

# Advancing biodiversity conservation through integrated forest management in Europe

## Assessment and actions needed

*Policy brief resulting from the INFORMAR and oForest projects under the European Network Integrate*



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## I. Introduction

Forests provide many ecosystem services for society. These range from wood and non-wood forest products to the essential importance of forests for biodiversity, climate change mitigation, recreation and cultural identity. Integrating the provision of manifold forest ecosystem services in forest management, and balancing between diverging societal demands, is of utmost importance for forest policy in Europe. It is also the central rationale of Sustainable Forest Management, the forest management paradigm agreed upon by the European forest ministers and in the EU Forest Strategy.

Dealing with potentially competing demands towards forests and their management can be challenging. This is also true when the idea is to integrate the provision of different forest ecosystem services in forest management in the same spatial context instead of separating forests designated specifically for distinct single major purposes.

In this policy brief, we aim to:

- assess the prospects of integrating biodiversity conservation in Sustainable Forest Management in an integrated approach (integrated forest management); and
- provide conclusions about the policy needs to support the further implementation of integrated forest management.

This policy brief is based on the available scientific evidence. However, it clearly goes beyond science and involves practical experience and policy expert views, as compiled within the framework of the European Network Integrate. It is a science-based opinion paper with the ambition to advance biodiversity conservation through integrated forest management within the frame of Sustainable Forest Management for European societies in the future.

**Integrated forest management** refers to the management of forests for multiple societal demands (wood production, biodiversity conservation, recreation, water and soil protection, etc.) in a limited spatial context but at different spatial scales, from the single tree to the landscape level, rather than maximising individual objectives in separate forest areas at a larger regional, or even country, scale.

In this policy brief, we specifically refer to the **integration of biodiversity conservation through an integrated forest management approach in Sustainable Forest Management** in Europe.

This is the main purpose of the **European Network Integrate**.

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*Photo: forest landscape in lower Austria dominated by mixed deciduous forests and some conifer plantations with Norway spruce and European larch mixed-in. Andreas Rigling, WSL*

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### II. Taking stock: the promise of integrated forest management

#### **1. Europe's forests are characterised by a long history of human influence – this creates a basic rationale for an integrated biodiversity conservation approach**

Forests in Europe are characterised by a long history of human use, and semi-natural forests dominate. Only small remnants of primary forests are left, and the share of both strictly protected forests and intensively managed plantations is small in a global perspective. An interplay of human management and natural processes has affected forest biodiversity over time. Frequently, a combination of past and current human management and natural processes have generated biodiversity features valuable from a conservation perspective. This situation is an important reason for generally prioritising integrated conservation approaches to forests in the European context, notwithstanding the need to establish and maintain larger strictly protected areas to preserve natural dynamics, specific larger-scale habitats of certain species, or old-growth forest relicts.

#### **2. There is a huge diversity of forests types, forest management situations and associated forest biodiversity patterns in Europe, stressing the need for context-suited integrated forest management concepts**

There is a great diversity of forest types, forest management approaches, and associated biodiversity features in European forests. In most countries, there are management approaches that

actively integrate biodiversity conservation within forest management, although they are implemented to varying degrees. The broader, but also the local, context is important if such approaches are to be advanced. For instance, in forests managed intensively for timber production, implementing biodiversity conservation will require a reduction of wood harvesting in order to retain old-growth forest structures (old/habitat trees, deadwood) that are usually lacking in these areas. Conversely, in forests with little or no management, greater use of tailored management interventions can help to increase structural diversity including related microhabitats, and protect threatened species adapted to more open forest habitats and land management legacies. In other words, there is no 'one size fits all approach' to an integrated forest biodiversity conservation approach at a European level, but context-dependent approaches are needed that respond to the specific local and regional conservation challenges.

