



Food and Agriculture  
Organization of the  
United Nations



# State of Mediterranean Forests 2018

## Executive summary

Based on a bioclimatic definition of Mediterranean forests, the Mediterranean region includes more than 25 million hectares of forest and about 50 million hectares of other wooded lands. Together, these make crucial contributions to rural development, poverty alleviation and food security, as well as to the agriculture, water, tourism and energy sectors, and to human well-being more broadly.

Climatic, societal and lifestyle changes in the Mediterranean could have serious consequences for forests, potentially resulting in the loss or diminution of these contributions and causing a wide range of economic, social and environmental problems. It is therefore crucial to improve policies and management practices that not only provide social and economic benefits but also increase the resilience of ecosystems and societies.

Both to compensate for the lack of data on Mediterranean forests and to provide a sound basis for their future management, the Committee on Mediterranean Forestry Questions-*Silva Mediterranea* asked the Food and Agriculture Organization of the United Nations (FAO), in collaboration with other institutions, to prepare and regularly update a report on the state of Mediterranean forests. Published in 2013, the first edition of the *State of Mediterranean Forests* has become a reference book on Mediterranean forests. This second edition aims to demonstrate the importance of Mediterranean forests in tackling issues of global significance such as climate change and population increase.



# Forests in the Mediterranean landscape matter, but there are rising threats to address

While forests form part of the identity of the Mediterranean landscape, their importance is, first and foremost, linked to the goods and services they provide. In order to conserve these valuable goods and services for the benefit of both populations and the environment, an awareness of their overall potential and current dynamics is essential. Unless action is taken, the future of Mediterranean forests could be undermined by several factors driven by climate change and demographic increase. Because these drivers of change are linked to global issues, we must consider Mediterranean forests in a global context.

## Key facts

- The Mediterranean region represents 2 percent of the world's forest area, but hosts 7 percent of the world's human population.
- In 2015, forests occupied 10 percent of the total area of Mediterranean countries.
- Forest area in Mediterranean countries increased by 2 percent between 2010 and 2015.
- Trees outside forest systems cover at least 8.2 million ha of land in the Mediterranean region.

Mediterranean forests can significantly contribute to the global agenda, including several targets under the three UN Rio Conventions, the 2030 Agenda for Sustainable Development and the UN Strategic Plan for Forests 2017-2030:

- The Agadir Commitment, which aims to restore, on a voluntary basis, 8 million hectares of degraded land in the Mediterranean region by 2030, contributes to Sustainable Development Goal (SDG) 15, Aichi target 15.3 and Land Degradation Neutrality.
- The Ankara initiative, the “Enhanced Action for Forests in the Med-Sahel Region in the Context of Climate Change” initiative and other ongoing regional initiatives address objectives related to the global agenda.

In addition to these regional initiatives and commitments that contribute to the global agenda, further action is required to promote the sustainable management of Mediterranean forests by all stakeholders, including local communities, forest owners and managers, farmers, herders, environmentalists, protected area managers and researchers.

There is a moderate but stable overall trend towards increased forest area across the Mediterranean<sup>1</sup>, with a corresponding increase in growing stock and carbon storage. Significant variations between countries do, however, remain:

- Mediterranean forests have experienced regrowth on abandoned agricultural lands and in landscapes in countries where human pressure has decreased as a consequence of migration

<sup>1</sup> The precise extent of the Mediterranean region will depend on the weight given to the respective geographical, climatic, ecological and political dimensions that characterize the Mediterranean identity. The trends reported here refer to Mediterranean countries.



to urbanized areas. At the same time, vast areas of forest are at risk of degradation and desertification as a result of droughts, biodiversity loss and wildfires following biomass accumulation.

- The Mediterranean region is a complex landscape that has demonstrated relatively stable trends in land use change over the last 15 years. An increase in settlements and croplands reflect new urbanization and tourism trends. This increase has been concurrent with the establishment of new forests, while grasslands and other lands have decreased.

