THINKFOREST

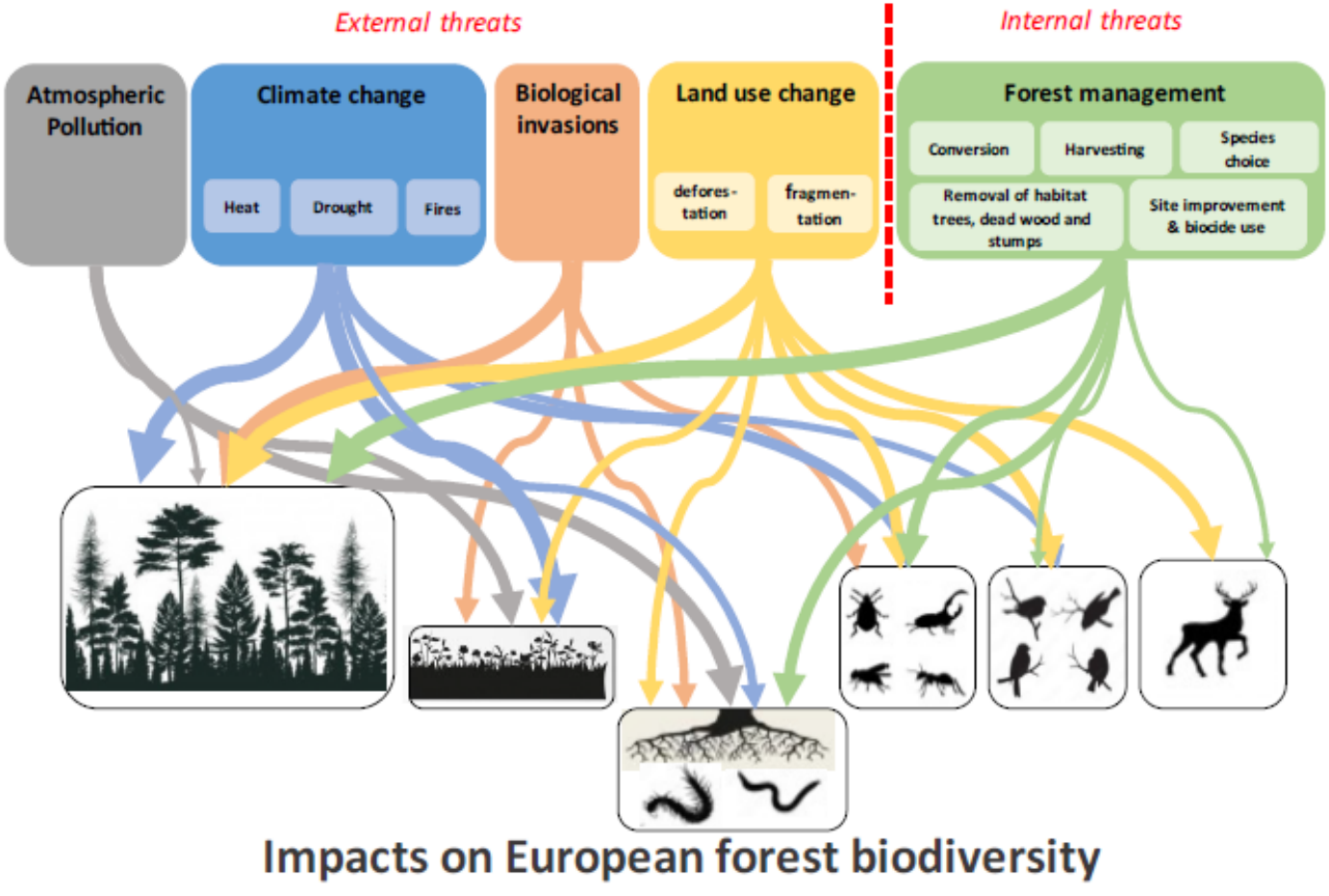
Facilitated by European Forest Institute