#### **3. The relation between biomass production and biodiversity conservation is not black and white, but addressing the lack of old-growth forest structures is the most important objective in forests managed primarily for wood production**

While there is no overall negative (or positive) correlation between wood harvesting and forest biodiversity, it is clear that forest management has a decisive impact. This means that significant adaptations in relation to a management regime focusing only on sustained wood production are



Photo: Forests, water surfaces, agricultural land, and settled areas are typical elements of European landscapes.  
Andreas Rigling, WSL

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needed to integrate biodiversity conservation aspects. This is especially the case if: (a) old-growth structures, including deadwood, are lacking owing to biomass removal; (b) forest stands are homogenised in terms of structures and tree species or non-native tree species are extensively promoted; and (c) soil biodiversity is negatively affected e.g. through the use of unsuitable harvesting techniques. Conversely, forest management can have positive impacts, e.g. through creating more diverse forest structures and habitats and increasing the tree species or genetic diversity. Integrated forest management has the potential to combine biodiversity conservation with wood production and other ecosystem services for large forest areas if compromises between different objectives are made, and to take advantage of synergies between those objectives.

#### **4. European citizens value forests for the environmental services they provide, increasing the need to integrate conservation objectives in Sustainable Forest Management also outside protected areas**

Social science research has shown that European citizens appreciate forests most highly for the environmental services that they provide, i.e. as a place for biodiversity, but also for its climate effects, and recreational opportunities. Wood is appreciated as a renewable natural resource, on the condition that the wood has been generated from sustainably managed forests. Research also indicates that forest managers, especially in urban areas, are facing increasing criticism from citizens when conducting harvesting measures. Integrated forest management strategies can combine the provision of various ecosystem services, and specifically biodiversity and recreational features of forests with the production of the renewable resource wood. These strategies hold substantial potential to ensure that forestry is not seen as wood mining, but as the responsible ecosystem management that European societies clearly demand.

#### **5. Forest owners and managers want their forests to provide multiple ecosystem services**

Evidence suggests that forest owners and forest managers in Europe follow a diversity of objectives for their forests, and many of them show a generally significant interest in biodiversity conservation. This

is a crucial basis for aligning societal expectations with the objectives of forest owners and managers. The challenge for forest policy is to ensure that the socio-economic conditions support landowners and forest managers to then align the societal preferences regarding nature and conservation with the economic expectations towards the land, and the importance of forests for producing sustainable resources for the bioeconomy. This includes the necessity of providing knowledge and enabling learning amongst forest owners and managers concerning integrated forest management approaches and biodiversity aspects of forestry.

#### **6. Climate change and the necessity to adapt forest increases the need for integrated forest management**

Climate change is affecting European forests, with increasing impacts of disturbances such as drought, forest fires, and pests. Significant economic damage has been caused particularly in monocultures with species historically planted outside of their natural range. Climate change is, however, also affecting native forest trees and mixed stands, and nature conservation objectives – particularly as an overall stability of ecosystems, habitats, and species cannot be assumed. Overall, the increasing vulnerability of forests to disturbances strengthens the argument for integrated forest management approaches promoting more diverse forests. Research has shown that the correlation between diversity and resilience in forests and forestry is positive. This provides more room for adjusting biodiversity conservation and other forest management goals in an integrated manner.

#### **7. The economics of integrated forest management are critical**

Although the financial basis for forest management has diversified in the last decade (e.g. through innovations relating to (non-wood) related ecosystem services), the production of wood remains the key financial source for forest management in Europe. Wood produced in Europe holds a major potential for the sustainability transition of the European economy. At the same time, research has demonstrated that demands coming from the wood market or related to the profitability of wood harvesting can be a critical factor inhibiting the implementation of integrated forest management and biodiversity measures. This

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calls for a continued assessment of the economics of integrating biodiversity conservation in forest management, the exploitation of synergies, but also for the development of policies to support forest managers and forest owners to deal with trade-offs. The more than 100 Marteloscope demonstration sites, established under the European Network Integrate, have proved to be powerful tools to practise, exchange, and discuss the reconciliation of both biodiversity and wood production/economic goals on the ground in everyday forest management situations, including dealing with trade-offs and synergies.

### 8. Global responsibility makes a point for integrated forest management

Globally, forests are under pressure. Deforestation and forest degradation are major challenges in many tropical countries, resulting in environmental impacts such as exacerbation of climate change, increasing biodiversity loss, and soil erosion. Socio-economic mega-factors such as population and economic growth and agricultural commodity trade are driving deforestation. However, one critical factor is the limited economic value attributed to (primary) forests. Being perceived as ‘non-productive’ land area, they continue to be converted into agricultural lands or monoculture plantations. Integrated forest management aiming to connect biodiversity conservation and sustainable wood production may serve as a model for forests outside Europe to give them an economic value beyond being a land reserve, while at the same time keeping their outstanding biodiversity. To be an effective model, investing in integrated forest management is, however, needed on Europe’s home ground, as well as in communicating the approach abroad. In addition, implementing integrated forest management approaches that provide the possibility to combine wood production with conservation aspects mean that Europe can meet most of its wood demand in Europe, instead of sourcing it from abroad (with less control about its environmental footprint).

### 9. Integrated forest management is the politically most feasible paradigm – but cross-sectoral collaboration is needed to ensure its success

For the many reasons outlined in this policy brief, integrated forest management is not only a ‘technically’ convincing concept, but it is also an ethically and politically convincing concept for the implementation of Sustainable Forest Management in practice. Integrated forest management supports the provision of multiple ecosystem services where society expects them – i.e. in the forest next door. Yet, designing and implementing integrated forest management concepts is frequently hampered by a sectoral competition between the conservation and the forest sector. In some cases, this competition also plays out with respect to the debate about segregation versus integrative conservation concepts, with the conservation sector demanding strict protection to limit the influence of foresters, and the forest sector using integrated approaches to limit the influence of conservationists. Hence, it is of utmost importance to achieve honest commitments from both the conservation and the forest sector to sincerely cooperate and jointly design effective integrated approaches in policy design, resources, and implementation.

### 10. Integrating biodiversity conservation in forest management can build on a rich portfolio of good practice examples

The final point is to emphasise the power of the people acting to implement integrated forest management approaches across Europe. Close-to-nature forestry, continuous cover forestry, reduced impact logging, or retention forestry (in different regional variations) make up a rich portfolio of management approaches that aim to achieve the integration of biodiversity conservation in forest management from across Europe. Showcasing the good examples and connecting the wealth of practical experience can be the departure point for making integrated forest management, i.e. aligning conservation and production goals, not (only) visible in individual good practice examples, but to become a widespread reality in Europe. This is precisely the core ambition of the European Network Integrate.

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### III. Conclusions for European forest policy

#### 1. Consider integrated forest management approaches as a core objective of a future European forest policy enhancing both the bioeconomy and biodiversity

Forest policy in Europe remains divided between those that emphasise the importance of wood as a key renewable resource to be sustainably used, and those that focus on forests as place for nature and biodiversity to be better conserved and protected. In order to balance between both perspectives, it is crucial to mutually acknowledge that: (1) both objectives are justified and important; and (2) the globally observable pattern to split the landscape into strictly protected areas for conservation and heavily used plantation for the bioeconomy has shortcomings, particularly from a European perspective. While protecting relicts of primary forests and creating ‘new primary’ forests through strict protection is also important in Europe, integrated forest management offers the opportunity to combine biodiversity conservation and other forest uses on the more than 90 % of Europe’s forest area that are shaped by human use and are not strictly protected. This maintains the possibility to produce the renewable material wood within Europe, creates a unique possibility to improve biodiversity conservation on large areas, and reflects that multiple societally demanded forest goods and services can often not be addressed through large-scale segregation in the densely populated context of Europe. Within the European Union, to thoroughly implement integrated forest management concepts in large areas of forests should be a core long-term ambition to be included in the new EU Forest Strategy. Uniting the two perspectives outlined above is crucial as both integrated and segregated approaches complement each other in protecting and enhancing forest biodiversity in Europe.

