POLICY BRIEF 2026

FOREST RESTORATION

skogforsk

Restore wisely

Maximising synergies and minimising target conflicts in European forests

The EU Nature Restoration Regulation (NRR)[1] entered into force on 18 August 2024. It is directly applicable and legally binding on EU Member States. Its objective is to restore and improve ecosystems and habitats, halt biodiversity loss, and strengthen forest resilience. **To ensure that National Restoration Plans (NRPs) are applicable and consider multifunctional and resilient forests that can withstand future challenges, the following recommendations are suggested:**

1. Context-specific and integrated implementation

Member States should adopt flexible, context-specific approaches reflecting biogeographical, environmental, and socio-economic diversity.

Stronger cross-sector coordination is essential to align forestry, biodiversity, climate, and land-use policies.

Priority should be given to measures that deliver multiple benefits – ecological, economic, and social – while ensuring efficient allocation of resources.

2. Cost-efficiency and sustainable financing

Restoration policy must be economically viable and financially sustainable.

This requires:

- robust cost–benefit assessments
- stable and predictable funding mechanisms such as dedicated forest funds and targeted taxation
- incentives for ecosystem services.

Existing forest management practices that already contribute to biodiversity and resilience should be formally recognised and supported – not replaced.

3. Stakeholder engagement and ownership considerations

Effective restoration depends on strong stakeholder engagement and respect for property rights.

Given the diversity of ownership structures across the EU:

- landowners must be involved in formulating restoration measures and policy
- local conditions must be reflected in implementation
- participation must be incentivised.

Where landowners are engaged and motivated, restoration outcomes are more effective and sustainable (see info box *Learning from experience*). Where they are not, implementation has historically failed.

[1] https://environment.ec.europa.eu/topics/nature-and-biodiversity/nature-restoration-regulation_en

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High expectations on the forest

For forest ecosystems, the Regulation requires Member States to:

- implement restoration measures for degraded terrestrial ecosystems *(Article 4)*
- improve ecological conditions in forests *(Article 12)*
- adopt National Restoration Plans (NRPs) *(Articles 14-15)* setting out priorities, measures, financing, and monitoring pathways toward the 2030, 2040, and 2050 targets.

While these objectives are essential, the NRR must explicitly address trade-offs between competing policy goals. European forests are expected to deliver biodiversity, climate mitigation, raw materials, energy security, and economic and protective value. These demands are increasing simultaneously, which has been highlighted in previous Policy briefs. The forest-based bioeconomy, for example, is central to the green transition and Europe's competitiveness[2]. Forests also play a key role in climate mitigation and adaptation[3] while contributing to strategic autonomy in raw materials and energy. Balancing these objectives will be a defining policy challenge. How trade-offs are managed will determine both the future of the European bioeconomy and public acceptance of restoration measures.

THE NATURE RESTORATION REGULATION (NRR)[4]

The NRR aims to restore ecosystems, habitats and species across the EU's land and sea areas in order to:

- enable the long-term and sustained recovery of biodiverse and resilient nature
- contribute to achieving the EU's climate mitigation and climate adaptation objectives
- meet international commitments.

[4] https://environment.ec.europa.eu/topics/nature-and-biodiversity/nature-restoration-regulation_en

[2] https://jukuri.luke.fi/server/api/core/bitstreams/fd0a9936-6bcd-453c-a93d-a3fdef8ae079/content
[3] https://www.bfw.gv.at/en/post_tag/climate-change/

Photo: Florian Winter, trittsteinbiotope.at, BFW

Multiple pressures on European forests

European forests have been intensively used for centuries. In some regions they have been lost entirely; in others they persist under long-term management with varying ecological quality.

Although the forest area in Europe is expanding, pressure on and expectations for forests are growing even faster. Policymakers increasingly rely on forests to offset emissions and mitigate climate change. However, in the absence of sustained afforestation or other interventions, forests cannot indefinitely provide net carbon removals to compensate for continuous emissions in sectors where mitigation efforts should primarily be focused.

At the same time, European forests are expected to:

- supply raw materials for industry
- preserve biodiversity and cultural values
- provide recreation and tourism opportunities
- remain resilient under climate change.

These competing demands create inherent trade-offs. Effective management of these trade-offs requires a shift towards multifunctional forest management.

Photo: Florian Winter, trittsteinbiotope.at, BFW

IMPLEMENTATION CHALLENGES

The NRR sets legally binding obligations for Member States – not for individual landowners. In countries with a high share of private forests, this raises a critical implementation challenge. If restoration relies on voluntary participation, implementation may be insufficient. At the same time, restoration measures are likely to:

- reduce wood supply
- lower forest owners' income
- reduce carbon storage in wood products and limit substitution effects.

