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Pro Silva International Meeting 2025

PRO SILVA ANNUAL MEETING Sardinia 2025

Closer to nature silviculture in Mediterranean environments

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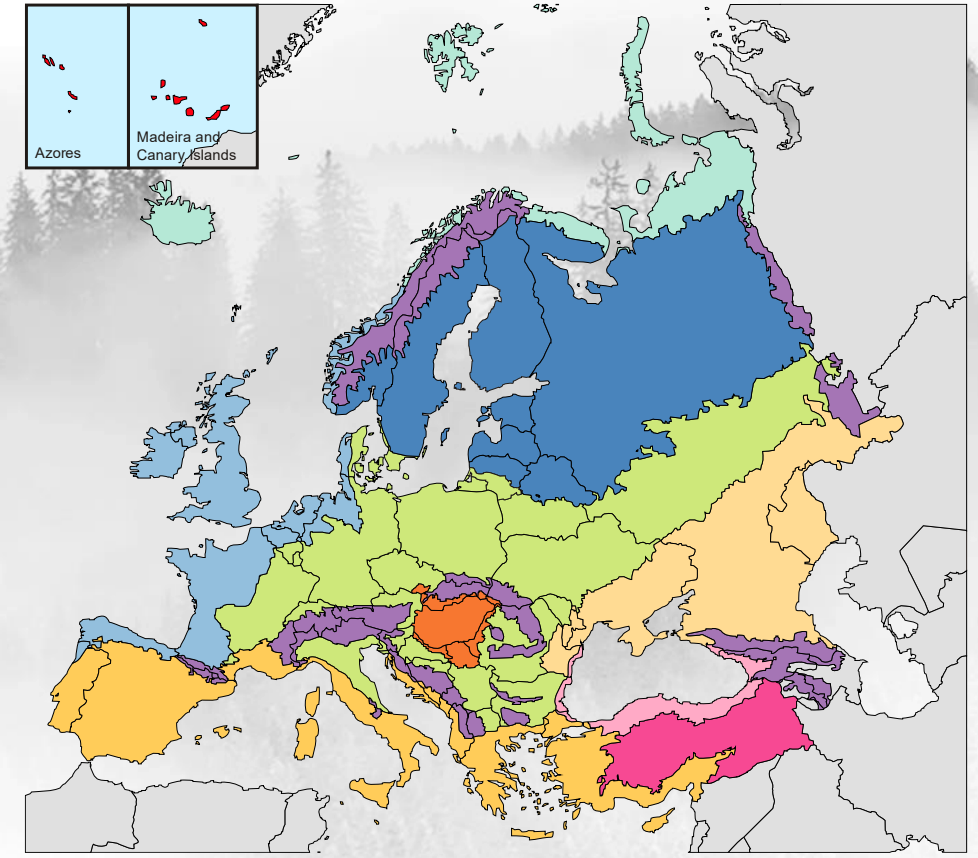


Biogeographical regions of Europe

- Arctic
- Boreal
- Atlantic
- Continental
- Alpine
- Pannonian
- Mediterranean
- Macaronesian
- Steppic
- Black Sea
- Anatolian

After a map by the European Environmental Agency: www.eea.eu.int

The Mediterranean bioregion is one of 36 global biodiversity hotspot centres for plant diversity and one of the richest in endemic species

The Mediterranean bioregion hosts 20% of the world's flowering plants and fern species, of which 50% are endemic.

The current Mediterranean landscape is the result of a long-term interaction between forest ecosystems and human populations that developed over millennia, creating a biocultural diversity

The Mediterranean bioregion hosts 117 habitats (59% of the total) of community importance (Directive 92/43/EC), of which 93 (47% of the total) are exclusively found there.

Mediterranean forests are currently very vulnerable to a variety of risks such as:

(i) changes in natural **fire regimes**;

(ii) over-exploitation in some areas;

(iii) Erosion and degradation of the soils ecosystems;

(iv) Desertification and shortening of the provision of strategic water resource

(v) Actually the Mediterranean bio-region appears to be the **most vulnerable European region to global change** and the one that requires the most intensive scientific and training effort

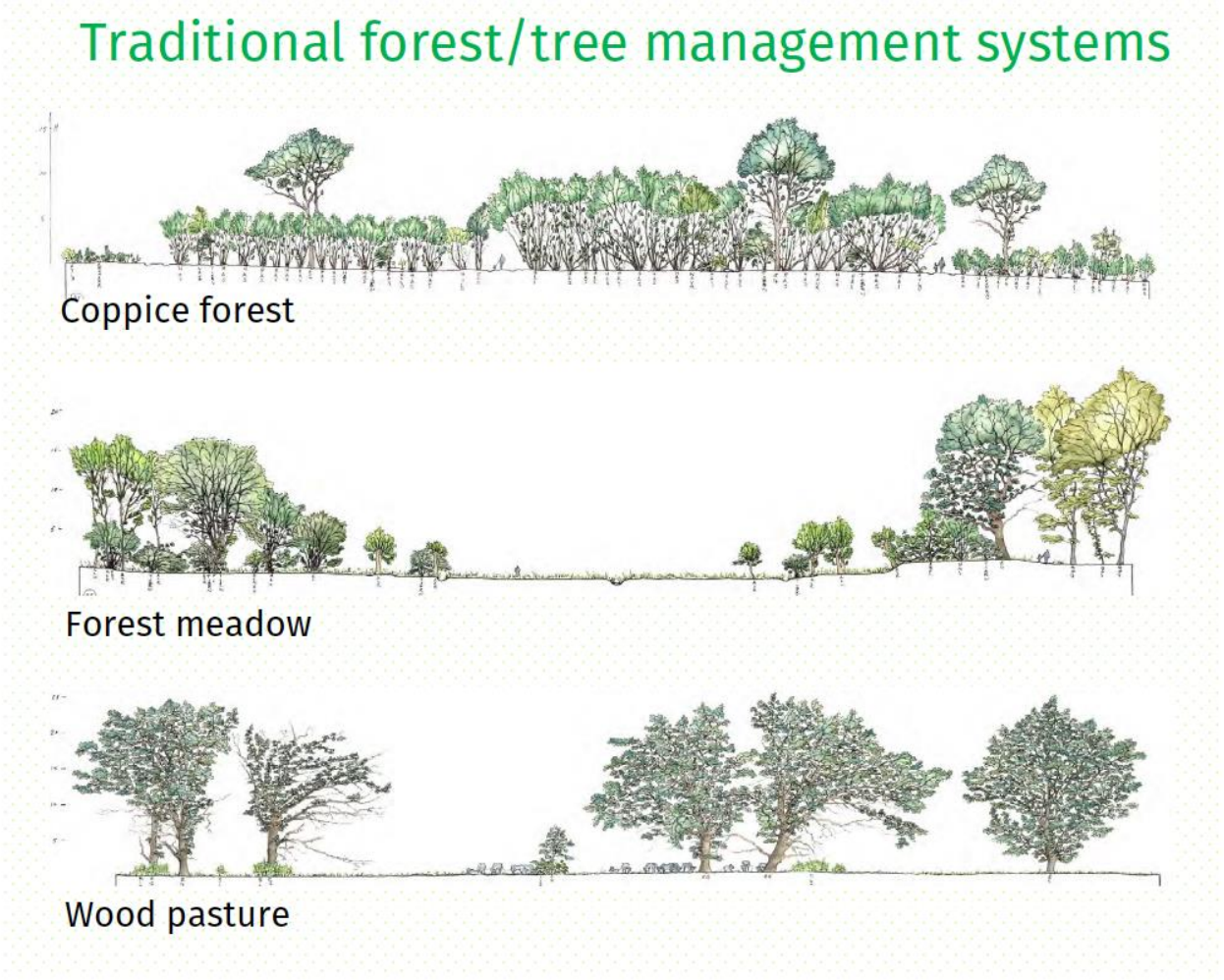


Figure 3: Some traditional forest and tree-based management systems (from Larsen 2012). Coppice forests, forest meadows and grazing forests contribute to biological diversity, and have been diminished in some parts of Europe. Their integration in the forest landscape would contribute to habitat variation and biodiversity conservation/protection.

Probably the most important features of the Mediterranean bioregion are the cultural, silvopastoral and agroforest systems shaped by humans.

These systems include, among the others, holm oak, cork oak, chestnut and stone-pine forests.

These silvopastoral systems are characterised by an open canopy, low tree cover, and often simplified stand composition and structure.

These agroforest types have essential socioeconomic and cultural roles and support a high bio-cultural diversity.

Some Mediterranean forests have a long history of coppicing that are partially under use and partially in conversion to high forest.

There are native and planted coniferous forests of the Mediterranean, Anatolian and Macaronesian regions, that are locally managed with a wide range of silvicultural approaches.

There is a relatively low incidence of broadleaved high forests in the region, especially if compared with other European biomes.

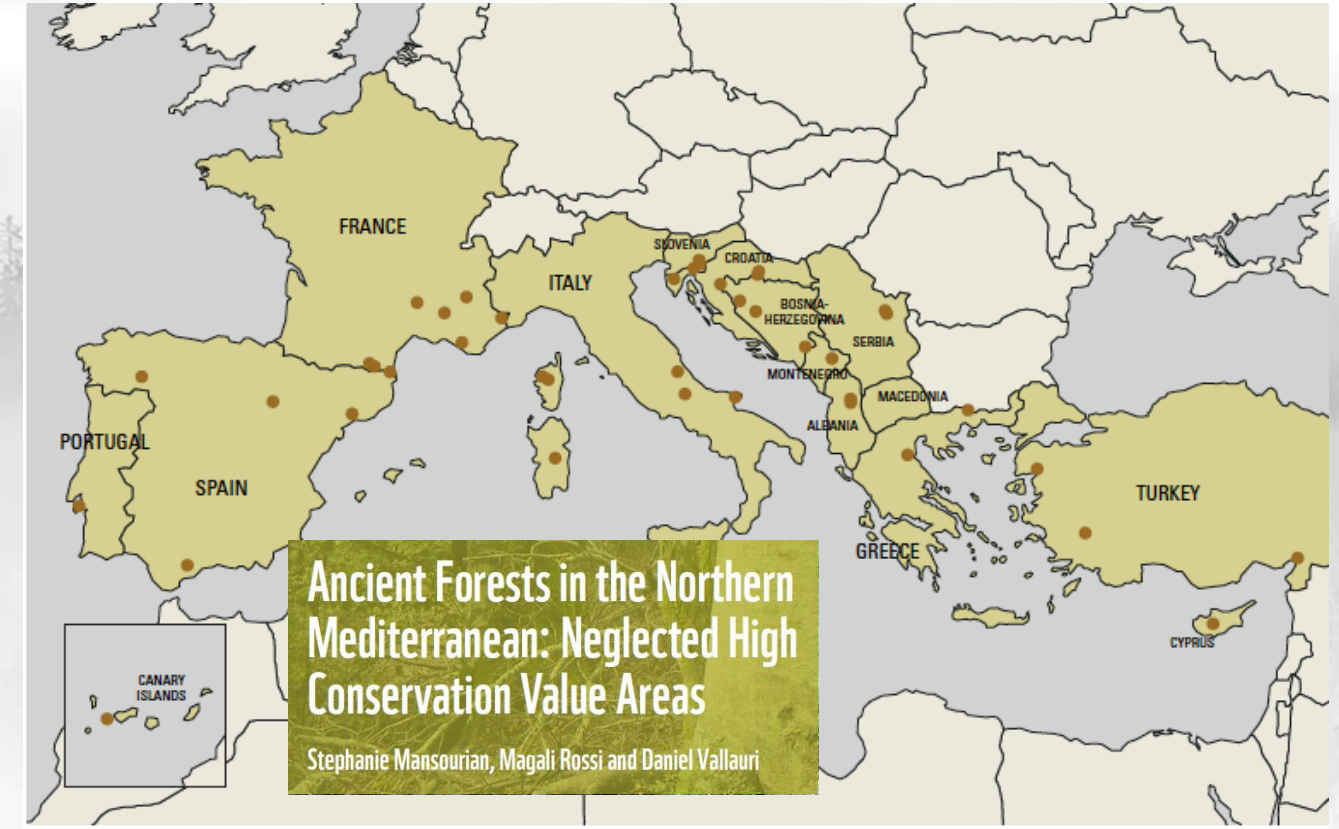
- Even though there are districts with valuable wood production, some Mediterranean forests are characterised today by **low growth rates and low-quality wood assortment**

- **Non-wood products** (i.e. cork, resin, mushrooms, pine nuts, medicinal and aromatic plants, and forage) **are important** aspects of forest management and there is a high social demand for environmental services.

