

MANIFESTO FOR SYSTEMIC SILVICULTURE

Current issues

In Italy forests cover approximately one third of the total surface and this area is increasing. Italian forests are very diversified not only in relation to environmental conditions, but also to the different economic, social and cultural factors which characterize different areas of the country.

Forest ecosystems provide many different services and goods for the population, such as soil and water protection, biodiversity conservation, climate change mitigation, desertification control, as well as wood products, including biomass for energy production, and non-wood products.

The historical, cultural, aesthetic, landscape and recreational aspects of forests are well acknowledged. Forests can reduce the negative impact of civil and industrial settlements on the environment, thus improving life quality.

Sustainable management is considered a general criterion for the protection of the environment that is part of the European Union founding treaty. The principles involved in this concept are: prevention, precaution, ecological, economic and social sustainability, as well as consideration for present and future cultural and spiritual needs. The above mentioned principles have been pointed out in Pan-European processes during the last few decades and have been mutually recognized among EU members through their commitment in the implementation of National Forest Programs.

The United Nations Convention on Biologic Diversity (CBD) recognizes the Ecosystem Approach as a strategy to equally promote the preservation and sustainable use of natural resources, including forests.

On a national level, sustainable forest management is the inspiring principle of forest planning aimed at rational land use. Italian legislation highlights the relevant role of silviculture as an activity aimed at socioeconomic development and, at the same time, environmental protection (legislative decree n° 227/2001). Furthermore, it is acknowledged that forest management based on sustainability criteria does not preclude the productive use of the forest.

Many Italian forests have been deeply altered by historical degradation factors such as fire, uncontrolled grazing, irrational forest cutting, and some of these factors are still active, mostly in the Mediterranean area. The increasing abandonment of agriculture and forestry in many hill and mountain areas, caused by decreasing revenues, has led to a considerable reduction of silvicultural activity and can also reduce biodiversity in the short-term.

According to CBD Global Biodiversity Outlook 3, the “Italian National Strategy for Biodiversity” requires our country to fully implement the Framework Program for the Forest Sector, carrying out specific actions for biodiversity conservation, forest protection and forest product certification. All of this with particular attention towards the role that our country can play in contributing to preserving the world’s forests and in improving the legal status of timber trade worldwide.

Historical issues

Regulation of forest utilization historically originated from the need to balance production with forest regeneration, thus ensuring sustained wood production and forest resource conservation.

Scientific development of silviculture and forest management has concentrated on defining planning schemes and silvicultural techniques which, properly organized in time and space, could guarantee wood production in optimal quantity and quality, with the aim of obtaining a yearly, maximum and approximately constant yield from the forest.

This classical vision of silviculture and forest management has only considered the instrumental value of the forest, i.e. the goods and services a forest can offer. In this view, the leading concept is that of the *normal* or *regulated forest*, a model which is defined *a priori*, and which usually does not consider the maintenance of a dynamic and resilient forest structure and composition.

The overall result of the classical approach to silviculture and forest management has been to greatly simplify forest ecosystems in order to better predict and control production and regeneration. Sustainability of timber production to obtain maximum land revenue has long been the main goal of forest management. Implicitly or explicitly, it has been assumed that a productive forest could also better perform all the other bio-ecological functions.

The value of a forest is still today mainly calculated on the basis of its direct use value, i.e. for the merchantable goods it can produce. Less frequently its indirect use value is considered, that is the maintenance of services and ecological functions essential for society's wellbeing. But only very rarely has planning and management considered the intrinsic value of the forest, the value a forest has *per se*, without any reference to the goods and services it may provide.

History has shown that it is impossible to constrain a complex adaptive biological system such as the forest into an abstract formal scheme (the *normal forest*) in order to reach precise and predicted aims.

During the last few decades, the new functions and new productive and social values of the forest have made forest management's role still more important for society as a whole.

Institutional and legislative frameworks, at the Italian, European and global level have fully recognized forest multifunctionality, and are increasingly orienting silviculture and forest management towards a much wider range of silvicultural approaches and adaptive planning methods.

All this considered, we state that:

1. The forest is a complex adaptive biological system and an entity with intrinsic value, a subject with rights that has to be protected, conserved and defended like all other biotic communities.
2. The forest is a common heritage that has to be passed down to future generations in optimal conditions: silviculture which contributes to forest conservation has ethical relevance.
3. The aim of systemic silviculture is the maintenance of the functional efficiency of the forest ecosystem: the forest is seen as *non-structured* in space and time, an autopoietic system capable of self-organization. The scientific reference paradigm is holistic.
4. Systemic silviculture accepts human activity in the forest as far as it is not impeding the natural functioning of the ecosystem; systemic silviculture satisfies sustainable forest management criteria for forest protection, biodiversity conservation, improvement of timber and non-timber production, it enhances externalities, preserves landscape value and supports forest owners in the care of their forest.
5. Silvicultural interventions should foster natural interactions among the different parts of the system, and between these and the environment so as to maintain its complexity and resiliency in the future. Silvicultural interventions should be cautious, continuous and capillary, and not tied to predefined schemes.
6. Interventions should be specific for each stand but also consider the landscape; cultivation cycle is indefinite, based on biological and ecological aspects, such as natural species longevity and the system's evolutionary tendencies; regeneration is natural; prescribed cut is based solely on silvicultural criteria, with the only limit of safeguarding a "minimum growing stock", in line with the precautionary principle.
7. Since the effects of silvicultural interventions show up in time, it is necessary to monitor biocoenosis' reaction by using appropriate indicators; monitoring provides the basis for adapting cultivation in order to continually strive to improve the forest's overall functionality. Forest management follows the scientific method of trial and error, so that management proceeds by subsequent approximations.

8. Systemic silviculture incorporates the essence of forest use systems based on traditional local knowledge, accumulated over time, and which guarantee the conservation of forest resources through their sustainable use.
9. Management based on systemic silviculture requires open, flexible, adaptive operating schemes that sustain forest full complexity. This means adopting a wide planning perspective in time and in space, in order to analyze the effects of choices on ecosystem processes, both on a short, medium and long period and from the stand to the landscape scale. Forest management is seen as a way to organize in time and space the sustainable use of forests at the different time and spatial scales. The aim is to guarantee in present and future times the fulfillment of the main ecological, economic and social functions of the forest, both on a local and a global scale, without damaging other ecosystems, according to the ecosystem approach criteria.
10. Management based on systemic silviculture fosters the development of small entrepreneurs linked to the land. It acts on a local level and promotes forest owner association in order to overcome the problems connected to the small size of forest property which characterizes many Italian forest areas, and the related issues regarding work organization. Forest landowners, who are required to respond to the challenges arising from social, economic, cultural and environmental changes, should receive support for responding to these challenges without loss of revenue.

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The Manifesto has been endorsed by the ENTE PARCO NAZIONALE DELL'ARCIPELAGO DI LA MADDALENA, the ENTE PARCO NAZIONALE DELLA SILA and the AGENZIA SVILUPPO E SERVIZI IN AGRICOLTURA (ARSSA) (Cosenza).

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