

## “Managing forests in the 21<sup>st</sup> century“

### BOOK OF ABSTRACTS

Conference at the Potsdam Institute for Climate Impact Research

Telegrafenberg, 14473 Potsdam, Germany

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Forest ecosystems, their products and services play an important role in achieving ambitious climate change mitigation objectives at the same time requiring profound adaptation to climate change. Forest management schemes to support climate action have to be developed within their regional context but also have to be aligned with national or EU-level climate, forest and sustainability policies.

The conference on “Managing forests in the 21st century” is the final conference of the [FORMASAM](#), [REFORCE](#) and [FOREXCLIM](#) research projects. The conference brings together scientific experts on forest management from all over Europe facing very specific management challenges. The aim is to discuss and improve the understanding the role of forests and forest management in the context of climate change. The conference addresses climate change impacts, as well as needs for mitigation and adaptation especially with regard to the following scientific questions:

1. What are the impacts of climate extremes and disturbances?
2. What are the management challenges (and options) for resilient forests?
3. What can we do to increase the contribution of forest management to climate change mitigation?

#### Conference Organizing Team:

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**„Resistance and resilience of forests prone to ice damage“**

The provision of ecosystem services depends upon forest structure and its function, both of which are essentially defined by different natural disturbances. Ice-storms are common disturbance agents in temperate forests across much of the northern hemisphere. For example in February 2014, a major ice-storm damaged forests across a large part of Slovenia. In this research different ice storm effects were analyzed including damage rates, tree mortality and sprouting. Reduction of the susceptibility of individual trees and stands with various silvicultural tools can increase their resistance and mitigate the negative effects of severe disturbances. As storms increase in intensity (e.g. ice load more than 8 cm thick) they become non-selective and forests get heavily damaged with no regard to their resistance. In such circumstances forest management should take into consideration the concept of resilience, which refers to the capacity of a forest ecosystem to recover from a disturbance. Resistance improvement measures include promotion of less susceptible tree species and symmetrical crown architecture, improvement of height diameter ratio of dominant trees, regular thinning of young stands and increasing of diversity of stand structure and age (using selection or irregular shelterwood system). The latter is also important for enhancing forest resilience, which is also increased with systematic promotion of understory structures, like advanced regeneration and understory trees, natural or artificial regeneration, increase of tree species diversity and regular silvicultural treatment of newly established young forest aiming at high structural and species diversity and appropriate number of strong dominant trees with symmetrical crown architecture.