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and all Motive partners

MOTIVE

Models for Adaptive Forest Management in European forests

Adapting to climate change: research & policy dialogue
Brussels, 26 Oct 2011

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Forest sector is an integral part of multi-sectoral solutions to climate change

- Reducing emissions from LULUCF**
- Enhancing sink**
- Biomass for bio-energy**
- Harvested wood products; renewable resource; buildings**

...but it is vulnerable as well.

Management for adaptation in rural areas

**as such it's role in the bio-based economy is an
example for others sectors**

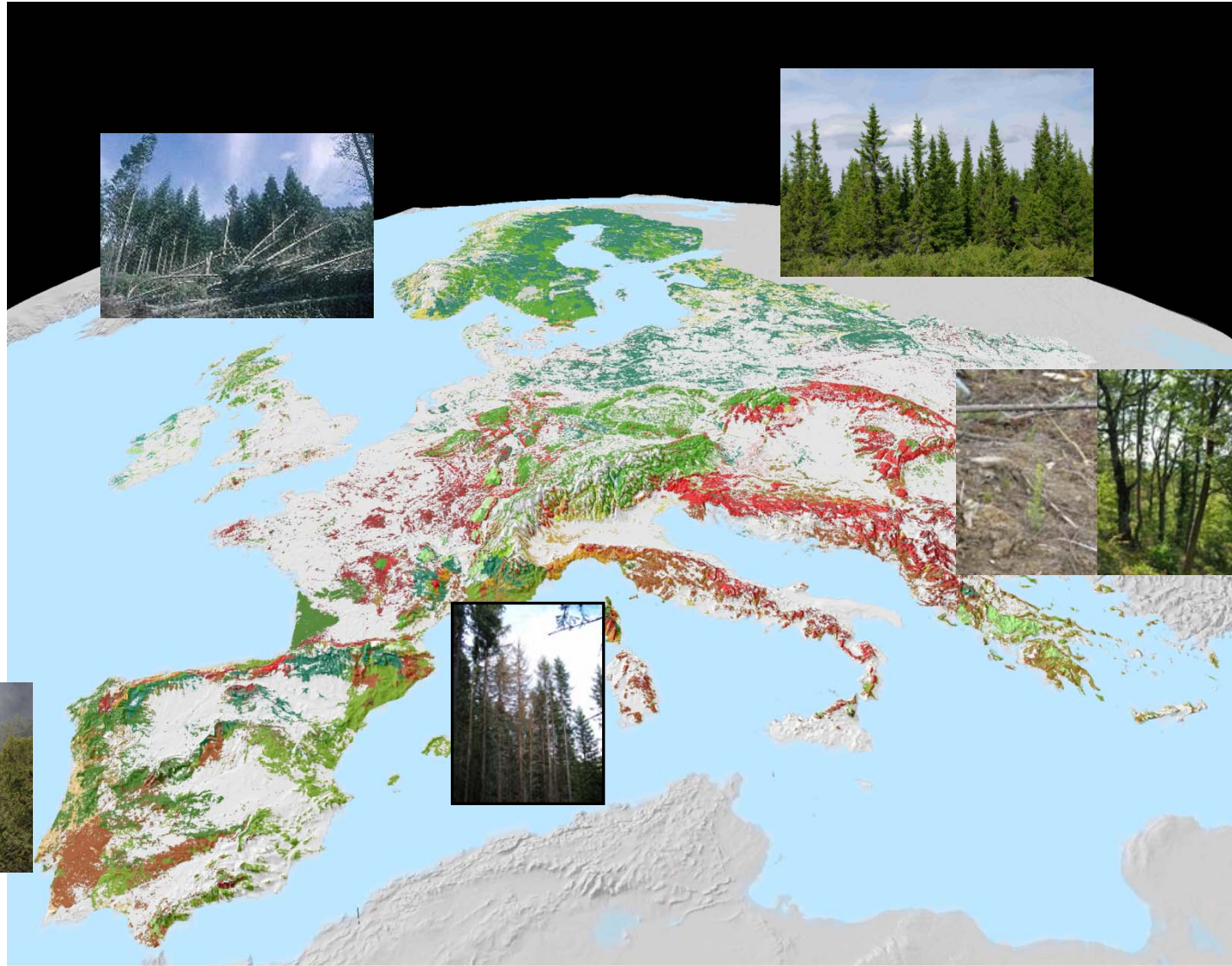
Facing Climate Change Impacts: highly diverse

EU27:

