ForestValue2

Sustainable and multifunctional use of forest biomass

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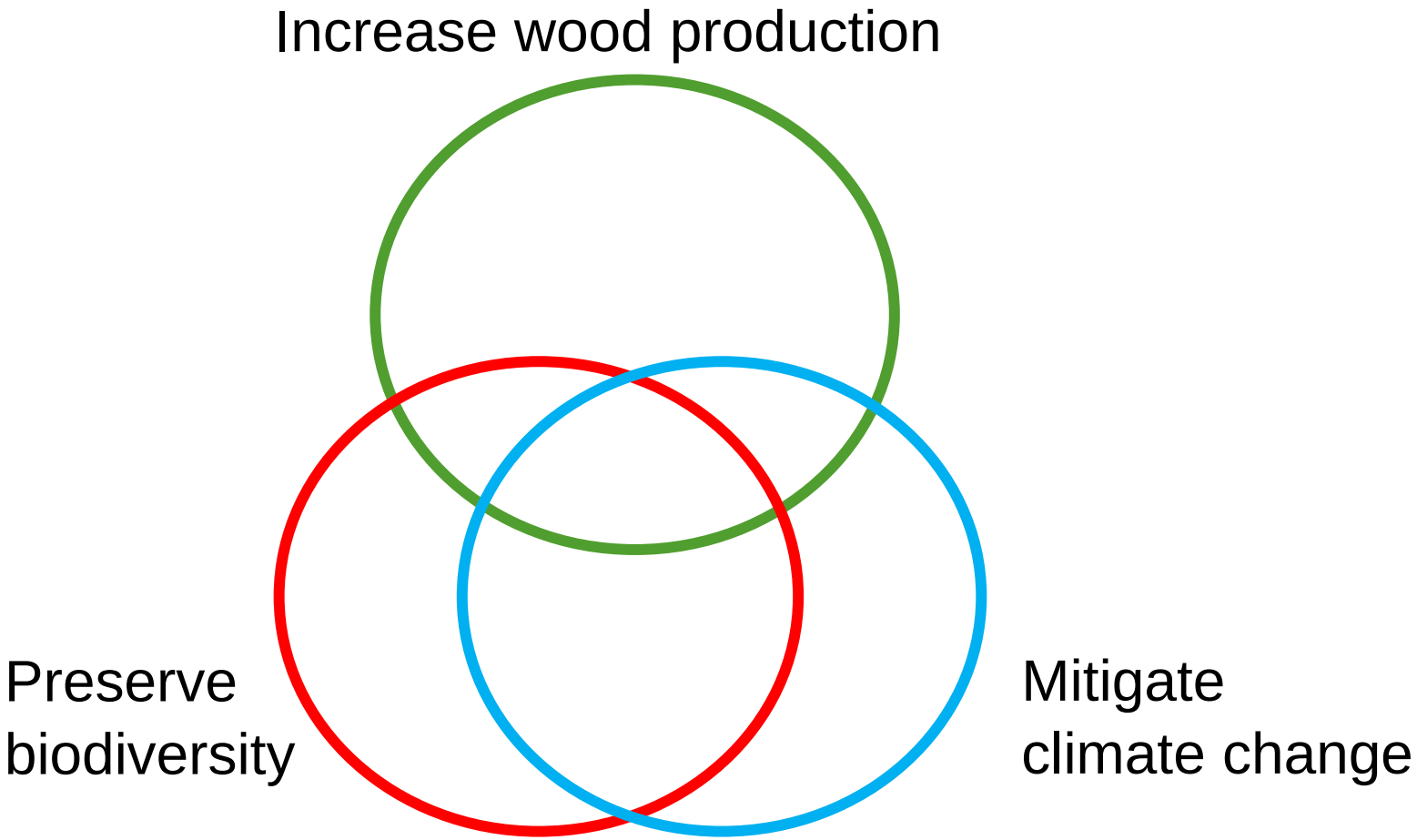
https://forestvalue.org/