Trees outside forests are extremely important in the Mediterranean region:

- Trees outside forests have been a distinctive, multi-functional resource in the Mediterranean for millennia, providing a wide range of socioeconomic and environmental services to both rural and urban communities. Trees outside forests represent the key component of many Mediterranean agricultural and urban tree-based systems. Olive groves, the fruit tree plantations in Morocco and the *dehesas/montados* systems of the Iberian Peninsula represent some of the most traditional agricultural tree-based systems in the Mediterranean region.
- The international community has increasingly recognized the contribution of trees outside forests to the achievement of global sustainability goals. For instance, the New Urban Agenda (HABITAT III) calls for an increase in safe, inclusive and accessible green and public spaces that provide opportunities for recreation, environmental education, pollution mitigation, climate regulation and even nutrition.

- Climate change is expected to significantly alter the distribution and cover of trees outside forests over coming years, with a consequent impact on local communities' livelihood and well-being.

Climate change and population growth are overarching processes threatening Mediterranean forests:

- The geographical heterogeneity of these drivers and threats is the result of contrasting social and economic pathways. For example, differing processes prevail in the north (e.g. land abandonment, forest fires) and south and east Mediterranean (e.g. overgrazing, overexploitation of fuelwood and migration).
- Diverse causes of forest degradation (anthropogenic pressures combined with forest fragmentation and climate change) interact, creating a series of new, complex and unpredictable feedbacks and consequences.
- Climate change is likely to modify the level and the temporal and spatial patterns of ecosystem services provided by Mediterranean forests. This will impact different populations in different ways. Those populations most heavily dependent on forest services are also the most vulnerable.
- The conservation and sustainable management of Mediterranean forests and the goods and services they provide pose an enormous challenge. Solutions to existing threats, as well as strategies to adapt the Mediterranean socio-ecological system to a more sustainable future, are urgently needed.



# Forest-based solutions can address the challenges Mediterranean landscapes face



Forest-based solutions in the Mediterranean recognize the fundamental value of the goods and services provided by Mediterranean forest ecosystems. While timber is the forest product that often comes to mind in this context, Mediterranean forests provide a variety of non-wood forest products, as well as environmental and cultural services. Many of the environmental services they provide (e.g. prevention of soil erosion, conservation of water quality) are linked to other sectors and many of these and the benefits derived from them by populations are, however, strongly spatially heterogeneous and under threat. Innovative, forest-based solutions using landscape approaches – in which the forest is but one landscape element interacting with others – can tackle the threats faced in the Mediterranean.

Forest and landscape restoration is an innovative and particularly relevant approach to address the drivers of degradation in the Mediterranean region:

- Forest and landscape restoration involves trade-offs between agricultural and forestry production and environmental conservation, ensuring the best possible integration at the landscape level.
- Further efforts to map and plan priority restoration areas using biophysical data and analysing socioeconomic needs and opportunities are required at country and sub-national levels.
- Participatory approaches should be mainstreamed during both the planning and monitoring phases to ensure ownership by stakeholders. Collaborative tools and approaches will help to yield results, assess achievements and enhance restoration knowledge in the Mediterranean.

## Key facts

- Mediterranean urban forests make significant contributions to the economic viability of the region.
- The Agadir Commitment to restore 8 million ha of degraded Mediterranean forest ecosystems will play a key role in supporting country efforts to restore degraded ecosystems.
- Over 42 percent of land area in protected areas in the Mediterranean has a tree cover of more than 10 percent, more than twice that of the Mediterranean biome (including both protected and non-protected areas).
- Due to their high diversity and level of endemism, forest genetic resources in the Mediterranean are unique assets for climate change adaptation.