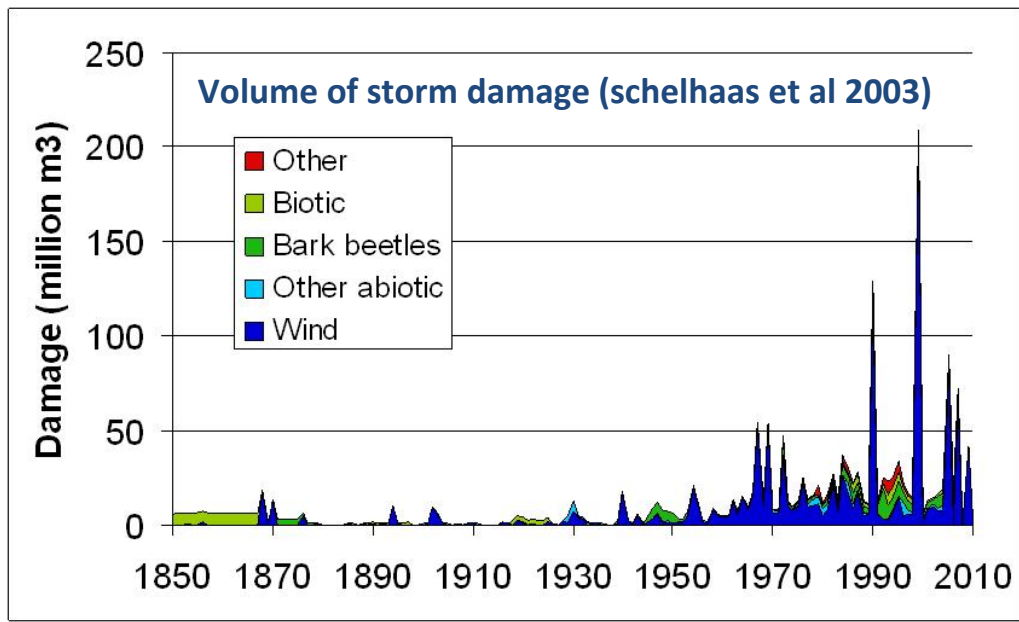
178 million ha

16 million owners

Multiple services



Increased disturbances





Impact: Spruce bark beetle also in mountain forests





Objectives

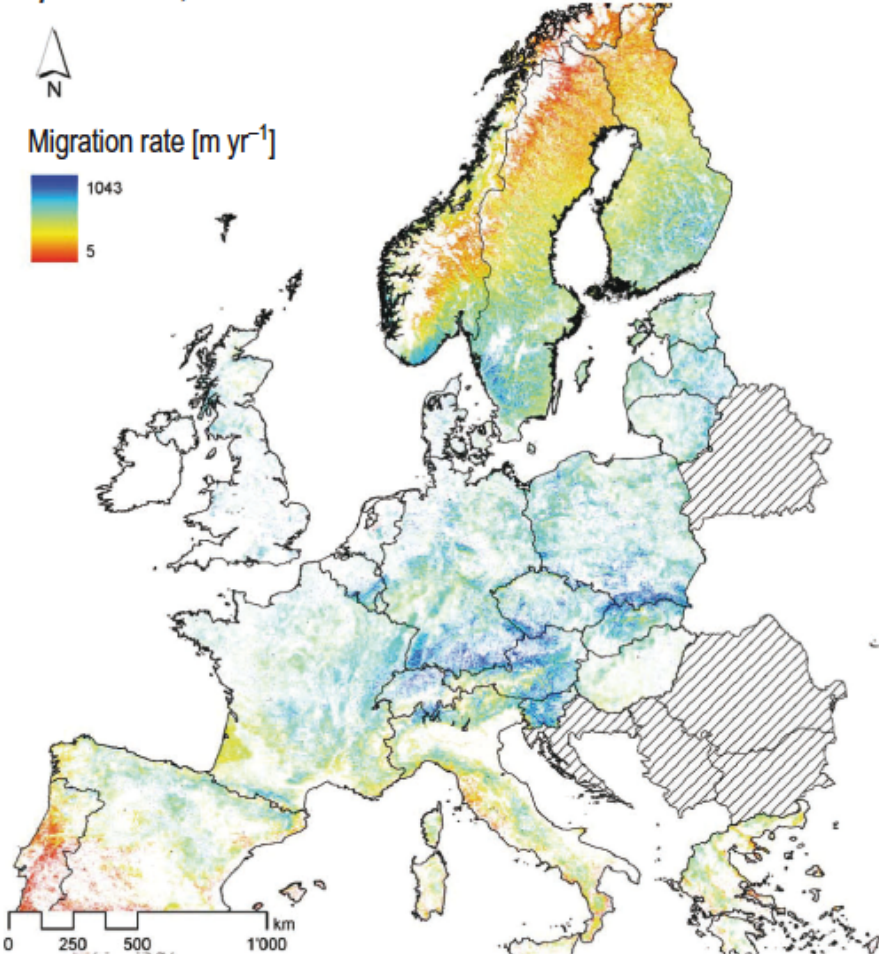
To provide insights, data and tools to improve policymaking and adaptive forest resource management under climate change