- Mediterranean forests (with some exceptions) are less likely to be covered by **'forest management plans**' than other EU forest bioregions.

- **Small scale of private ownership**, which limits the aggregation of the forest land surface needed to achieve economies of scale when planning and implementing sustainable forest management.

[Sardinian cork courtesy Artigianato Pasella]



Map of some of the quoted potential sites. This study highlighted over 80 sites in 15 Euro-Mediterranean countries with potential interest. Many more remain to be discovered and researched.

Primary forests cover only 0.26% of the total forest surface in the region.

The current conservation status for Mediterranean forest ecosystem habitats assessed is 'favourable' (30%), 'unfavourable/unknown' (32.6%) and 'deteriorating' (34.8%)

The long-term land-use has resulted in the loss of forest cover.

In addition, the profound alteration of natural fire regimes resulted in some regions in a progressive change in vegetation cover followed by soil degradation and fertility loss.

For Mediterranean forests, mostly located in densely inhabited areas with high land use pressure, **restoring the attributes of primary forests remains challenging**.

frontiers | Frontiers in Forests and Global Change

TYPE Original Research
PUBLISHED 07 December 2023
DOI 10.3389/ffgc.2023.1252462

OPEN ACCESS

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Monastic silviculture legacies and current old-growthness of silver fir (*Abies alba*) forests in the northern Apennines (Italy)

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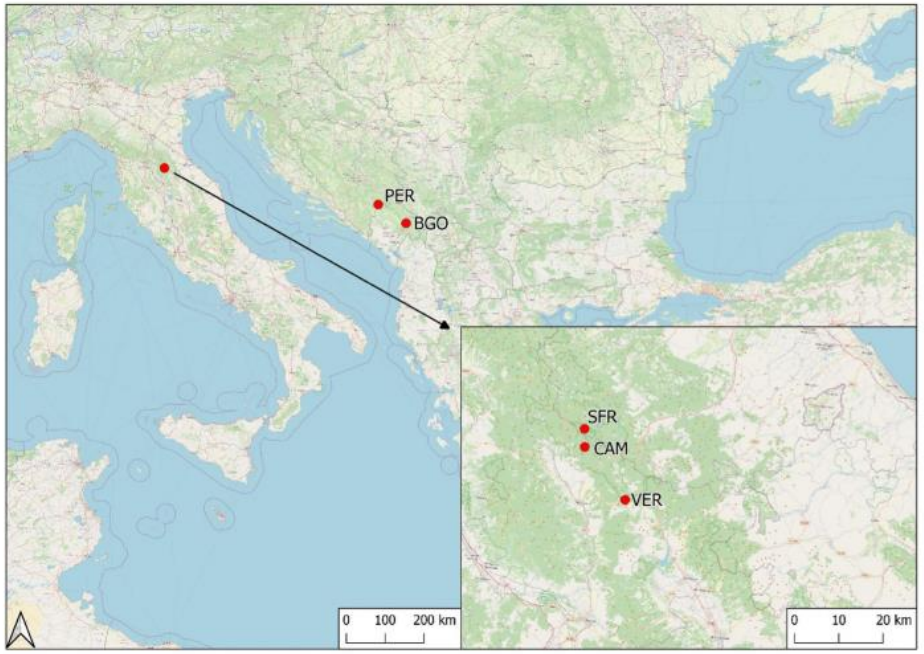


FIGURE 1
Location of the study sites.

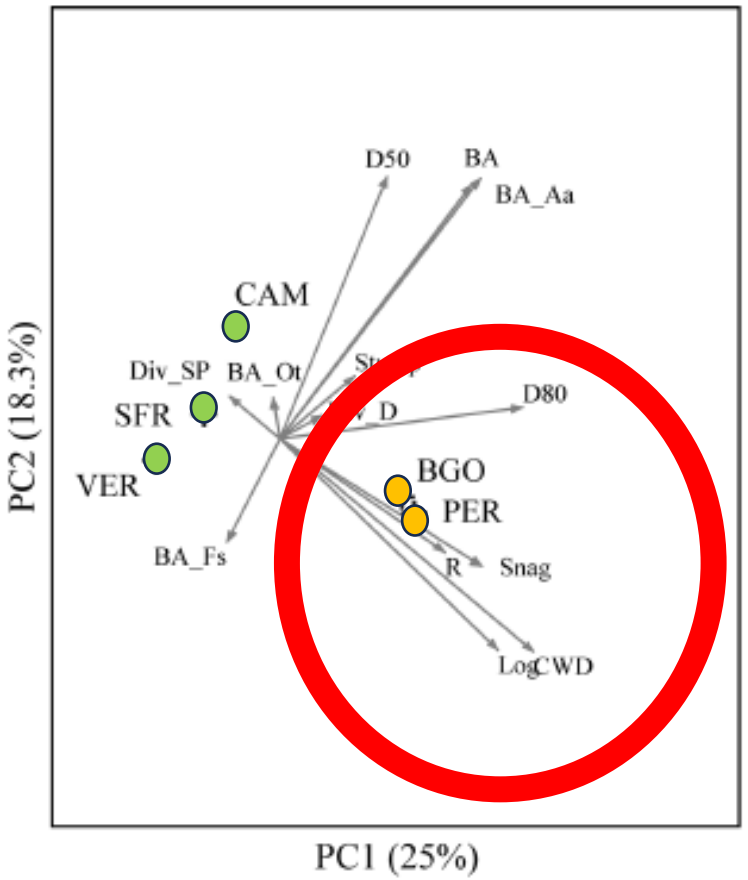
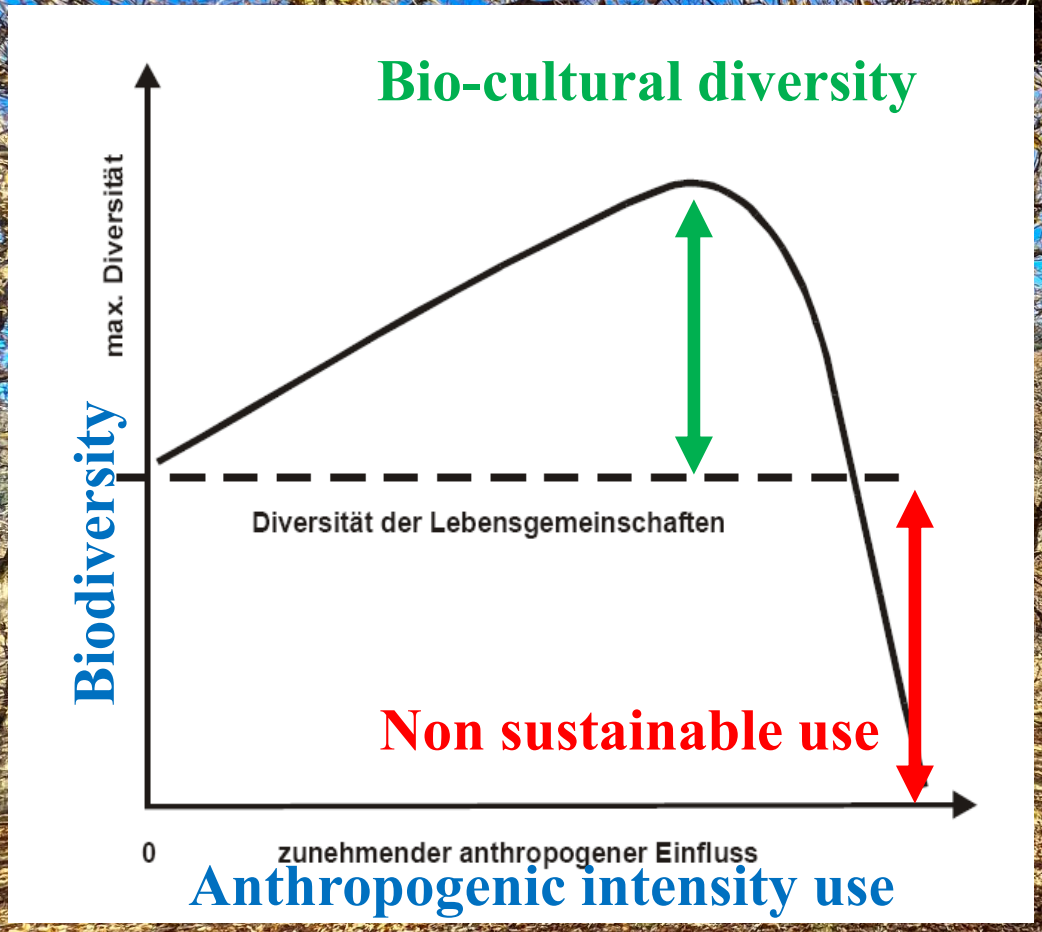
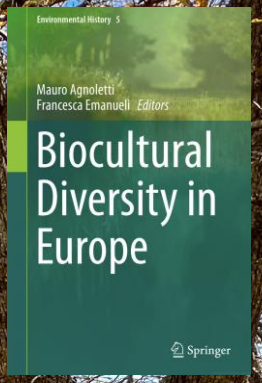
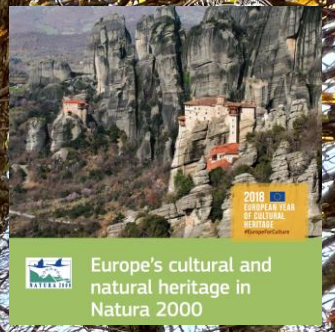


FIGURE 5
Principal component analysis of 161 plots of 3 sites of the Italian Apennines (CAM, Camaldoli; SFR, Sasso Fratino; VER, La Verna) and 2 sites of the Dinaric Alps (PER, Perućica; BGO, Biogradska Gora) indicated by crosses.

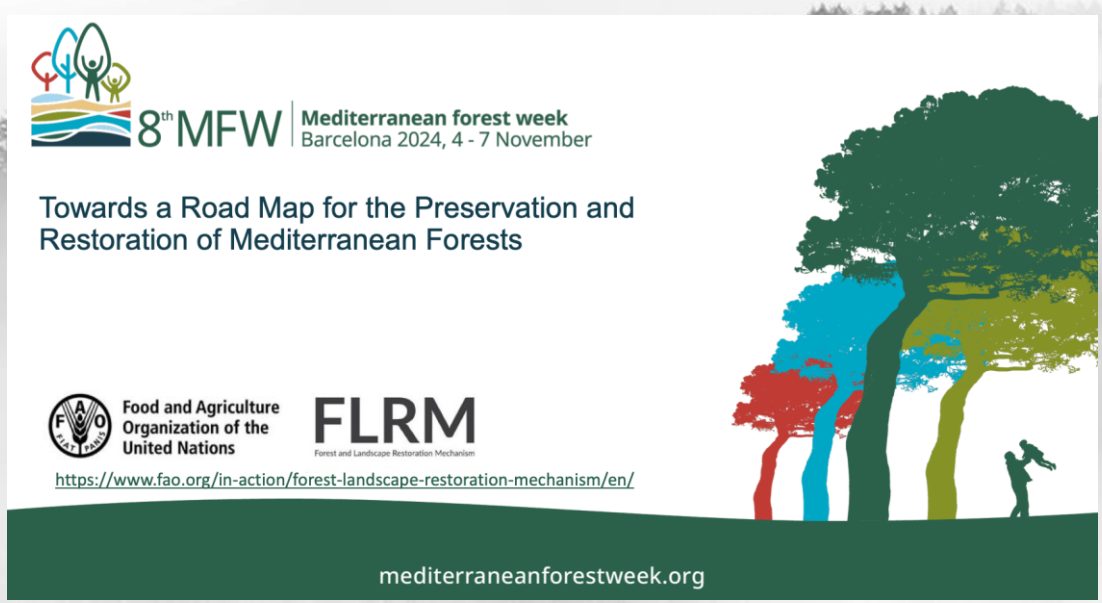


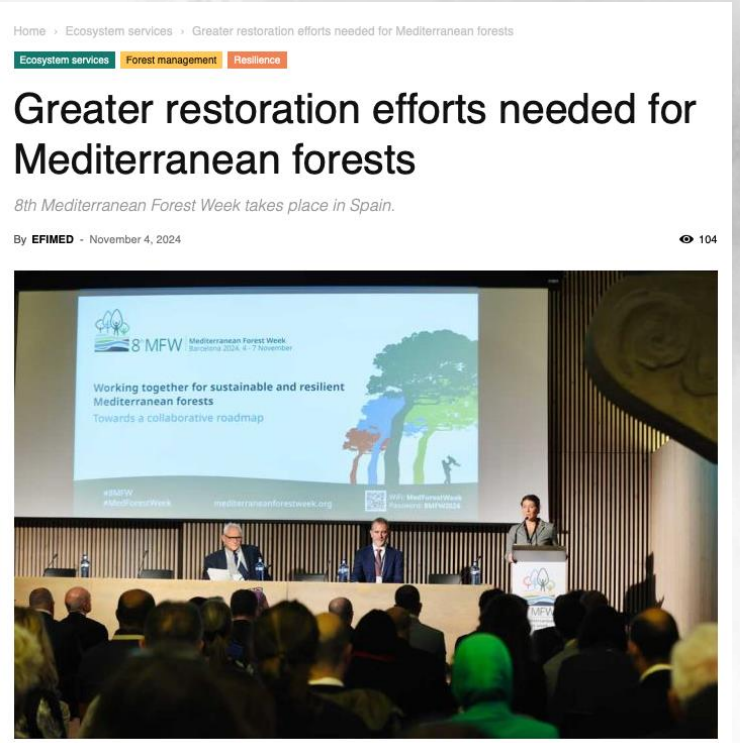
(Waldensphul in Scherzinger, 1996, mod.)





- Boschi di sclerofille utilizzati come pascolo (dehesas)
- Lande a *Calluna vulgaris* delle alte pianure
- Boschi di *Castanea sativa*
- Foreste alpine di *Larix decidua* e/o *Pinus cembra*
- Boschi puri di *Pinus laricio*
- Boschi di *Quercus suber*
- Foreste acidofile montane e alpine di *Picea* (*Vaccinio-Piceetea*)





In many cases **abandonment of Mediterranean forests causes the loss of traditional cultural landscape**s and does not result in a rewilding but in a **deterioration in both biodiversity (biocultural diversity) and ecosystem services provision**.

Closer to nature…

The Policy Context

EU Biodiversity Strategy for 2030:

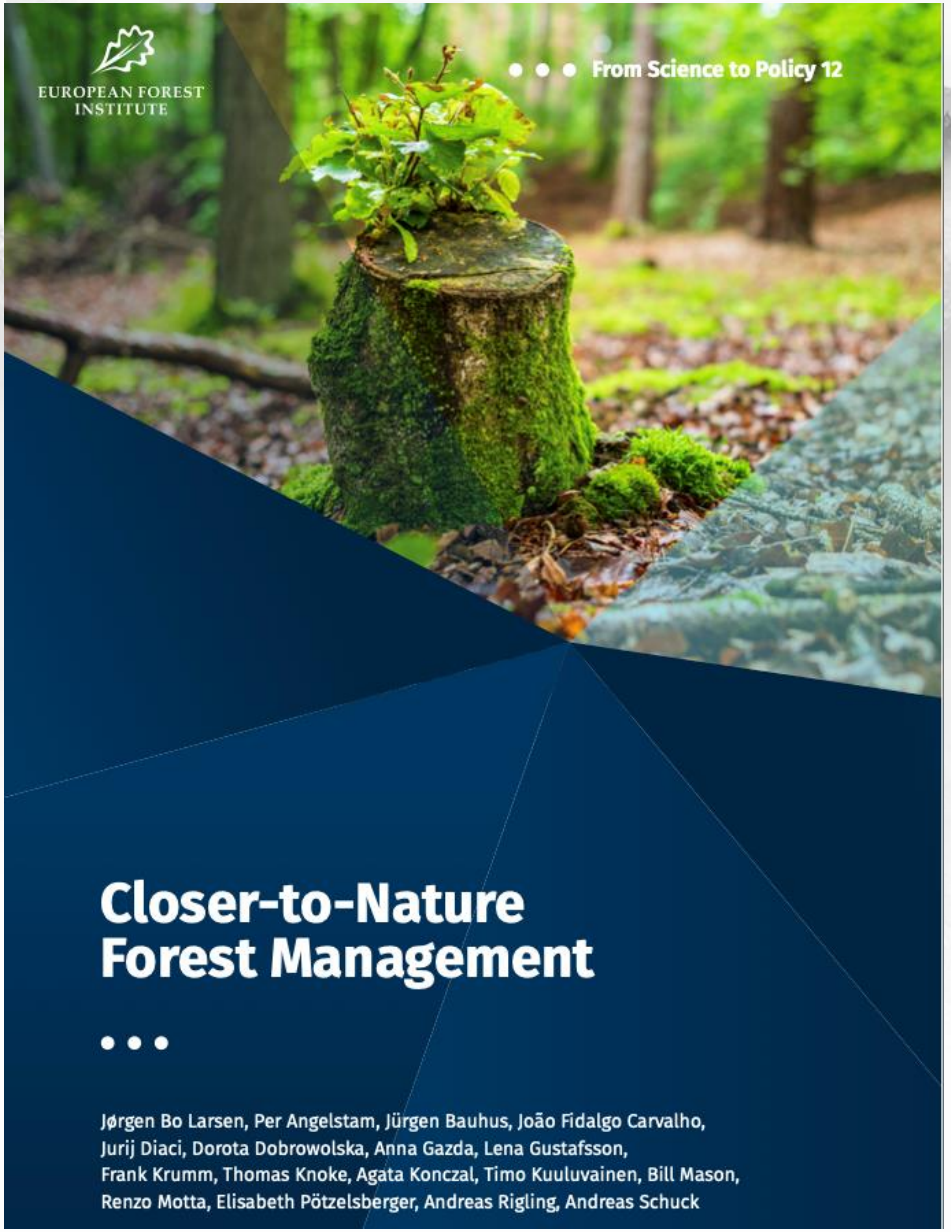
"To increase the quantity of forests and improve their health and resilience" [….] "biodiversity-friendly forestry practices such as closer to nature forestry should be further developed."

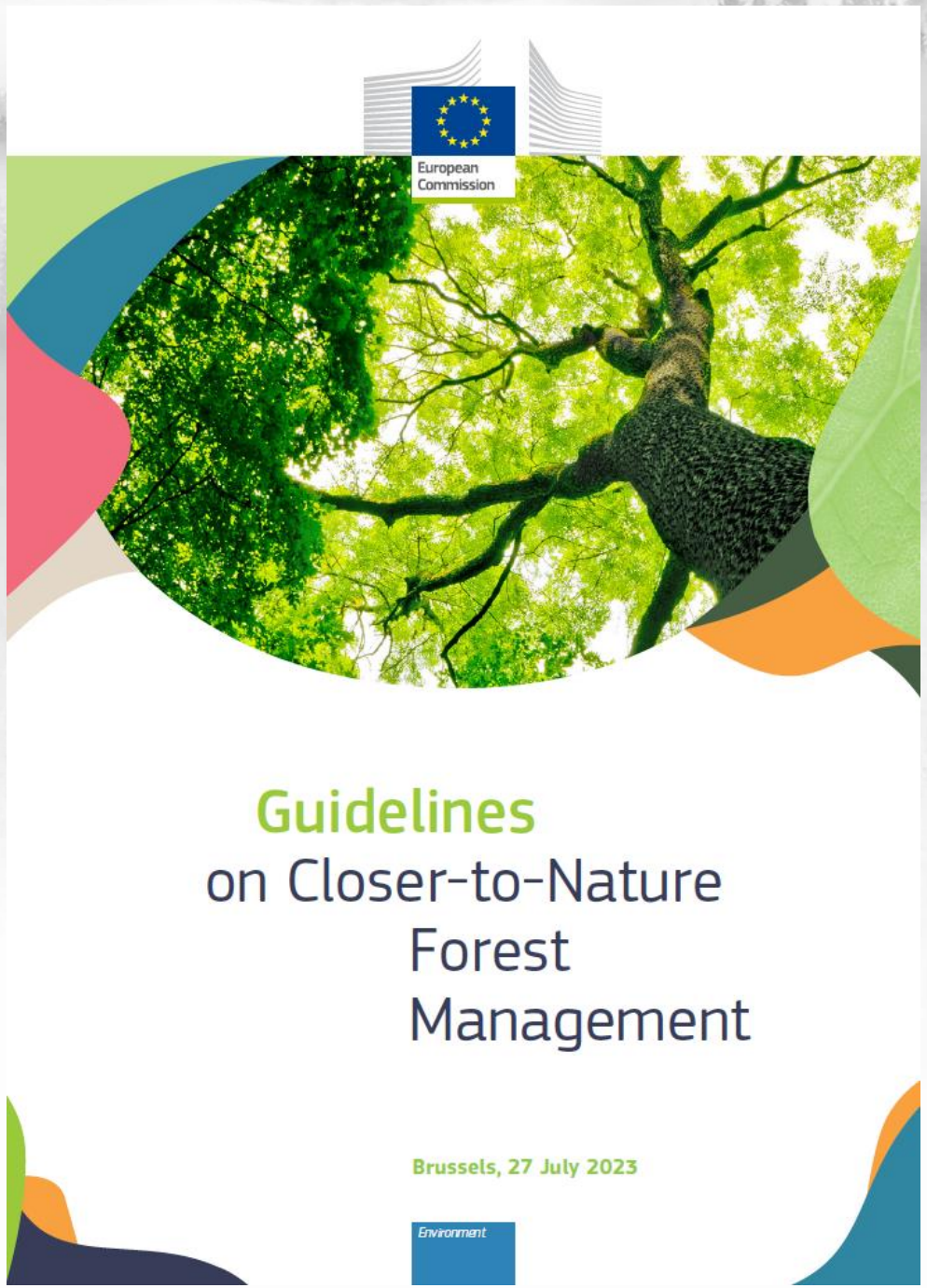
"To support this, the Commission will develop guidelines on biodiversity-friendly afforestation and reforestation and closer-to-nature-forestry practices."

New EU Forest Strategy for 2030:

"The Commission will develop a definition and adopt guidelines for closer-to-nature-forestry practices"

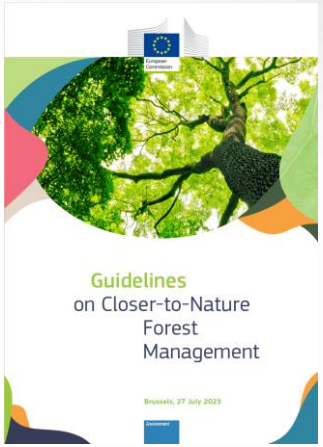
"a set of multiple practices to ensure multifunctional forests by combining biodiversity and increased carbon absorption with timber-related revenues"


EUROPEAN FOREST INSTITUTE
From Science to Policy 12
Closer-to-Nature Forest Management
Jørgen Bo Larsen, Per Angelstam, Jürgen Bauhus, João Fidalgo Carvalho, Jurij Diaci, Dorota Dobrowolska, Anna Gazda, Lena Gustafsson, Frank Krumm, Thomas Knoke, Agata Konczal, Timo Kuuluvainen, Bill Mason, Renzo Motta, Elisabeth Pötzelsberger, Andreas Rigling, Andreas Schuck


European Commission
Guidelines on Closer-to-Nature Forest Management
Brussels, 27 July 2023
Environment

General principles

While forest management needs a **region- and context-specific approach**, building on Larsen et al. (2022), the **general principles** of closer-to-nature forest management are:



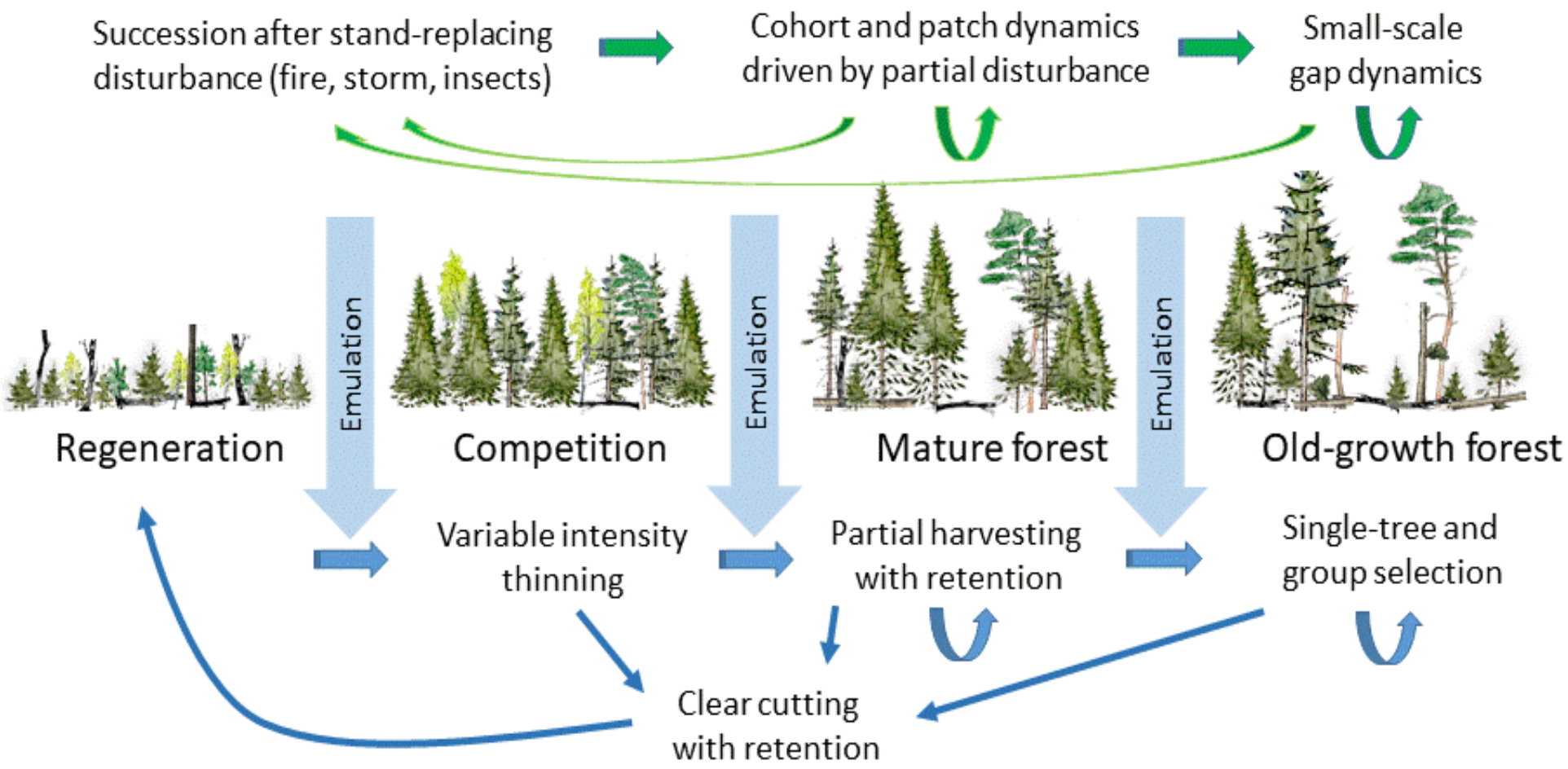
- Natural regeneration, native species and genetic diversity (assisted migration)
- learning from and permitting **natural processes** to develop;
- maintaining the **heterogeneity and complexity** of forest structures and patterns;
- stakeholders involvement;
- integrating forest functions at different **spatial scales**;
- using a variety of silvicultural systems **based on natural disturbance** patterns of the region;
- landscape heterogeinity;
- low-impact timber harvesting with equal attention being paid to **what is retained (retention, dead wood, habitat trees)** in the forest and **what is removed**, thus preserving habitats, forest soil and forest microclimates.

Proposed Closer to Nature strategies

Forests managed by Closer to Nature principles:

- aim at promoting components, structures and processes characteristic of natural forests and cultural woodlands
- feature a diversity of tree species and structures, a variety in tree size and development stages, and a range of habitats including habitat trees and dead wood
- timber harvesting will pay as much attention to what is retained in the forest as what is removed

