Forestry in Finland – Climate Change Challenges

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Content

- Global and regional climate change
- Forest sector and climate change
- Making forest fit for climate change
  - Case Finland
- Questions, debate and recommendations

Photo: Kaj Lindh

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Global climate change

- Climate change has already affected forest ecosystems
- It will have increasing effects on them in the future
- Without reduction in emissions the change will be irreversible

Source: Wikimedia Commons

Source: Adatation of forest and people to climate change. IUFRO 2009.

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Impacts on forest types

- Tropical forests: increased productivity where water in available, but decline in dry areas
- Subtropical forests: decreased productivity in most parts
- Temperate forests: less affected than other forest types
- Boreal forests: particularly affected; increased growth; more fires, pests and storms

Source: Adatation of forest and people to climate change. IUFRO 2009.

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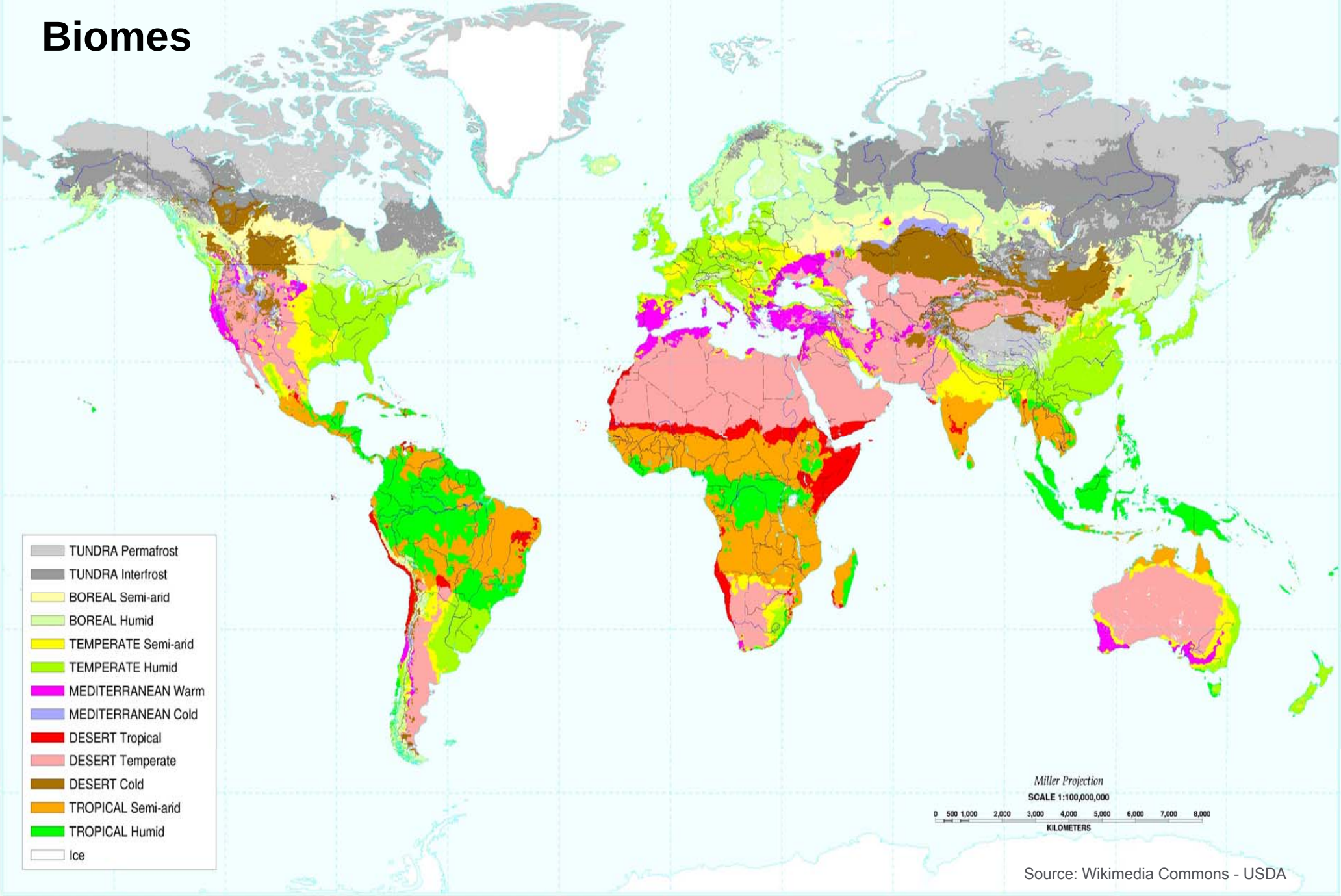
Biomes



Source: Wikimedia Commons - USDA

Key conclusions

- Mitigation and adaptation are necessary
- Mitigation requires healthy forests
- Unmitigated climate change is likely to exceed the adaptive capacity of many forests
- Large reduction in emissions from fossil fuels and deforestation are needed to preserve forests

Source: Adatation of forest and people to climate change. IUFRO 2009.

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Knowledge gaps

- Regional and local impacts
- Socio-economic impacts
- Effectiveness of management and policy measures for adaptation

Source: Adatation of forest and people to climate change. IUFRO 2009.

