

Forests for the world

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ABSTRACT Starting from five significant events that have occurred in the past two years, this note provides an overview of the global situation regarding forests and forestry. Specifically, it highlights the need to halt and reverse deforestation and forest degradation through sustainable forest management, afforestation, reforestation, and ecosystem restoration programs, while also promoting the adaptation and resilience of forest ecosystems to climate change. To achieve these goals, the importance of science-based innovation, silvicultural knowledge, and effective communication of cultural perspectives is emphasized.

KEYWORDS: Forest ecosystems, forestry, science-based innovation, silvicultural knowledge, communication, cultural perspectives.

1. Five important events that have occurred in the last two years, which are interconnected in many ways, merit particular attention when examining the global situation of forests and forestry.

At the Brazzaville Summit in October 2023, delegates from the Amazon, Congo, and Borneo-Mekong basin countries, which together hold 80% of the world's tropical forests and two-thirds of its biodiversity, called for a coalition of leaders to discuss how to finance the protection of these wildlife-rich environments and critical carbon dioxide storage sites. The Brazzaville Summit followed the Amazon Summit in August 2023, where the presidents of Bolivia, Brazil, Colombia, and Peru, along with representatives from eight governments across Africa and Asia, drafted a joint declaration titled *United for Our Forests*. This declaration urged wealthier nations to accelerate the decarbonization of their economies and to recognize the invaluable contributions of indigenous peoples and local communities to forest conservation.

Following these summits, the first global assessment of the Paris Agreement, presented at COP 28 in December 2023 under the United Nations Framework Convention on Climate Change, highlighted the delays some countries face in meeting their climate targets. It underscored the need to reduce global greenhouse gas emissions by 60% relative to 2019 levels to limit global warming to 1.5°C by 2035. World leaders at COP 28 also stressed the urgency of halting and reversing deforestation and forest degradation by 2030, while adhering to the goals of the Paris Agreement and the *Declaration on Forests and Land Use* adopted at COP26 in 2021.

At COP 28, the European Union (EU) reiterated its commitment to intensifying cooperation with timber-producing countries. The EU introduced a set of monitoring and prevention measures, including the new regulation on deforestation-free products, issued in June 2023. This regulation expands previous measures that addressed the trade of wood linked to deforestation, now extending to agricultural commodities such as soy, palm oil, cattle, coffee, rubber, and their derivatives. These measures require mandatory traceability from the place of production, ensuring that the products do not come from deforested or

degraded land and comply with the producing country's regulations, including respect for human rights and the rights of indigenous populations (Corona et al. 2023).

In Europe, the EU Nature Restoration Law came into effect in August 2024. This law initiates a long-term process for the recovery of nature across land and sea, aiming to support more sustainable economic development and labor production while advancing renewable energy. It mandates restoration measures to achieve favorable conservation status for key habitat types, which includes improving the biodiversity of forest ecosystems. The law also contributes to the EU's commitment to plant at least three billion additional trees by 2030.

In October 2024, during the Italian Presidency of the G7 Forum, the *Forests for the World* meeting was held in Rome. The event aimed to spotlight the challenges faced by some of the world's largest forest ecosystems and to share strategies and actions for their protection and sustainable use.

This last event, along with the other mentioned milestones, prompts us to reflect further, especially in light of the *State of the World's Forests* (SOFO) report recently updated by the FAO in 2024.

2. The new edition of the SOFO report provides an overview of the current state of the world's forests and emphasizes the transformative potential of evidence-based innovation in forestry.

The global forest area spans 4.06 billion hectares, covering almost a third of the Earth's surface. Tropical forests make up 45% of this total, boreal forests 27%, temperate forests 16%, and subtropical forests 11%.

Forests are home to 80% of the world's known animal species, 70% of vascular plant species, and nearly 60,000 tree species. Around 18% of the world's forests are located in areas specifically designated for nature conservation. However, forest biodiversity remains under serious threat from deforestation and forest degradation, which also impact the livelihoods of millions of people and contribute to increasing environmentally induced migration.

While the rate of deforestation is slowing, it remains relatively high, around 10 million hectares per year. The main

drivers of deforestation are agricultural expansion, urbanization, and infrastructure development, while unsustainable timber production practices and other land uses continue to lead to forest degradation. Meanwhile, the impacts of climate change are making forests even more vulnerable, exposing them to greater stress from invasive and native pests, diseases, and wildfires. In 2023, wildfires alone emitted more than 6,500 megatons of CO₂ globally.

The vast majority of the world's forests (93%) are naturally regenerating. In contrast, forest plantations play a significant role in the supply of timber and bioenergy, with their contribution expected to grow in the coming years. Global wood production is currently at record levels, reaching 4 billion cubic meters per year, and almost 6 billion people depend on non-timber forest products. Exports of forest products also reached a record high of \$576 billion in 2022. Projections for 2050 suggest further significant increases in the demand for wood.

3. Feeding humanity and conserving and sustainably using forest ecosystems are complementary and closely interdependent goals. Achieving positive outcomes for both biodiversity and human well-being requires a careful balance between conservation objectives and the resource demands needed to support livelihoods (Corona 2022). This balance is rooted in appropriate legal constraints and incentives, active local community involvement, sound management planning, and the adoption of effective silvicultural practices.

The urgent need to halt and reverse deforestation and forest degradation through sustainable forest management, afforestation, reforestation, and ecosystem restoration programs, while promoting the adaptation and resilience of forest ecosystems to climate change (Corona 2019), is more pressing than ever. It is essential to recognize the growing global momentum for forest conservation and ecosystem restoration. For example, the United Nations has declared 2021-2030 the Decade for Ecosystem Restoration, and international commitments have been made to principles and standards of practice, covering a wide range of activities (FAO, IUCN CEM, SER 2021; Nelson et al. 2024). The technical elements of climate adaptation management and restoration plans include, among others, the conservation of natural habitats and ecosystem structural diversity, the enhancement of variability in the distribution, density, and age of tree species, the conservation and management of forest genetic resources, and the production of high-quality plant material for forest and landscape restoration.

4. Meeting these challenges in a resource-efficient manner requires a combination of traditional knowledge, research, and science-based innovation, along with a culture that is inclusive, open, and receptive to new ideas (FAO 2024). From this perspective, the persistent lack of a truly cognitive silvicultural culture may hinder a proper understanding of the potential for innovation in forestry and the effective transfer of technological advancements (Corona 2022).

On the other hand, leveraging scientific knowledge to sup-

port evidence-based management strategies and decisions necessitates clear communication of cultural perspectives (Corona 2018). Forests are conserved and their value enhanced when they are placed at the center of society's interest (Nocentini et al. 2017, 2021). Scientific journals also play an important role in this process, and we are confident that the *Annals of Silvicultural Research* can make a meaningful contribution toward achieving this goal.

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