

Forest Vision: How natural forest management could enhance carbon sequestration in Germany

FERN/Greenpeace side event: Potential of natural forest management and restoration in limiting warming to 1.5 degrees

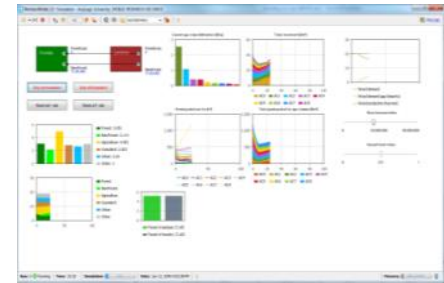
Öko-Institut

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The study was commissioned by Greenpeace.
Scenario development took place in co-operation with Naturwald Akademie (Lübeck).

Motivation and goals of Forest Vision

Motivation:

- Spark a debate on the development of future-proof, sustainable and ecological forestry in Germany



Goals

- Develop a scenario for alternative ecological forest management in Germany, so the so-called 'Forest Vision'
- Compare the Forest Vision with a Base Scenario and a Timber Scenario by means of a simulation model
- Computing indicators related to climate protection, biodiversity and economy

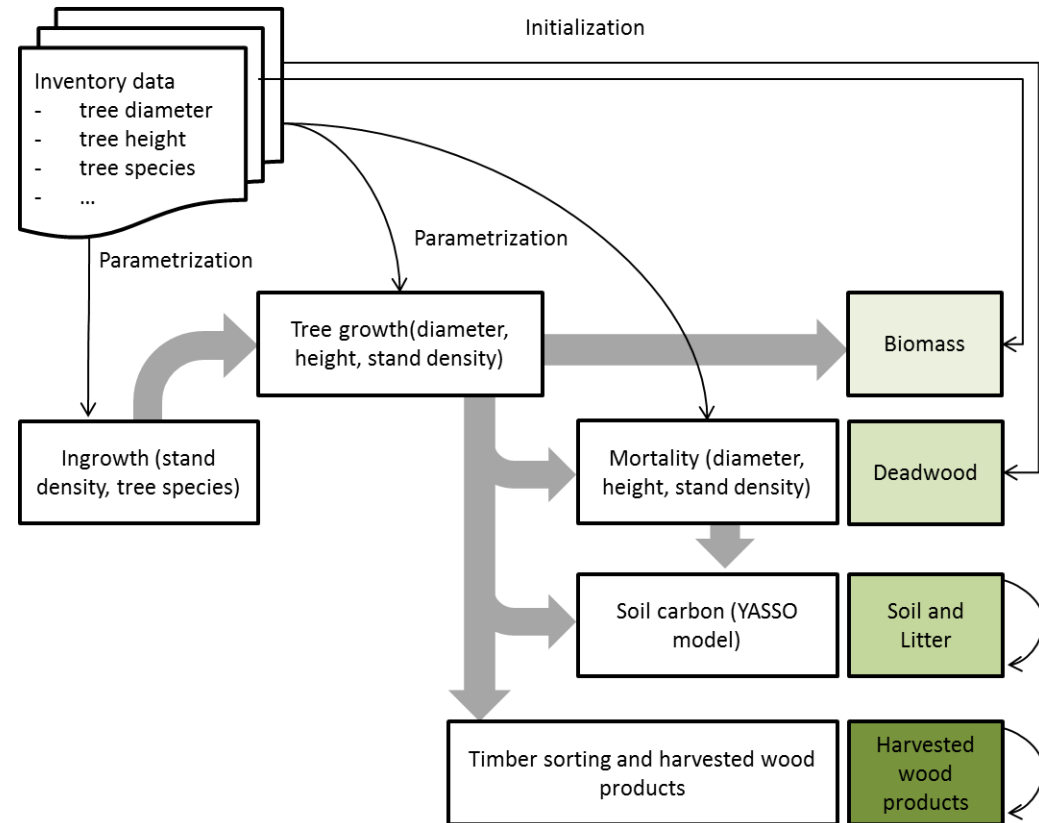
Model structure and data

Sub-models:

- Tree growth model
- Ingrowth model
- Mortality model
- Deadwood model
- Soil carbon model
- Sorting and classification of wood products

Data source

- Forest inventories 2002 and 2012
- Simulation for >18.000 plots



FABio – **F**orestry and **A**griculture **B**iomass Model

Scenarios and management settings

Base Scenario:

