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Forest Multifunctionality -

A concept for highlighting conflicting and compatible goals of forests in Europe

WELCOME!

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SNS Nordic Forest Research

FORBIO ECONOMY an EFI research network

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Moderator

Marius Lazdinis

Deputy Head of Unit,
DG AGRI, European Commission

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9.00 **Opening**
Johanna Buchert, CEO & President
LUKE Natural Resources Institute Finland

9.10 **Keynote speech**
Mārtiņš Kreitus, Ambassador,
Deputy Permanent Representative to the EU (for Latvia)

9.20 **Presentations by the PROFOR network researchers**

Ecological processes - basis for multifunctionality
Daiga Zute, Latvian State Forest Research Institute "Silava"
Floor Vodde, Estonian University of Life Sciences

Nordic-Baltic forests are multifunctional
Johan Svensson, Swedish University of Agricultural Sciences (SLU)

On the Trilemma of the Nordic-Baltic forest and forestry
Lars Högbom, Skogforsk

10.00 **Keynote speech**
MEP Elsi Katainen
Renew Europe (remotely)

10.10 **Coffee break**

10.30 **Panel discussion** with panelists, network speakers and audience

Ion Codescu
Head of Unit, DG ENV, European Commission

Roberto Stelstra
Communication & Policy Officer, EUSTAFOR

Tapio Kytölä
Senior Specialist, Permanent Representation of Finland to the EU

11.45 **Concluding remarks**
Knut Øistad, Senior advisor – forest policy,
Norwegian Institute of Bioeconomy Research NIBIO

11.55 **Closing words by the moderator**

12.00 **Networking buffet lunch**

Housekeeping rules

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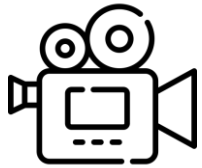
Due to the large number of participants, you are muted automatically.



Please note that this meeting will be recorded.

Please enter any questions in the chat box. They will be answered at the panel discussion.

Please Tweet as much as you like

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Short presentation of PROFOR network

Mika Mustonen
Senior Specialist, LUKE Natural Resources Institute Finland

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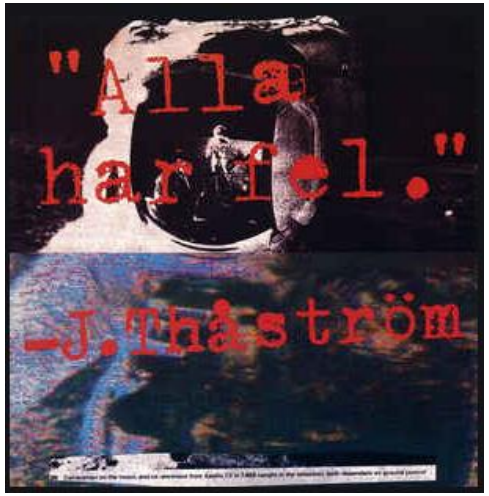
Everybody is wrong

–Joakim Thåström



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Opening

Johanna Buchert
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Keynote speech

Mārtiņš Kreitus

Ambassador, Deputy Permanent Representative to the EU (for Latvia)

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Presentations by the PROFOR network researchers

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Ecological processes – basis for multifunctionality –

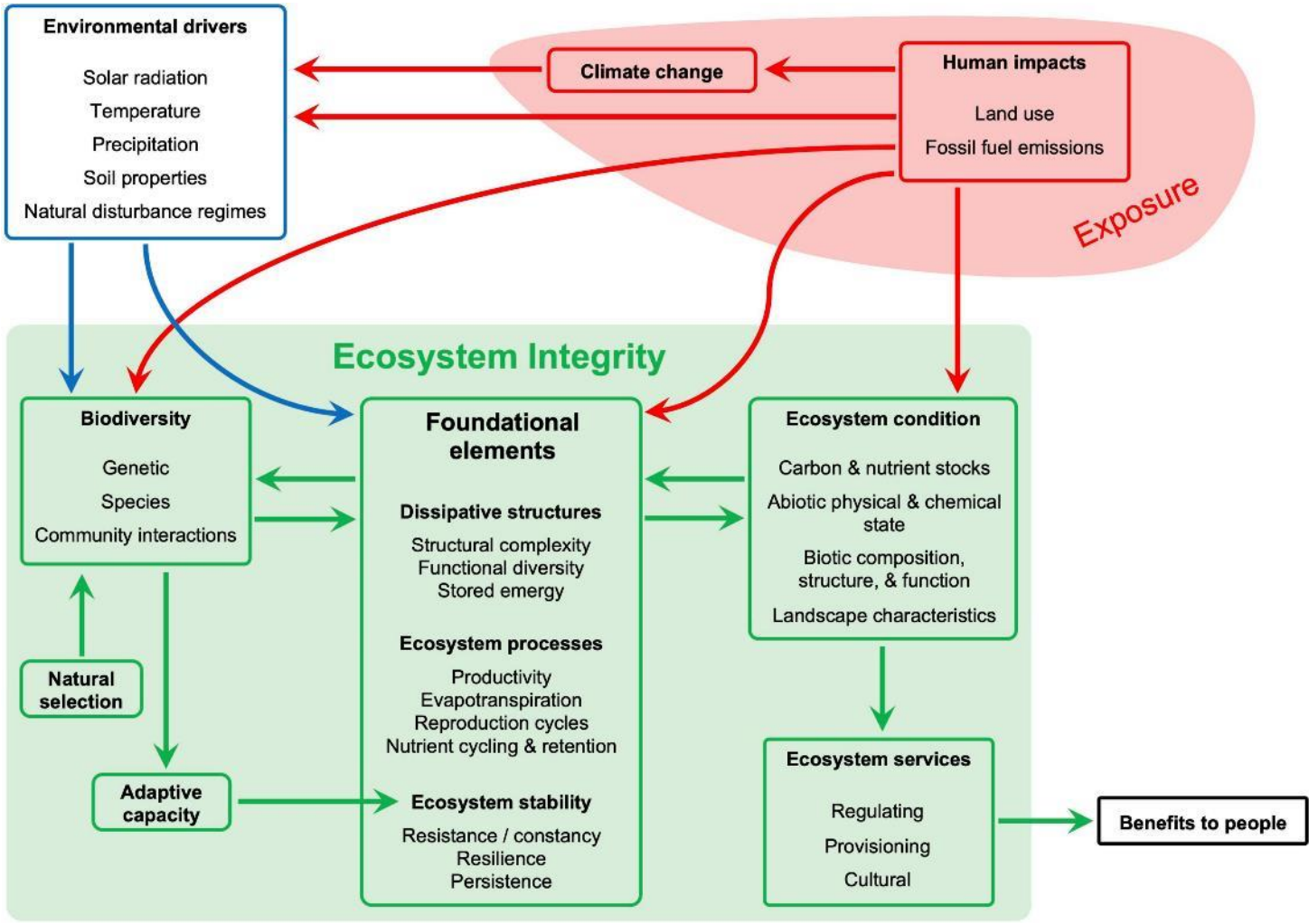
Daiga Zute| Latvian State Forest Research Institute "Silava"