Reduced wood supply from EU forests could increase imports, causing greater carbon emissions and risk of biodiversity loss in non-EU countries. Logistics-related emissions would also increase. This creates a clear need for:

- targeted incentives
- fair compensation mechanisms
- safeguards against raw material shortages for forest-based industries.

Without these, implementation risks both economic disruption and political resistance.

Changes take time

Forest restoration is inherently long-term. Ecosystem change unfolds over decades, not policy cycles. Important progress has already been made through:

- closer-to-nature forestry
- nature conservation measures
- integrated forest management
- voluntary set-asides
- certification systems such as FSC and PEFC.

Over time, key indicators including dead wood (Figure 1), species diversity, forest structure and carbon storage have improved.

However, current progress remains too slow and too limited to meet the binding targets of the NRR. Policy must therefore recognise that:

- ecological processes are gradual
- natural disturbances are unavoidable
- progress must be assessed over appropriate timeframes.

The NRR should be grounded in science and adapted as new evidence emerges, supported by continuous monitoring and impact assessment.

> **“Forest restoration is inherently long-term.”**

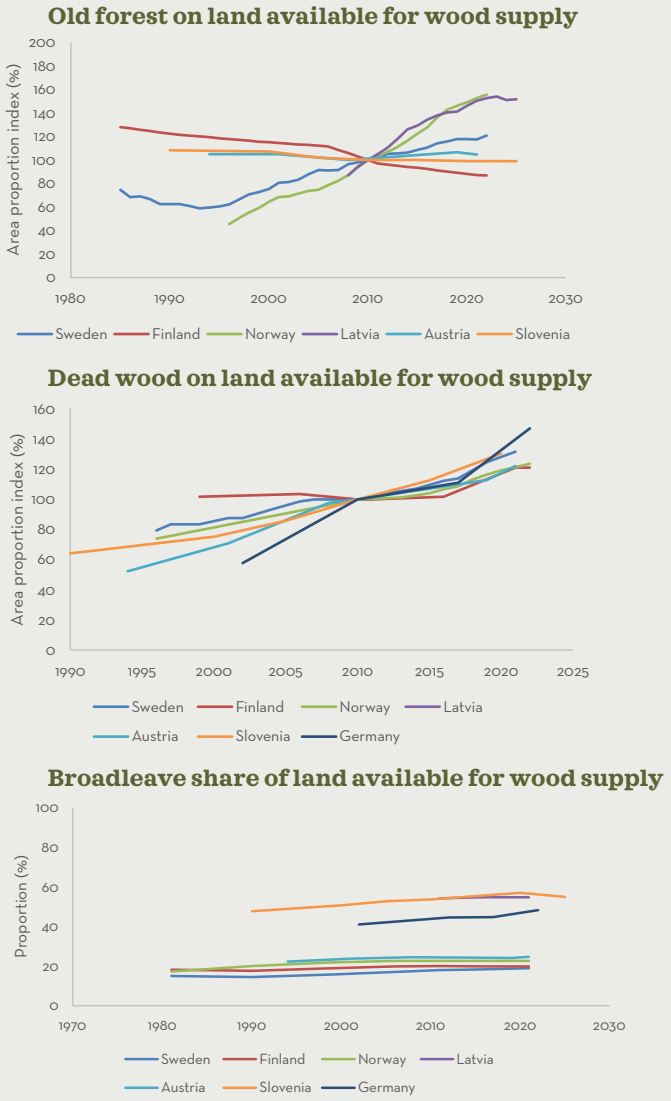


Figure 1. Trends regarding indicators: old forest, dead wood (standing and lying), and broadleaf proportion. The data is compiled by the national forest inventory in the respective countries, so definitions differ slightly. The first two figures are based on the area proportion index, where year 2010 was set as 100 %. For Austria, values of old forest are based on forest land area, and is defined as tree crown area with trees older than 100 years.