Trade-off & synergies between objectives for the forest



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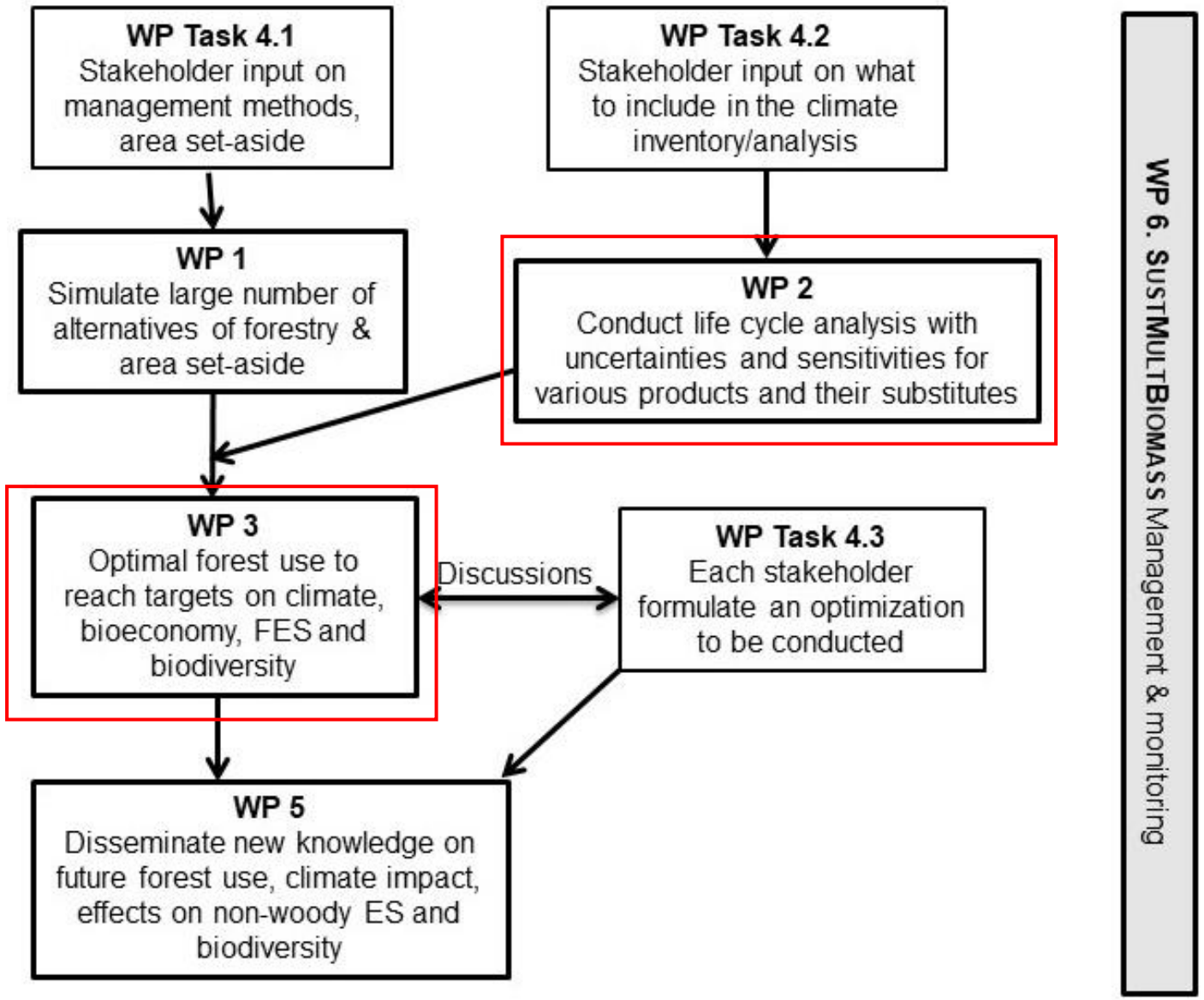
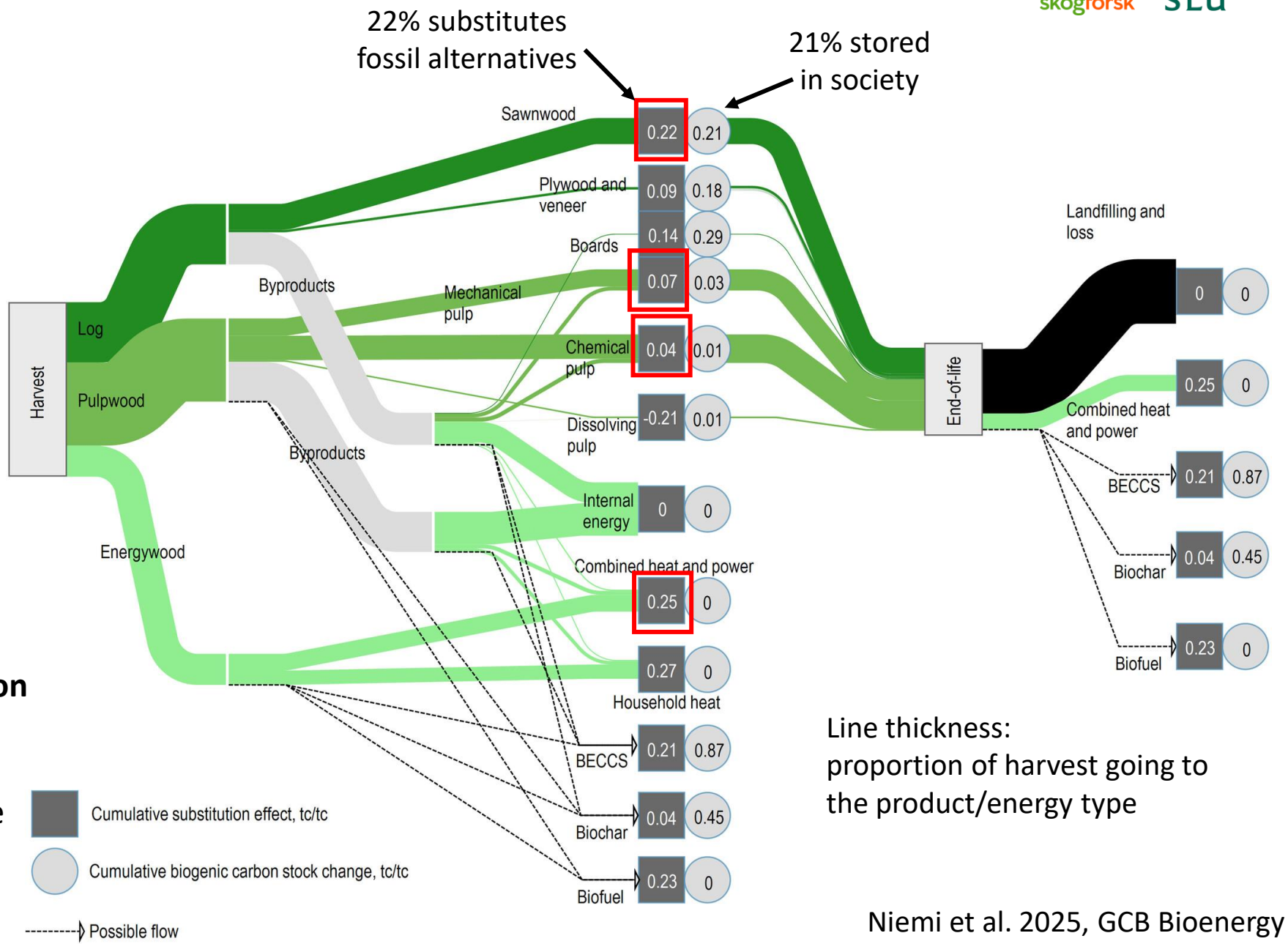


