



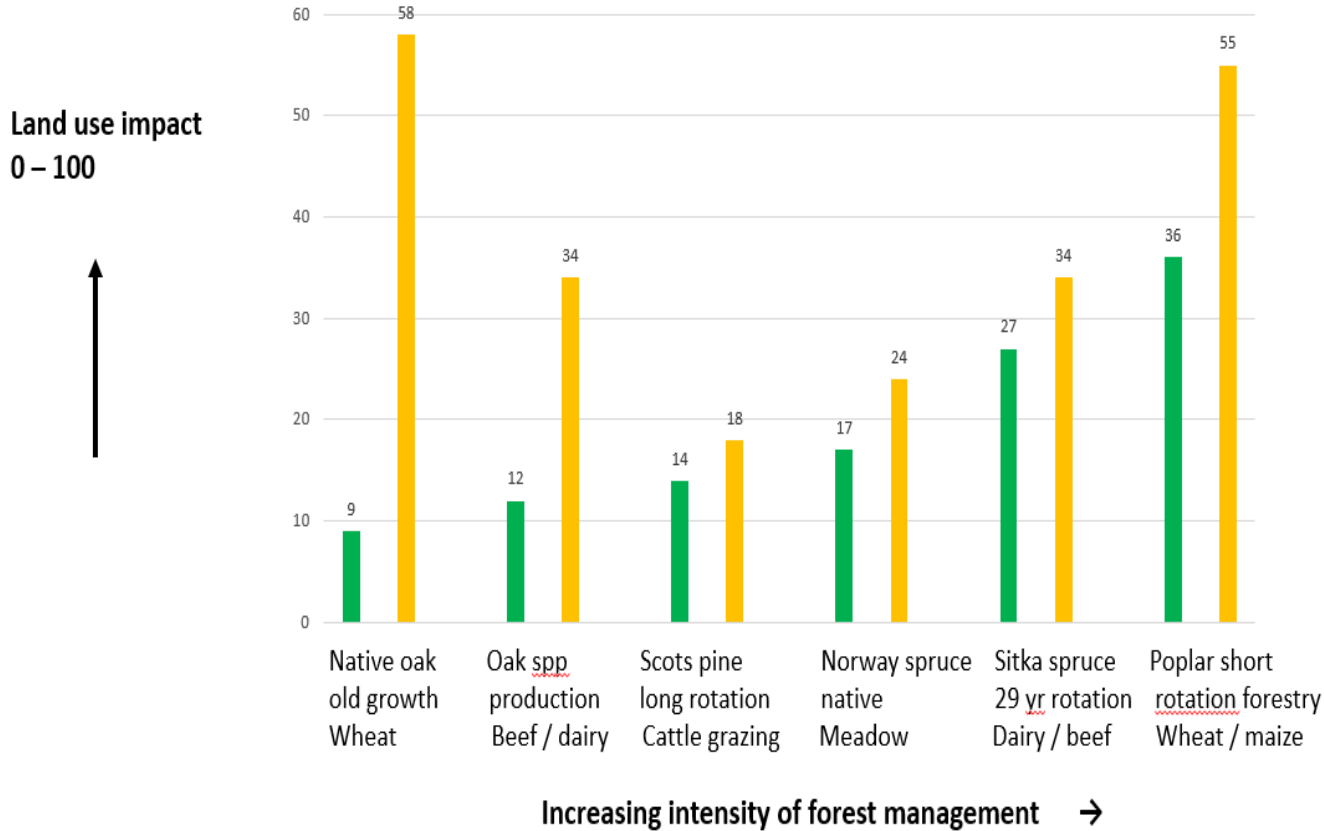
Biodiversity-Production relations in Forests: synergies and tradeoffs