- Projection of existing conditions

Timber Scenario

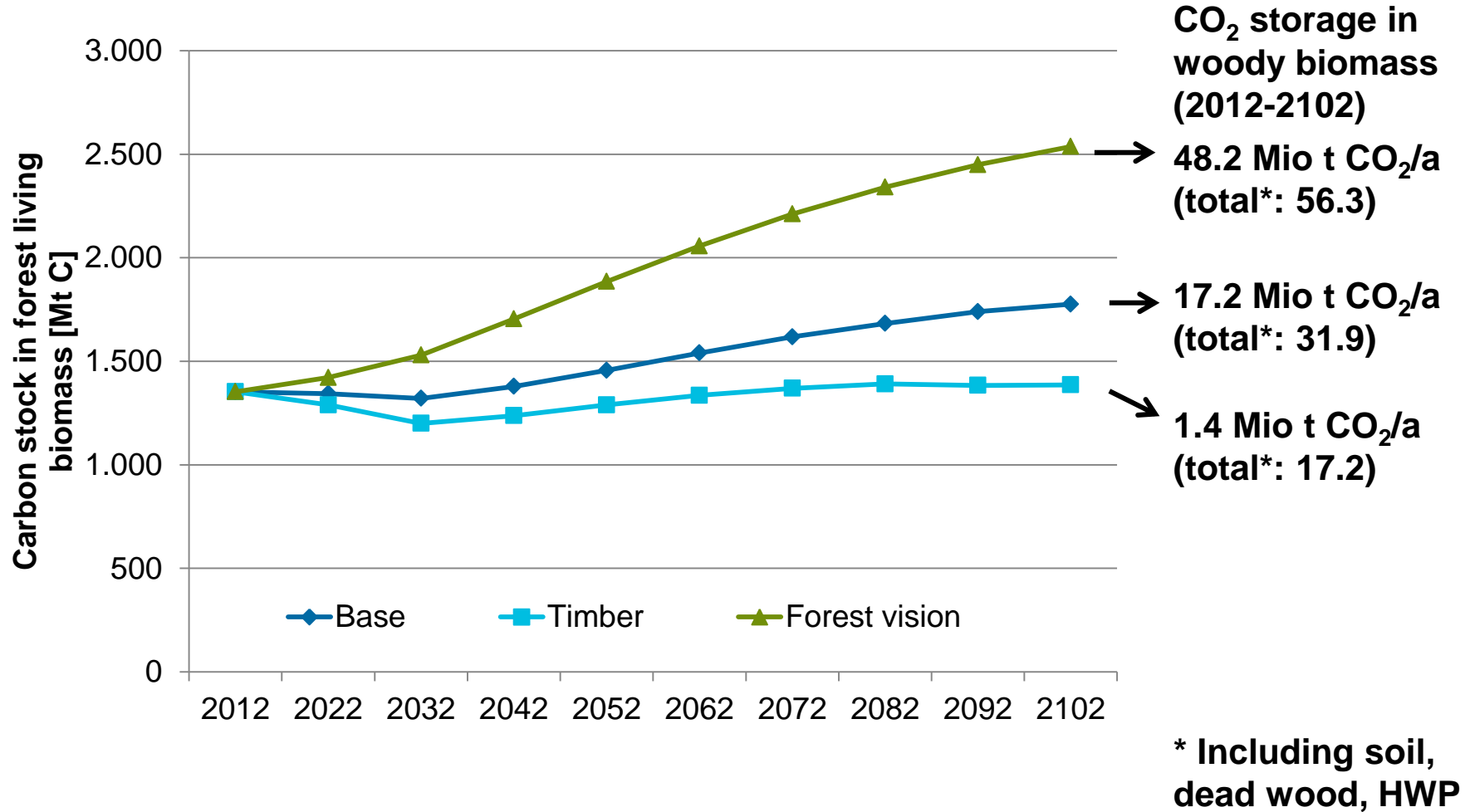
- Support of coniferous trees
- Intensification of forest management (higher thinning and extraction rates)

Forest vision

- Support of broadleaf trees
- Reduced management intensity and increased target diameters
- Additional protection of areas of rare natural forest communities and old forests (16.6% instead of 4.1%)

