



Title	Acronym	Topic	Starting Date	Coordinator
Forest density reduction to minimize the vulnerability of Norway spruce and silver fir to extreme drought – a risk assessment	ForRISK	Risk resilient forest management - Adapting forest management regimes which incorporate risk assessment related to potential climate change impacts to inform policy decisions.	1/03/2017	Forest Dynamics Swiss Federal Research Institute WSL (Switzerland): Andreas Rigling; andreas.rigling@wsl.ch ; Tel: 0041 44739 2593

Project Partner
University of Freiburg (Germany) INRA – French National Institute for Agricultural Research (France)

Project Abstract:

Severe droughts are predicted to increase in intensity and frequency, leading to unprecedented ecological and economic risks for forest health and productivity. There is an urgent need to adapt forest management to the anticipated uncertain future climatic conditions to limit impacts for ecosystems and economy. Such adaptation plans hinge on a deep understanding of the complex mechanisms regulating forest ecosystem responses, including tree mortality related to drought.

We will examine the interactive effects of drought and tree population density on the resistance and resilience of tree growth, and the ecophysiological mechanisms contributing to the drought response of Norway spruce (*Picea abies*) and silver fir (*Abies alba*), two keystone species for European forestry. The results will serve as input for economic risk assessments of these two tree species under different management and climate-change scenarios. We will implement a novel and interdisciplinary research approach by combining growth and yield analyses, dendrochronology, and ecophysiological mechanistic modelling, converging into an economic risk assessment at different spatial (tree- to regional-level) and temporal (intra-annual to decadal) scales. The study will take advantage of a large dataset from long-term experimental management stands in Baden- Württemberg, Germany, and will be complemented with sites in France and Switzerland – together an outstanding dataset for Central European forests. The outcomes of this powerful framework will contribute to developing efficient management policies for adapting Norway spruce and silver fir forests to increasing drought-related risks. This may be also validated in other forest ecosystems across Europe.

The project will be managed by experienced researchers from the NFZ.forestnet, and will connect six research institutions from Zürich (CH), Freiburg (D), and Nancy (F), to a strong scientific network with well-established stakeholder contacts in Central Europe.