What science can tell us about Forest Biodiversity in Europe

Bart MUYS, KU Leuven

30 May 2022, State Philharmonic, Sibiu, Romania

Threats to European forest biodiversity



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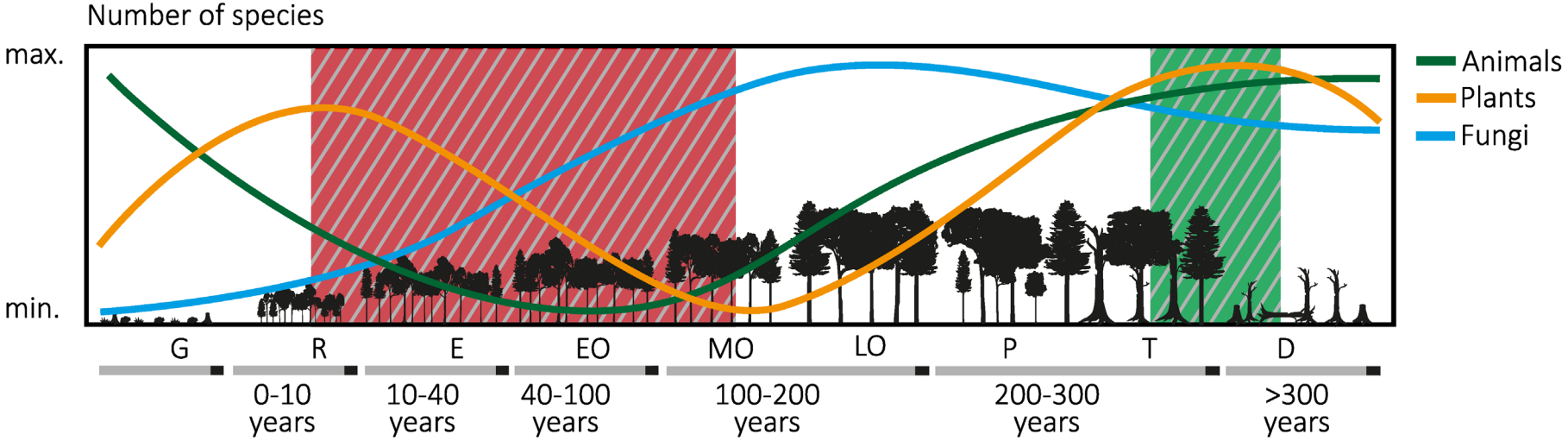
Potential mismatch between forest management and biodiversity



G = gap; R = regeneration; E = establishment; EO = early optimum; MO = mid-optimum; LO = late optimum; P = plenter; T = terminal; D = decay (after *Hilmers et al. 2018*).

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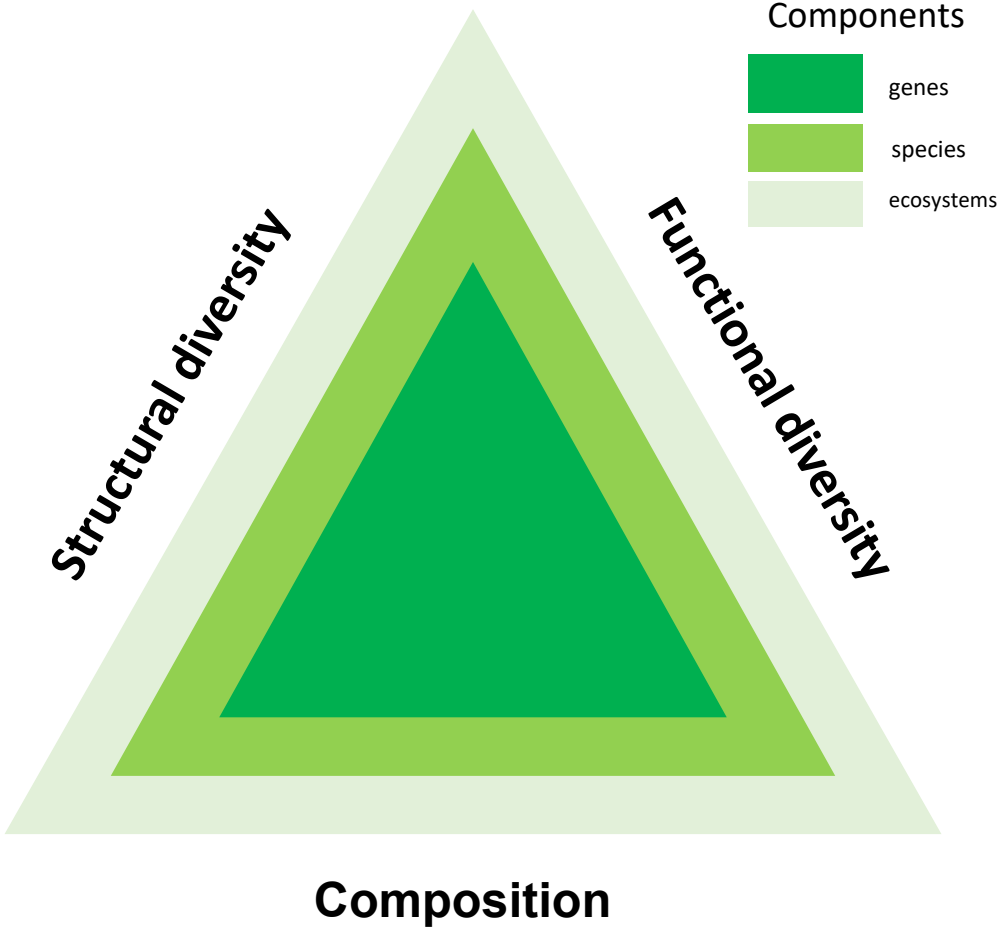
Elements of forest biodiversity