Prof. Bart MUYS

4th OECD Forest dialogue

Economic and biodiversity trade-offs in the Forest Sector, 16/07/2026

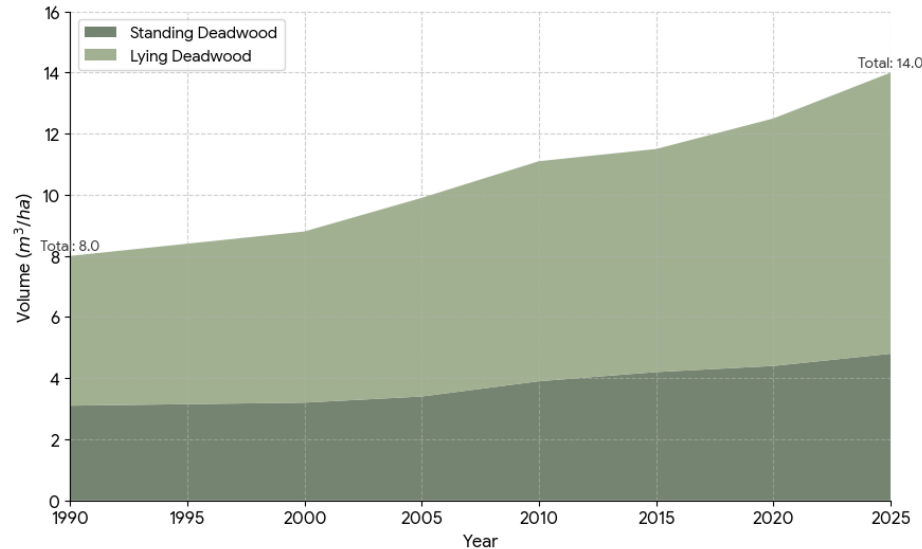
Land Use Impact of Forestry vs. Agriculture



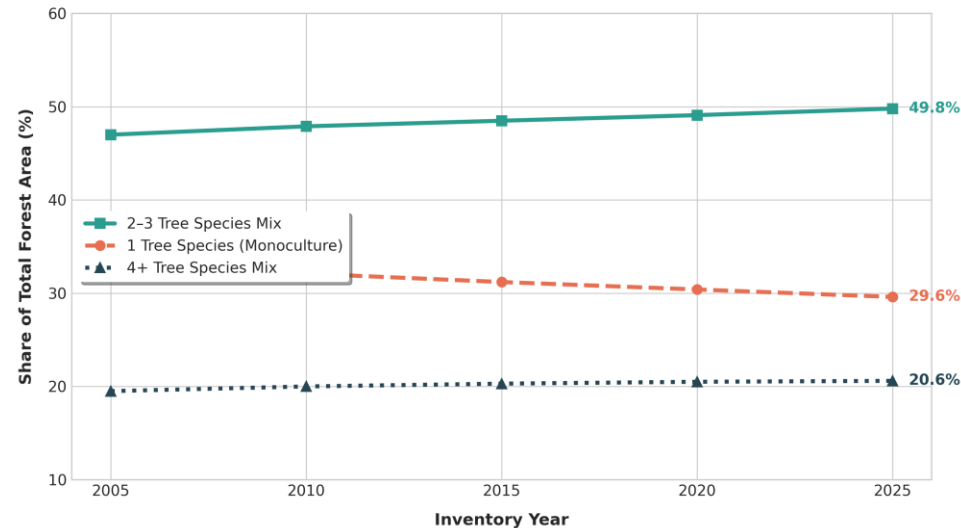
- Few mechanized interventions
- ± No Fertilizers
- No Biocides
- No Irrigation