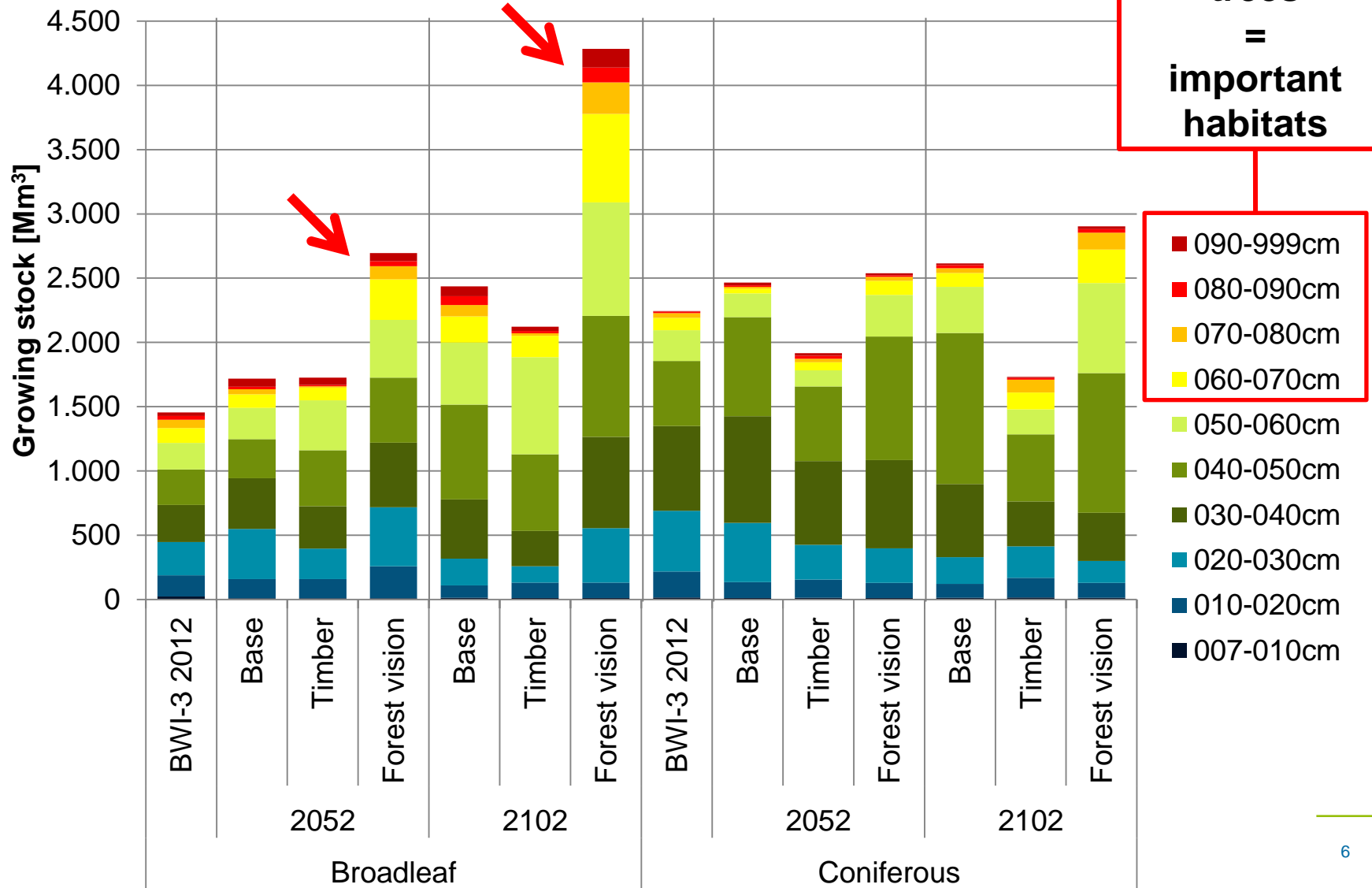
Strong synergies btwn. climate and nature protection

