Development of species composition in long term simulations with an individual-tree growth simulator

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The spruce-fir-beech dominated forest stands in Litschau in the Austrian part of the Bohemian Massif were converted by former forest management practices into pure Norway spruce stands and are now discussed to be reconverted into the potential natural vegetation type. The targeted potential natural vegetation type is usually defined by experts in vegetation sciences. Because meanwhile individual-tree growth simulators are a well acknowledged tool for predicting future forest stand development, in this study we investigate if PROGNAUS can also be used to predict the redevelopment of managed forest ecosystems into natural forest ecosystems regarding species composition. The development of 23 stands in Litschau has been simulated over 1,000 years under the "no-management" option. Generally, the simulated species distribution agrees quite well with the expectations of the potential natural vegetation type. However, the predicted amounts of silver fir and maple species are lower than expected, which probably is due to browsing and management effects represented in the parameterization data for PROGNAUS.

Keywords:

individual-tree growth model; potential natural vegetation type; forest stand development; species distribution

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