Öko-Institut e.V.
Institut für angewandte Ökologie
Institute for Applied Ecology

Forest Vision Germany

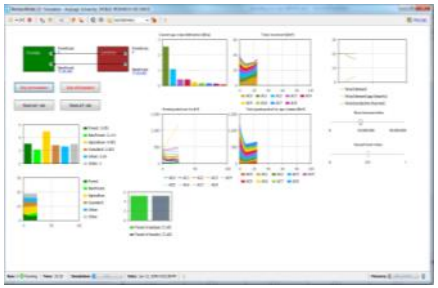
Fern panel event:

„Achieving the 1.5° target with forests – What role for the EU?"

Öko-Institut
Dr. Klaus Hennenberg
Dr. Hannes Böttcher (Project Coordination)
Christian Winger

Brussels, 7. March 2018



The study was commissioned by Greenpeace.
Scenario development took place in co-oppartion 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

Intensive forest management for climate protection?

Extensive forest management aiming at synergies between climate and nature protection?

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

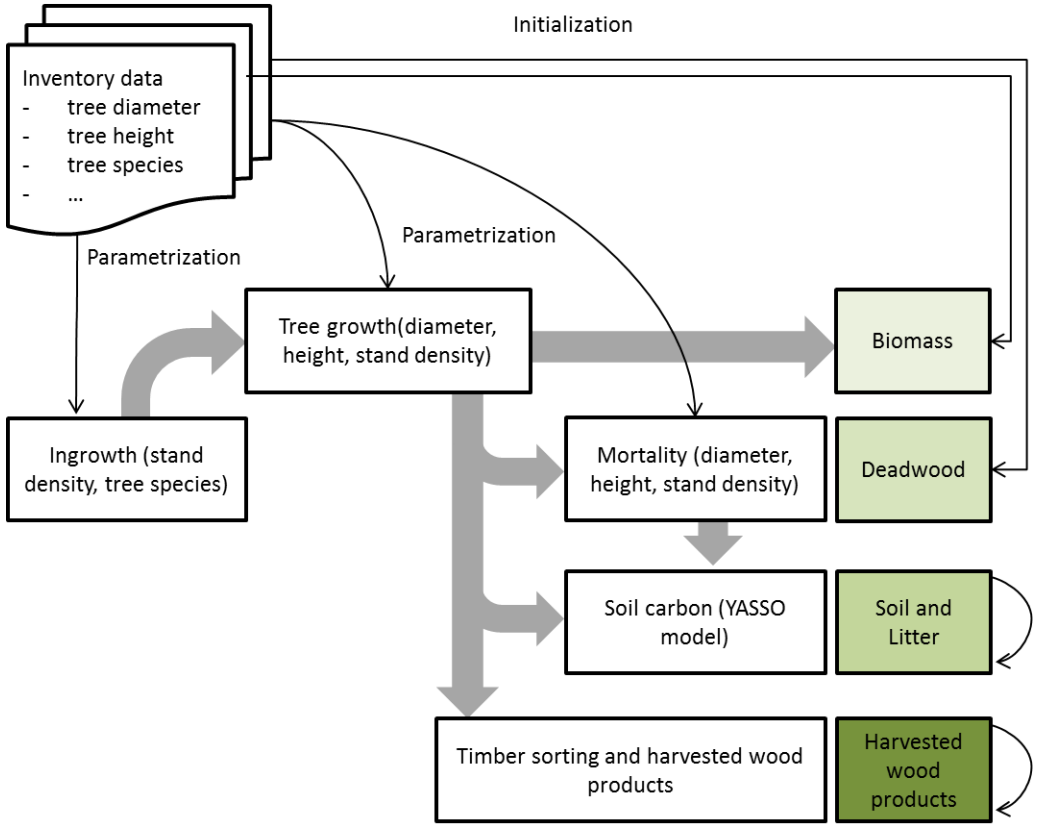
Model structure and data

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 **Bio**mass Model

Scenarios and management settings

Base Scenario:

- Projection of existing conditions

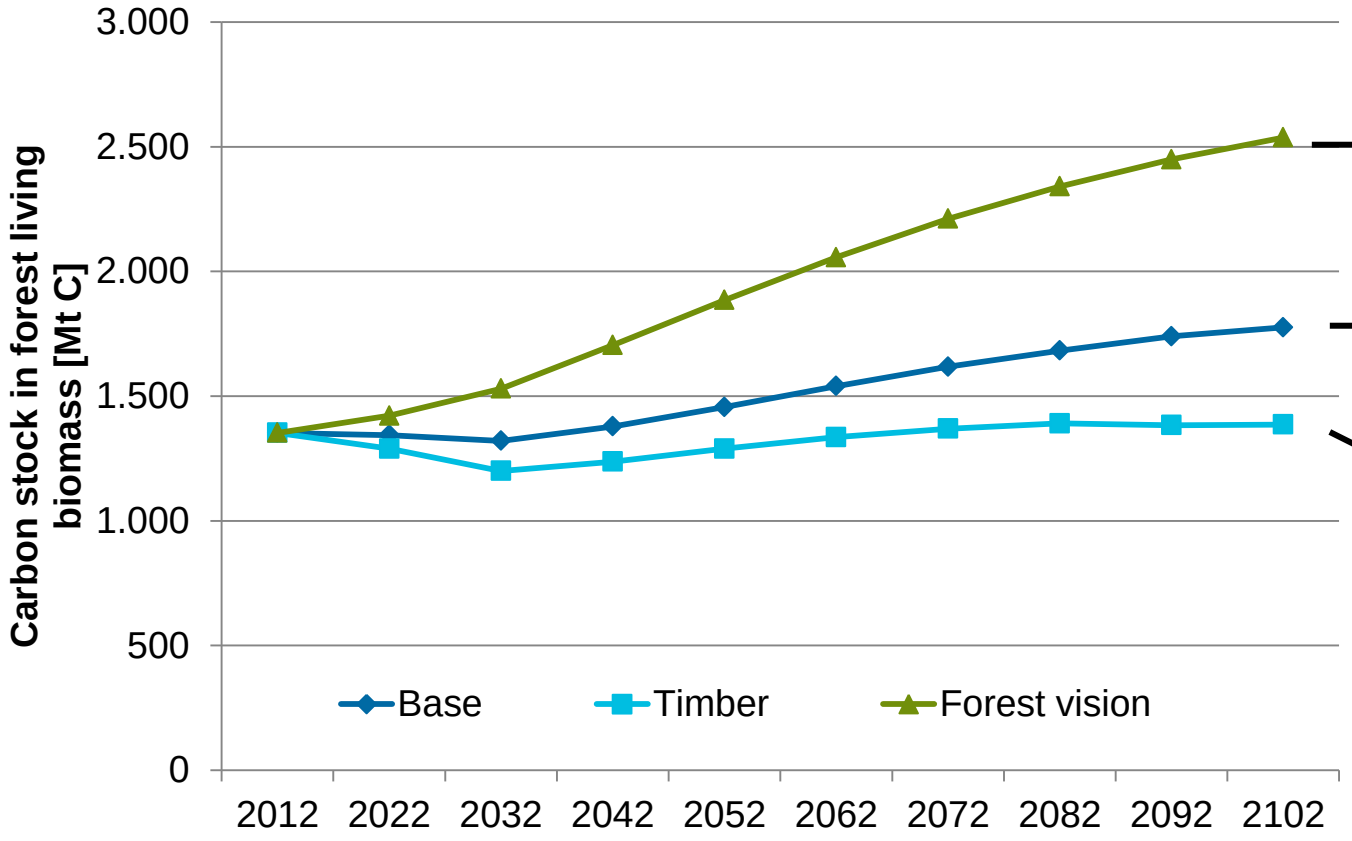
Timber Scenario

- 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 –



CO_2 storage in woody biomass (2012-2102)