Floor Vodde | Estonian University of Life Sciences

Helsinki EU Office, Brussels, 26 September 2023

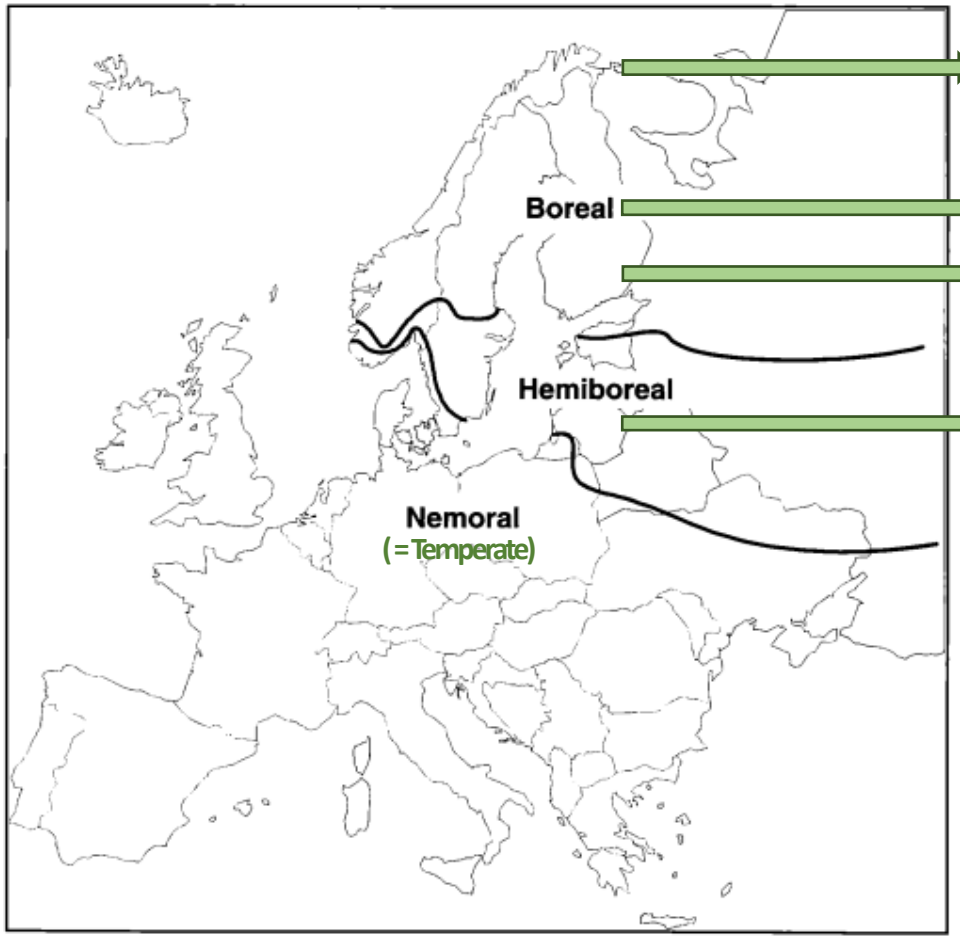
Ecological processes

- Photosynthesis
  + carbon sequestration
- Nutrient cycling
- Food-web interactions
- Succession and competition
- Natural disturbance dynamics
- …



Rogers *et al.* 2022

Biomes and tree species in the Nordic-Baltic region



The forest zones of north-west Europe as defined by Ahti *et al.* (1968)

Populus tremula – European aspen
Betula pubescens – downy birch
Alnus incana – grey alder
Pinus sylvestris – Scots pine
Picea abies – Norway spruce
Betula pendula –

+ *Alnus glutinosa* – European black alder
Acer platanoides

+ *Tilia cordata* – small-leaved lime
Fraxinus excelsior – European ash
Ulmus glabra – Wych elm
Quercus robur – pedunculate oak
Ulmus laevis –

+ *Carpinus betulus* – European hornbeam
Fagus sylvatica – European beech

? + *Larix decidua* – European larch
Populus nigra – black poplar
Quercus petraea – sessile oak
Ulmus minor – field elm