Natural disturbance regime



Natural disturbance based management

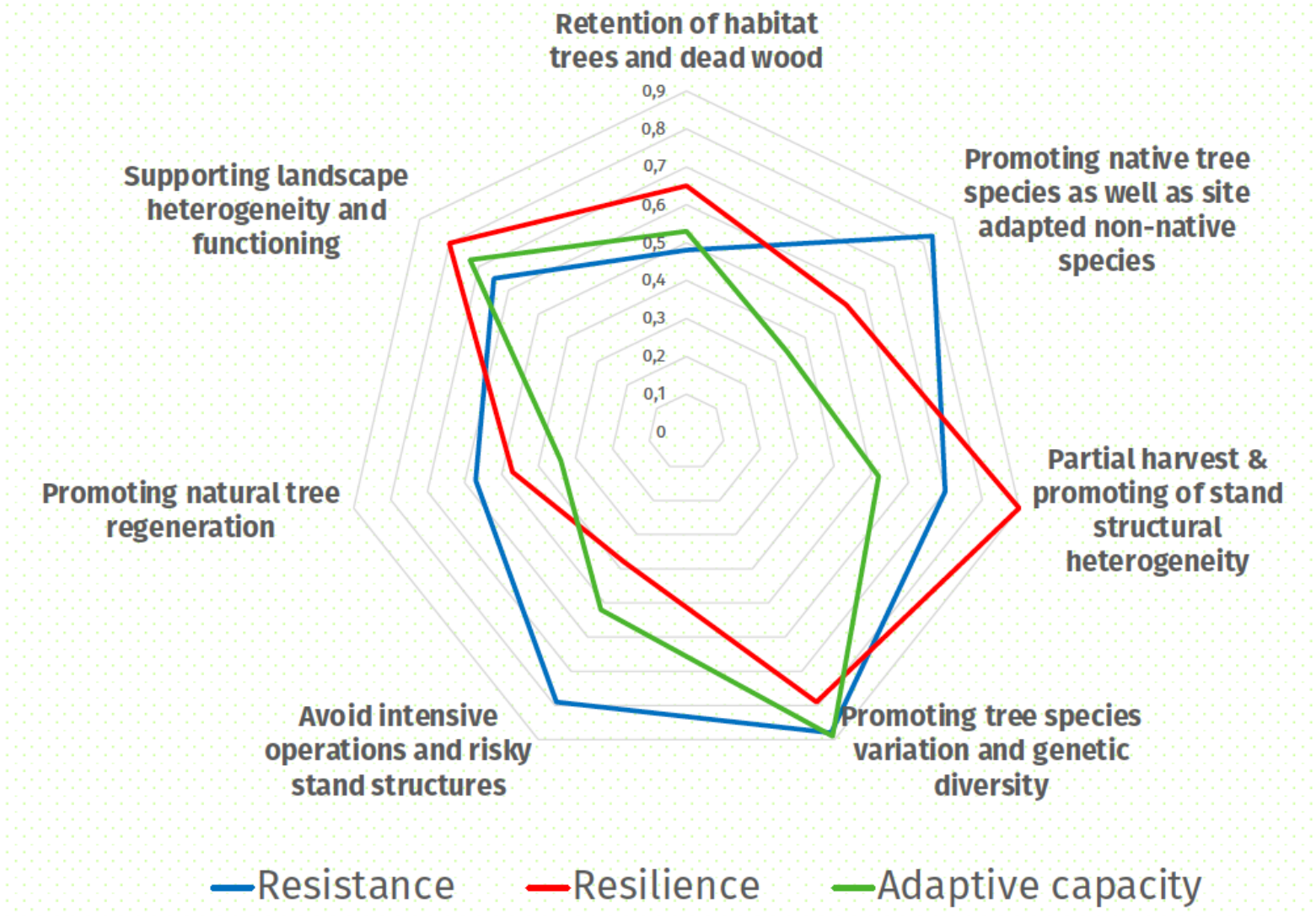
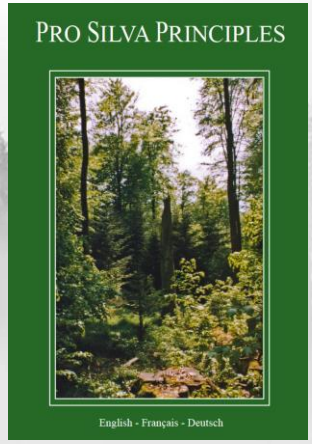


Figure 5. Visualization of the possible impact of principles of Closer-to-Nature forestry on the resistance, resilience and adaptive capacity concerning ecosystem service provisioning (resistance comprises the ability of an ecosystem to resist external stress; resilience comprises correspondingly the ability, when changed due to a disturbance agent, to return to its former dynamic state; adaptive capacity relates to global change, including climate change).

Piedmont Region Forest Law (RL 4/2009)
Art. 15…**silvicultural interventions are defined according to a silvicultural naturalistic approach…**

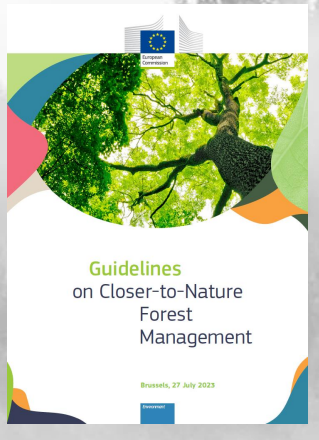
Rules for **all regular cutting** (other site-specific rules for Parks and Natura 2000 sites):

- Clearcut is banished (with some notwithstanding);
- Coppice: mandatory 10-20% of living trees retention (forest cover);
- High forest: mandatory > 40% of living trees retention (>50% in most cases);
- Mandatory protection of sporadic autochthonous species: if less than 20 individuals per ha (sycamore, maple, elm, ash, cherry, linden, if…) and in chestnut and black locust stands;
- Mandatory release of 2 aging habitat trees per ha; release 2 standing dead trees per ha (if present);
- Mandatory fight against invasive alien species (listed);
- Mandatory protection of species for seed production (listed);
- Mandatory to leave on the ground most of the post-harvest residuals;



Keywords

Cultural heritage, bio-cultural diversity, sustainability, multipurpose, agroforest, socio-economic, rural communities



With reference to sustainability in its broadest sense including all their uses PRO SILVA believes that forests provide four categories of benefit to society. These are:
1. conservation of ecosystems;
2. protection of soil and climate;
3. production of timber and other products;
4. recreation, amenity, and cultural aspects.

4. Recreation, amenity, and cultural aspects

PRO SILVA recognises the increasing importance of the forest for physical and mental health, especially in densely populated countries in Europe.

Essential elements of the recreational function of forests are:
- Suitability of forests for quiet, "eco-friendly" forms of physical and mental recreation;
- Suitability of forests as part of the traditional emotional attachment of people to forests and nature (forest of secrets, myths, fairy tales);
- Suitability of forests as a custodian of cultural traditions (forest as a theme in painting, poetry, music).

Unique features of the Mediterranean bioregions include its cultural, silvopastoral and agroforest systems shaped by humans.

These systems include holm oak, cork oak, chestnut and stone-pine forests.

These agroforest types have essential socioeconomic and cultural roles.
In addition, they support a high diversity of plants and animals.

However, they face a number of ecological problems, such as lack of natural regeneration, tree decline, soil degradation, carbon loss and disease

Payment-for-ecosystem-services schemes should increasingly apply to forests, which protect communities from natural hazards such as landslides, floods and wildfires, and which improve the quality of drinking water. In this sense, natural systems that increase forest resistance and resilience to disturbances should receive economic support under payment-for-ecosystem-services schemes and certification programmes.

EFI

Take home messages

Closer to Nature Forest management has great potential to integrate different mgmt. objectives including biodiversity, and enabling forest health and adaptation to climate change

- Different regions need different management approaches
- Learn from the past and consolidate existing networks
- Use adaptive management as a way to tackle uncertainties
- Not a quick-fix – long-term measures are needed
- Review existing subsidy (PES) and taxation regimes for private owners
- Develop and use novel technologies and tools
- Collective learning, experimentation and research will be key

Gentle advice… forget checklist…


Thank you for your attention…