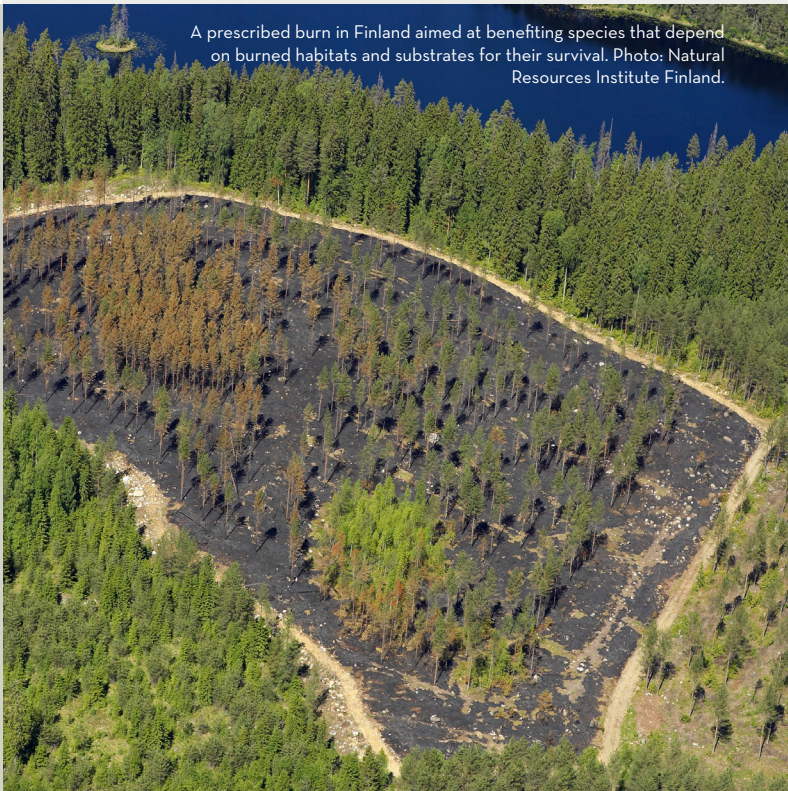
ECONOMIC EFFECTS

An example from Finland[6]

Restoration of forest ecosystems may have substantial impacts on wood availability and wood-based value chains.

A scenario-based impact assessment of restoration measures in Finnish forests indicates that measures consistent with Articles 4 and 12 of the NRR would reduce the allowable cut by 8-15 million m^3 per year (10-18%). The resulting decline in economic activity, including direct effects on the forest sector as well as multiplier effects in related sectors such as transport, would reduce annual value in the Finnish economy by EUR 1.6-2.9 billion and employment by approximately 9 000-23 000 persons compared with the baseline scenario. Other direct or indirect effects of economic and socioeconomic factors may also have both positive and negative impacts, but more research is needed in this area.

[6] https://jukuri.luke.fi/items/81be7a1f-a268-4dfb-962b-139a4ec31541



A prescribed burn in Finland aimed at benefiting species that depend on burned habitats and substrates for their survival. Photo: Natural Resources Institute Finland.

Learning from experience

Past policy experience shows that success depends on clear governance, long-term commitment, and alignment with societal benefits.

Successful examples include:

- sustained-yield forestry reforms and long-term planning led to a steady recovery of forest area and timber resources in Germany, Slovenia and France
- forest restoration efforts to reduce erosion, avalanches, and flooding risks in Austria and Switzerland were successful because of the strong support by public policy and were linked to clear societal benefits
- integrated forest management approaches in Finland, Sweden, Norway and Latvia combined wood production (including regeneration regulations) with conservation.

In contrast, failures have often resulted from:

- single-objective approaches (e.g. monocultures) resulting in reduced biodiversity and forests more vulnerable to disturbances
- weak incentives
- fragmented governance
- excessive administrative complexity.

Photos: Florian Winter, trittsteinbiotope.at, BFW

FUTURE RESEARCH NEEDS

Effective implementation of the NRR requires continuous, interdisciplinary research covering ecological, economic, and social impacts.

Climate change might significantly alter forest ecosystems – potentially beyond their natural adaptive capacity. Current habitat targets may not align with future conditions.

Research is therefore needed to:

- assess climate impacts on forest habitats
- develop adaptive management approaches (including species selection and assisted migration)
- understand disturbance dynamics
- evaluate the economic implications of restoration.

Equally important is monitoring whether implemented measures deliver the intended outcomes of the NRR.

Policy must remain adaptive, with regular revision to reflect new evidence and changing conditions.

AIM AND CONTRIBUTION

The aim of this policy brief is to provide joint science-based policy support from Europe's leading forest research institutes. The participating research institutes, representing the forest-rich countries of Europe, are as follows: Natural Resources Institute Finland (Luke), Austrian Research Centre for Forests (BFW), Forestry Research Institute of Sweden (Skogforsk), Norwegian Institute of Bioeconomy Research (NIBIO), Latvian State Forest Research Institute (Silava), Ministry of Agriculture, Food Sovereignty and Forests Italy (CREA), Thünen Institute Germany and Slovenian Forestry Institute. These institutes have extensive regional expertise and knowledge, and are united in their commitment to developing science-based solutions to enhance the sustainability of the forest sector.

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A restored former log-driving channel where stones have been returned to the streambed and the meandering has been re-established. Kolmården, Sweden. Photo: Gert Andersson, Skogforsk.