#### 2. Respond to the accelerating impacts of climate change by advancing integrated forest management for improving forest biodiversity and forests adaptation potential

Climate change is increasingly putting pressure on both ‘traditional’ forest use and ‘traditional’ forest biodiversity conservation strategies. For instance, both ‘non-intervention’ and ‘non-biodiversity’ intense plantation management strategies have limits, also in terms of public acceptance, with

intensifying disturbance patterns such as droughts, mega-fires, and related biotic disturbances of unprecedented magnitude. There is a need to increase forest resilience, which often includes the need to actively manage for (bio-)diverse and resilient forest landscapes. Integrated forest management concepts could be the key strategy to combine an active management approach with elements of natural forest dynamics and adaptation, and to enhance structural, species, and genetic diversity of European forests for adaptation and the provision of multiple forest ecosystem services.

#### 3. Create a more ambitious policy framework for forests in Europe enhancing both the biodiversity and bioeconomy potential of forests

Within Europe, the imminent ‘climate crisis’ could be the starting point for a policy approach that more effectively ensures the provision of multiple forest ecosystem services now and in future. This approach needs to: (a) encourage bottom up action of forest owners and managers to make their forests more (bio-)diverse and resilient; (b) ensure transparency, information and communication on the state of forests, including biodiversity patterns; (c) exploit synergies, e.g. taking into account the interest among forest owners and managers to integrate conservation aspects in their management; (d) ensure that forest management practices that cannot be considered to be in line with the jointly agreed definitions of Sustainable Forest Management, e.g. illegal harvesting, are effectively



Photo: European Integrate Network meeting in Rold Forest, Denmark. Jose Bolaños, EFI.

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prevented; (e) support conflict resolution through cross-border exchange on good practices and joint 'fact finding' across science, policy and practice as practiced under the European Network Integrate; and (f) provide effective incentives, e.g. meaningful payments for ecosystem services to private land owners to support them implementing integrated forest management, and meaningful budgets for public forest companies and services to implement biodiversity conservation measures on public land across Europe. Within the European Union, the EU Green Deal is the policy environment for launching and meaningfully supporting such a policy approach to forest management under the new EU Forest Strategy.

### 4. Use the motivation, experience and support amongst Europe's forest owners and managers for advancing integrated forest management approaches

Working in forestry is usually motivated by the desire to work with nature rather than against it. There are many examples of forest owners and managers engaging in nature conservation. The values and motivations of private landowners and public forest managers provide a fertile ground for upscaling local integrated forest management concepts at a European scale, and they need to be encouraged and supported. This means making the relevant knowledge regarding important structures and features for biodiversity conservation broadly available through silvicultural training and web-based information, without constraining the existing diversity of regional practical perspectives and approaches. It also requires effective financial support for forest managers, especially where significant trade-offs occur.

### 5. Involve people with different views in the establishment of integrated forest management

One of the key findings of empirical social research in the last years is the increasing social pressure that forest managers in Europe are subject to

from an urbanising population. In many cases public scrutiny and related political pressure have been major driving factors for adopting integrated forest management concepts. At the same time, also strictly protected areas (non-intervention) have met with public protest, especially in rural areas. Integrated forest management approaches that situationally and effectively combine wood production and biodiversity conservation have the potential to integrate conflicting views in society to a significant degree when they are regionally rooted, fully implemented, and transparently documented and monitored. In public forests, this may go along with more pro-active approaches to involve citizens in the design and implementation of integrated forest management approaches. Forestry holds major potential to be an economic activity that is fully ecologically sustainable and is also perceived as such. Advancing integrated forest management approaches and communicating them broadly can demonstrate that this potential can be fulfilled with respect to the broad needs of society.

### 6. Invest in the science-policy-practice interface to enhance mutual learning on conservation and on sustainable use of forest resources

One challenging notion related to forest use and conservation is that the division that is visible in the policy arena between people with different beliefs and interests is at least partially also visible in research. Scientific communities that work in different disciplines are often little connected to each other. This situation can be a substantial obstacle for supporting integrated forest management concepts that will need to consider knowledge from distinct disciplines and communities to be truly integrative. What is needed is to explicitly fund cross-sectoral, interdisciplinary research at the science-practice interface, incentivising researchers to collaborate across academic siloes and schools of thoughts. In that way, science can pave the way for cross-sectoral learning and policy as well as societal integration progress, instead of perpetuating patterns of political polarisation already at the knowledge fundament.