Increased tree species diversity

Graph: Bradshaw and Edenius 1998

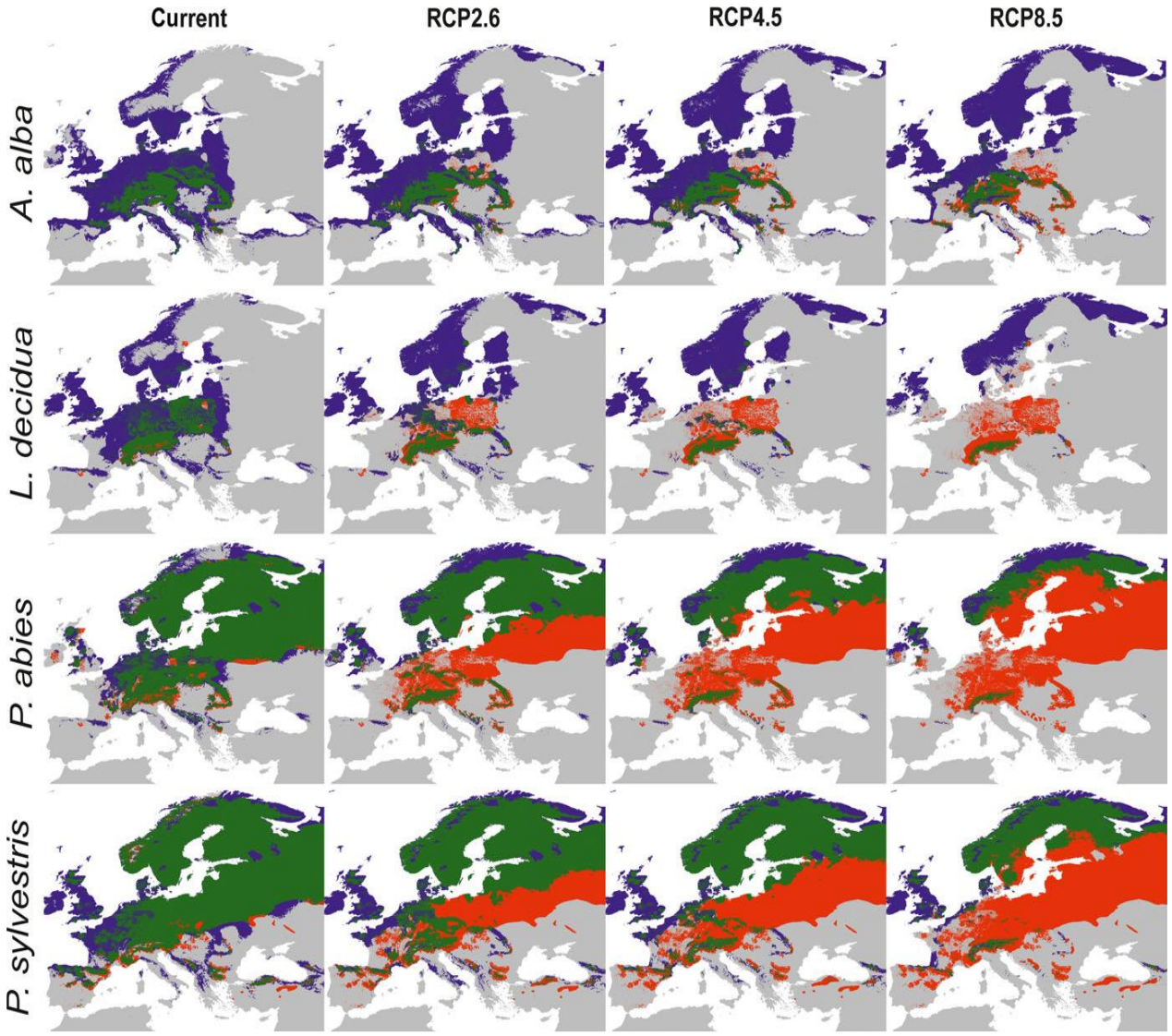
Climate change

Shifts are projected, ongoing, in:

- Species distribution ranges (not only trees, all flora & fauna)
- Biomes (i.e. composition of communities)