Forest-based solutions are key to climate change mitigation and adaptation in the Mediterranean:

- Adaptation management strategies aiming to reduce the adverse effects of climate change-related stress and disturbances on Mediterranean forests are closely linked to those mitigation activities that aim to sustain their carbon sequestration capacity.
- Adaptive forest management should not be reduced to increasing short-term resilience, but should also seek to foster adaptability, i.e. autonomous adaptation of Mediterranean forests to a fast-changing climate over the long-term. A key adaptability strategy is the promotion of mixed species stands favouring changes in forest composition towards drought and fire-tolerant species (*in situ* conservation of forest genetic resources).
- Climate policy instruments (Kyoto Protocol, REDD+, Paris Agreement) recognize that the forest sector plays a key role in climate change mitigation. A transition towards a bioeconomy is advocated in European Union (EU) Mediterranean countries. This would support long-term sustainable wood mobilization as a way to substitute fossil-based products and reduce the risk of wildfires.
- The capacity of non-EU developing Mediterranean countries to reduce emissions and enhance carbon sequestration in forests largely depends on country-level engagement and support for implementing national mitigation plans.

The biodiversity of Mediterranean forests is key to their resilience and climate change adaptation, but their value extends far beyond this:

- Forests and other woodlands are an essential component of Mediterranean biodiversity and therefore key to the provision of multiple ecosystem services.
- Efficient use and management of natural resources must be balanced with the need to maintain biodiversity and ecosystem functions. Scientists, forest managers and other stakeholders are expected to jointly develop and adapt silvicultural practices, taking into account the intrinsic dynamics of ecosystems and species to conserve their diversity, resilience and evolutionary capacity.
- Production can be rendered compatible with conservation by planning and promoting coordination of activities between sectors. Carefully planned tourism activities linked to forests and multiple use productive systems for non-wood forest products have shown to be important management alternatives in Mediterranean forests.

# An enabling environment is required to scale-up forest-based solutions



Mediterranean forests and trees are a vital asset that could play an important role in the global forest agenda. This natural capital could, however, be jeopardized by climate change and increasing population if no action is taken. Implementing and scaling-up forest-based solutions to tackle these threats necessitates certain enabling conditions.

## Key facts

- Forests are part of the green economy but their potential contribution is only partially captured in the Mediterranean green economy and related strategies.
- Participatory approaches are an essential pillar in the sustainable management of Mediterranean forests.
- Median public expenditure on forest management in Mediterranean countries was EUR 23/ha in 2010 (compared to the global average of EUR 8/ha).

Scaling-up forest-based solutions will be facilitated by a paradigmatic shift in the way we perceive forest goods and services in the economy, from a linear economic model of production to a circular, resource-efficient, bio-based, low carbon and socially fair green economy:

- Continued demographic growth, increased *per capita* consumption and an expanding urban middle class are jeopardizing the Earth's capacity to provide a "safe operating space for humanity". The Mediterranean is no exception. It is estimated that the region uses 2.5 times more renewable resources than its ecosystems can provide.



- The green economy is especially useful if understood as an umbrella concept encompassing different “shades of green”. This includes environmental improvements as opposed to business as usual, discourses advocating deep changes to consumption and production patterns and equity and social justice.
- The potential of Mediterranean forests to transform key sectors of the green economy is generally ignored. Enhancing this role will require stronger action in a number of areas, including social dimensions. Critical to this are participatory approaches that complement technological and social innovations to strengthen forest-based value chains, based on a full range of goods and services.

Scaling up forest-based solutions requires country-level coordination using carefully prepared and effective national forest policies and programmes:

- Sustainable forest management is consistently prioritized in the national forest policy programmes and statements of Mediterranean countries. Priorities for forest products (non-wood forest products and wood products alike) are universally expressed in policy documents throughout the region, while prioritization of ecosystem services remains fragmented and implemented only intermittently.
- The policies of a number of Mediterranean countries include pledges related to forest and landscape restoration and afforestation.
- Biodiversity is deeply rooted in forest policies and policy documents throughout the region, the primary focus being the biodiversity-climate change nexus.
- Regionally, climate change mitigation and adaptation policies and instruments are in their initial phase. The average year for the publication of National Forest Programmes in the Mediterranean region was 2009. As a result, Nationally Determined Contributions (NDCs) and the Paris Agreement are not mentioned in most forest policies. It is anticipated these existing forest policies will be revised in order to foster the role of forests in NDCs.

