

PROJECT INFORMATION

Project title: Evidence-based cultivation recommendations under climate change (EVA)

Project ID: 245

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PROJECT DESCRIPTION

In forest management, a complex decision process precedes the choice of species. This choice is even more complicated in the face of climate change, when increasing tree species diversity and species' adaptation to altering conditions are crucial to counteract anticipated effects. EVA aims to provide foresters with a databased guidance facilitating decision-making by answering the central question of species' adaptability to warming and increasing summer drought.

Analyses of four essential characteristics, (1) cultivation risk, (2) growth performance, (3) provenance and (4) plasticity will enable us to adduce a cultivation index. The methods will comprise both modelling approaches and experiments, accompanied by climate projections to account for changing conditions. Species distribution models and growth models allow the assessment of occurrence and growth, respectively. Field experiments will show findings regarding provenience and plasticity. According to data availability for each respective method, approximately 30 tree species including dominant, rare native and non-native species, will be analysed in total for all of which species distribution models are executed. Growth models cover about 20-25 species based on international inventories and state forest management data. Origin of species will be analysed depending on sufficient availability of provenance trials data (presumably 10-12 tree species; dominant tree species and economically important non-native species). The studies of plasticity will be conducted for seven dominant tree species, while two species (Scots pine and Pedunculate oak) will be examined particularly intensely, however the transferability to other species will also be tested.

The results of this project are a prerequisite for optimal future forest management. We will provide maps based on the introduced cultivation index as useful tool for foresters to assess the cultivation potential of important native and non-native species. Furthermore, our results will complement respective information systems and where applicable, enable setting up decision support systems.

To being able to depict full-scale variation among parameters determining species distribution ranges and growth limiting factors, we require European tree, climate and soil data. We are confident that the ICP Forests Level II data are an important asset for the quality and validity of our results.

EVA is a collaborative project of the following partners: (1) Bavarian State Institute of Forestry, Freising, (2) State Forest Mecklenburg-Western Pomerania, Schwerin, (3) University of Greifswald, Institute of Botany and Landscape Ecology and the (4) Federal Research and Training Centre for Forests, Natural Hazards and Landscape, Vienna. The project was funded by the FNR within the program Waldklimafonds initiated by the Federal Ministry of Food and Agriculture (BMEL) and Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU).