Biodiversity protection at the landscape level

Types of good-practice forest enterprises across Europe

Integrate Network Meeting, Neuchâtel

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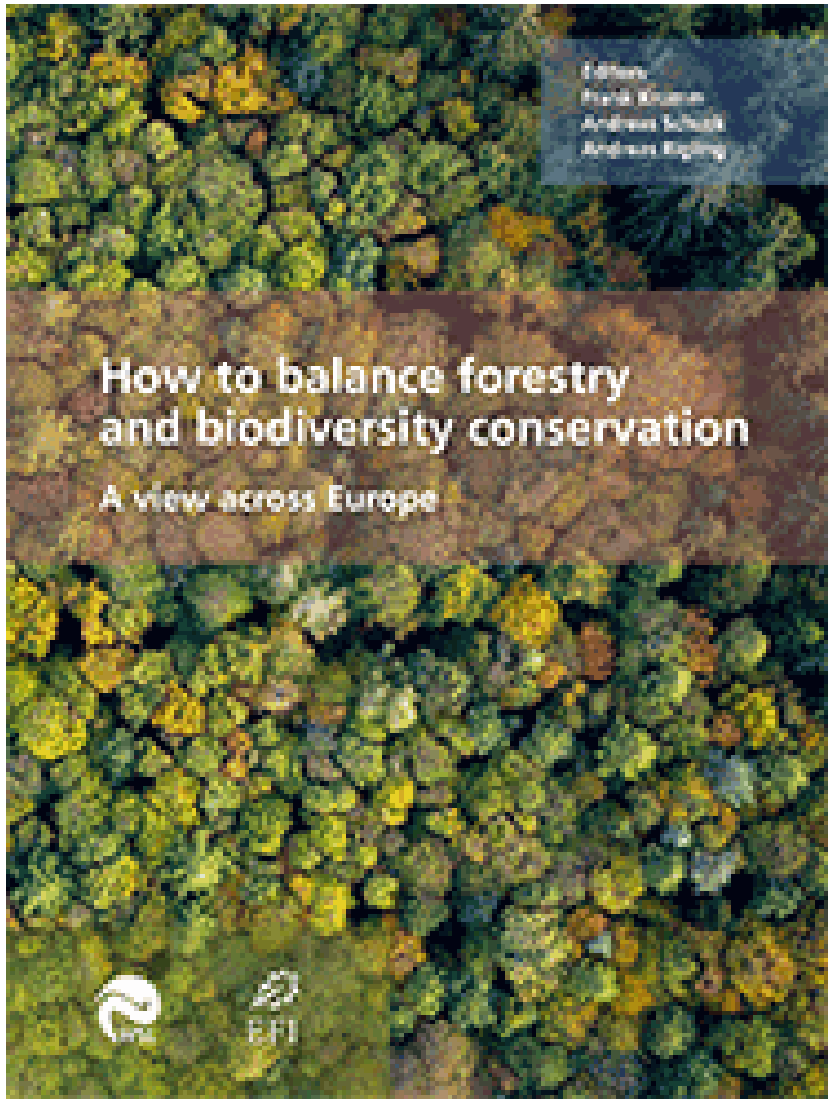
Book and Cases

- https://forbiodiv.wsl.ch
- 32 «good practice» forest enterprises across Europe.
- Initial classification: main objective (function).
- Survey: resource deployment across forest functions & employment forest management tools for biodiversity conservation.



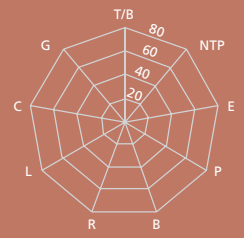
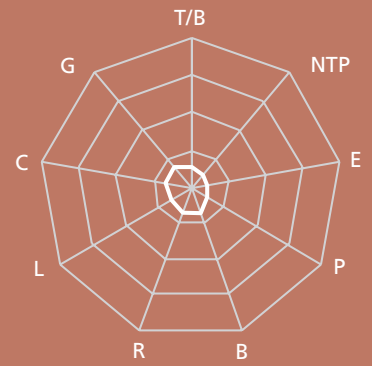
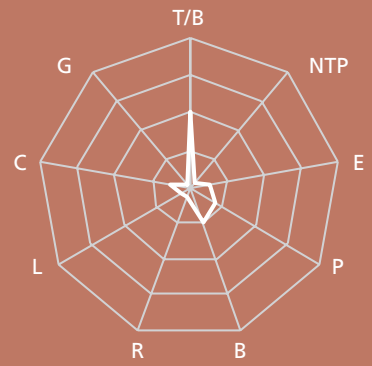