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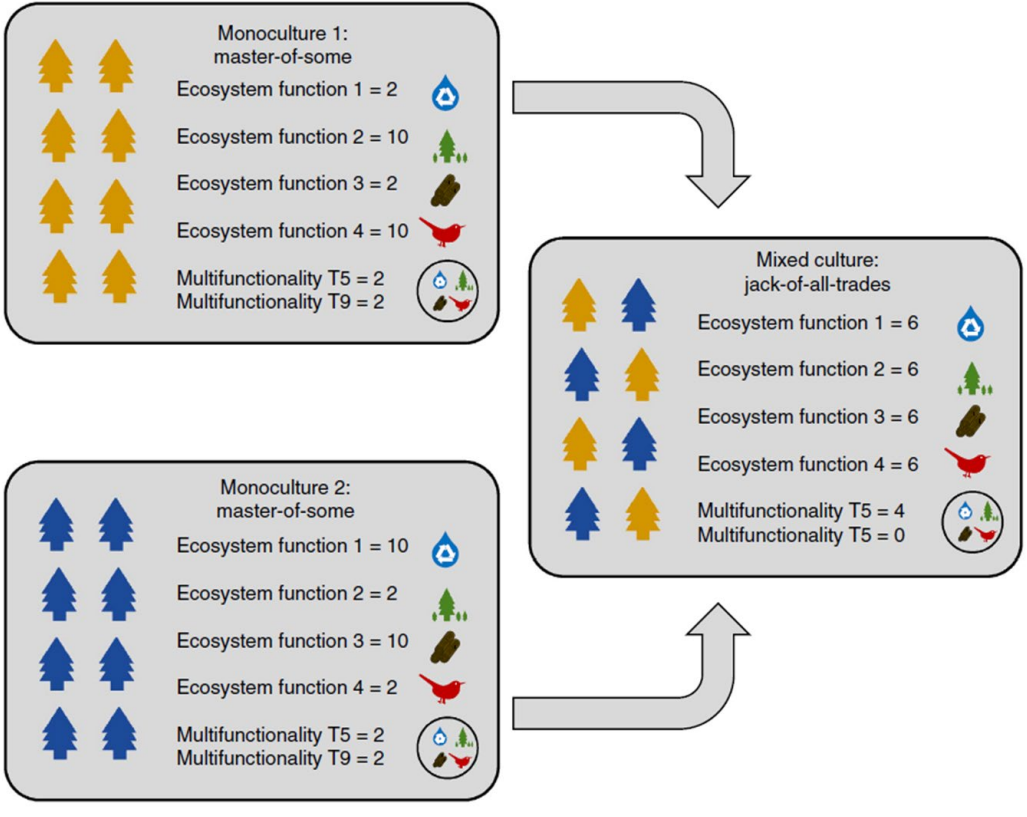
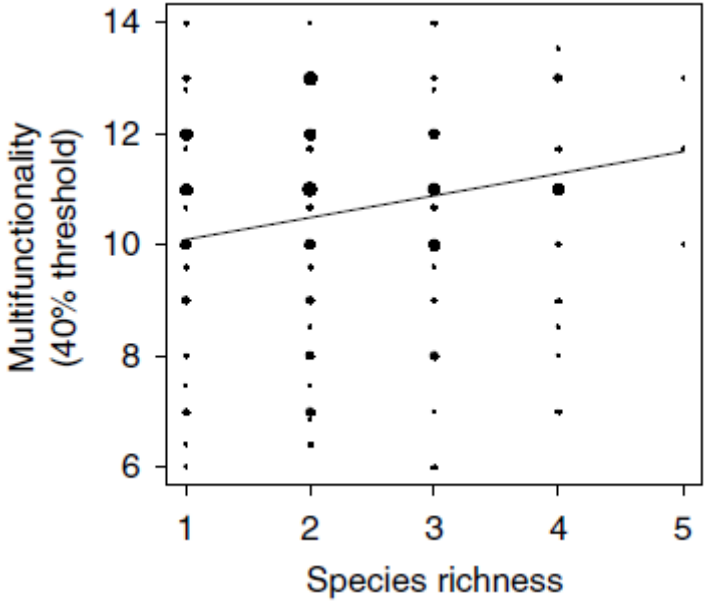
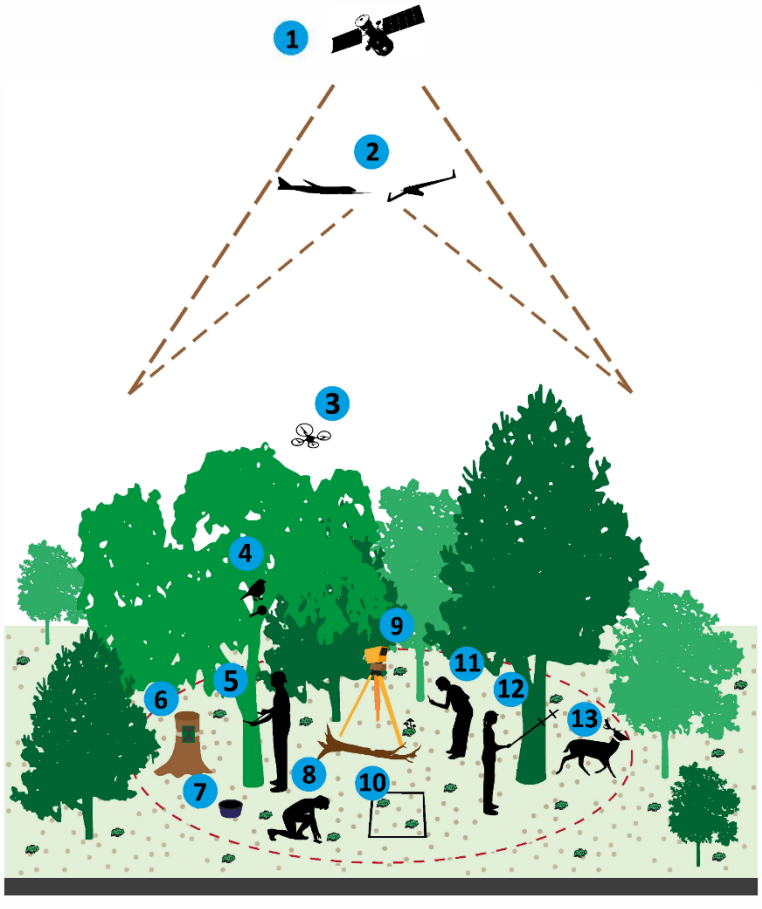
Dimension functional diversity





