

Genetic Diversity Helps to Mitigate the Impacts of Climate Change

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Quercus suber,
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Climate change will alter the environmental conditions to which forest trees are adapted, and is likely to expose them to new pests and diseases. This will create additional challenges for forest management, with consequent impacts on the economic and social benefits that many people derive from the forests and on the biological diversity in forest ecosystems. The genetic diversity of forest trees plays a key role in maintaining the resilience of forest ecosystems and in facilitating adaptation to changed climatic conditions.

The impacts of climate change on forests and trees, and the role of forest genetic diversity in mitigating these impacts, were discussed at an international workshop held on 15-16 March 2006 in Paris, France. The workshop "Climate Change and Forest Genetic Diversity: Implications for Sustainable Forest Management in Europe" brought together nearly 80 experts from 25 countries. It was organized jointly by the International Plant Genetic Resources Institute (IPGRI) and IUFRO, and was hosted by the French Ministry of Agriculture and Fishery. The workshop formed part of the MCPFE process (Ministerial Conferences on the Protection of Forests in Europe).

The workshop noted that the impacts of climate change on forests and trees will vary in different parts of Europe, bringing along both opportunities and threats. Tree species with scattered or limited distribution are more vulnerable to climate change than widely distributed tree species. The way climate change will alter competition between tree and other plant species may also have significant effects on the survival of tree species and even the existence of the present forest habitats.

Policy-makers, managers and forest owners must inevitably make decisions in the face of great uncertainty regarding the impacts of climate change in the future. Including genetic diversity considerations in practical forest management is a highly recommendable diversification and risk-reducing strategy. The use of genetic diversity provides flexibility with respect to forest management and adaptation strategies for climate change. This also benefits society at large by ensuring the future supply of goods and services from forests.

The workshop recommended that policy makers in Europe should recognize the important role of forest genetic diversity by expressing a clear commitment at the pan-European level to incorporate the management of this diversity into national forest programmes. Furthermore, it was recommended to promote forest management practices that maintain evolutionary processes of forest trees and support natural regeneration of forests, especially in areas where long-term natural regeneration is self-sustainable despite climate change. Policy makers in Europe should make use of the potential for accelerating adaptation of forest trees to climate change through tree breeding and transfer of potentially suitable reproductive material by endorsing the development of pan-European guidelines on the basis of scientific knowledge.

The scientific community was called upon to carry out more interdisciplinary studies about the impacts of climate change on forests and trees to analyze them in a holistic manner. The research community should continue to provide inputs to the MCPFE process as part of the efforts to strengthen the science-policy interface.

The full summary report of the workshop is available at <http://www.euforgen.org> and the IUFRO Web site <http://www.iufro.org>.