The use and climate effect of harvested wood

Today's Nordic **TCC ~ 0.5**

If **TCC >1**, then it would overcompensate for the forest carbon debit from harvesting and provide **climate benefit**.



If harvesting 1 m^3 of wood (**forest carbon debit**), how large proportion generates **technosphere carbon credits (TCC)** by

1. substituting a fossil-based alternative
2. storage in societal products?

Line thickness:
proportion of harvest going to the product/energy type

Niemi et al. 2025, GCB Bioenergy

Example questions answered

How will the Swedish forest carbon sink, biodiversity and harvest level develop with a forestry that cost-efficiently reach the climate LULUCF-regulation target by 2030 and beyond?

Here contrasted against (2) Business-As-Usual (BAU) and (3) Set-aside all forest (unrealistic, tech. reasons)

Projection of forest dynamics and management

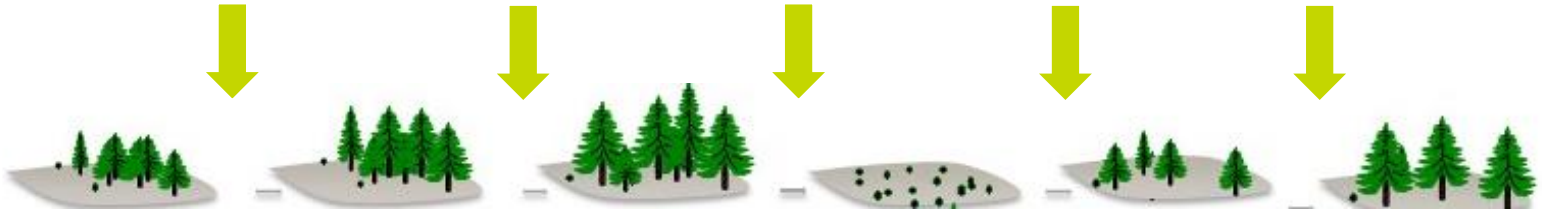
Activities e.g.:

- Planting
- Thinning
- Partial cutting (e.g. CCF)
- Final cutting

Models for e.g.:

- Growth
- Ingrowth
- Natural mortality
- Dead wood decomposition

stand 1



2025 2030 2035 2040 2045 2050

Variables describing the living stand, the deadwood, harvest assortments, e.g:

Harvested wood
Fuelwood for energy
Carbon storage in the forest
Volume of pine
Volume of dead spruce

} Basis for prediction of
- species
- balance of GHG (climate impact analysis)