van der Plas et al. 2016, Nature Communications

Monitoring biodiversity



1. Satellite imagery
2. Airplane & UAV imagery
3. Drone imagery
4. Sound recorder
5. Tree inventory
6. Camera trap
7. Pitfall trapping
8. eDNA sampling
9. Ground-based LIDAR
10. Vegetation relevé
11. Citizen science with cell phone
12. Wildlife officer receiving antenna
13. Transmitting collar

NFI: diversity gain in standard forests
Habitat Directive: diversity loss in threatened ecosystems
= not a contradiction

Future:

- Boost NFI
- Develop high-tech
- Develop citizen science
  - Obsidentify
  - Plant.Net
  - iNaturalist
  - iNaturalist seek

Biodiversity is fun…

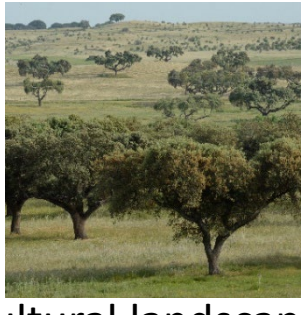
Using which management approach?

Biodiversity oriented forest management

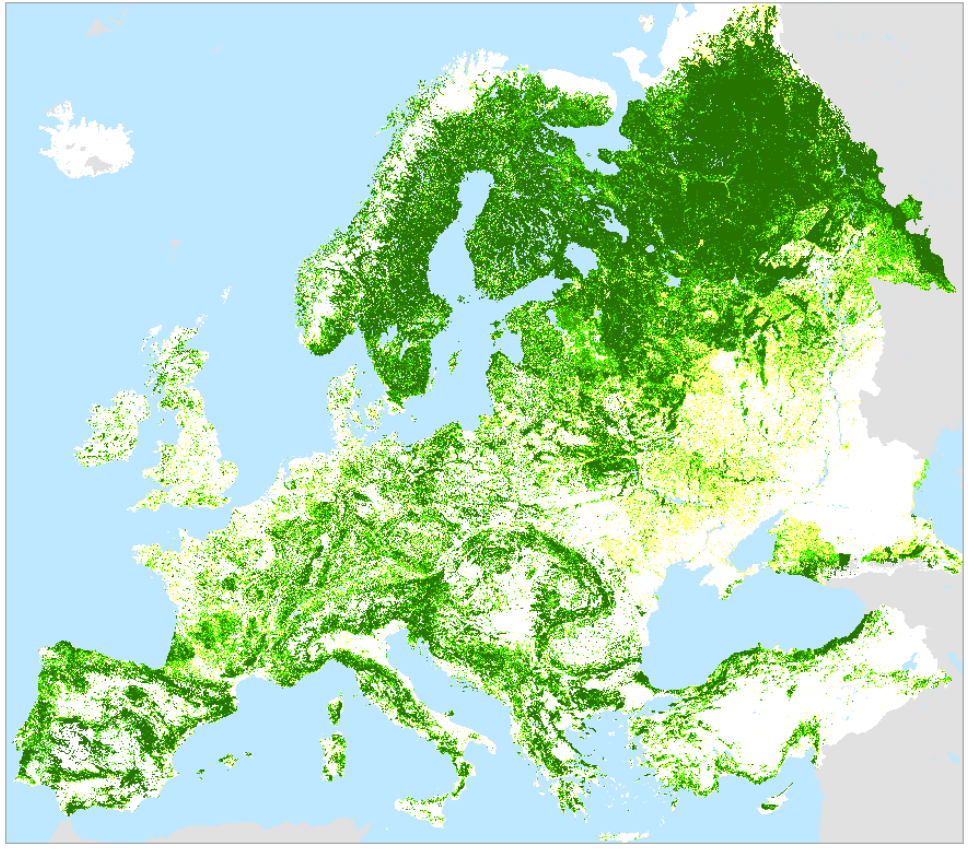
2 complementary visions – inspired by legacies

Cultural landscapes

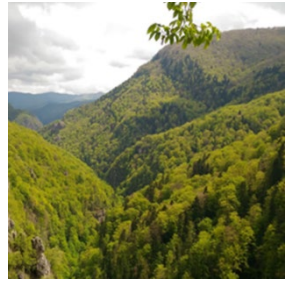
Ancient forests



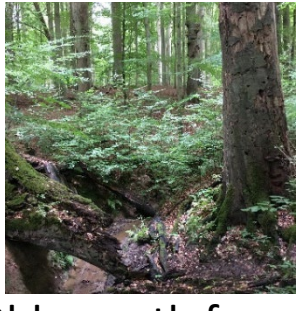
Cultural landscapes



Naturalness



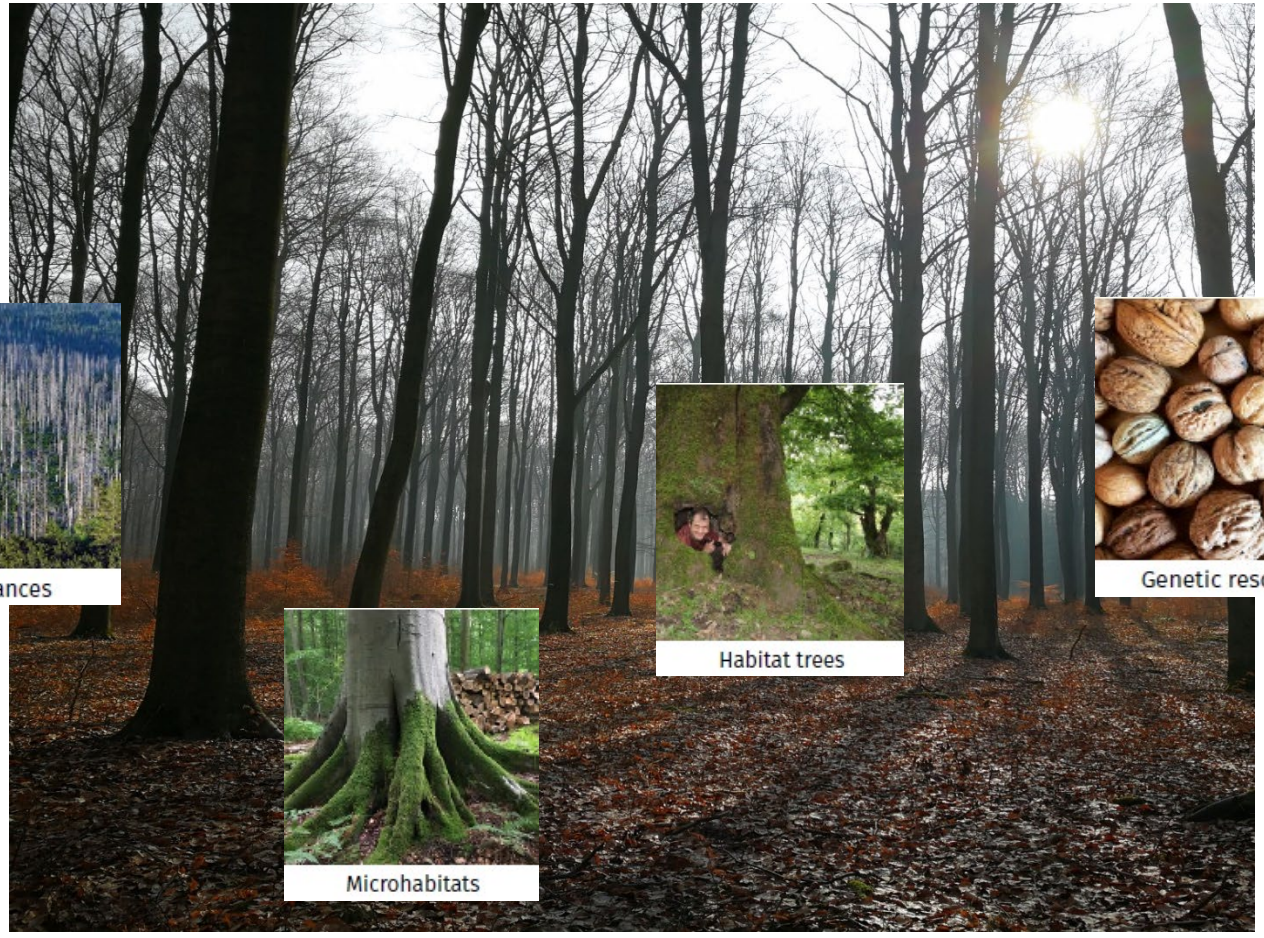
Primary forests

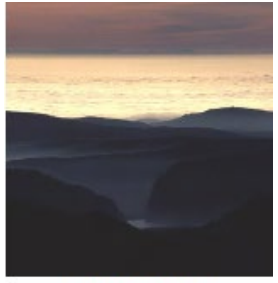


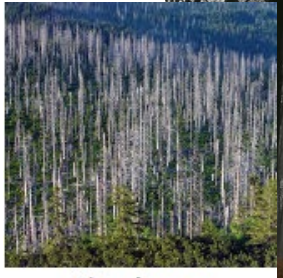
Old growth forests

Biodiversity can be fostered in any forest


Tree species mixture




Connectivity


Disturbances

Genetic resources

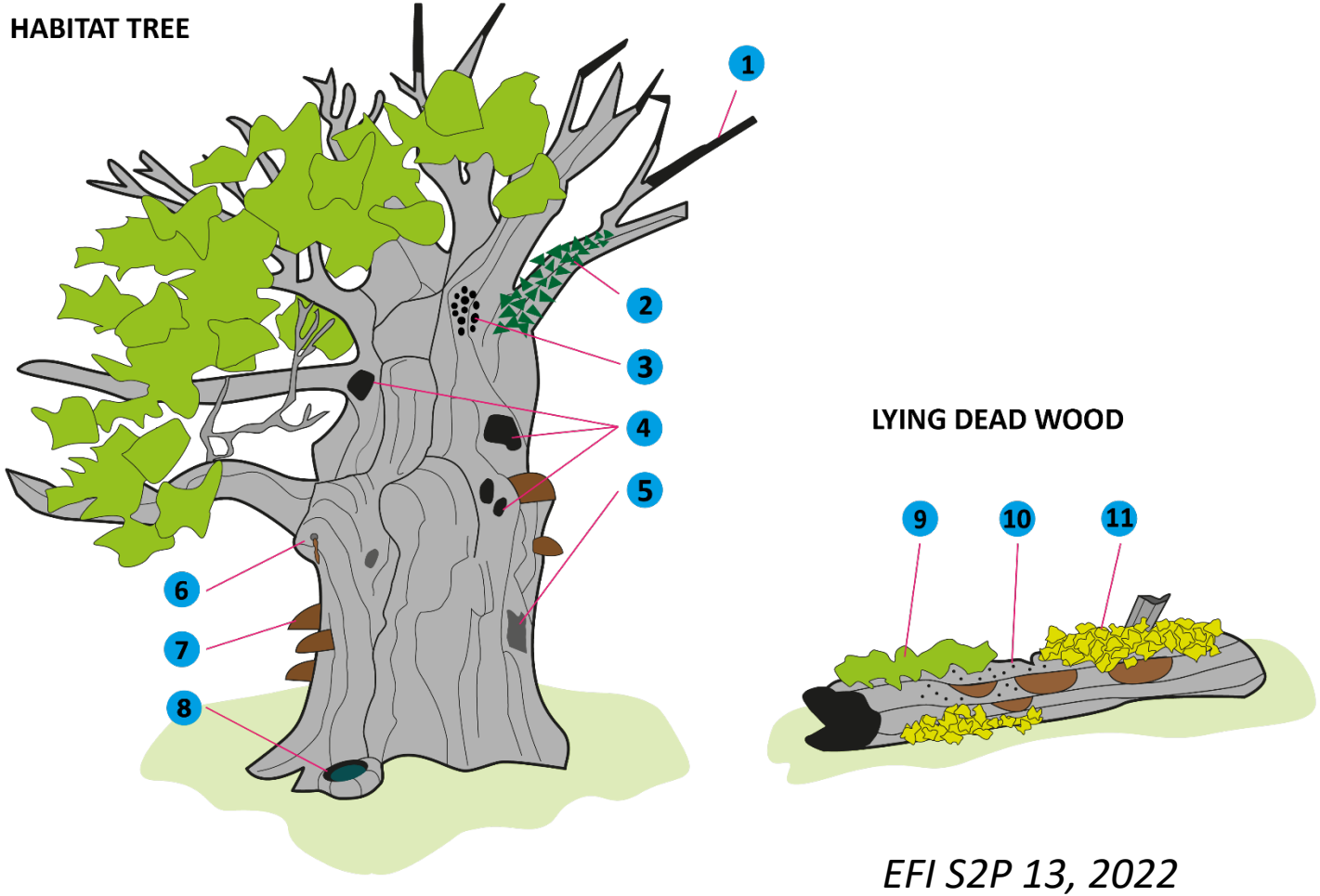
Habitat trees


Deadwood

Microhabitats


Rare biotopes

Microhabitats



1. Crown deadwood
2. Lichens and mosses
3. Woodpecker holes
4. Cavities and rot holes
5. Tree injuries and exposed wood