48.2 Mio t CO_2/a (total*: 56.3)

17.2 Mio t CO_2/a (total*: 31.9)

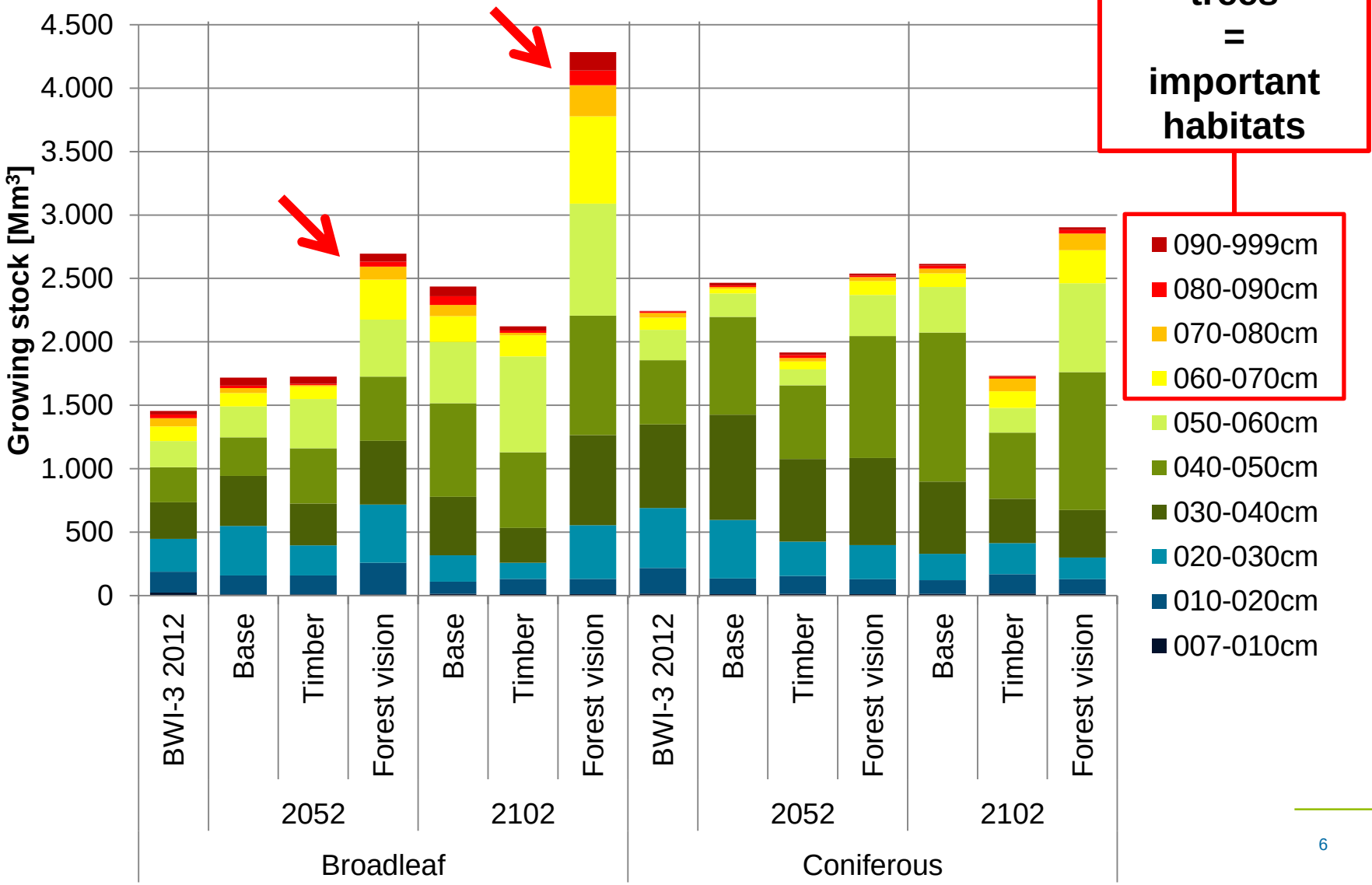
1.4 Mio t CO_2/a (total*: 17.2)

