Federal Ministry
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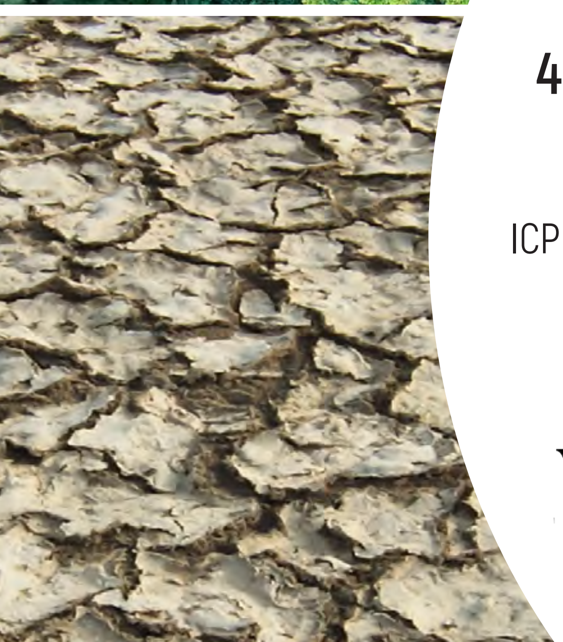
UNECE

Convention on Long-range
Transboundary Air Pollution



40 YEARS ICP FORESTS

On the Pulse of European Forests

40 years of Pan-European Forest Monitoring:
From Air Pollution to Climate Change

ICP Forests 40th Anniversary Report under the UNECE Convention on Long-range Transboundary Air Pollution (Air Convention)

wge Working Group on Effects of the Convention on Long-range Transboundary Air Pollution

THÜNEN

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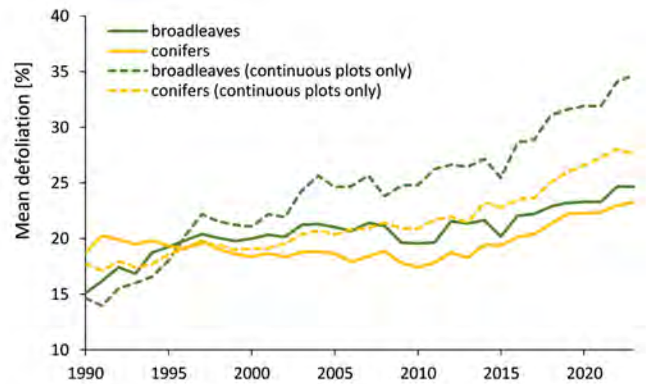
Tree health is deteriorating in the European forests

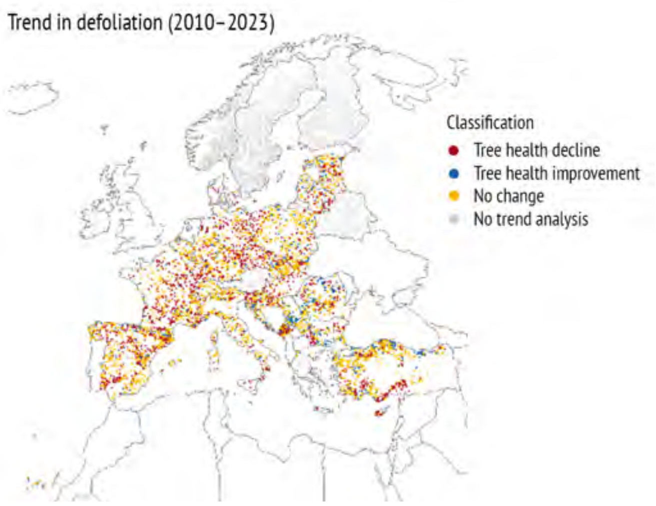
Volkmar Timmermann, Nenad Potočić, Anne-Katrin Prescher

The crown condition survey was the first established under the program, starting in the mid 1980s. Since then, a total of 36 countries have collected data through the pan-European ICP Forests Level I monitoring network. Installed on a 16 x 16 km grid, the network covers the most important climatic gradients, biogeographical regions, and air pollution levels in Europe. Annual tree condition assessments are currently carried out on around 110,000 trees from more than 130 species on approximately 5,600 forest plots. The tree crown condition survey is also carried out on Level II plots.



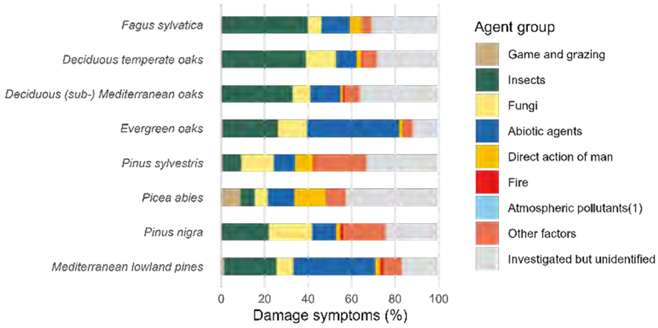
Long-term development of defoliation

Mean defoliation for both broadleaved species and conifers has increased since 1990. This increase has been more prominent for broadleaves than for conifers, and even more for the eight countries with continuous data coverage. However, since 2010, defoliation of conifers has also increased substantially. Although many stress factors influence tree crown condition, this development points to changing environmental conditions in Europe as a possible cause.



Tree health is declining all over Europe

From 2010 to 2023, there was a decline in tree crown condition on 33.7% of the plots, while an improvement was observed on only 10.7% of the plots. On 55.6% of the plots, no statistically significant change was found. A decline in tree health was observed all over Europe, indicating that global change influences tree health along with regional and local conditions.



Main causes of forest damage in Europe

In the period 2012–2023, the most important categories of damaging agents have been insects (26% on average), abiotic factors (16%), and fungi (11%). Defoliators, drought, and decay/root rot have been the most prominent single factors within each agent group. The observed impact of damaging factors was found to be species-specific. This information is essential for future forest management.

http://icp-forests.net

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