Trends in forest biodiversity proxies

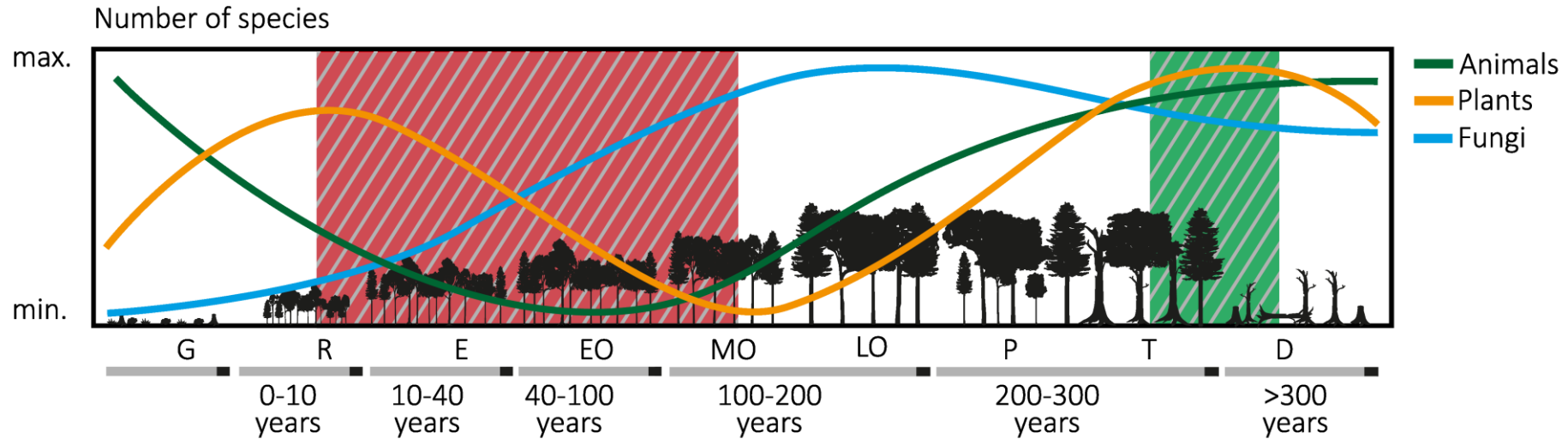
Evolution of Deadwood Volume in European Forests (1990 - 2025)



Evolution of Tree Species Mixture in European Forests (2005-2025)

