
PRO SILVA Europe



Position Paper

Principles Applied to the Mediterranean Forests

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Summary

The Mediterranean region presents distinct climatic and natural characteristics as well a long history of human intervention on natural ecosystems. Significant threats exist to the forests and species mainly due to human pressure. Intense wood exploitation, grazing and fire, often followed by soil degradation, have lead to a progressive degradation of the Mediterranean forests. In addition, climate changes, drought, forest fires and soil erosion also plays an important role increasing its fragility and instability. One important feature of the Mediterranean forest is their multiple-purpose nature. Mediterranean forests supply a variety of wood and non-wood products and many services, contributing to the environment, nature conservation and socio-economic needs. This paper presents the Pro Silva principles applied to the management of the Mediterranean forest given their specific natural conditions and ecosystems and regarding their environmental, ecological, economic and social functions.

Main Characteristics of the Mediterranean Forests

The Mediterranean region is a territory characterized by a climate with a dry and hot summer and a cold or cool humid winter. The Mediterranean territory of Europe covers a surface area of about 900.000 km², representing about 40% of the total Mediterranean Basin, with the forestland covering approximately 19 million ha. In the Mediterranean region, several factors such as the topography, geology, type of soil, rainfall and thermal regimes originates diverse forest ecosystems. The Mediterranean region is characterized by its heterogeneity and vulnerability. In many areas the Mediterranean landscape is typically patchy with mosaics of different vegetation types and structure. In addition to its climatic and ecological characteristics the Mediterranean region is also marked by a long history of human intervention on natural ecosystems.

One important feature of the Mediterranean forest is their multiple-purpose nature. Mediterranean forests supply a variety of wood and non-wood products and many services, contributing to local and national economies. The Mediterranean forests provide the following functions: Water and soil conservation; Watershed protection against erosion, water cycle regulation and water quality; Climate regulation and carbon sequestration; Biodiversity conservation; Landscape and recreation; Preservation of historical and cultural values; Environmental education and awareness; Supply of wood products (timber,

firewood, charcoal); Supply of non-wood products (mushrooms, resin, fruits, cork, grazing, hunting, fishing, honey, medicinal and aromatic plants).

In some areas, grazing is one of the major activities linked to Mediterranean forests by creating a sylvo-pastoral system. A variety of grazing animals are raised and various wood and non-wood products are also collected, including cork, firewood, charcoal, acorns, mushrooms, honey and game. These systems when well managed show notable stability, biodiversity and sustainable productivity, being recognized a viable option for multiple-use and sustainable development.

There has been a growing concern of society for biodiversity conservation as well as a demand for recreational forests. The Mediterranean region is particularly important for biological diversity. Mediterranean forests are among the most diverse forest ecosystems hosting a high number of endemic plant species. The Mediterranean forests are also important for the landscape and the promotion of tourist activities.

Significant threats exist to the habitats and species mainly due to human pressure. The major threats are wild fires, grazing, over exploitation of forest resources, deforestation for crops, inappropriate silvicultural practices, desertification, climate change, and demographic pressure. Overexploitation and depletion of forest resources have had a profound impact on the ecosystems throughout the Mediterranean region. Many shrublands are the direct result of some combination of human activities. Climate conditions that can be extreme, with prolonged droughts or heavy rains, can lead to erosion and soil degradation. Fire has been one of the most destructive factors of the forest in the Mediterranean region. Wild fire is a natural factor in the Mediterranean, however, humans have changed natural fire regime, increasing its frequency and intensity. Over 95% of fires are due to human activity. Poor forest planning and management, negligence and intentional acts are common causes.

Several areas of the Mediterranean region are facing serious problems of desertification as a result of forest cover destruction and soil degradation processes. Many areas were largely deforested with progressive replacement of scrublands formations (*maquis, garrigues*). The Mediterranean is among the regions where the effects of climate change are likely to be more intense. The risk of desertification affects the Mediterranean region, particularly the southern areas.

An important part of the private forest consists of small units, which creates management difficulties, with low economical and functional effectiveness. On the other hand, the processing and marketing of forest products require a higher qualification and organization. In some regions, it can be mentioned the under-exploitation as a threat to the Mediterranean forests. The lack of a structured timber sector makes difficult the beginning of a planned and rational management process. As a result, several Mediterranean woodlands have only very limited forestry, and therefore a low qualitative improvement. This is a vicious cycle where the timber sector is non-existent or poorly developed: the forests are no longer maintained and thinned, the quality of wood products is further reduced and the attractiveness of the region for the wood industry also decreases.

Recreation and landscape have been significant benefits of Mediterranean forests and their importance has increased over the last decades as a demand of tourism. In some sites overcrowding threatened the sustainability of the ecosystems and decreases its recreational value. Certain coastal areas are particularly critical because of high population density and economic activities.

It is important to develop a sustainable Mediterranean forestry, adapted to local conditions, improve the quality of existing stands, ensure the gradual restoration of woodlands by maintaining a continuous forest cover based on ecosystem functioning.