Picture orig. Karin Öhman

30 biodiversity responses: understory plant diversity and conservation species

M. Krikorev 
wikipedia.c 
M. Krikorev 
M. Krikorev 
M. Krikorev 

T. Hallingbäck 



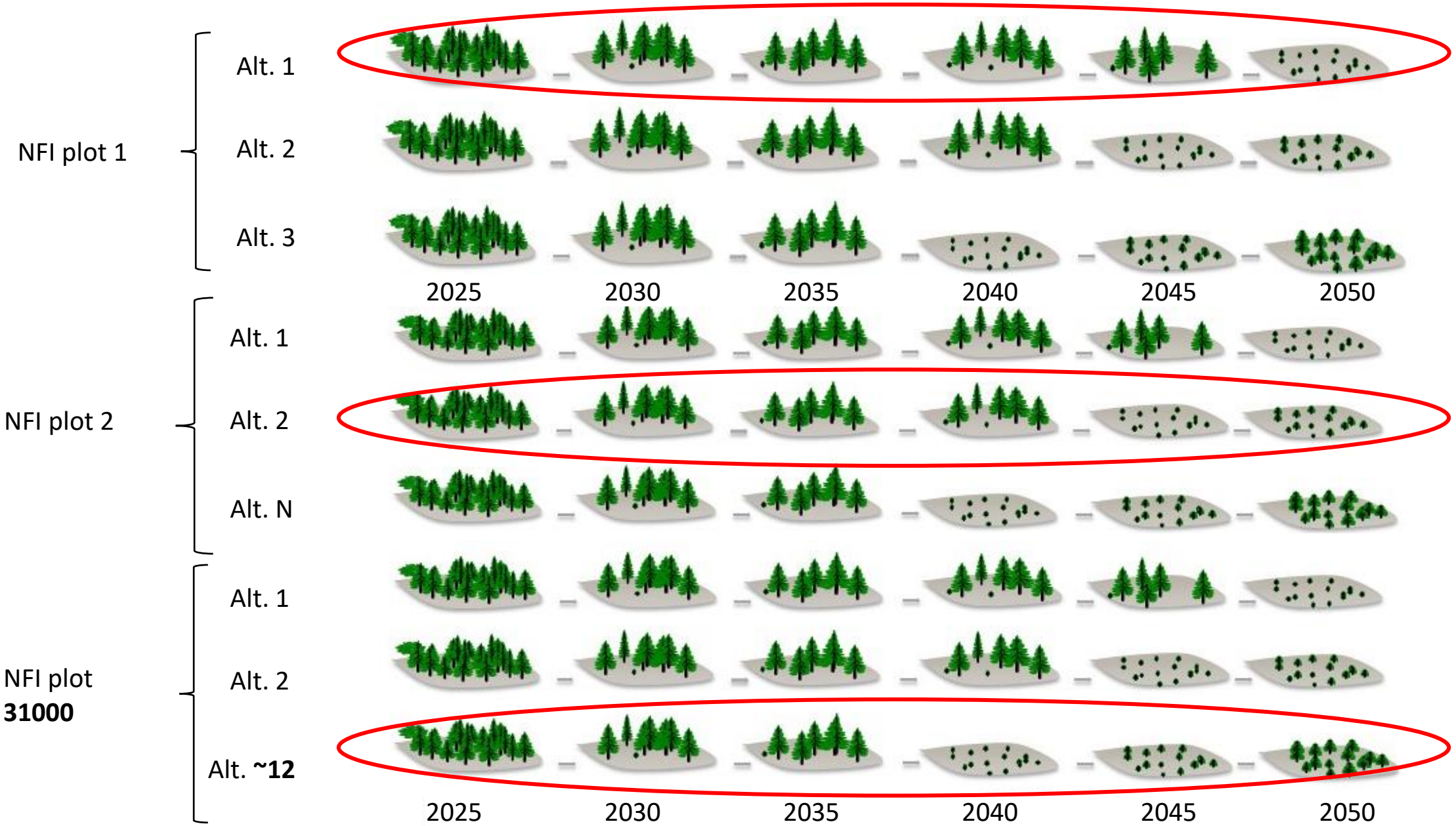
National Forest Inventory
(31000 plots)