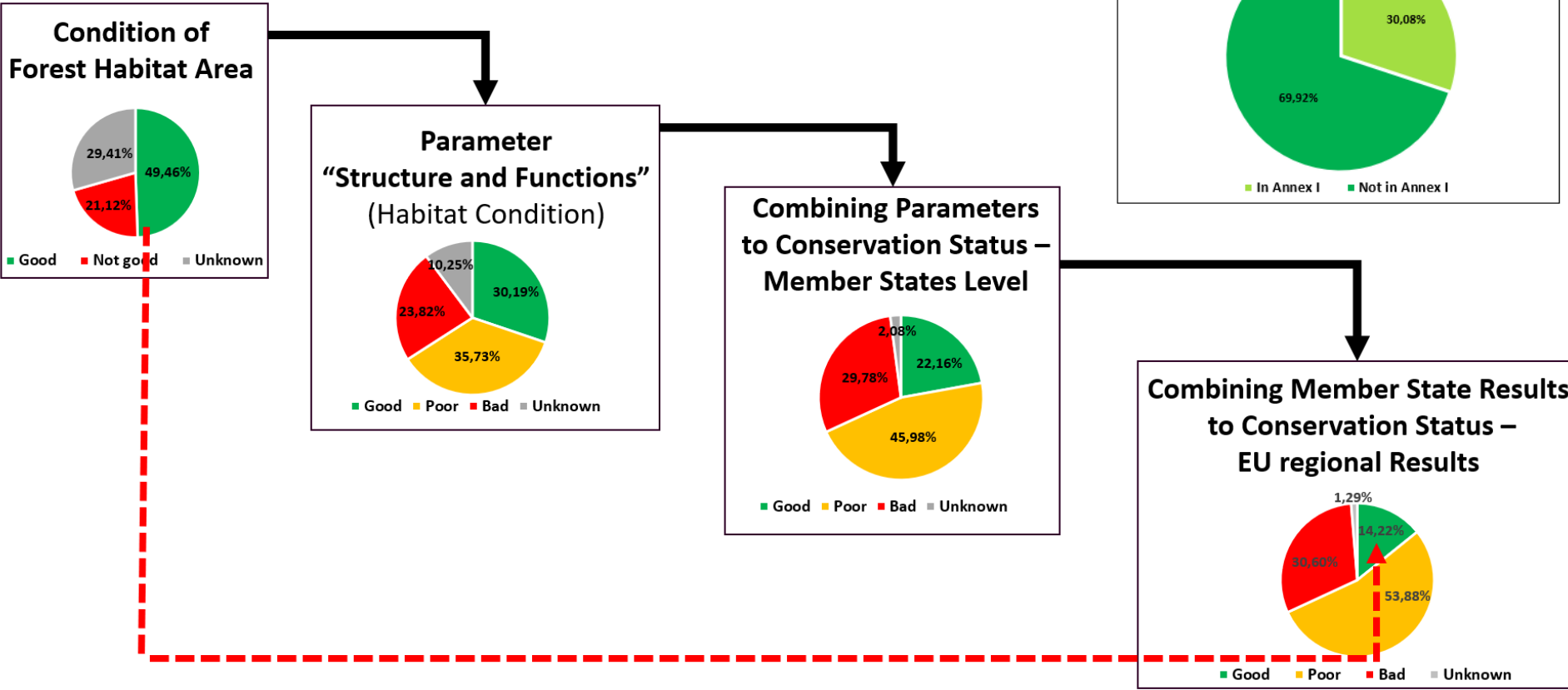


Potential mismatch between forest management and biodiversity



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*).

Habitat Directive art. 17: Cascade of turning “Good” area condition into “Bad” conservation status



Monitoring biodiversity

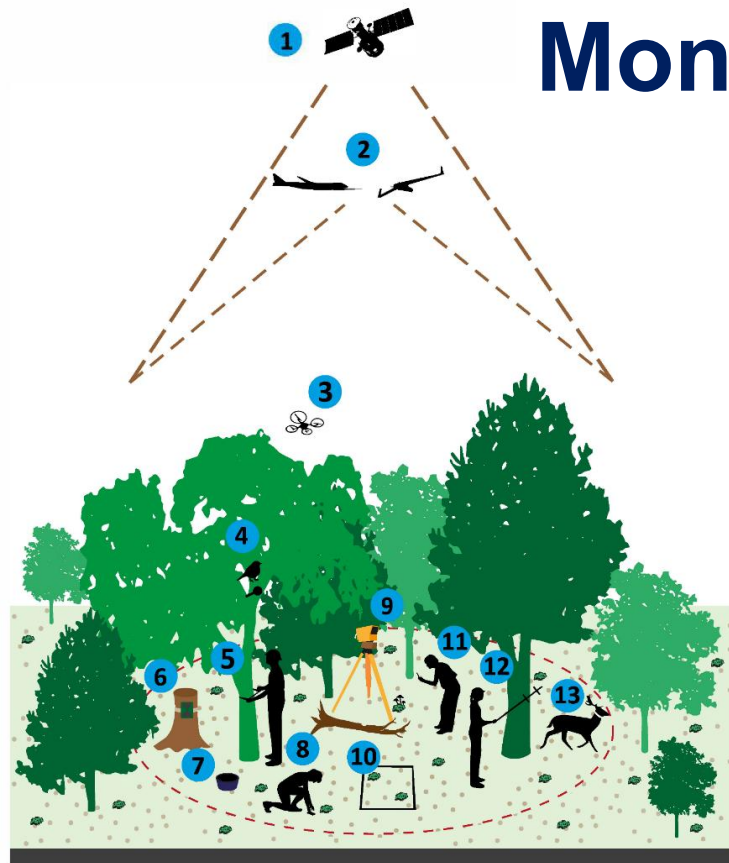
NFI: diversity gain in standard forests

Habitat Directive: diversity loss in threatened ecosystems

Clarify the apparent contradiction.