6. Exudates
7. Fruiting bodies of saproxylic fungi and slime moulds
8. Waterpool called dendrotelm
9. Seed bed for new tree seedlings
10. Boreholes of insects
11. Lichens and mosses

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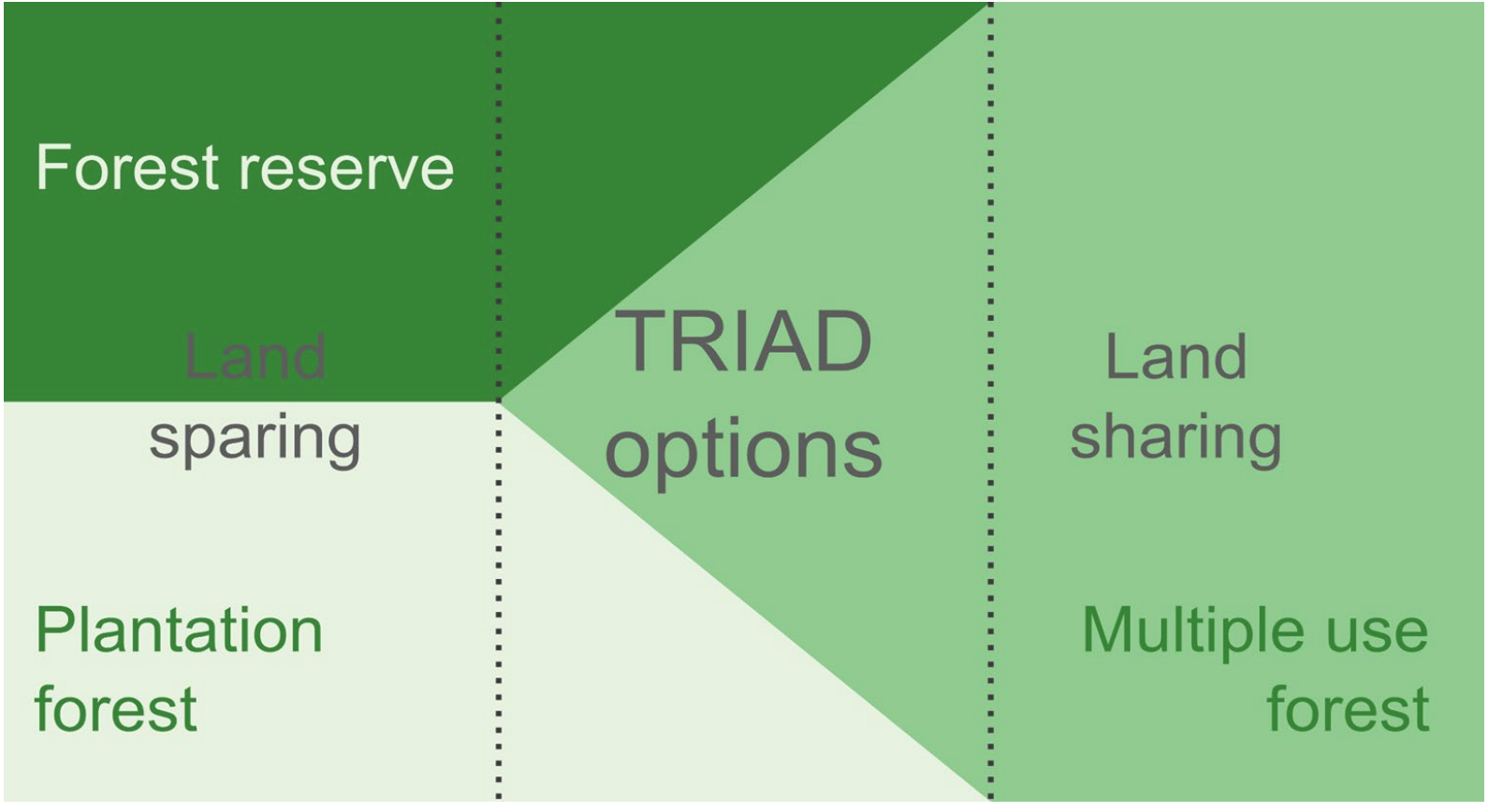
Forest management at the landscape scale



