



POLICY BRIEF

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GENETIC DIVERSITY IMPROVES THE RESILIENCE OF EUROPEAN FORESTS

For the EU to reach its environmental, climate and economic goals, European forests need to improve, both in quality and quantity.

A call for action!

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In early 2020 the European Commission released the new EU Biodiversity Strategy for 2030 as part of the European Green Deal, which acknowledges that the economy relies on a thriving environment and the conservation of nature. In this context, healthy forests are key for the preservation of biodiversity, and the provision of many goods and services that we rely on.

Even more importantly, forests can help to mitigate climate change. On the other hand, forests are also subject to environmental hazards, some of which result from the impacts of climate change and other human activities. Extensive droughts, pests and diseases, forest fires, clearcutting, monocultures and a lack of genetic diversity all challenge the resilience of forests.

A changing climate also affects the properties of wood, which has an impact on its usability in the wood industry. In addition, new wood-destroying organisms are emerging due to climate change, reducing the durability of wooden buildings and other timber constructions.

Biodiversity and its basic key component, genetic diversity, can help to mitigate some of the impacts that climate change has on forests and forest products. Despite the fact that diversity is crucial for the adaptability of forests to climate change, the level of the changing forest genetic diversity remains unknown.

The European LIFE Environment funded project LIFE GEN MON (2014 - 2020) addressed this knowledge gap with applied research in Slovenian, German and Greek forests. The main aim of the project was the development and implementation of a system for Forest Genetic Monitoring. Reaching its goals, the key findings and recommendations for implementation were presented at the LIFE GEN MON final conference "Forest Science for Future Forests: Forest genetic monitoring and biodiversity in changing environments" in Ljubljana, Slovenia, in September 2020.



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Recommendations:

- **Sustainable forest management**, which includes forestry practices that increase genetic diversity over the long term, should be widely practiced in order to increase forest resilience, reduce their degradation and ensure the capacity of forests to deliver goods and ecosystem services important for the sustainable transformation of the current economic model and the wellbeing of our societies.
- The understanding and management of forest tree genetic diversity in all types of forests needs to be enhanced by **additional applied research** in order to effectively strengthen the diversity and the resilience of forests to the impacts of climate change.
- Encourage and support forest managers and owners to **implement sustainable forest management and other measures** to adapt forests to the changing climate.
- **Establish a Forest Genetic Monitoring system and Gene Conservation Units** throughout Europe. Plan and coordinate the selection, management, and monitoring of such selected forests between countries and regions.
- Position **Forest Genetic Monitoring in EU and national legislation**, also in the new EU Forest Strategy, as a tool to monitor, conserve and manage the genetic diversity of European forests.
- Promote and facilitate an **informed dialogue** among scientists, policymakers, practitioners, and forest managers. Such a dialogue will help all parties to understand the benefits of sustainable forest management, measures to increase genetic diversity, and monitoring of genetic diversity over time.
- **Raise awareness** about the importance of genetic diversity among the general public in order to obtain acceptance and support for such time-consuming long-term activities as Forest Genetic Monitoring.

These recommendations were developed based on the outcomes of the LIFE GEN MON Final Conference: “Forest Science for Future Forests: Forest genetic monitoring and biodiversity in changing environments” held in Ljubljana from the 21st to 25th September 2020

The LIFE GEN MON project

The LIFE GEN MON project started in 2014 with the aim of creating, testing, and implementing a system for Forest Genetic Monitoring. It is led by the Slovenian Forestry Institute and includes partners from Slovenia, Germany and Greece. The project area ranges from Bavaria to Mt. Olympus, with six genetic monitoring plots: three for European Beech and three for Silver Fir/King Boris.

A Forest Genetic Monitoring system can be implemented at several levels, taking into account the needs, resources and context at the national level, considering the implementing institutions, state forestry and forest owners. Guidelines for implementation of Forest Genetic Monitoring and other results of the LIFE GEN MON project are available to the public in the Manual for Forest Genetic Monitoring, released in December 2020.