Norway spruce

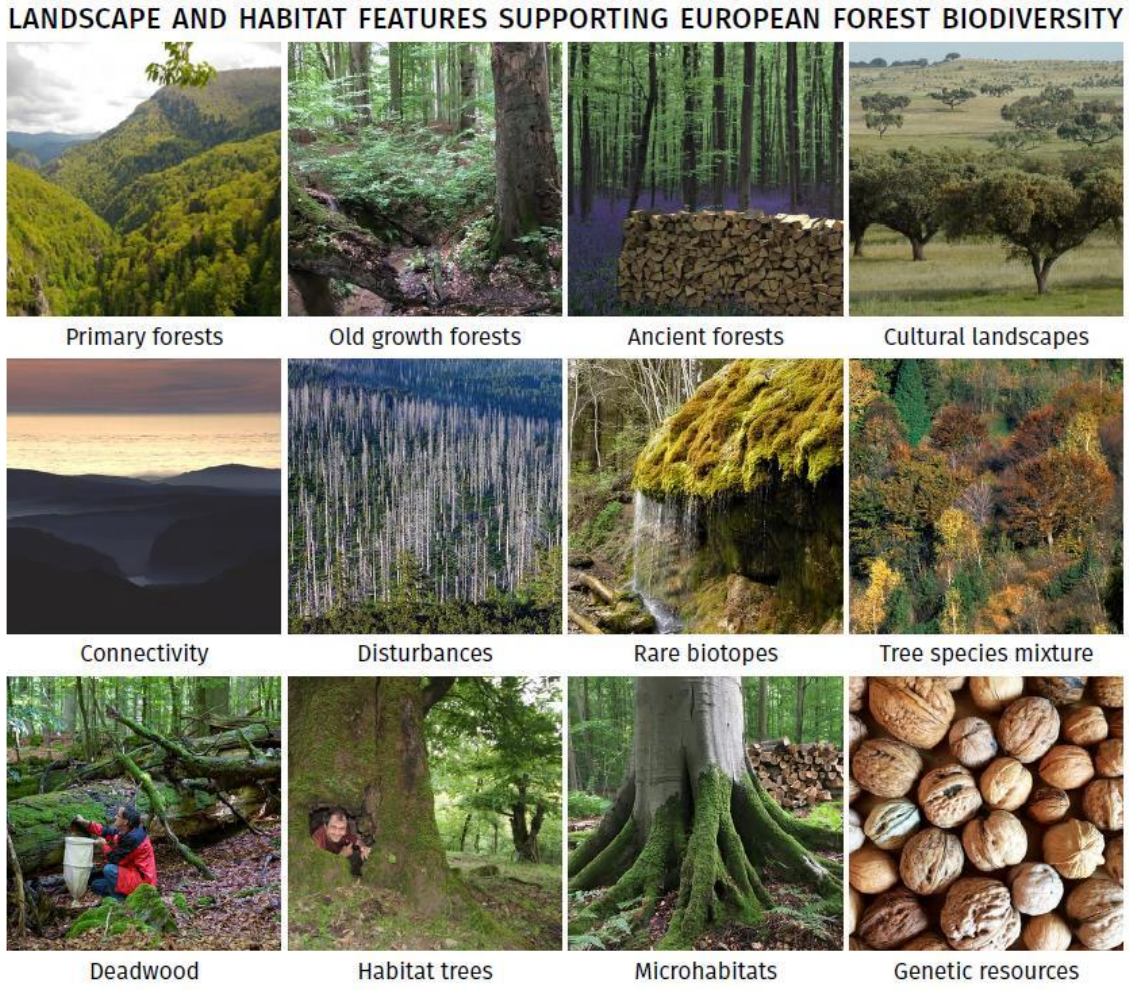
Scots pine



Dyderski *et al.* 2017

Muys *et al.*, 2022

Biodiversity a prerequisite for resilience



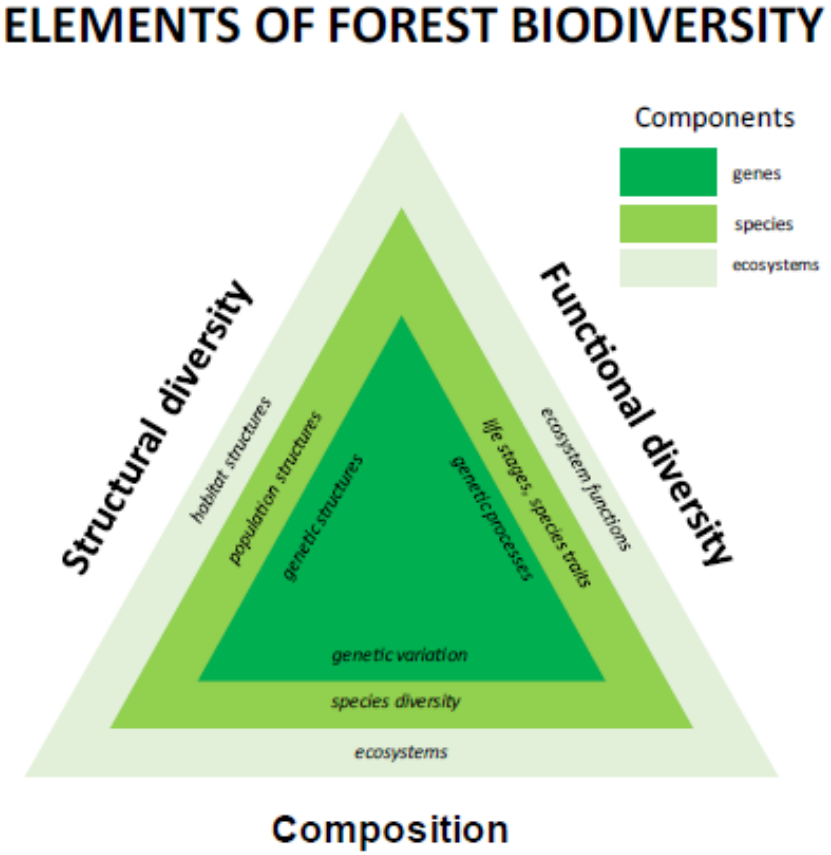


Figure 1. The main elements of forest biodiversity are represented as a triangle with three dimensions (composition, structure and function) that take account of the three hierarchical levels of components (genes, species and ecosystems). Modified after Noss (1990).

Forest management and biodiversity

How to secure forest biodiversity?

Internal and external threats.

- conversion (of forest land),
- harvesting,
- species choice.

A challenge:
what about forest management?