Robust approaches to stakeholder participation, sound governance and community engagement will be critical to the success of forest-based solutions:

- In the Mediterranean, the implementation of participatory approaches includes local adaptation to social, economic, environmental and political contexts.
- Concertation is always a preliminary step. Respect for fundamental steps, as well as the development of methodologies and use of appropriate tools are critical for the successful implementation of participatory approaches.
- In the forest sector, greater involvement by stakeholders – particularly local communities – is a recognized requirement for sustainable forest management. Therefore, policy support (at a national and international level) towards higher stakeholder participation will be a key determinant of success.

The successful implementation of forest-based solutions will require a fair and accurate assessment of the value of the goods and services on which these solutions are based:

- Local communities and stakeholders should be informed of the value of the different ecosystem services from which they benefit. Moreover, they should be invited to participate in the valuation process itself in order to observe the method in practice, provide information and understand the results.

- Cost-benefit and multi-criteria analyses help practitioners identify those operations with the greatest social impact and determine their economic consequences (i.e. gains and losses) for all stakeholders.
- Economic instruments should be developed that reduce degradation and encourage multipurpose forest management. This involves identifying and developing economic instruments and funding mechanisms that facilitate a compromise between forest owners/managers, local users and off-site beneficiaries of ecosystem services.

Scaling up forest-based solutions in the Mediterranean region requires appropriate financing mechanisms:

- A variety of financing options for forest management are available to Mediterranean countries, including National Forest Funds, climate finance, private investment and Payment for Ecosystem Services. Forestry financing stems primarily from taxpayers, but private financing options are increasingly widespread.
- As a subset of public financing, “polluter-pays” or “user-pays” principles have led to new and complementary funding streams in the forest sector.
- Private financing instruments have a number of benefits: they offer advantages to forest managers; introduce societal preferences into management decisions; and strengthen links between forest managers and users/beneficiaries.
- A tool is needed to target the specific aridity and degradation challenges these countries face. In coming years, the Land Degradation Neutrality Fund could play a relevant role in this regard.



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# Conclusions



Mediterranean forests can play an active role in addressing many of the challenges the region currently faces. The forest sector can provide jobs in rural areas, contribute to renewable energy strategies and provide valuable ecosystem services. Forest-based solutions can tackle threats driven by climate change and human intervention and should be promoted. These include activities such as climate change adaptation and mitigation, biodiversity conservation programmes and forest and landscape restoration. Successful implementation of such forest-based solutions will require an adequate economic valuation of Mediterranean goods and services. This is also fundamental to building dialogue and promoting forest policies and programmes. In order to create an enabling environment, recognition and integration of all stakeholders in both the planning and implementation stages of management action is also required. Finally, in order to create a new, green economy, appropriate financing is the engine driving the design and implementation of forest-based solutions that integrate these goods and services in a multifaceted way.

Mediterranean forests and trees will only be capable of playing a role in tackling global threats if viewed from a cross-sectoral perspective. The landscape approach is particularly relevant to the practical implementation of forest-based solutions in the field. The management of Mediterranean forests is no longer the sole preserve of forest managers, but also involves users, populations and young entrepreneurs developing businesses based on forests in the green economy. Given Mediterranean forests are an important regional asset – as demonstrated by several regional initiatives – their role in the global agenda should be further enhanced. This will require strong and active regional cooperation. Fortunately, Mediterranean countries are already demonstrating a revitalized engagement in regional and international activities.



For more information, please contact:

Forestry Department

E-mail: [FO-Publication@fao.org](mailto:FO-Publication@fao.org)

Web address: [www.fao.org/forestry](http://www.fao.org/forestry)

Food and Agriculture Organization of the United Nations

Viale delle Terme di Caracalla

00153 Rome, Italy

Plan Bleu - Regional Activity Centre  
of UN Environment / Mediterranean Action Plan

Email: [planbleu@planbleu.org](mailto:planbleu@planbleu.org)

Web address: [www.planbleu.org](http://www.planbleu.org)

271 Corniche Kennedy

13007 Marseille, France