– Carbon stock in forest living biomass –

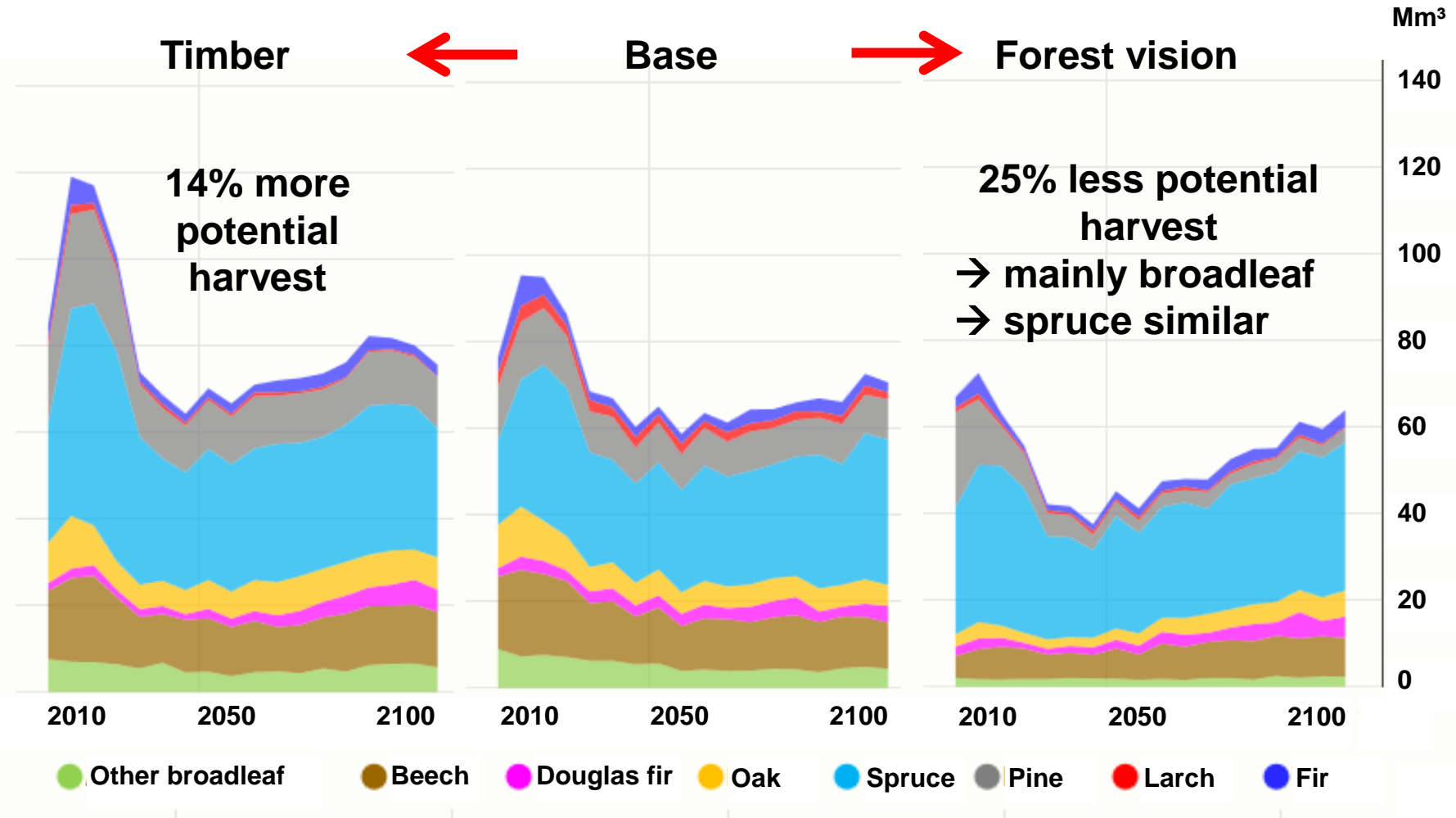


Strong synergy btwn. climate and nature protection

– Diameter classes –



Wood supply



Forest Visions' take home messages

Strong synergies between climate and nature protection...

- More extensive forest management
 - Maintained CO₂ sink in forests and HWP
 - Strong habitat improvements

...but not for free:

- 25% less wood supply
 - Still high production of spruce wood (currently main source for material use)
 - Reduced availability of broadleaf wood (currently about 50% used for direct energy wood)
- Needed: Significant increase in the efficiency of wood use through more material and less direct energetic use