- **Integrated assessment** of forest management strategies
- A comparative assessment across **a wide range of** climatic and socio-economic **conditions**
- Influence of **feedback loops** from socio-economy and policy making on resource management
- Translate scientific state of knowledge into **decision support** for policy makers and forest practitioners
 - European scale analyses as well as 10 landscape level cases
 - Stakeholder involvement and a tool box for adaptive management

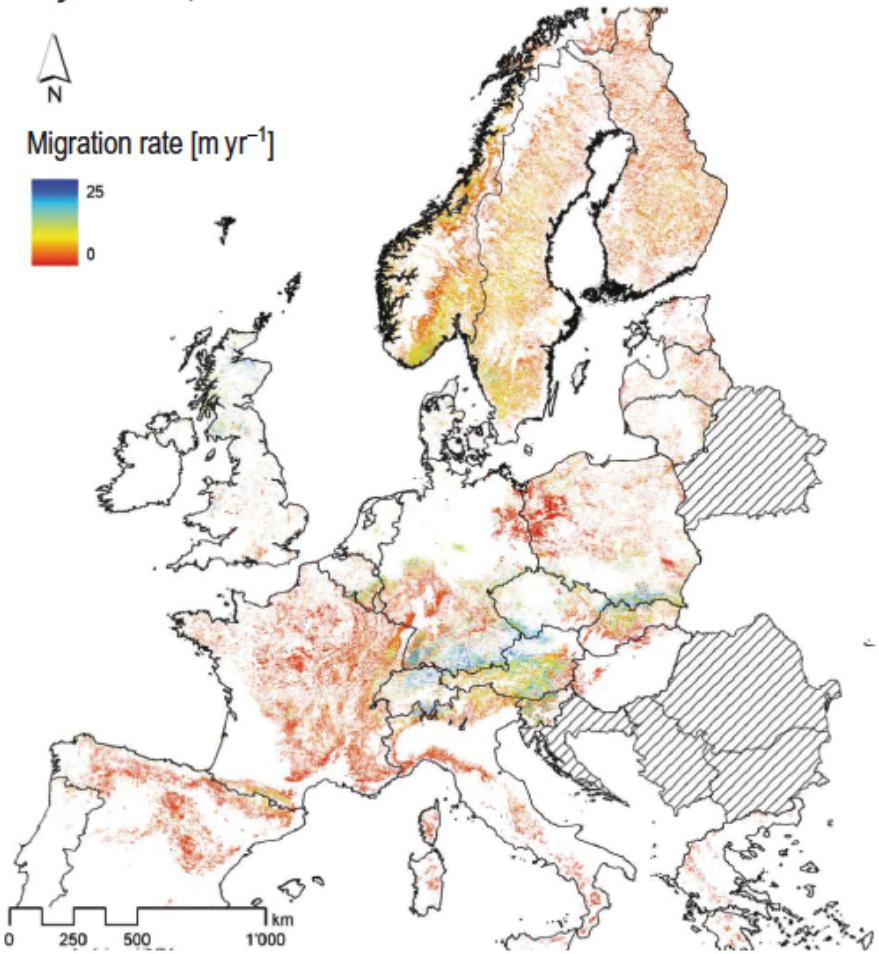


European level: annual migration rate: drastic changes

B.pendula, B1/SEDG 2000-2100

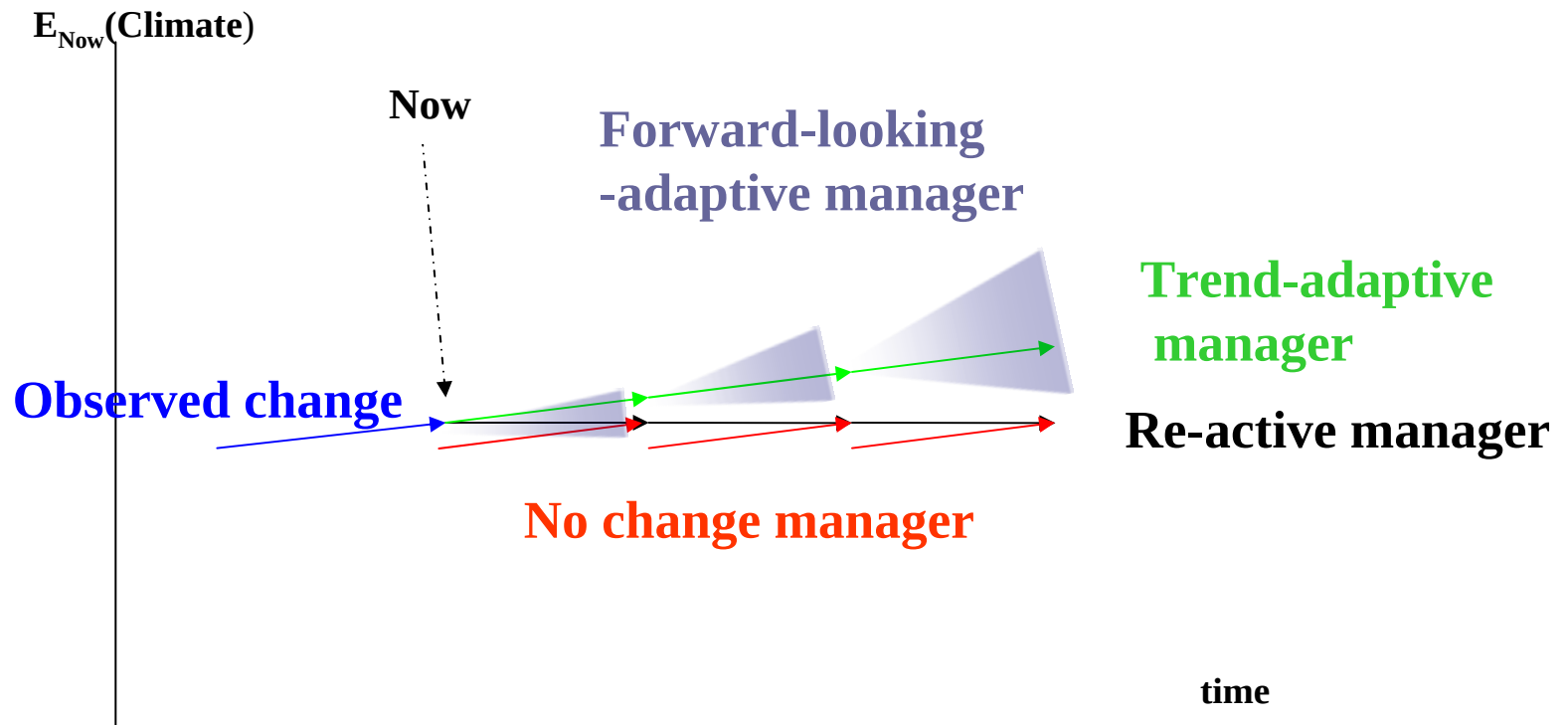


F.sylvatica, B1/SEDG 2000-2100

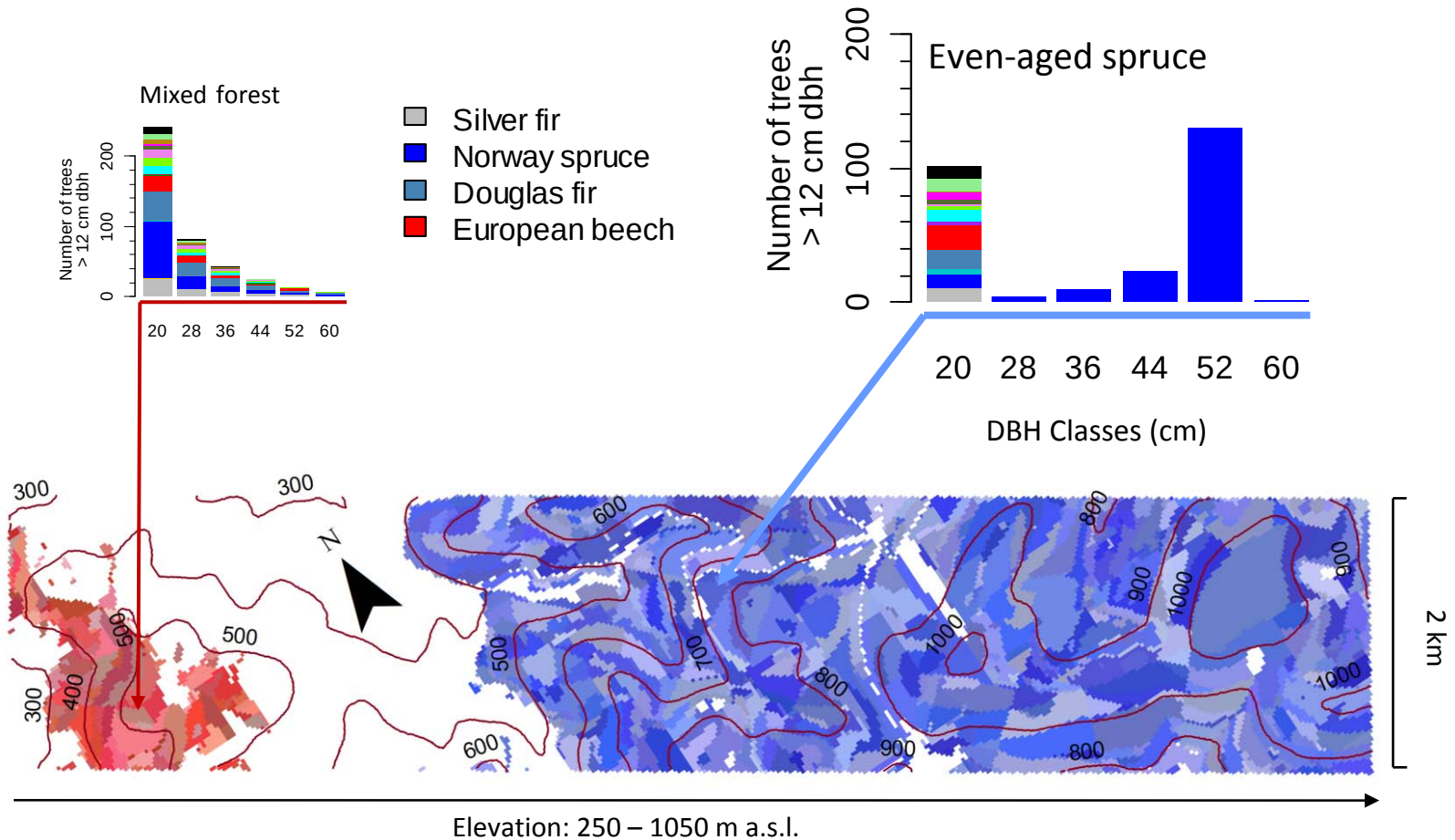




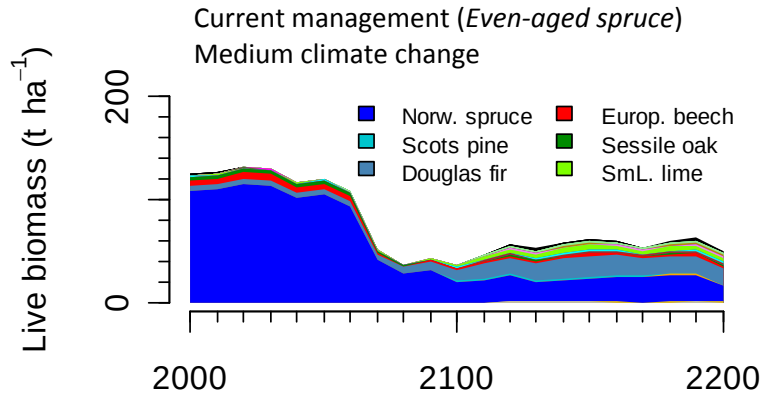
Approach in adaptive management: Look ahead in uncertain and dynamic times



Case: Black Forest (Temperli et al)

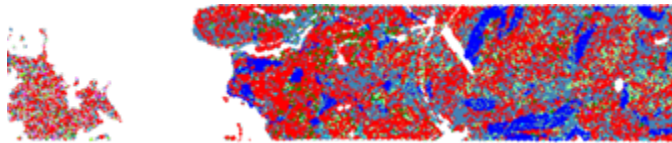


Results: Climate and forest dynamics

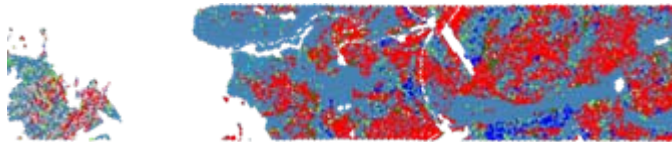


- drought-induced Norway spruce mortality under climate change

Dominant tree species 100 years after conversion to *Natural vegetation*

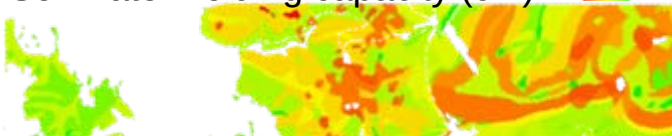


Current climate (1950-2000)



