

MOTIVE: Models of Adaptive Forest Management

The project MODEls for AdapTIVE forest management (MOTIVE) is a large-scale integrated project in the 7th Framework Programme of the EU that develops tools to support decision-making in forestry in response to climate and land use change. The project focuses on a wide range of European forest types under different intensities of forest management. The development of adaptive forest management strategies under climate change is a key challenge for sustainable resource management in Europe.

Project objectives

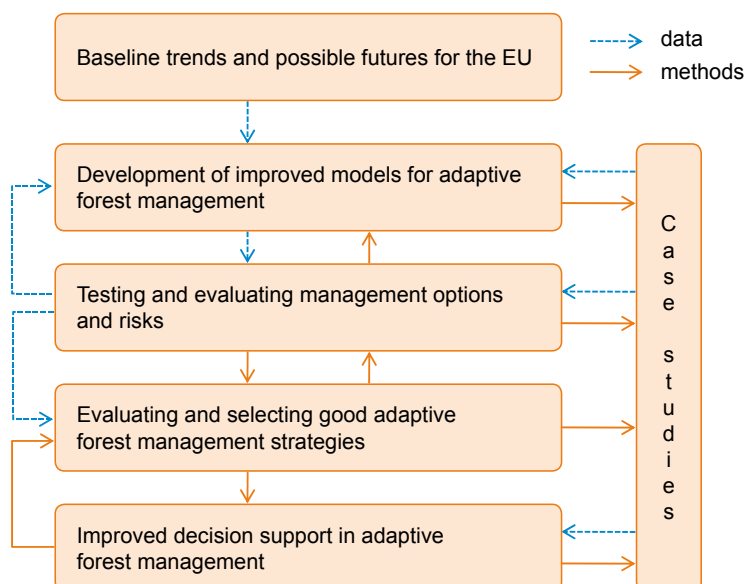
The ultimate objective is to provide insights, data and tools to improve policymaking and adaptive forest resource management. To facilitate this, an integrated assessment of forest management strategies is needed simultaneously considering multiple ecosystem goods and services. By adopting a regional case study approach, the project will consider a wide range of climatic and socio-economic conditions across Europe. In addition, the influence of feedback loops from socio-economy and policy making on resource management will be included in the MOTIVE tools for adaptive resource management. All scientific state of the art knowledge about expected climate change impacts will be translated into decision support tools for policy makers and forest practitioners taking into account uncertainties around exogenous factors, such as climate or markets.

Methodology

European forests are diverse: each region features different tree species, ecological conditions, management goals, risks, and required goods and services by society. The vulnerability of forestry to climate change under current management must be assessed, and it is vital that suitable adaptive management strategies are developed for the different regions in Europe. MOTIVE works with case studies representing major European forest types where generally valid process based models, as well as mainly regional empirical models, will be applied. The regional differences in adaptive forest management strategies will be upscaled to the European level using a large scale forest scenario model which will integrate region-specific management in simplified yet consistent form.

As MOTIVE is developing tools to support decision-making in adaptive forest management, it is essential that all relevant stakeholders are consulted and involved throughout the whole project. A key feature is the development of stakeholder panels in each case study region to ensure that the adaptive tools are robust and relevant across a range of different contexts. New methods for handling risks and uncertainties as well as socio-economic evaluation methods will be integrated into the adaptive management decision making.

Information flows in MOTIVE



MOTIVE case studies

Bioclimatic zone	Location of case regions
Boreal	Finland, Sweden
Temperate Atlantic	Wales, Netherlands
Temperate Central	Germany, Switzerland
Mediterranean	Catalonia, Portugal
Continental	Bulgaria, Romania
European	

All cases have some aspects in common such as the assessment of impacts of climate change on forest growth and competition. In addition, each of them addresses specific risks or management concerns (e.g. forest fires, coppice management, protection from natural hazards, optimized biomass production, or nature conservation).

Main results achieved so far

Through application of regionally available models, MOTIVE is able to capture the complex impacts and adaptation options. The first simulations of adaptive management strategies highlight the need for a clear definition of site-specific forest management goals and an understanding of how the management actions today will impact future forest development and the provision of ecosystem goods and services. A major goal of the MOTIVE toolbox for adaptive forest management is to deliver practical tools for the assessment of these ecosystem services and their management. To this end an ecosystem service assessment tool was developed to assist forest managers. It supports the communication with stakeholders by visualising the effects of management and climate change on the provision of ecosystem services. On site discussions and planning meetings with forest managers are efficiently supported by the tool.

MOTIVE investigates how forest owners relate to the current climate change debate, both in terms of their stated attitudes and actions. To achieve this, a survey was implemented among forest owners in MOTIVE case study areas. Preliminary results indicate substantial differences in attitudes between forest owners. A conceptual framework for decision making approaches was developed which enables MOTIVE to evaluate decisions from business-as-usual, over reactive, to a trend adaptive or a fully forward looking adaptive decision-making process.

Project partners

Alterra Wageningen UR, NL
 Albert Ludwigs Universität Freiburg, DE
 University of Natural Resources and Applied Life Sciences, AT
 Center for Ecological Research and Forestry Applications, ES
 European Forest Institute, including Mediterranean Regional Office – EFIMED
 Swiss Federal Institute of Technology, CH
 FORECO Technologies, ES
 Forest Research, GB
 Forest Research Institute of Baden-Württemberg, DE
 Institute of Forest Ecosystem Research, CZ
 French National Institute for Agriculture Research, FR
 Technical University of Lisboa, PT
 PENSOFT Publishers Ltd, BG
 Potsdam Institute for Climate Impact Research, DE
 Swedish University of Agricultural Sciences, SE
 University of Copenhagen, Forest and Landscape, DK
 University of Forestry, Sofia, BG
 University of Eastern Finland, FI
 University Stefan Cel Mare, Suceava, RO
 Swiss Federal Research Institute, CH

MOTIVE is a project that encompasses 20 partners from 14 European countries. It has an overall budget of almost 9 million euros, from which 7 million will be paid as EU contribution. The project is coordinated by the Forest Research Institute of Baden-Württemberg with duration of 4 years. The project is ongoing until May 2013.



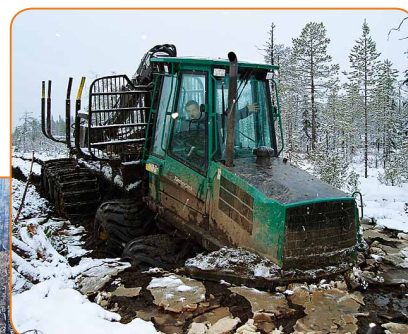
Rupert Seidl

Insect damages will increase e.g. in Central European Norway spruce forests.



Michalis Palis / Fotolia.com

Drought and subsequent forest fires are major threats in the Mediterranean region.



North Karelia College, Valtimo, Finland

Non-frozen soils in the winter complicate timber harvesting in the North.