Urgent questions

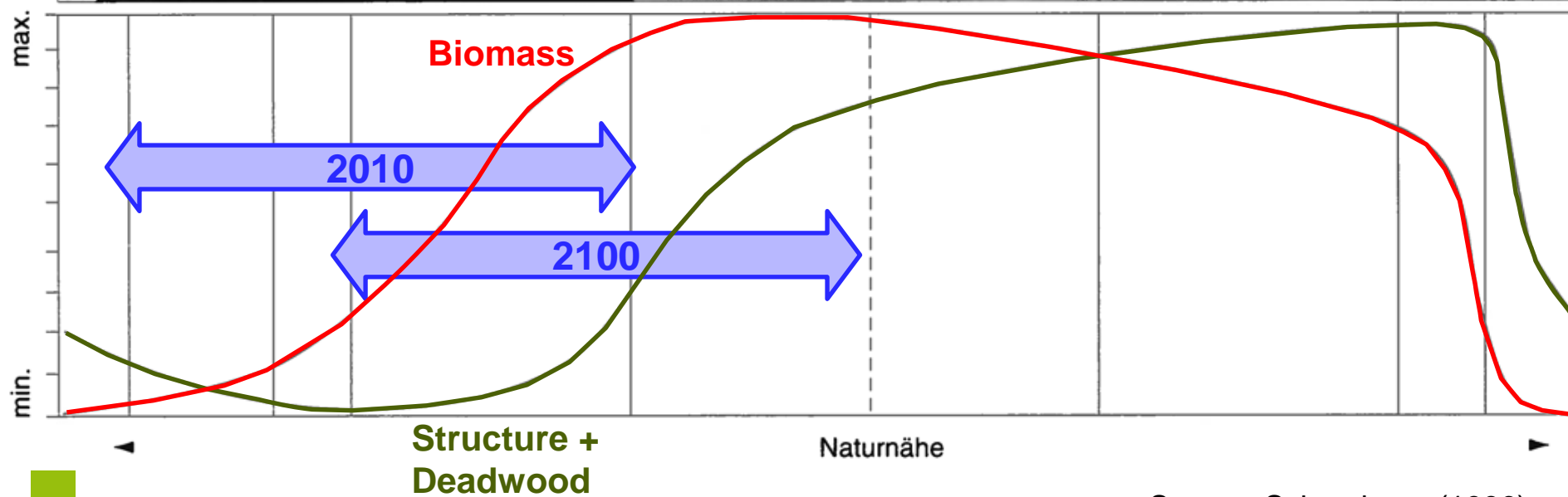
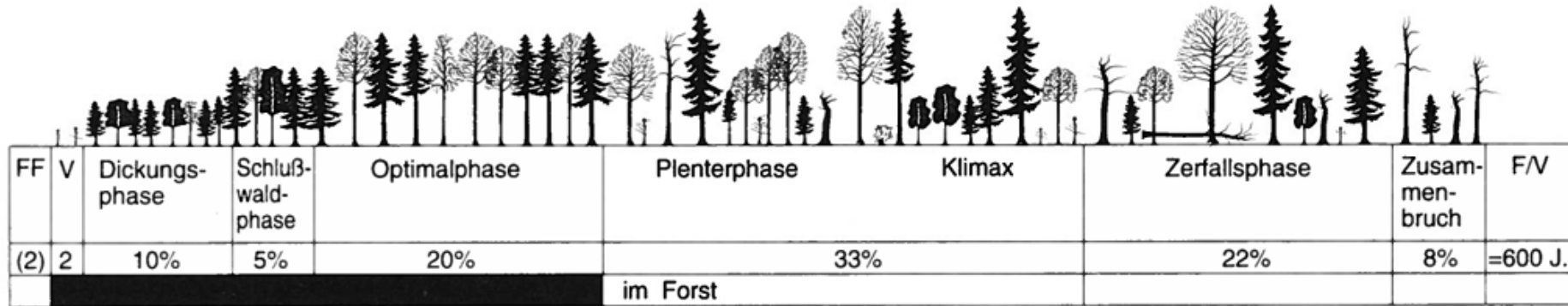
- How large are potential substitution effects (problem of data availability and reducing rates with higher decarbonisation in the future)?

Substitution effects (kg CO ₂ -eq / kg CO ₂ in wood)	today	2050	2100
Materials	1-2	?	?
Energy	ca. 0.5		

Rüter et al. (2016)
Frühwald/Knauf (2013)

- Which volume levels can be achieve?
 - Volumes per ha in 2102 are high in Scenario Forest Vision (mean 686 m³/ha; 23% > 1.000 m³/ha).
 - Also forest inventory data show plots with high volumes (1% > 1.000 m³/ha)

Wald-Mosaik-Zykuls-Konzept (Forst Cyclic Succession)



Source: Scherzinger (1996)

Overall conclusion



Thank you for your attention!

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