances, the forest herb Melampyrum pratensis. Many of these indicators have already been implemented in practice.

biodiverzitás
erdőszerkezet: faállomány
erdőszerkezet: gyepszint
holtfa
módszertan: felmérés, monitorozás
ökoszisztéma: bolygatás, zavarás, szennyezés
Megjegyzések

Anthropogenic disturbance, biodiversity indicators, conservation value, dead wood, habitat quality, monitoring, old-growth forest, stand structure

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