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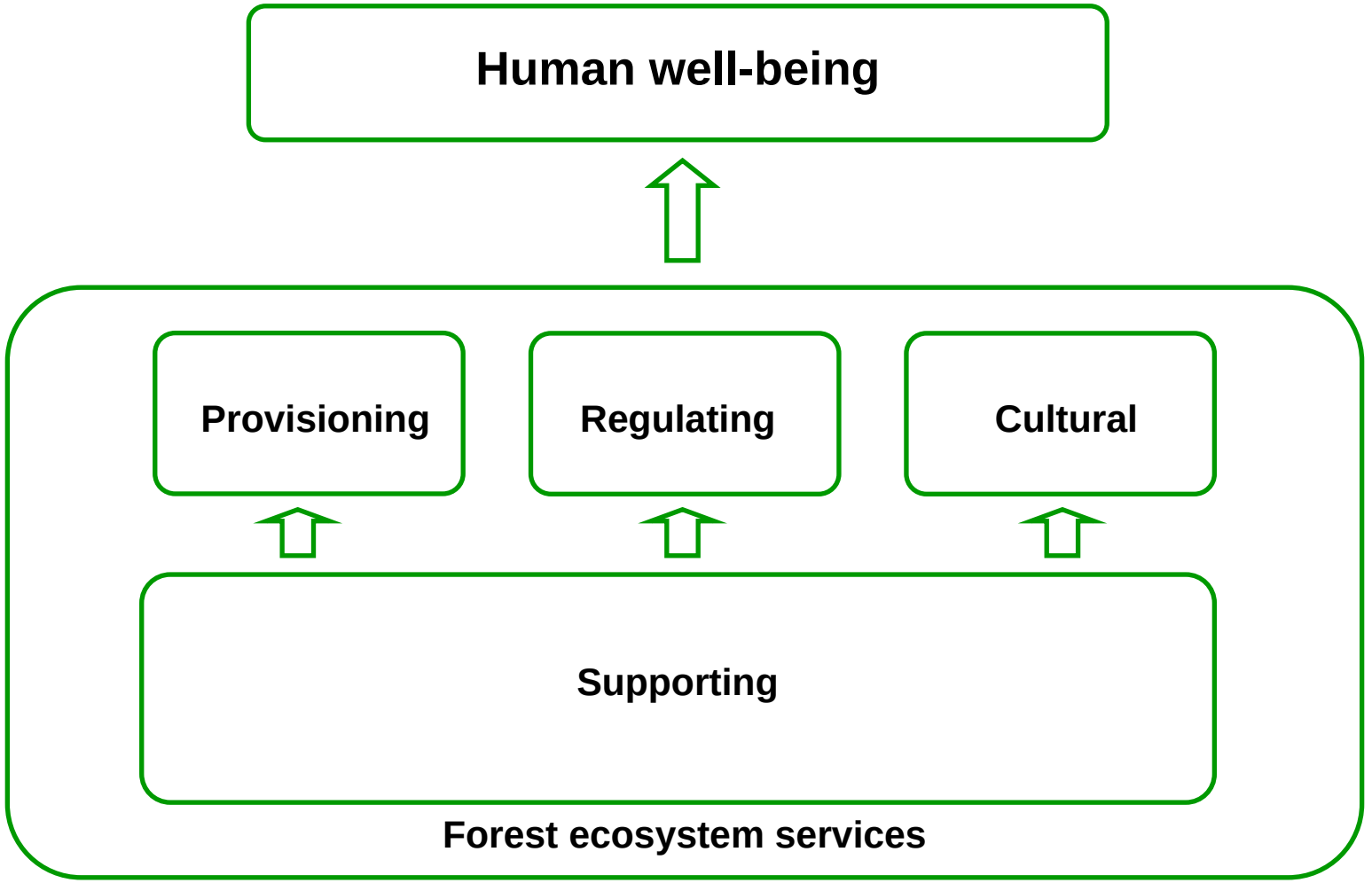
Forest ecosystem services



Source: Adatation of forest and people to climate change. IUFRO 2009.

Forest sector and climate change

Climate

Forest industry

Ecosystem services

Bio fuels

Heath and electricity

Bioenergy

Roundwood

Wood chips

New forest policy

SFM Sustainable forest management

Forestry Organizations

Forest owners

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Making forest fit for climate change – Case Finland

- Finland is situated in the boreal zone
- forests cover more than 70 per cent of the land area
- Finland has the fifth largest wood resources in Europe, after Russia, France, Sweden and Germany

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Photo: Kaj Lindh

Estimated climate changes in Finland

- Milder and more rainy winters
- Slightly warmer summers
- Risk for occasional summer droughts in Southern Finland
- Uncertainty of storm risk

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Photo: Kaj Lindh

Impacts of estimated climate change in Finland

- Warmer summers increase growth especially in Northern Finland
- The main tree species are not threatened:
  - Spruce (*Picea abies*) is sensitive against occasional droughts in Southern Finland
  - Pine (*Pinus sylvestris*) can adapt to changes
- Peatland forests grow well during dry summers
- Insect damages are likely to increase (e.g. *Ips sp.*, *Lymantria monacha*)
- Earlier growth > increased risk of frost damages
- Increased risk of fires


Photo: Kaj Lindh

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Impacts of estimated climate change in Finland

- Warmer winters have mainly negative effects
- Harvesting cannot rely on frozen ground in Southern Finland
- Harvesting causes more root damages
- Lack of ground frost increases storm risk
- Root rot (*Heterobasidion annosum)* damages are likely to increase

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Photo: Kaj Lindh

Making forests fit

- Management recommendations not changed yet
- Prevention of insect damages has been on the agenda for a long time
- Spruce is the dominating species in planting – more diversity is needed
- Forest road network is improved for year-round use
- Dry summers increase fire risk; present fire monitoring is effective and the road network is helping in fire fighting

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Photo: Kaj Lindh

Sustainable forest management - SFM

- can be applied to reduce the exposure and sensitivity of a forest and enhance its adaptive capacity
- can play an important role in climate change adaptation globally
- SFM at present and in the future in France and Finland?

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Merci beaucoup!