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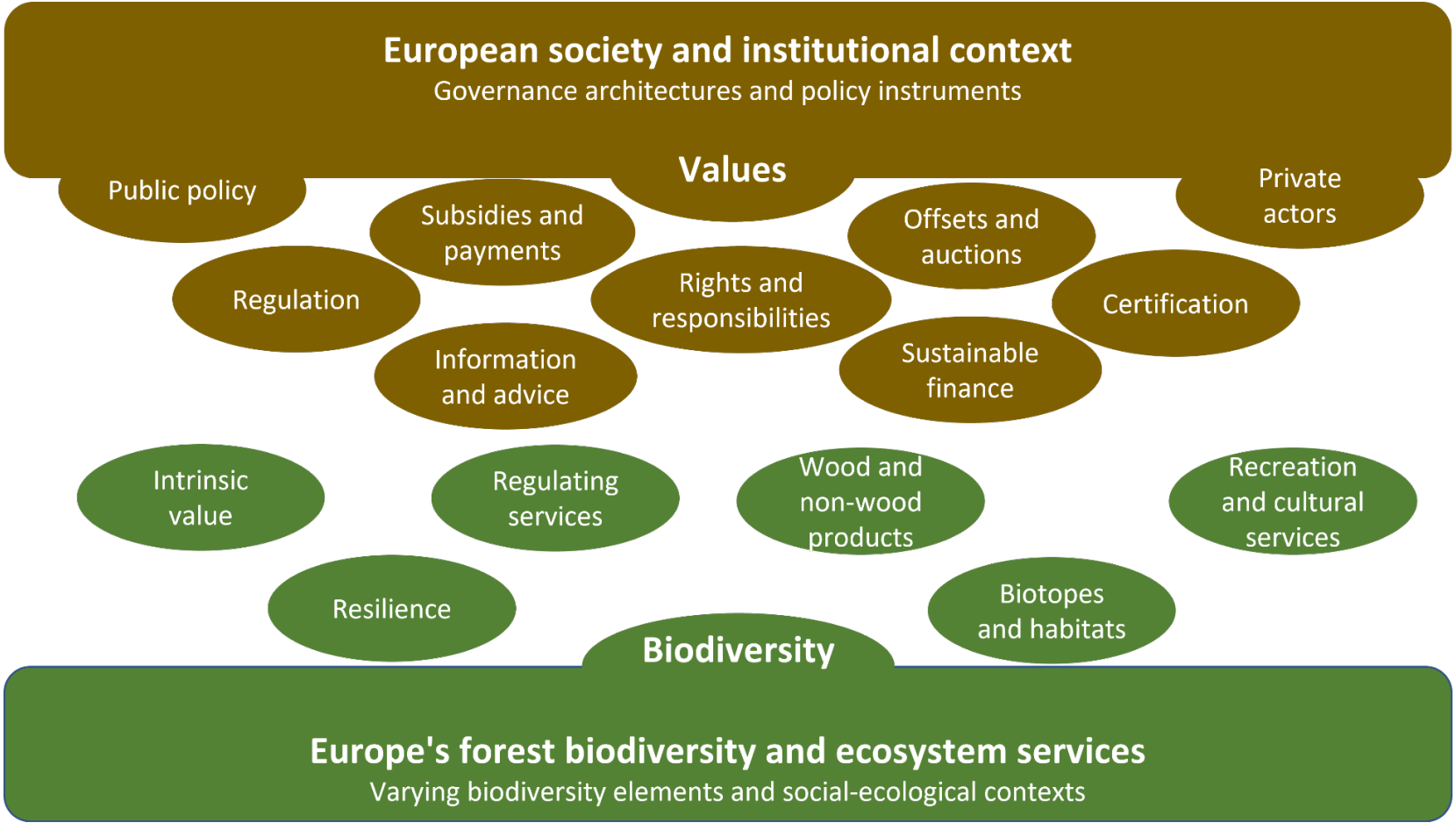
Triad example: 30% unmanaged, 60% multiple use, 10% intensively managed

Developing the optimal policy mix



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Content Executive summary – Understanding forest biodiversity – Monitoring: approaches and trends – Threats – Management promoting biodiversity – Policies and incentives – Implications for practice

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European forest biodiversity: a natural capital and a source of life

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