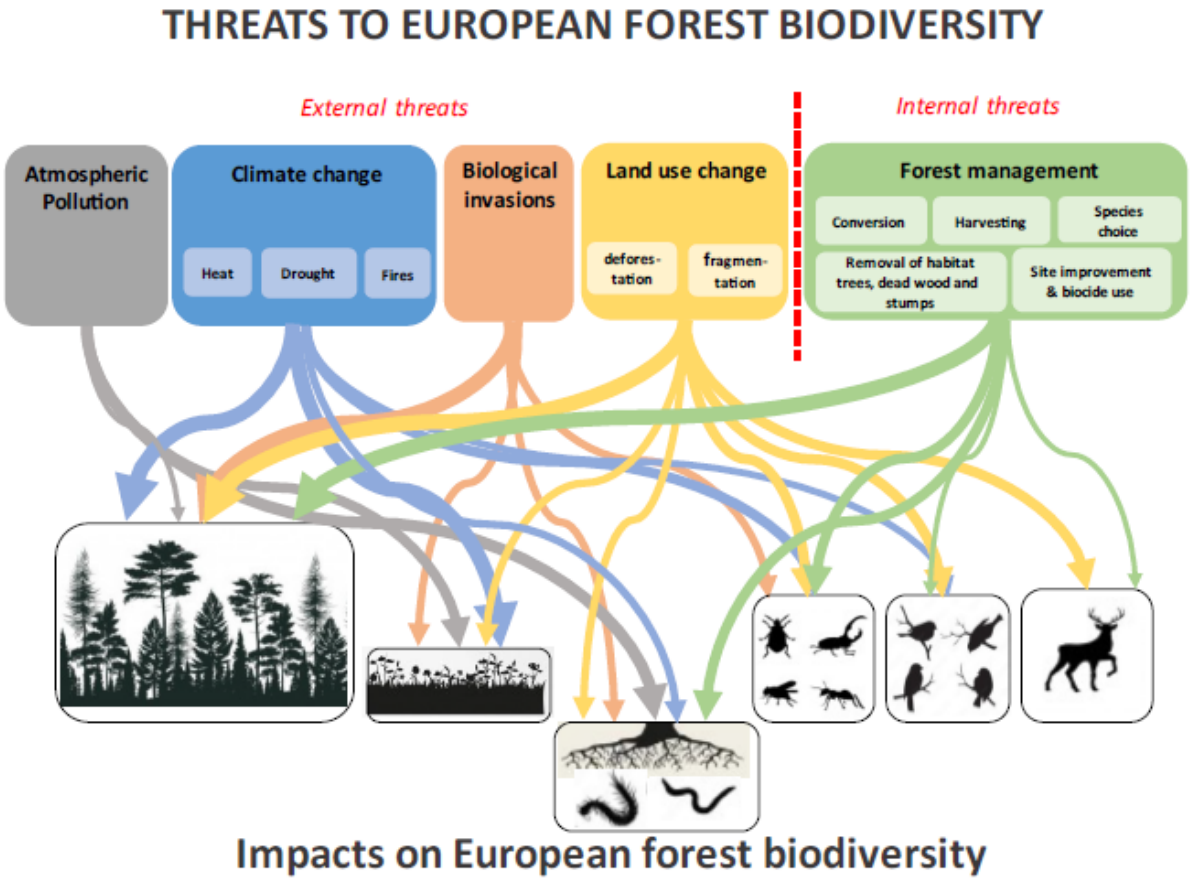
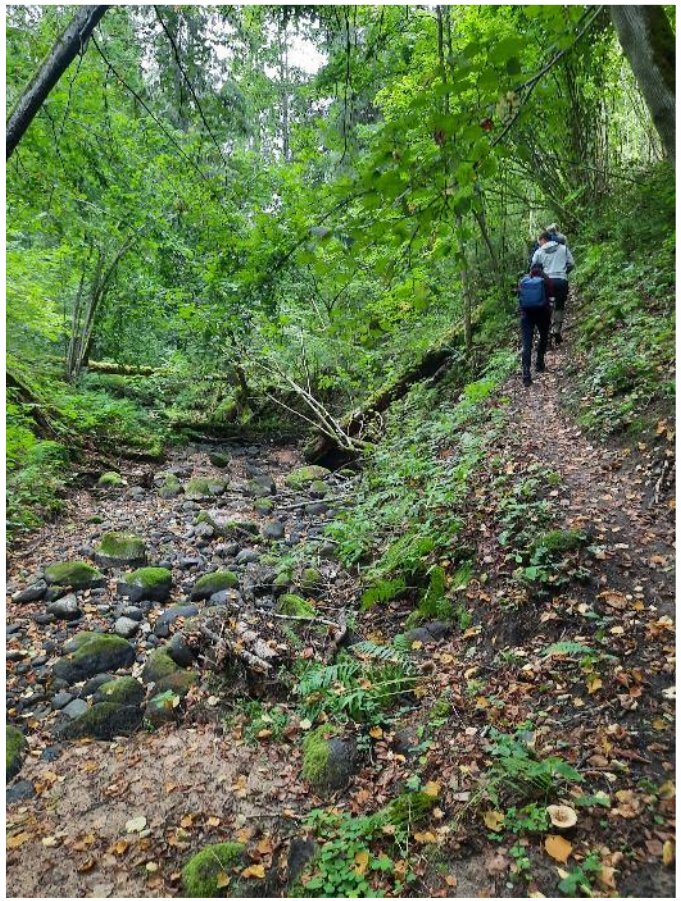


Figure 5. The relationships between major threats to biodiversity in European forests and particular groups of species (from left to right: trees, understory vegetation, soil organisms, insects, birds, mammals). The thickness of the arrows indicates the estimated magnitude of effects based on expert opinion. Indirect effects, such as changes in forest stand structure, are not represented.

Muys et al., 2022

Some forests host less species by nature



Other forests are more complex, also structurally

Natural disturbance-based forest management*

- Natural disturbances can facilitate diversification
- Within the range of local disturbance regime:
  rotation lengths, structure and species mixtures based on local natural disturbance regime (CCF and clear-cut!)

NB: Disturbance regimes themselves also alter due to climate change

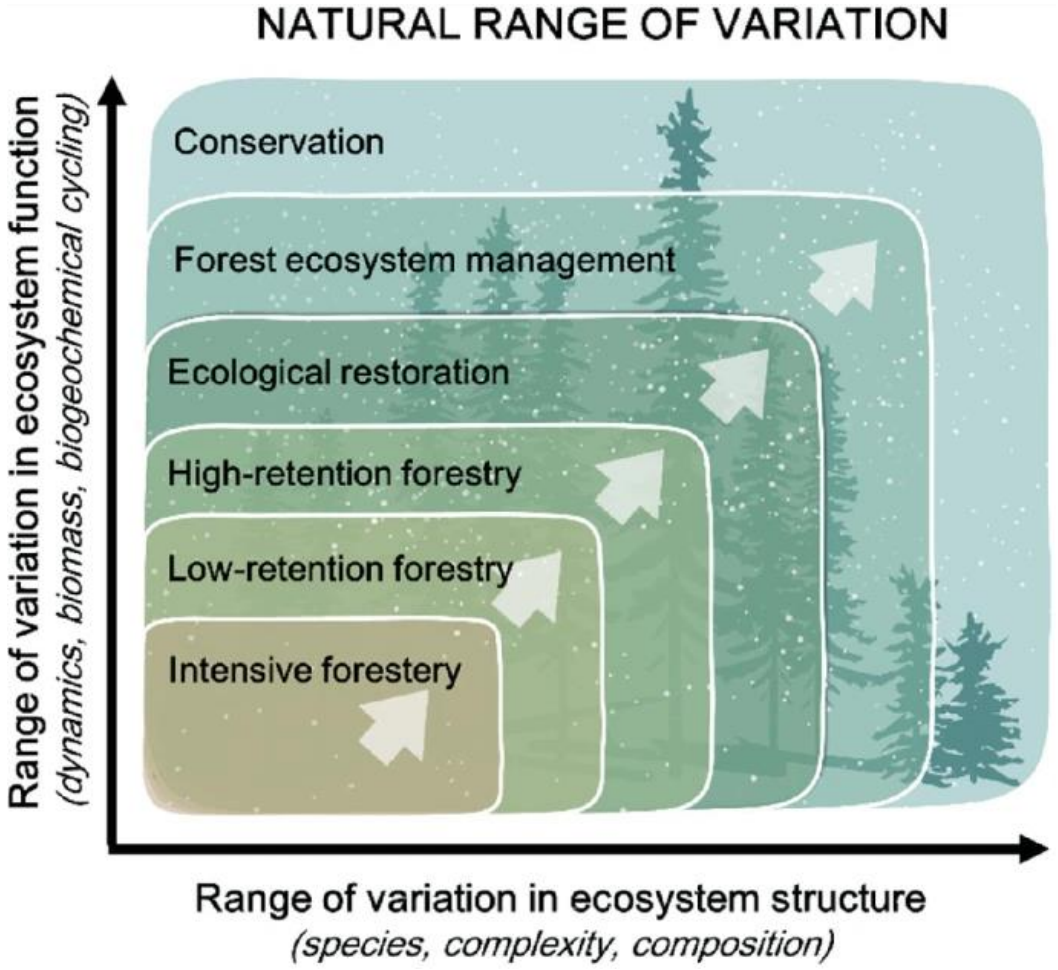
*E.g. Kuuluvainen *et al.* 2021, Azalós *et al.* 2022, Pohlman *et al.* 2023