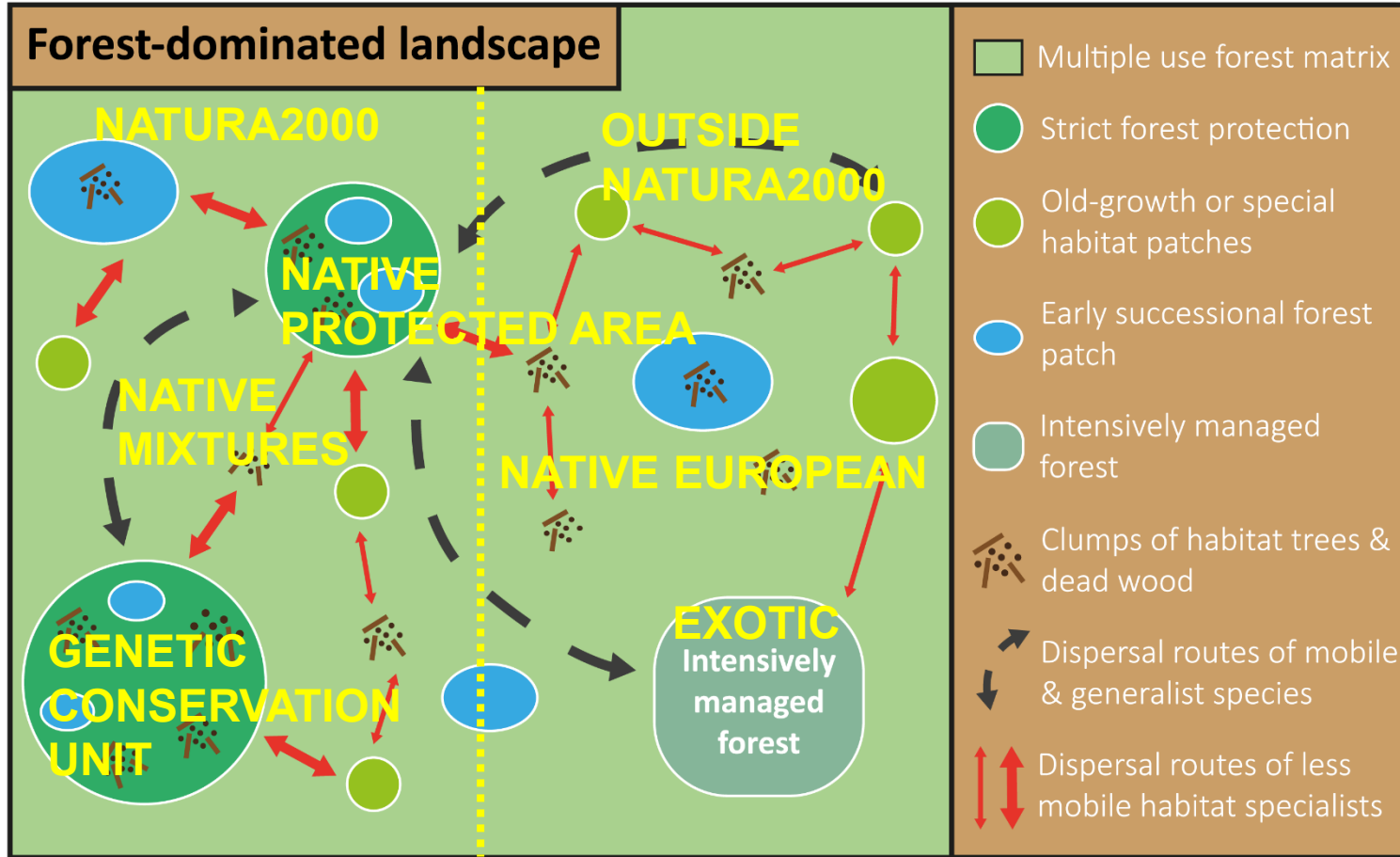
To be done:

- Transparent communication
- Boost NFI
- Involve high-tech sensing
- Improve biases in citizen science



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

TRIAD management at Landscape Scale



Take home

- Forestry has overall low land use impact
- NFIs show positive trend in forest biodiversity
- Habitat Directive Reporting shows continued bad state of forest conservation
- Difference explained by method, but lacks communication
- Monitoring can be improved with high tech
- Triad management is a clever mix of land sharing and land sparing maximizing synergies and minimizing tradeoffs between biodiversity and production.



Thank you for
your attention

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