"Managing forests in the 21st 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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Poster session 3: What are the management challenges (and options) for resilient forests?

Speaker: Matteo Cerioni, University of Ljubljana, Slovenia

„Are Slovenian forests resilient to large and severe windthrows? - A decade of natural recovery dynamics"

European temperate forests are considered to be resilient to their current disturbance regime, which consists mainly of small gap-scale and periodic moderate severity events. Coupled with aging forests, there is concern that climate change may lead to larger are more severe disturbances. However, few studies in the temperate region of Europe have focused on forest recovery following large and severe events. In western North America, recent evidence indicates regeneration failures after large and severe disturbances under current environmental conditions (e.g. frequent incidence of drought). Here we present some preliminary results of regeneration dynamics in three Slovenian sites (Črnivec, Bohor, Trnovski gozd) that were affected by large and severe windthrow events in 2008. Inventories were carried out in permanent plots in 2012, 2014 and 2019, providing valuable insight into the first 10 years of forest recovery. Data collection involved regeneration characteristics (species, height, and DBH), herb cover, and browsing effects. The presence of both early and late-seral species was observed at all sites, but preliminary results indicate that one of the sites has experienced a regeneration failure over a large part of the windthrow, presumably due to herb competition, lack of advance regeneration, and lack of seed sources. Structural parameters indicative of resilience will be assessed for each site. In order to understand if European temperate forests are resilient to large disturbances or need some form of active management, we intend to develop a network with other partners that are studying forest recovery dynamics after large and severe disturbances.

Speaker: Thomas Cordonnier, IRSTEA, France

„I-Maestro project : Innovative forest MAnagEment STrategies for a Resilient biOeconomy under climate change and disturbances"

Disturbance intensification and its interactions with climate change (CC) question the ability of forest ecosystems to achieve the bioeconomy objectives of the EU, i.e. obtaining sustainable resource use while preserving the provision of other ecosystem services (ES). In this context, forest resilience can play a major role in limiting degradation of ES. The main aim of the I-Maestro project (ERANET ForestValue, 2019-2022) is to improve the scientific basis for developing management strategies that increase resilience of the bioeconomy to future natural disturbances and CC, maintain high level of wood production, biodiversity conservation and carbon storage. It will specifically address the value of developing management strategies fostering structural complexity. I-Maestro will meet these objectives by using forest dynamics models and evidence-based studies while considering different spatial and temporal scales.