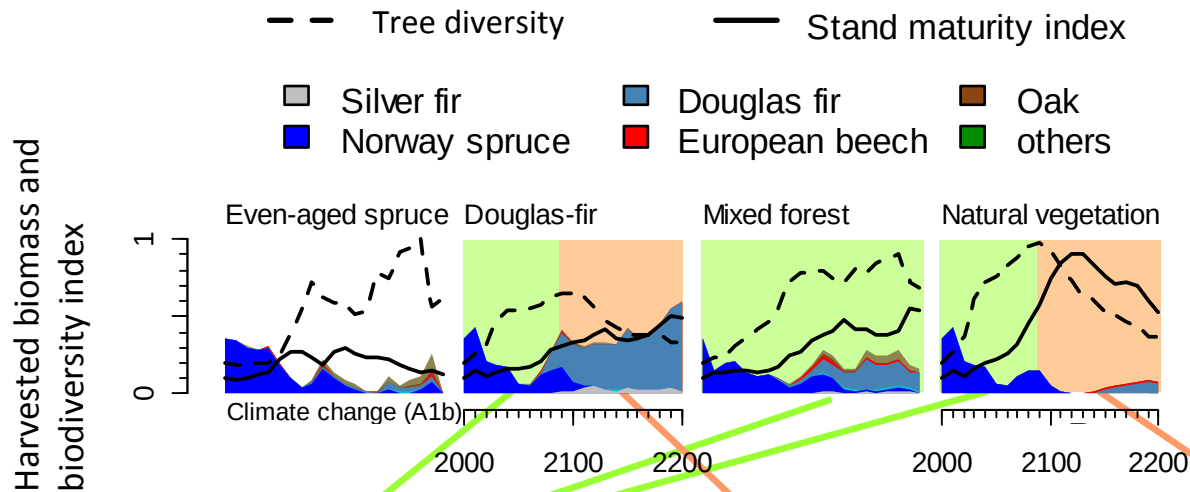
Medium climate change¹

Soil water holding capacity (cm): 2  27



- Climate change favours drought-tolerant tree species.
(Douglas-fir > Lime > Beech, Oak > Spruce).
- The spatial distribution depends on elevation and soil water holding capacity.
- Tree species composition needs to be adapted to dryer climatic conditions.

Results of a case: Synergies and trade-offs



Biodiv.-timber synergy:

High light availability
through harvest



High tree diversity

Biodiv.-timber trade-off:

Promotion of productive
species



Low tree diversity

Biodiv.-timber trade-off:

Harvest restrictions



Large trees, dead wood

- Trade-offs between EGS need to be considered and synergies need to be exploited.
- Over the long term, forest biodiversity and timber production can be jointly promoted by medium intensive *Mixed forest* management

Draft Conclusions

1. Severe but highly varying impacts of climate change on European forests are foreseen
2. In order for European forests to fulfill all their functions in the future, management cannot continue as in the past
3. Management needs to look ahead, and start acting now, in order to allow for dynamic changes over time
4. Management needs to look at local signals of change
5. Participatory approaches are needed to identify suitable adaptation strategies
6. Traditional conservation policies are not suitable for changing environmental conditions ; a need for a paradigm shift in conservation management
7. Only then forest will fulfill all their functions for raw material provision, water protection, carbon sequestration, bioenergy, etc

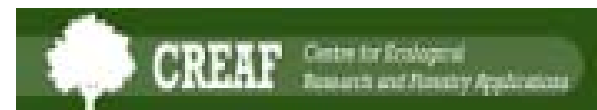
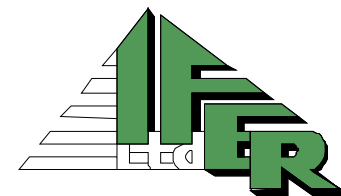
Outreach in member states is required !

The awareness of forest owners and practitioners is critical for implementation of adaptation to climate change





Thank you





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<http://www.motive-project.net/>