Chart legend:
T/B: Timber/Biomass
NTP: Non-timber products
E: Erosion
P: Protection
B: Biodiversity
R: Recreation
L: Landscape
C: Climate
G: Groundwater

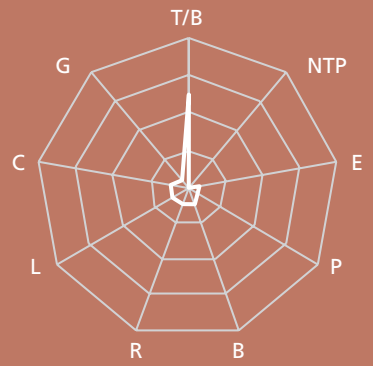
Relative investment in workpower and finances of the entreprise in different goods and services. Each line corresponds to a 20 % increase, from 0 to 80 %



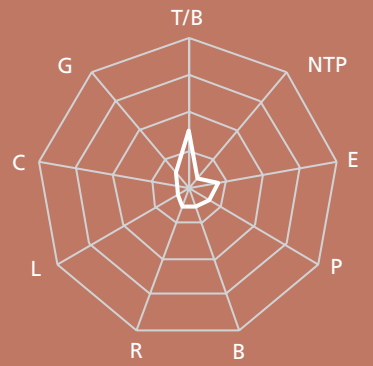
C 17: Ireland



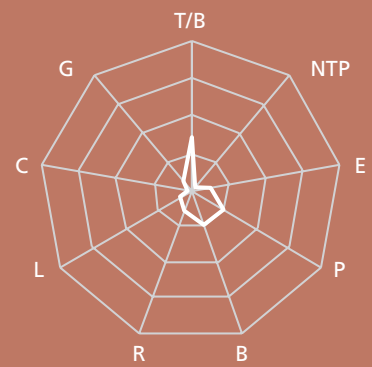
C 18: Woziwoda, Poland



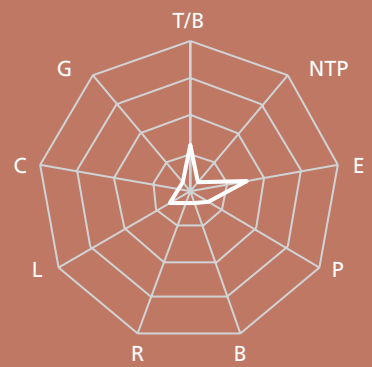
C 19: Poitschach, Austria



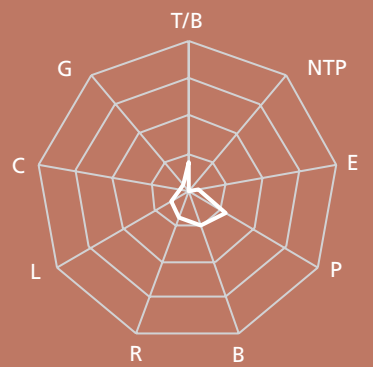
C 20: Zvolen, Slovakia



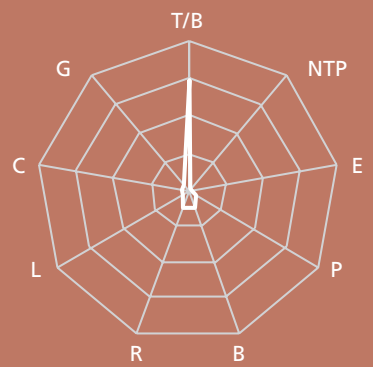
C 21: Val di Susa, Italy



C 22 Langau, Austria

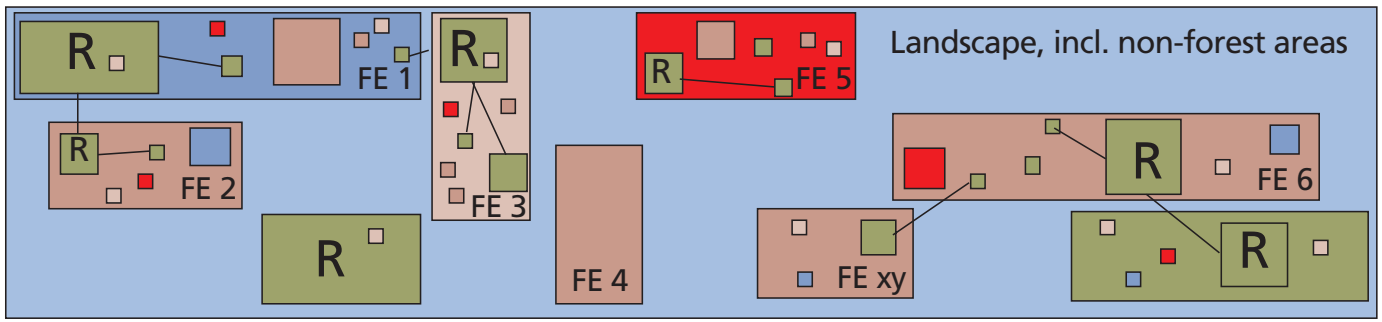


C 23: Tamins, Switzerland



C 24: Vestland, Norway

Resons for engagement at the «landscape» level?