Forest management – within the limits of ecological processes

- Land sparing vs land sharing
- Improved habitat connectivity
- Increased resilience and response diversity

Tree breeding > Improved genetic material

Restoration efforts
- Rewilding
- Prestoration



Gauthier *et al.* 2023

Foto: *LVMI Silava*

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LITHUANIAN RESEARCH CENTRE FOR AGRICULTURE AND FORESTRY

skogforsk

NIBIO

Eesti Maaülikool
Estonian University of Life Sciences

Luke
NATURAL RESOURCES INSTITUTE FINLAND

SLU

SILAVA

Thank you!

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Nordic-Baltic forests are multifunctional

Johan Svensson, Dept. of Wildlife, Fish and Environmental Studies, Swedish University of Agricultural Sciences

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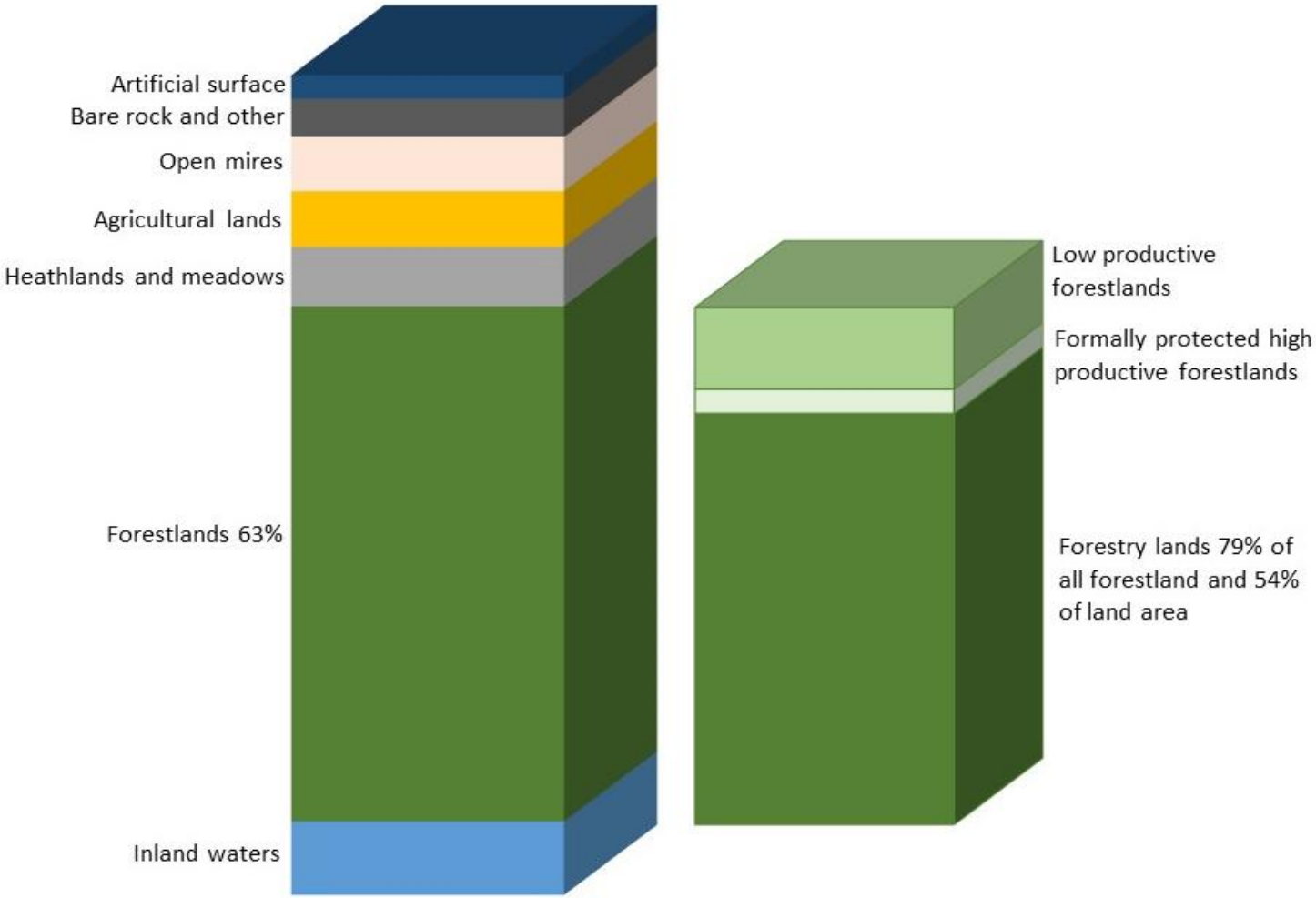
Multiple-use forests and forestry in the Nordic-Baltic region

- Forests in the Nordic-Baltic countries are multifunctional
- The composition and degree of uses vary in space and time
- Uses can be spatially integrated or differentiated
- Forest and forestry legislation reflects multiple use and sustainability
- One value chain and business model – production and sale of wood biomass – is predominant
- Other value chains and business models are requested and emerging
- There is an increasing need for science-based policy support for EU decision-making on multiple use.

Definition (1990 Swedish forest policy committee; SOU 1992:76):
Multiple use implies that all the functions of a forest, as providing renewable raw material, habitats for plants and animals, a source for recreational life, a holder of aestetic and cultural values, as a base for reindeer husbandry and as a source for berries, mushrooms and game, shall be considered in governance and management on all forestland. The composition and balancing of different uses depends on the natural socio-ecological landscape premises and the current land-use systems and businesses.