*** Including soil, dead wood, HWP**

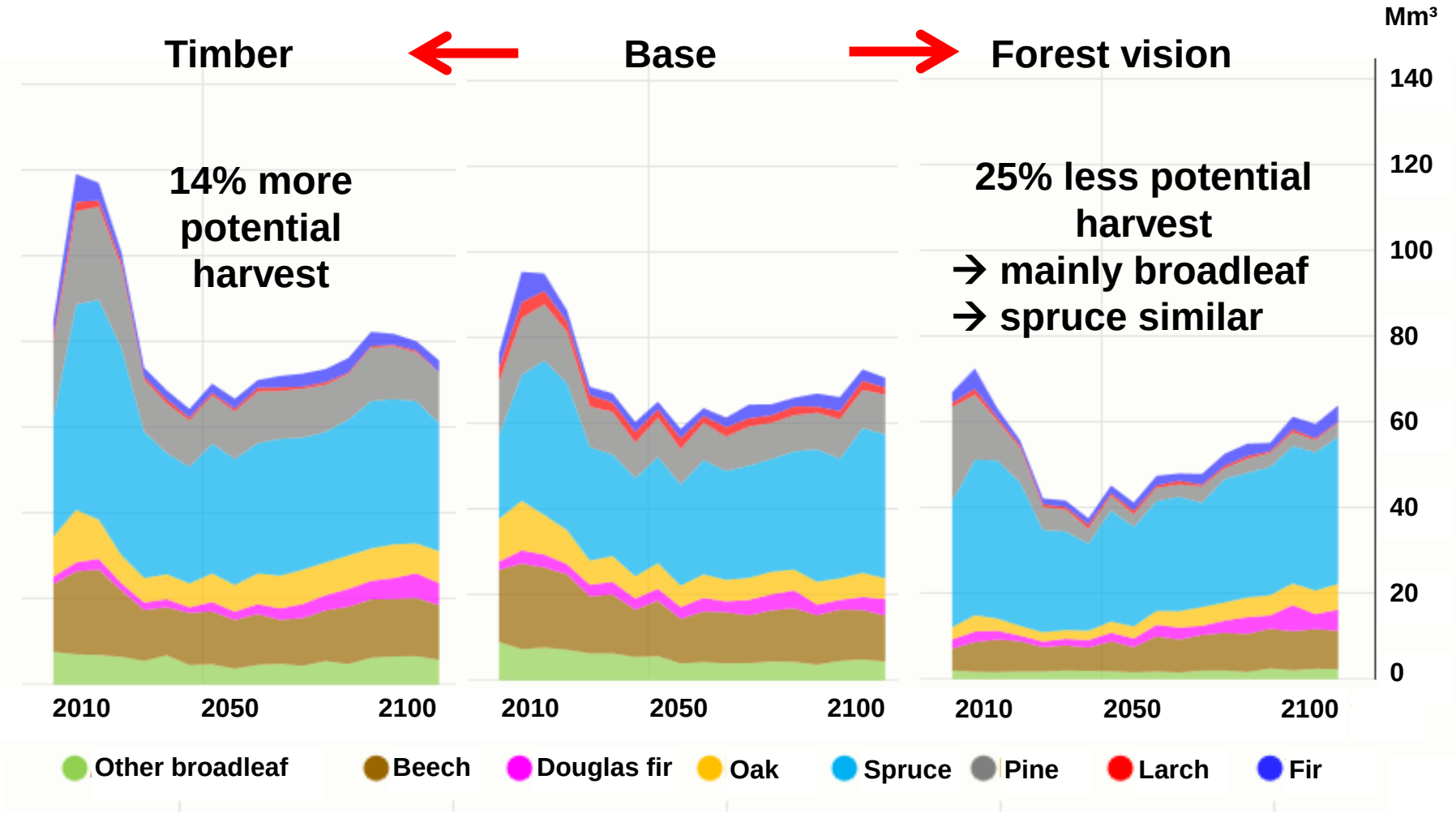
Accounting period (2021-2030):

- Base: 22 Mio t CO_2/a → reference level
- Timber: debit of -16 Mio t CO_2/a
- Forest vision: credit of + 28 Mio t CO_2/a

Strong synergy btwn. climate and nature protection – Diameter classes –



Wood supply


Timber
Base
Forest vision
Mm³
140
120
100
80
60
40
20
0
14% more potential harvest
25% less potential harvest
→ mainly broadleaf
→ spruce similar
2010
2050
2100
2010
2050
2100
2010
2050
2100
Other broadleaf
Beech
Douglas fir
Oak
Spruce
Pine
Larch
Fir

Forest Visions' take home messages

Strong synergies between climate and nature protection…

- More extensive forest management
  - Maintained CO_2 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)

- May the support of direct use of wood for energy under the RED II impair synergies between climate and nature protection?

	EU Gross final energy consumption (Mtoe)	Roundwood equivalent (Mm^3)	Mean annual increment of EU 28 (Mm^3)
Heating and cooling (mean 2020 and 2030)	513	**Heat pumps? Solar? Wood?**	
Share additional renewable energy (2030: 10%)	51,3	236	744

Hennenberg et al. (2017): https://www.oeko.de/publikationen/p-details/short-analysis-of-the-red-2009-the-iluc-directive-2015-and-the-2016-red-proposal-regarding-implicat/

Overall conclusion

Nature conservation goals + **Climate protection goals** = **Forest Vision**

Thank you for your attention!

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