Biodiversity conservation; R = Reserves Wood production

Other forest goods and services such as recreation, protection, non-wood products

FE: Independent forest enterprise with different priority services

Krumm et al. (2020)

Four principles for «landscape planning» in forestry

- Landscape ecology approach
- Natural landscape approach
- Cultural landscape approach
- Non-ecological approaches

Angelstam and Petersson (1997)

Different tools at different «levels»: landscape

Forest reserves
Uneven-aged silviculture
Disturbances
Promotion of processes leading to disturbances
Connecting elements
Restoration of natural site conditions/processes
Restore historic woodland pasture
Restore historic forest management
Increase structural diversity
Natural regeneration

Different tools at different «levels»: trees & deadwood

Old trees (Methuselah trees)
Habitat trees, retention, and creation
Deadwood

Different tools at different «levels»: species

Promotion of rare tree species
Increase tree species diversity
Promotion of genetic diversity
Reduce invasive tree species
Replace non-native tree species
Promotion of herbivores
Promotion of predators
Promotion of birds
Hunting
Selective hunting
Exclusion of domestic livestock

Timber production forests

- ▷ «production forest»
- ▷ and >30% resources for timber/biomass production

private	public
Heches..France (C9)	Ebrach..Germany (C2)
Eglofs..Germany (C10)	Kandern..Germany (C5)
Poitschach..Austria (C19)	Woziwoda..Poland (C18)

Diversified timber production forests

- «production forest»
- but <=30% resources for timber/biomass production
- and no particular emphasis on alternative forest function

private	public
Christinehof..Sweden (C11)	**Dikchan..Bulgaria (C13)**
Kocanda..CR (C16)	Lezirias..Portugal (C14)
Ireland (C17)	Zvolen..Slovakia (C20)

Productive forests that diversified into recreation

- «production forest»
- but <=30% resources for timber/biomass production
- and >=15% for recreation

public
Rold..Denmark (C3)
Kottenforst..Germany (C4)
Piwniczna..Poland (C7)

Productive forests that diversified into biodiversity

- «production forests»
- but <=30% resources for timber/biomass production
- and >=20% for biodiversity

private	public
Pahernik..Slovenia (C6)	Auberive..France (C1)
Dobie.family..GB.Sctl (C12)	**Nyon..CH (C8)**
	Ecoparcs..Sweden (C15)

Biodiversity forests

- «biodiversity forests»
- and deploying >=20% resources for biodiversity

public
Amden..Switzerland (C30)
Black.Forest..Germany (C31)
Bad.Windsheim..Germany (C32)

Recreation forests

- «recreation forests»
- and deploying >=15% for recreation

private	public
Bois.Landry..France (C27)	Cairngorms..GB.Sctl (C26)
Serra..Spain (C29)	Sonian.Forest..BE (C28)

Protective forests

- «protective forests»
- and deploying >=25% resources for protection

private	public
Langau..Austria (C22)	**Valle.di.Susa..Italy (C21)**
Vestland..Norway (C24)	**Tamins..CH (C23)**
Girona..Spain (C25)	**Valle.di.Susa..Italy (C21)**

Observations

- Pure timber production: beliefs of owners?
- Biodiversity forests: targeted species
- Protective forest: compatible with «landscape emphasis»
- Recreation forest: high level of activity but «landscape emphasis» probably not due to recreaction
- Diversified enterprises: opportunities of landscape

Limitations & Questions for an additional survey

- How are the deployed resources financed?
- Which ES do not depend on any deployed resources?
- Country patterns: funding opportunities?
- Response to funding opportunities?
- Motivation / trigger of change?
- Coordination with actors at landscape level?

References

Angelstam, P. and Petersson, B. (1997). Principles of present swedish forest biodiversity management. *Ecological Bulletins*, 46:191–203.

Krumm, F., Rigling, A., Bollmann, K., Brang, P., Durr, C., Gessler, A., Schuck, A., Schulz-Marty, T., and Winkel, G. (2020). Synthesis: Improving biodiversity conservation in european managed forests needs pragmatic, courageous, and regionally-rooted management approaches. In Krumm, F., Schuck, A., and Rigling, A., editors, *How to balance forestry and biodiversity conservation. A view across Europe*, chapter D, pages 609–633. WSL and EFI, Birmensdorf.