



Case study. Identifying restoration priorities and actions: Finland's Parks experiences and lessons learnt

**Partnerships for Biodiversity
European policies and the role of Protected
Areas**

2022 Seminar-dialogue of Europarc with European
Commission

Brussels, 16.11.2022

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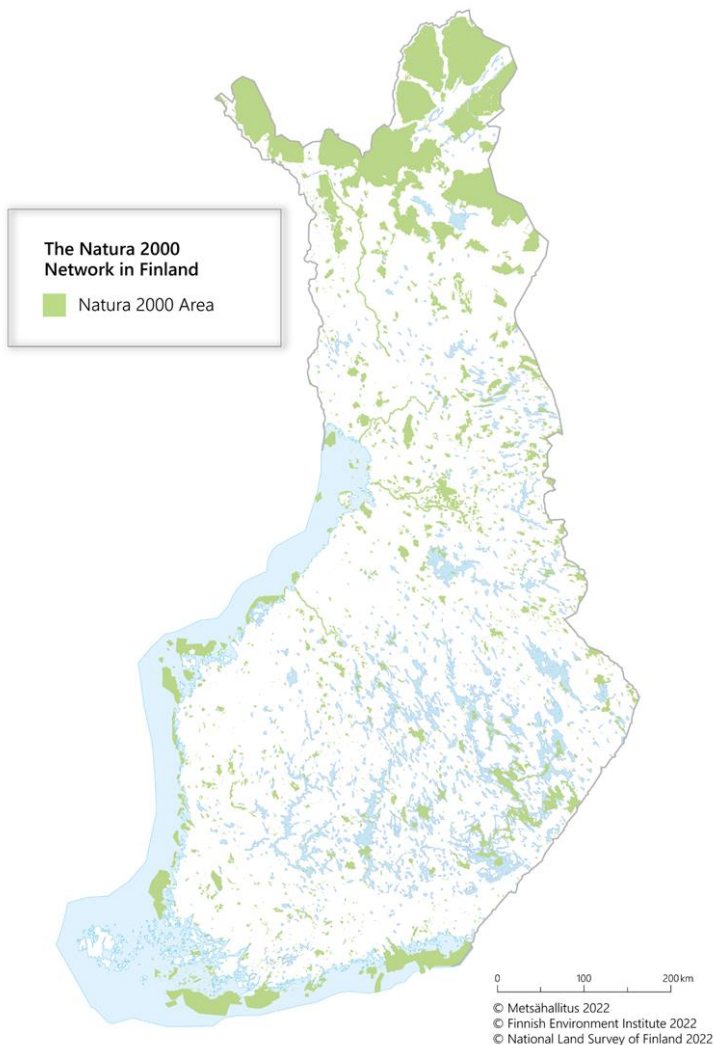


Photo: Harri Tarvainen



Parks & Wildlife Finland

- Manages state-owned nature reserves and historic sites.
- Maintains and restores valuable habitats.
- Protects species and habitats.
- Compiles GPS data on conservation issues in protected areas.
- Provides free facilities for visitors.
- Participates in international collaboration on nature conservation.
- Sells fishing and hunting permits and manages hunting grounds and fishing waters on state-owned land.
- Game and fisheries wardens supervise all wilderness activities on state-owned lands.



Manager of Finland's nature reserve network

- National Parks Finland manages all government-owned protected and hiking areas:
- 41 National Parks
- 19 Strict Nature Reserves
- 5 National Hiking Areas
- 1 Unesco Natural Heritage Site
- 12 Wilderness Areas in Lapland
- over 3,000 areas in conservation programmes

Cultural heritage sites:

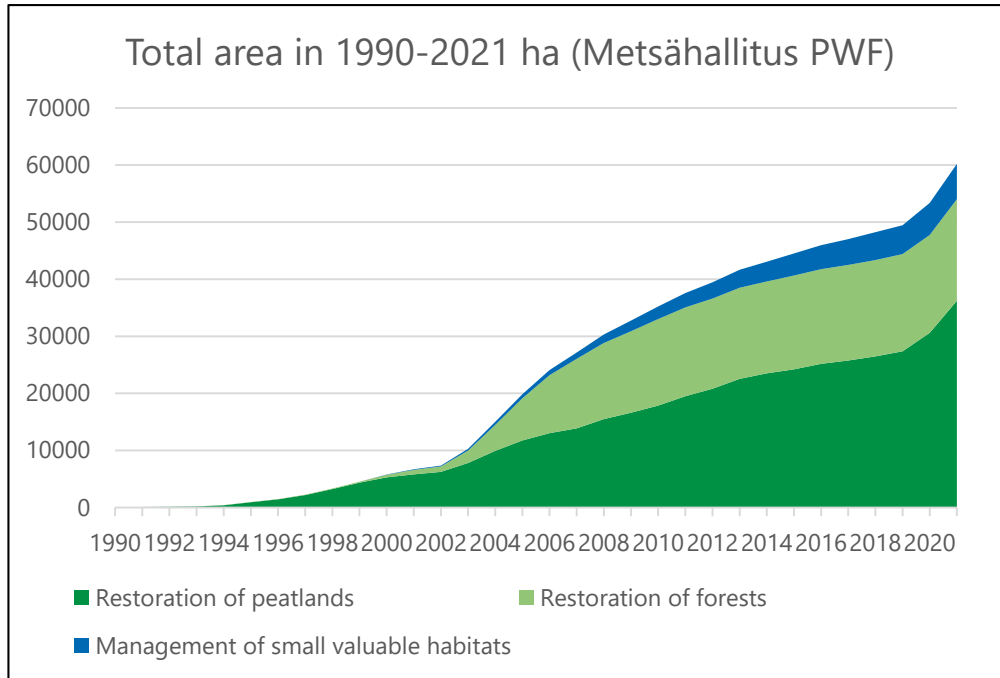
- ca. 400 buildings protected by legislation
- ca. 2,000 ancient monuments



Habitat restoration in PA's of Finland

- Restoration of degraded ecosystems more topical than ever on EU-level
- In Finland, habitat restoration has been done on larger scale since 1990's in PA network
- Knowledge accrued on methods, cost-effects and ecological effects

Restoration and management of peatland and forest habitats in protected areas in 1990-2021 ha, total (Metsähallitus PWF)



Ecological management and habitat restoration are essential for maintaining and increasing biodiversity in protected areas

Total area 60 000 hectares:

- Restoration of peatlands 36 000 ha
- Restoration of forests 18 000 ha
- Management of other habitats 6 000 ha

National programmes:

- METSO- forest programme
- Helmi-habitats programme 2020 –

Several projects:

- Over 50 EU LIFE Nature-projects since 1995

Restoration of forests in PA's 18 000 ha in total

1. Controlled burning

Provide habitats for fire-dependent species, increase the amount of charred and decaying wood, affect the quality of wood in living trees and diversify the tree structure of forests

- The most effective restoration measure in forests
- Total area 2 400 ha, 276 sites, average area 8,6 ha

2. Creating canopy gaps to diversify forests

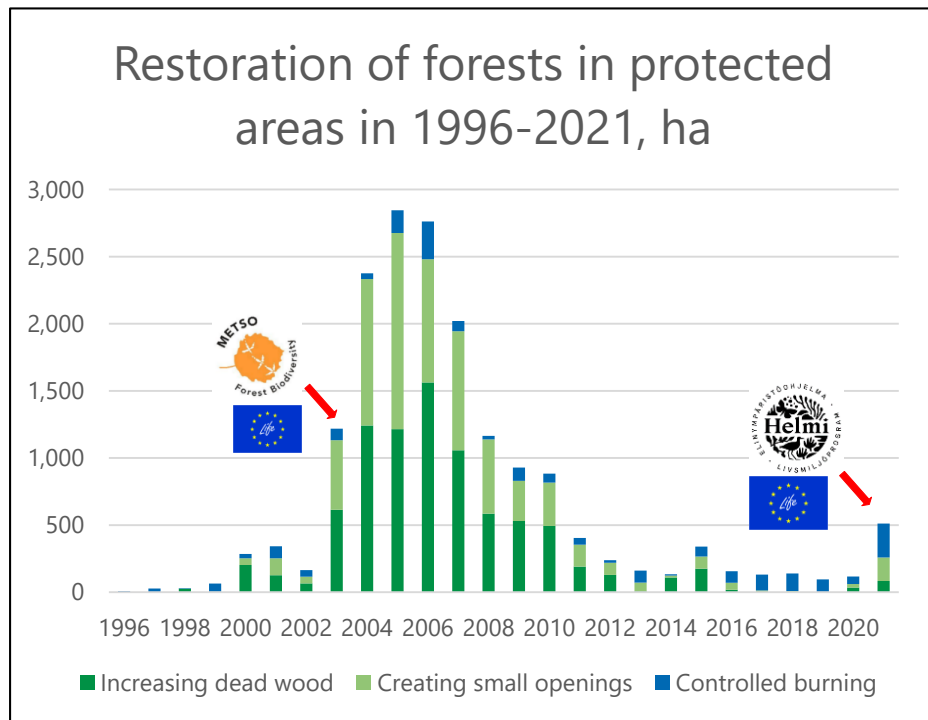
Increase structural diversity of forests by improving conditions for the growth of deciduous trees and for the regeneration of both deciduous and coniferous trees

- Lessons learnt: this measure does not reach the objectives

3. Measures to increase amounts of dead wood

Help to increase the amount of dead wood closer to the amount typical of natural forests, strengthen the populations of species dependent on dead wood

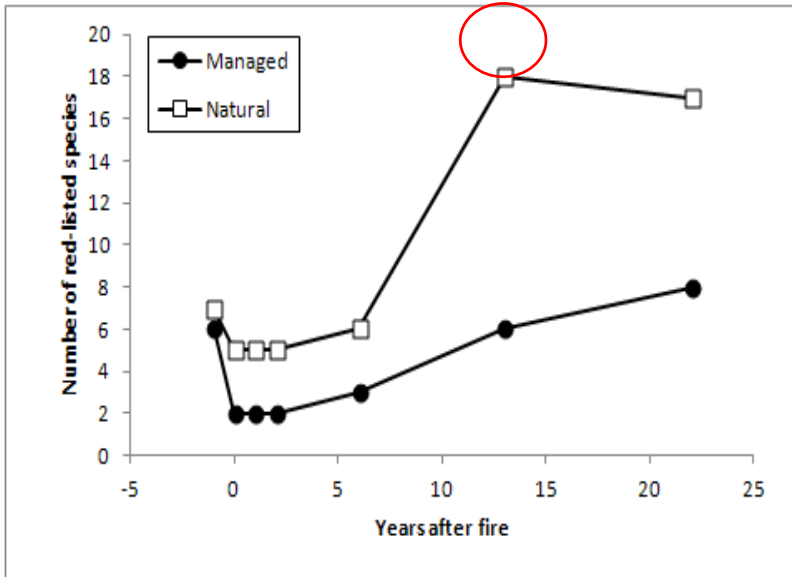
- Data of 15 yrs monitoring is being analyzed



Monitoring of ecological effects



- Monitoring networks increase knowledge of the effects and are used to adapt the methods
- The 1st restoration fire in Europe 1989: 22 years after fire, number of red-listed polypore species almost tripled



Penttilä et al. 2013. Forest Ecology and Management 310: 508-516.

Natural site in Patvinsuo National Park 17 years after fire.
Photo: Maarit Similä

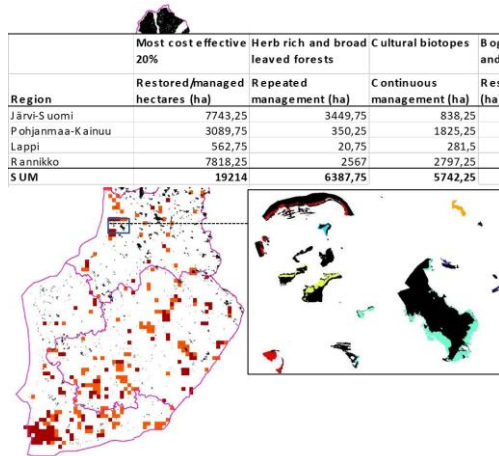


Spatial prioritization analysis on restoration and management in the protected N2000 network

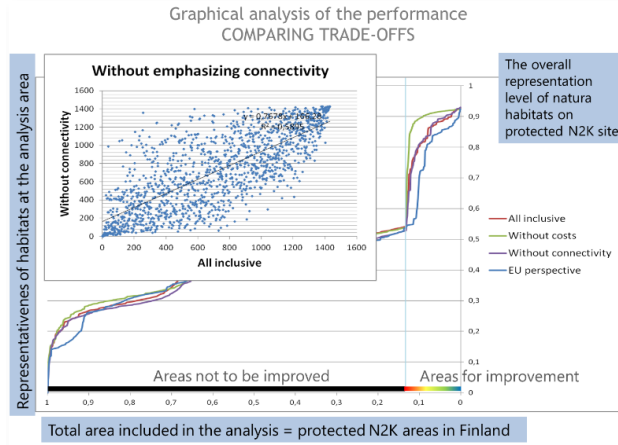
- First prioritization analyses to target activities in 2010's
 - Identification of Natura-sites and habitats to maximize cost-efficiency
- Aim to cost-effectively increase the ecological value of the **PA network** as a whole

Spatial prioritization analysis on restoration and management in the protected N2000 network (1541 sites included)

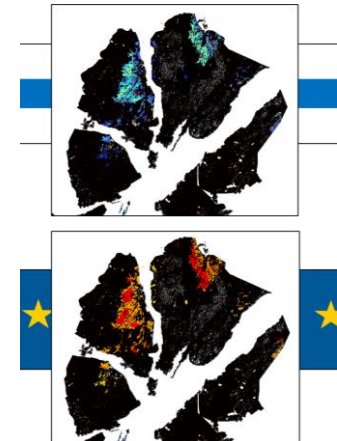
- Identifying national priorities and regional implementation



- Comparison of different choices and their effects
- E.g. emphasis on connectivity of PA network, affects the ecological representativeness of the solution



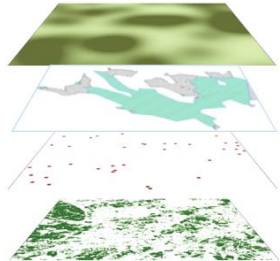
- Balancing national rarity with EU (biogeographic zone) scale
- Identifying and evaluating the change in priorities with changing spatial scale



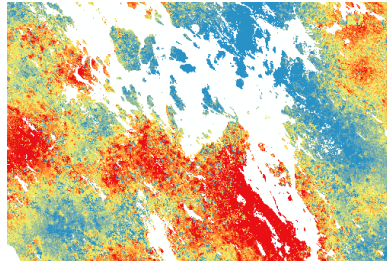
Forest conservation value analysis to support national voluntary forest protection (METSO program)

- Forest conservation priority analysis showing potential areas of high ecological value for voluntary protection. They have also higher potential to evolve towards more natural and biodiversity rich old growth forests.
- Prioritization of forests to be protected will increase the potential for restoration (passive and active) of the forests in the PA network

Data and model



Priorities across PA network and all other forests



Providing the information to the end-users

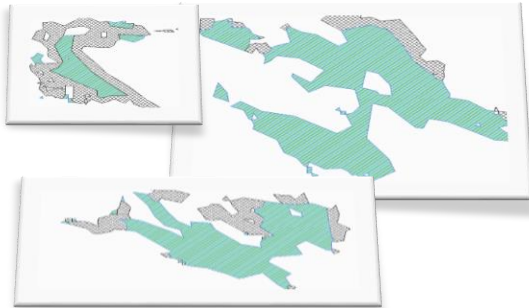


Spatial prioritization for mire protection program – including restoration needs

- Future restoration in new mire PA:s is associated with systematically prioritized high bd-value mire areas nationally

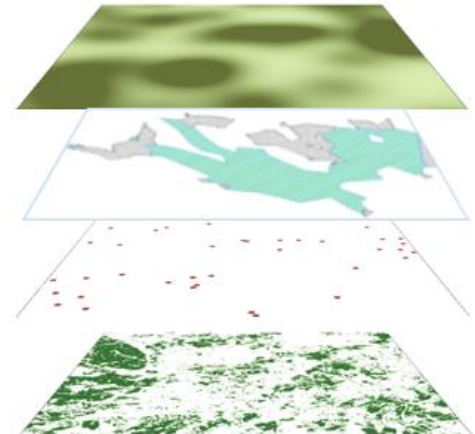
(Kareksela et al. 2020 *Biological Conservation*, Combining spatial prioritization and expert knowledge facilitates effectiveness of large-scale mire protection process in Finland)

Mire areas with high bd-value as core areas (green) and areas need to be restored (grey)



In prioritization, restoration needs can be balanced against the sites' biodiversity values (*per se* and complementary)

- Biodiversity value (gain)
 - Restoration need (cost)
- > gains should be higher than costs





What next?

- EU biodiversity strategy will give targets
 - Our analyses and their results can be used to identify cost-effective solutions to satisfy EU BD-strategy and restoration law targets
- Work continues: ongoing analyses on climate change adaptation
 - First results in the beginning of 2023
 - RAD (Resist-Accept-Direct) Framework

Thank you!



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