wikipedia.c 
U. Bradter 
wikipedia.c 
wikipedia.c 

+ understory plant taxonomic and functional diversity

Löbel et al. 2021, Mair et al. 2018, Henckel et al. 2020

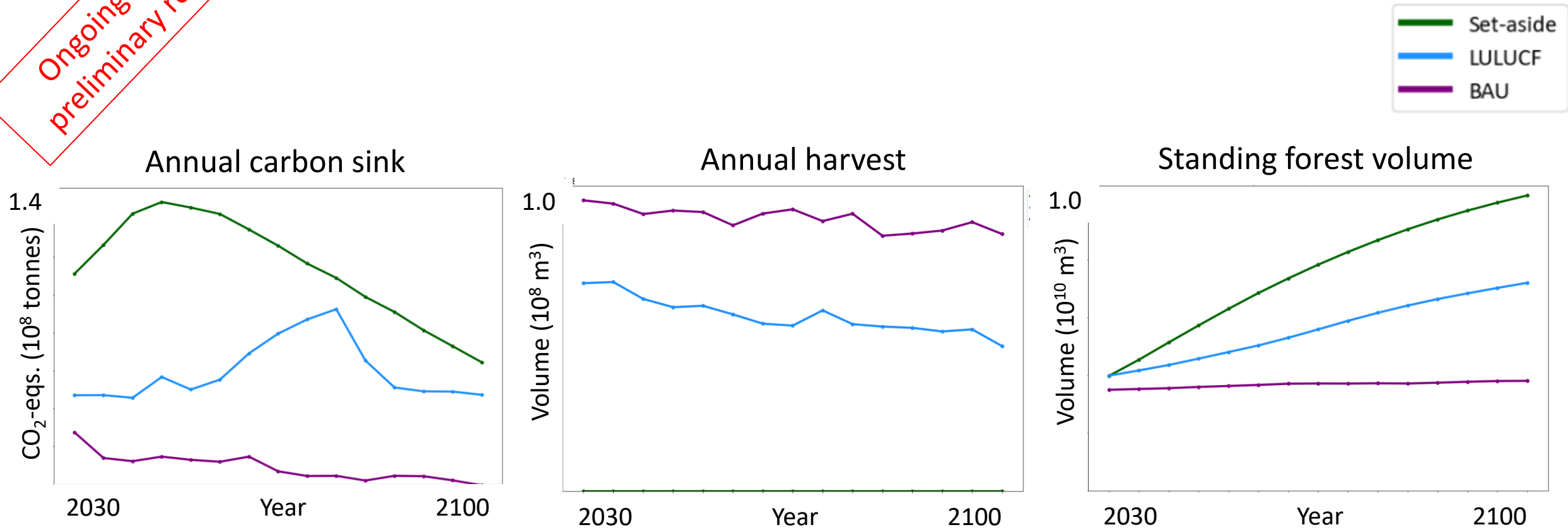
Many ways to manage 31000 NFI plots



Picture orig. :
Karin Öhman

Ongoing work, preliminary results

Carbon sink, harvests, standing forest volume



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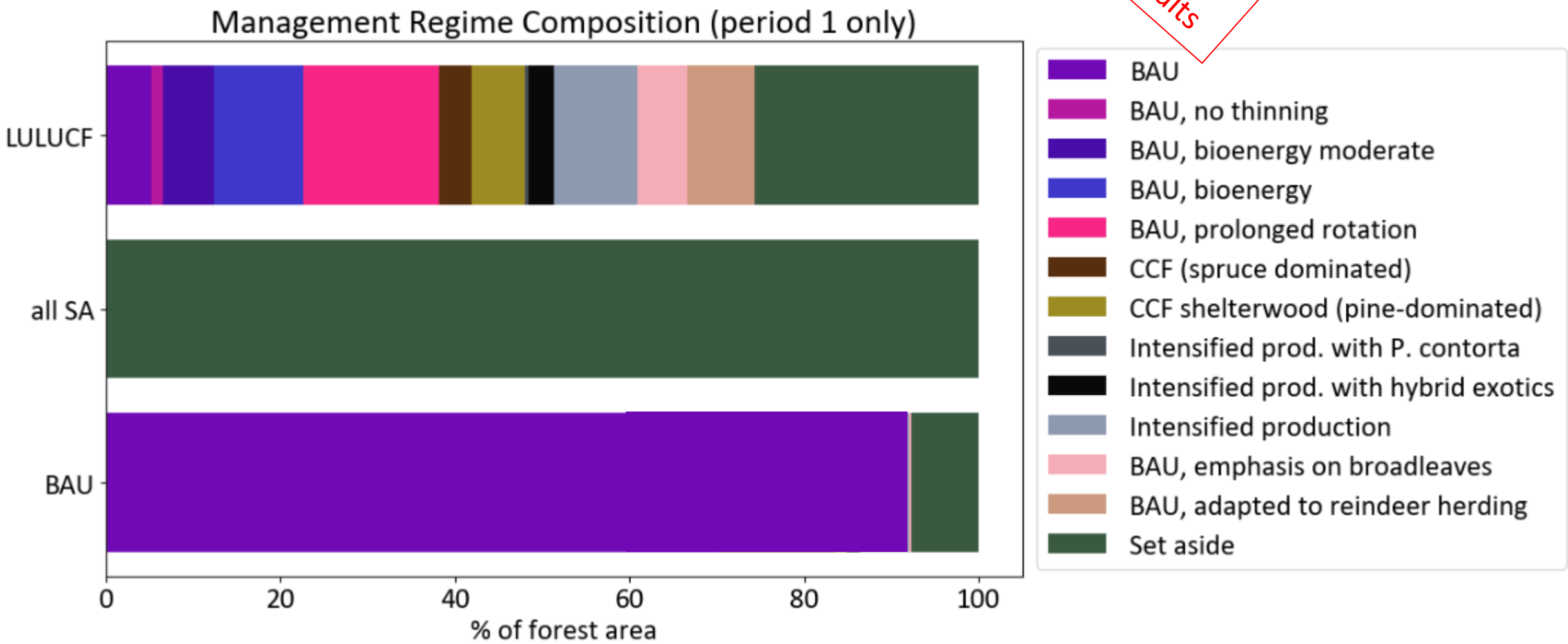
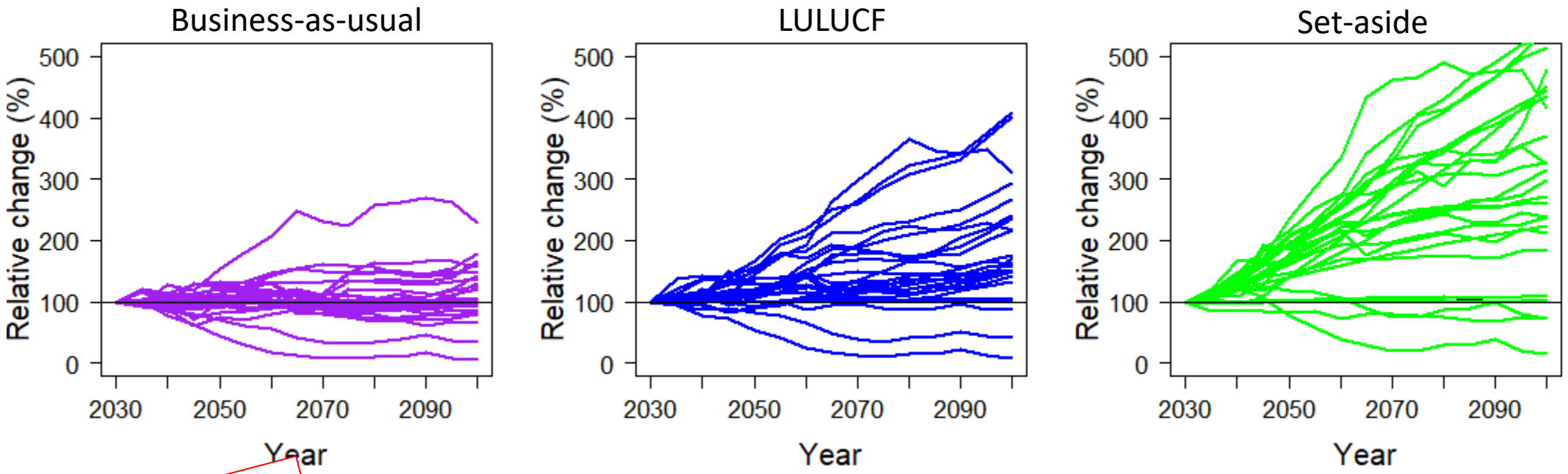
Ongoing work, preliminary results



30 biodiversity responses: understory plant diversity and conservation species



Ongoing work, preliminary results

Synthesis report *"Climate- and biodiversity-informed forestry and conservation in Fennoscandia"*

- meant to a broad range of non-scientific knowledge users, will describe the main findings and their implications to future forest management
- a simplified knowledge synthesis: "systematic map" or "rapid evidence assessment"
- PICO framework to help identify the key concepts, and to structure a literature review
- co-production with a Nordic stakeholder group

8279 articles; 1446 retained after screening,
50% so far reviewed

Stakeholders

Norway
Statskog
NORSKOG
Norges Skogeierforbund
Norwegian Bioenergy Association Nobio
WWF Norway
Norwegian Biodiversity Network SABIMA

Finland
Tapio
Finnish Energy Authority
WWF Finland
Finland's Nature Conservation Association

Sweden: corresponding to Norway & Finland

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Thank you!

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climate-forestry

F. Lingua

biodiversity-forestry

C. Montalvo-Mancheno

Climate LCA

J. Niemi

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