Multiple use forests in Sweden



Land cover data compiled from Statistics Sweden 2019 (land use in Sweden), Statistics Sweden 2021 (Protected nature 2020-12-31) and SLU 2023 (Forest statistics)

Forestland share of use:

- Forestry lands 79%
- Public right to access ≈100%
- Hunting >95%
- Reindeer husbandry 53% 1)
- …
- Onshore wind power, planned to 3% by 2040 2)

1) Estimate based on all forestland in Norrbotten, Västerbotten, Jämtland and Västernorrland counties, following Statistics Sweden 2019 (Land use in Sweden) and SLU 2023 (Forest statistics).

2) Svensson et al. 2023 (Sustainable onshore wind power – synergy, integration and conflict)

National interest land claim – land area

Swedish Environmental Code chapters 3 and 4 on formal land-use priority

Landscape values (net 43%):

- Cultural environment, 5%
- Recreation, 24 %
- Itinerant recreation and tourism, 18%
- Contiguous mountains, 19%

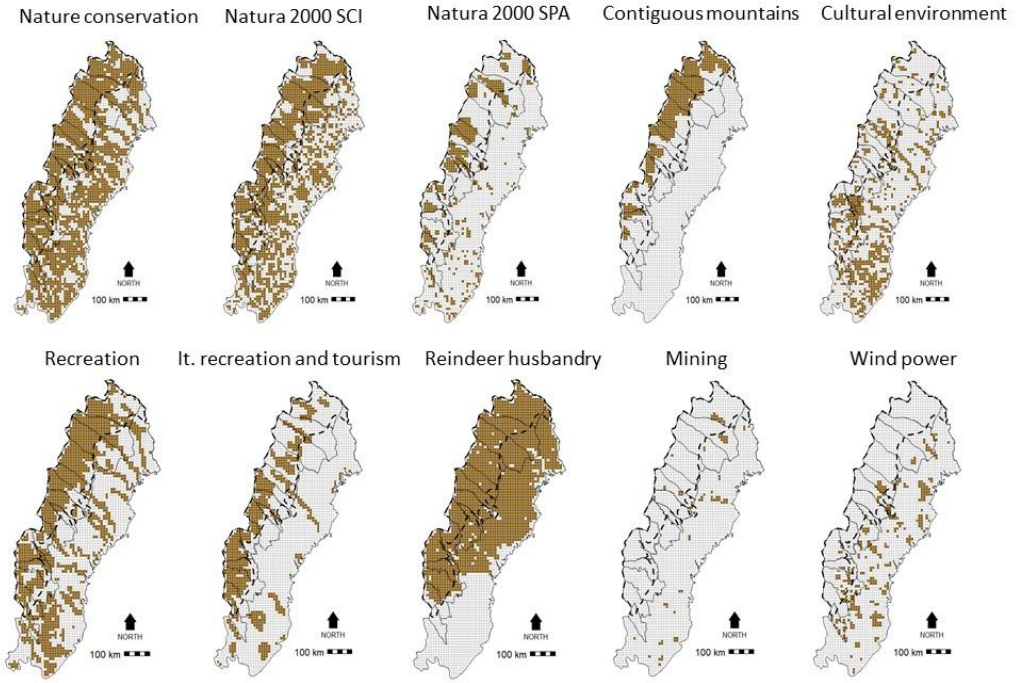
Nature conservation (net 24%)

- Nature conservation, 21%
- Natura 2000 Species and Habitat Directive, 12%
- Natura 2000 Birds Directive, 6%

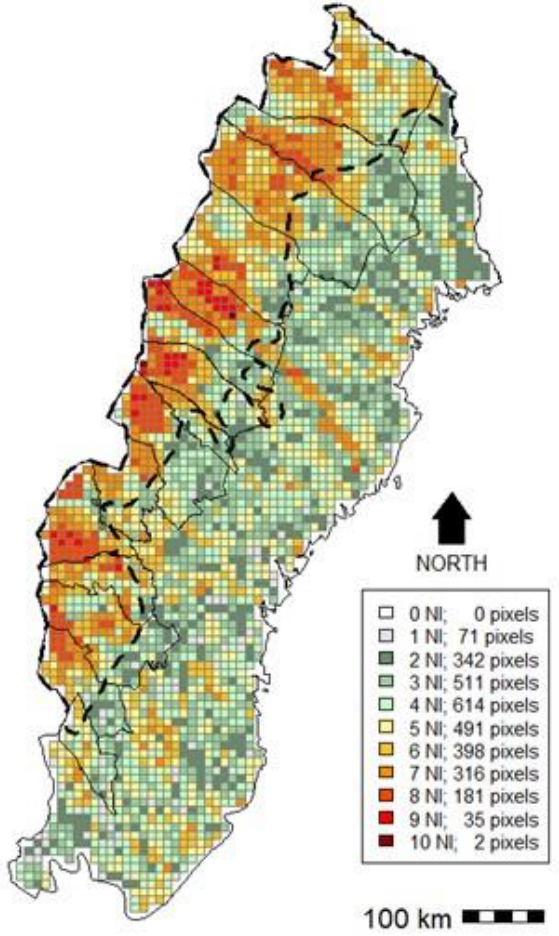
The most critical reindeer habitats, 18%

Other land-use oriented national interests such as for wind power, mining, etc., and for public health and safety are also regulated.