Pro Silva Principles Applied to the Mediterranean Forests

The management of forest areas should be performed considering its multiple functions and uses in a balanced and harmonious way and respecting the integrity and functioning of the ecosystem. Besides timber, other wood and non-wood products, and various services provided by forests, should be considered in the management of Mediterranean forests.

Forest management practices for conservation may be focused on the requirements of particular species or in the habitat characteristics as a whole. Restoring and maintaining key natural processes may be of special interest, considering the different levels and forms of naturalness. In the Mediterranean region it is advantageous to preserve the genetic variability that would allow respond to unpredictable changes of the environment. Ecotourism can represent an important opportunity in many Mediterranean areas with significant natural values.

Close to nature forestry need to take into account major disturbance factors and threats that occur in the Mediterranean region. Several procedures and instruments should be implemented to reduce the occurrence and extent of forest fires (prevention, surveillance and combat, land planning, forest management, public awareness).

When livestock is an important component, as happened with the sylvo-pastoral systems, a close to nature forestry might be achieved if various forest management procedures are followed promoting the ecosystem integrity, functioning and sustainability. It is important to manage the animals so they do not damage tree regeneration and growth of young trees. A compromise between forestry and grazing should be achieved.

The low wood yield observed in some Mediterranean environments may be compensated by other products and uses contributing to the overall profitability of forest systems. However, often the appearance of a stand may be due to inappropriate silvicultural treatments in the past, non-attendance, fires or diseases. It is important to adopt rules for the management and harvesting, not only for timber but also for other products such as cork, mushrooms and game. An appropriate silviculture and optimized wood processing techniques will allow a well use of wood even with small diameters.

In addition to the main Pro Silva principles follows other strategies for different functionalities applied to the Mediterranean forests.

Conservation

- . Respect for the integrity and functioning of Mediterranean forest ecosystems.
- . Protect the genetic diversity in forest ecosystems, and avoid irreversible loss of classified habitats.
- . Promote biodiversity conservation, and preservation of rare and endangered species.
- . Control or limit the transformation of natural vegetation into artificial monoculture avoiding the destruction of the original environment.
- . Maintain and enhance the stability, vitality, strength and regeneration of forest ecosystems, protecting them from destruction factors like fire, grazing and diseases.

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- . Improve compositional and structural characteristics of the stands, promoting the ecosystem functioning and biodiversity conservation.
 - . Prevent the introduction and spread of invasive species that threaten natural habitats.

Protection

- . Promote soil and water conservation; preserve and improve of soil fertility.
- . Maintain soil productivity through a permanent forest cover.
- . Implement preventive measures to reduce the occurrence and extent of fires through an appropriate forest management, use of less inflammable forest species, territorial organization and network defense.
- . When grazing is used, manage the livestock pressure in order to avoid damages to soil and tree regeneration.
- . The debris from logging operations should be properly managed, considering the risks of fire, forest pests and conservation of soil fertility.
- . Consider that the recovery of the Mediterranean forest, particularly in degraded situations, may be slow.

Production

- . Consider the use and production of various wood and non-wood products (timber, fuelwood, charcoal, cork, resin, nuts, honey, mushrooms, aromatic and medicinal plants, grazing, hunting, fishing), through significant economic actions (markets, cooperation, territorial development), scientific and normative (qualification of specific products, recognition in competitive markets) actions.
- . Consider the various forest products exploited in a rational manner and their contribution for the global forest economy.
- . Valuation of the potential forest productivity through an individual and quality management.
- . Improve the productive structure of the stand, allowing, through a continuous cover, the optimization of stand regeneration, tending and production.
- . Maintain an adequate stand stocking in order to optimize their growth and yield, and compatible with other productive activities.
- . Consider the need to adopt measures to protect tree natural regeneration when damaging can be caused by grazing, wildlife or other activities.

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- . In silvo-pastoral systems, manage livestock pressure in order to keep the pasture in good conditions, avoid soil deterioration and tree regeneration damaging.
 - . With certain forest species and production systems consider the application of pruning to improve crown shape and fruit production.
 - . When the forest production is complemented with various non-wood products, manage stand condition, coverage of spontaneous vegetation, grazing intensity and wildlife population densities in order to balance the different products.
 - . Articulation of the forestry industrial activity with the sustainable management of forests.
 - . Give preference to local products for transformation and use.
 - . Adopt appropriate forest management and wood processing techniques for all diameters improving wood valuation and better economical returns.
 - . Create market opportunities for products currently little explored, including the valuation of minority forest species for different uses.

Recreation, amenity and cultural aspects

- . Provide leisure and recreational services to the society, in conjunction with the historical and cultural values of the Mediterranean forests.
- . Maintain and enhance the landscape, protecting it from destructive effects. Consider elements to diversify the landscape.
- . Planning the tourism development in a balanced manner to avoid destructive effects to the forest, damages to the forest regeneration, soil loss and increase fire hazard.
- . In protected and recreational areas, optimize the landscape values along with other functions and uses of the forest.
- . Promote the sustainable and balanced forest management (production, protection, recreation).

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