

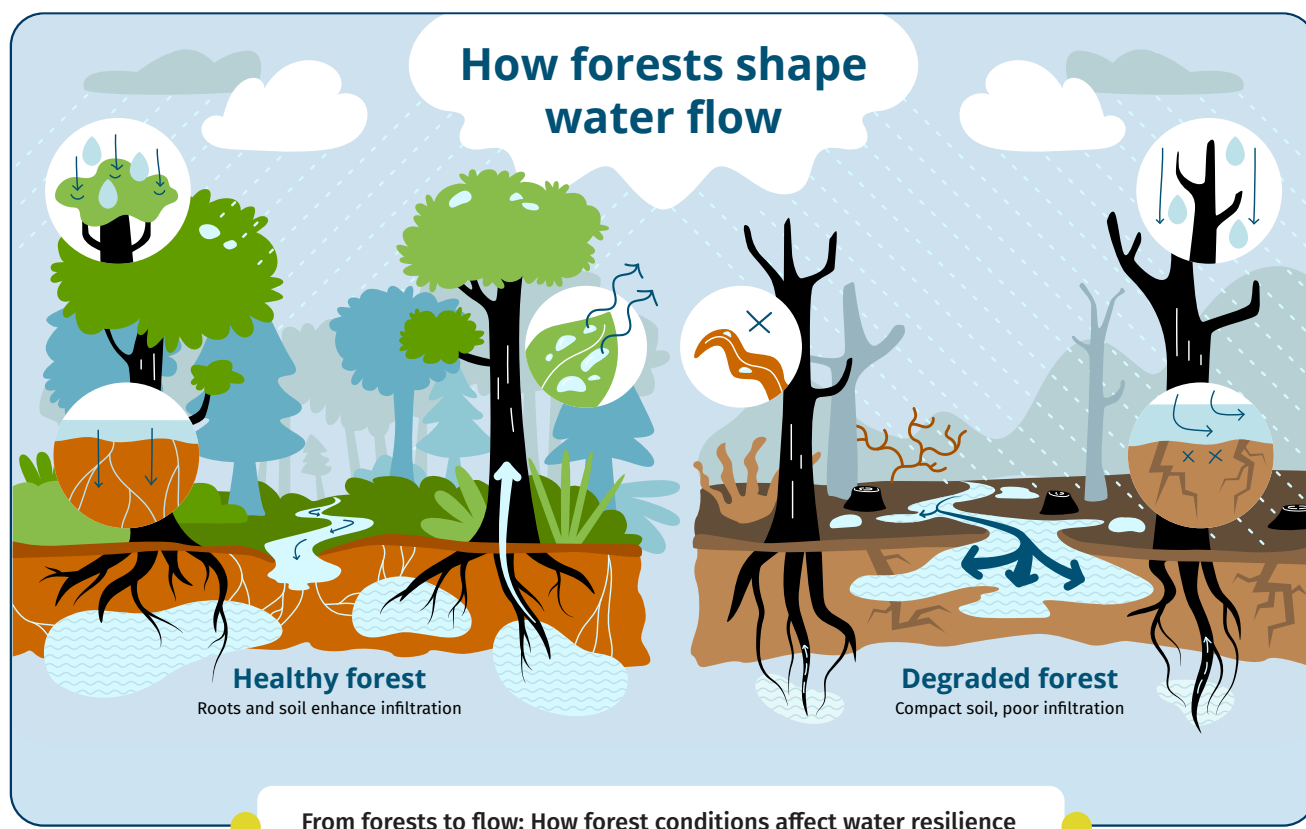
Healthy forests drive water resilience

Europe is entering a new era of water-related risks. Rising water scarcity and pollution, alongside increasingly severe floods, droughts, heatwaves, and wildfires, are threatening ecosystems, agriculture, human health, and economic stability. Challenges once largely confined to Southern Europe are now spreading to Central and Northern regions, placing unprecedented pressure on water resources and governance systems.

Forests, covering about 35% of Europe, are vital to sustaining water quantity and quality and must be central to future resilience strategies. EU policy-making is beginning to reflect these realities. The Forest Strategy for 2030, Water Framework Directive (2000/60/EC), Biodiversity Strategy for 2030, and Nature Restoration Law (EU 2024/1991) all promote integrated land and water governance. Recognising forests as active water managers is essential for safeguarding ecosystem services and building climate resilience.

Forests and water are deeply interconnected. Healthy forests act as natural sponges, capturing, storing, and gradually releasing water through their canopy, soils, and roots. These processes sustain streams, replenish groundwater, and moderate flood-drought extremes. Water retention increases with forest cover: catchments with over 70% cover can retain up to 50% more water than sparsely forested areas, while increasing cover from 10% to 30% can boost retention by 25%. Beyond regulating flow, forests filter water, reducing treatment costs.

Forests also rely on water for survival and growth: through transpiration, they return about 39% of rainfall to the atmosphere, regulating local and regional climate and maintaining the hydrological cycle that sustains them.



Five key challenges

1. Water scarcity and competition

Southern Europe (e.g., ES, GR) faces persistent water scarcity, while Central and Northern Europe (e.g., FR, SE) experience more seasonal stress. Competing demands from agriculture, cities, and industry intensify pressure on forest-water systems.

2. Climate-driven hydrological shifts

Changing precipitation patterns, rising temperatures, and more extreme weather events alter forest water balances. Mediterranean regions face more frequent and prolonged droughts, alongside events of intense rainfall that can trigger erosion and flooding. Northern Europe experiences greater rainfall variability, challenging forest resilience and year-round water availability.

3. Forest degradation and wildfire risk

Intensifying droughts and soil moisture deficits undermine forest vitality, reducing growth and recovery capacity, and heightening vulnerability to pests, diseases, and fires – particularly in Central Europe.

In the Mediterranean, forests, though more drought-adapted, are increasingly threatened by land abandonment and frequent wildfires, including record-breaking megafires (e.g., ES, PT, GR). Even regions historically less prone to droughts and fires, such as Northern Europe, are now experiencing severe events.

4. Fragmented governance

Policy strategies for forests and water are often developed separately, and cross-sector coordination varies. Integrated management is stronger in countries like Austria and the Netherlands but remains limited in others (e.g., RO, BG).

5. Knowledge gaps

Understanding of forest–water interactions varies greatly. Countries such as Sweden and Germany have strong research and data systems, while in parts of Eastern and Southern European, evidence-based decision-making remains limited, constraining effective forest and water management.

What can policymakers do?

- **Promote diverse, climate-resilient forest structures** (e.g., mixed and multilayered stands) to enhance water regulation, biodiversity, and ecosystem resilience.
- **Prioritise the restoration of degraded catchments, riparian zones, and wetlands** as a key component of climate adaptation policy.
- **Develop region-specific strategies** that address varying forest vulnerabilities across Europe, supported by long-term research, open data, and accessible information systems to guide adaptive management.
- **Foster cross-sector collaboration** among forestry, agriculture, water authorities, and communities to align land-use and water planning for effective flood and drought mitigation.
- **Encourage ecosystem service incentives and raise awareness** by promoting payments for water-related services and improving public understanding of forest–water linkages.

¹Marchionni, V., ¹Borelli, S. 2025. Healthy forests drive water resilience. Policy Brief 16. European Forest Institute. <https://doi.org/10.36333/pb16>

Disclaimer: The views expressed in this publication are those of the authors and do not necessarily represent those of the European Forest Institute or its funders.

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ISBN 978-952-7608-08-1 (pdf)

ISSN 2814-8150 (pdf)