Forestry land 54% of land area



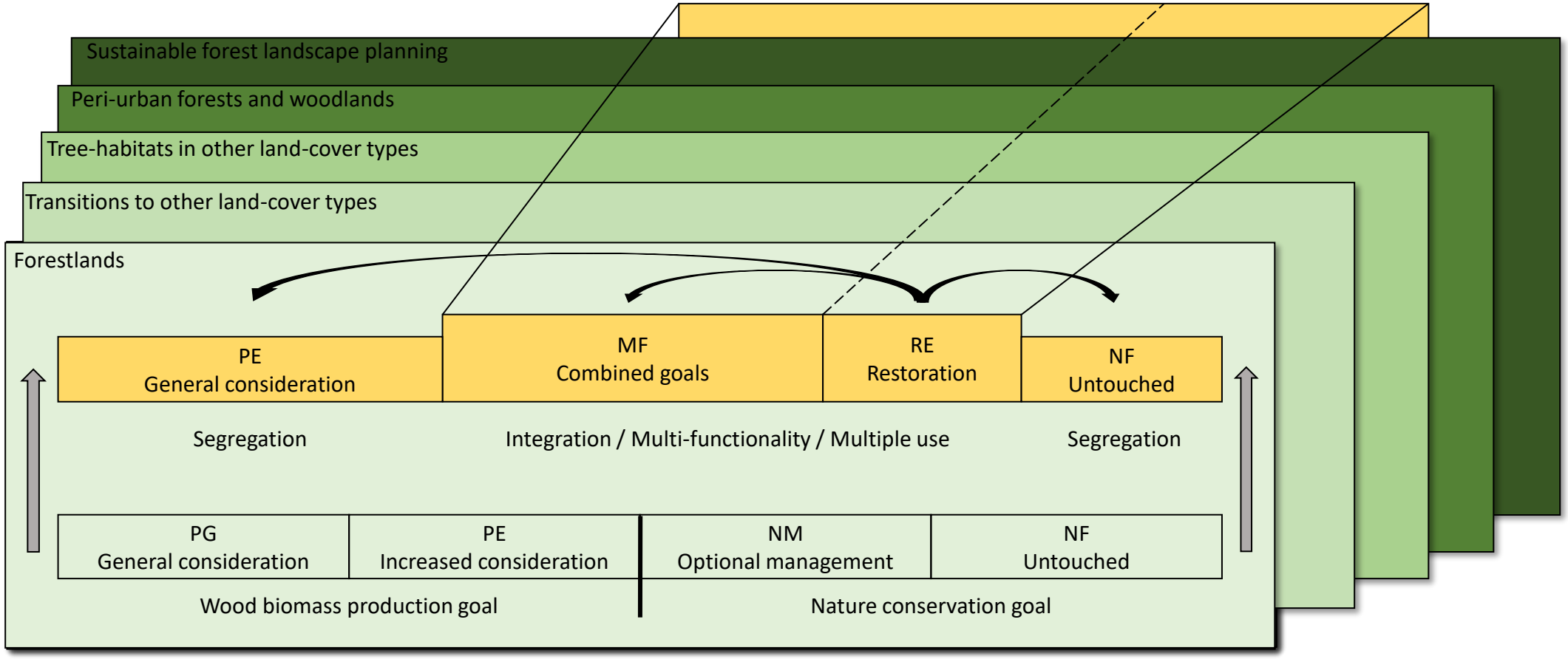
Frequency per 10x10km pixel of 10 NI and forestry land



Svensson et al. 2020 (Landscape Approaches to Sustainability – Aspects of Conflict, Integration, and Synergy in National Public Land-Use Interests

Svensson et al. in press. Wind power distribution across subalpine, boreal and temperate landscapes

- *Forest planning and management systems need to point at optimizing multiple use when feasible*
- *Flexibility to local premises and solutions is critical to meet multiple and changing demands*
- *Restoration have to take place in sustainable models to transform forests to multifunctional capacity*



Reflections:

Whereas forest and forestry legislation in the Nordic-Baltic region reflects multiple use and sustainability, production of wood biomass tend to take precedence

Practical importance of other national legislations and regulations in forests, such as for hunting, biodiversity protection, public rights and reindeer husbandry, are not clear

The relation between forest/forestry legislation and legislation on other land covers, including transitions zones (forest edge towards agricultural land) and important land uses (e.g., energy legislation) are not clear

A ”policyscape” is needed to promote multiple use on landscape scale

To promote multiple use in forests characterized by multiple and sometimes confliction uses, the local situation and the forest owners choice need to be acknowledged and supported by business models

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Lars Högbom
Skogforsk

Helsinki EU Office
26/9/23

Question: Balancing conflicting goals?

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“the Trilemma”

Bio-based circular economy
More renewable resources – implying an increased use of wood.

Store more carbon
Increased sequestration and storage of carbon in the forest.

Restauration of ecosystems
Focus on biodiversity, and water quality.

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Executive Summary

We have different viewpoints depending on who we are; all valid but potentially conflicting.

Forests are multifunctional; they provide wood, store carbon and promote biodiversity.

Forest management can help sustain multiple goals, but we need to recognize unavoidable trade-offs.

Break down the silos!

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Research needs

Research on creating markets for biodiversity, water, carbon etc. Is it good or is it just green wash?

How to balance the use of the forest landscape

Long-term observations from forestry experiments and combining the historical knowledge with new experimental hi-tech dataflow

- Synthesis', time consuming and costly but needed.

There is a need to talk!
Why not in the forests

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Future research

Diversity in the forest landscape, includes clear-cut areas
- Importance of old-growth forests, forest edges, low productive forests

Role of active forestry and required adaptations
- Rotation lengths, share of old-growth forests
- Potential uses of currently economically less attractive tree species
- Use of different tree provenances to anticipate to climate change

Benefits of biodiversity and resilience vs. monetary values
- Long-term consequences of planning for short-term benefits
- Research needed to balance increased resilience with local demands
- Adapt forest management regulations, certification schemes
- The future demands of forests and forest landscapes are anticipated to be other and more diverse than the demands of today

Restoration critically important (UN Decade on Ecosystem Restoration)

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Coffee break

Programme will continue **10:30 CET**

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NORWEGIAN INSTITUTE OF BIOECONOMY RESEARCH

Luke
NATURAL RESOURCES INSTITUTE FINLAND

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LITHUANIAN RESEARCH CENTRE FOR AGRICULTURE AND FORESTRY

skogforsk

SLU

Eesti Maaülikool
EMU Estonian University of Life Sciences

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Forest Bioeconomy Network
Formerly EFINORD

Panel discussion with panelist and network speakers

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Concluding remarks

Knut Øistad

Senior advisor – forest policy,
Norwegian Institute of Bioeconomy Research NIBIO

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Closing words

Marius Lazdinis

Deputy Head of Unit, DG AGRI, European Commission

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