Progress on the 2024/25 the workplan

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Outline

1. Reporting
2. Meetings and Conferences
3. Awareness raising
4. Status of implementation of the Convention‘s workplan
5. Air quality and climate change

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Reporting

ICP Forests Publications in 2023/24

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Database Report

Report on technical changes in 2023

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

LRTAP wge THÜNEN

ISBN 978-3-903258-75-4

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International Cooperative Programme on Assessment and Monitoring of Air Pollution Effects on Forests

Technical Report QA-RFoliar24

26th Needle/Leaf Interlaboratory Comparison Test 2023/2024

Michael Tatzber

BFW.

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Forest Foliar Co-ordinating Centre
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2023

Forest Condition in Europe

The 2023 Assessment

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

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Meetings and Conferences

ICP Forests meetings since the 9th Joint Session of EMEP and WGE have already taken place or are in planning

1. Meeting of the Programme Co-ordinating Group of ICP Forests

   November 2023 in Berlin, 23 participants

2. Joint meeting of the Expert Panels on (i) Meteorology, Phenology, and Leaf Area Index (ii) Forest Growth, and (iii) Deposition

   March 2024 in Athens,

3. FORECOMON and 40th Task Force Meeting of ICP Forests

   10 -14 June 2024 in Prague

Awareness raising

Activities by ICPF to raise awareness and to develop the programme

- A Proposal on a monitoring framework for resilient European forests was released by the Commission in November 2022
  - M. Ferretti has submitted a 250-word commentary to Nature and a group of ICP Forests Scientists is going to submit another paper to another journal

- ICP Forests organizes a session at the 26th World Congress of IUFRO in Stockholm in 2024.

  Session title is: Nitrogen Depositions in Forests in a changing climate: Trends and Implications on Forest Ecosystems Services

  There are eight talks and nine posters from all over the world.

Status of implementation of the workplan of the Convention

2024-2025 Workplan

Activity description/objective	Expected outcome/deliverables (Status)
Quantify N deposition and its effects on forest health, productivity, C sequestration and biodiversity	The deposition data from 2023 were submitted to the ICP Forests database and are currently being analyzed (in preparation).
Analyze status and trends of heavy metals in forest ecosystems	Scientific paper and ICP Forests Brief to heavy metal concentrations in Level I plots across Europe. (in preparation)
Investigate air pollution-related cause-effect relationships in forests in a changing climate	Book chapter 'Long-term trends in environmental conditions and its effects on forest ecosystem functions and services'. (in preparation)
Quantify ambient O3 levels and effects on forest health, productivity, C sequestration, and biodiversity	Book chapter 'Long-term trends in visible foliar injury induced by ozone'. (in preparation)

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Selected scientific papers relevant for the convention

Biogeochemistry
https://doi.org/10.1007/s10533-023-01082-3

Effects of tree pollen on throughfall element fluxes in European forests

Arne Verstraeten · Nicolas Bruffaerts · Fabiana Cristofolini · Elena Vanguelova · Johan Neirynck · Gerrit Genouw · Bruno De Vos · Peter Waldner · Anne Thimonier · Anita Nussbaumer · Mathias Neumann · Sue Benham · Pasi Rautio · Liisa Ukonmaanaho · Päivi Merilä · Antti-Jussi Lindroos · Annika Saarto · Jukka Reiniharju · Nicholas Clarke · Volkmar Timmermann · Manuel Nicolas · Maria Schmitt · Katrin Meusburger · Anna Kowalska · Idalia Kasprzyk · Katarzyna Kluska · Łukasz Grewling · Małgorzata Malkiewicz · Lars Vesterdal · Morten Ingerslev · Miklós Manninger · Donát Magyar · Hugues Titeux · Gunilla Pihl Karlsson · Regula Gehrig · Sandy Adriaenssens · Agneta Ekebom · Åslög Dahl · Marco Ferretti · Elena Gottardini

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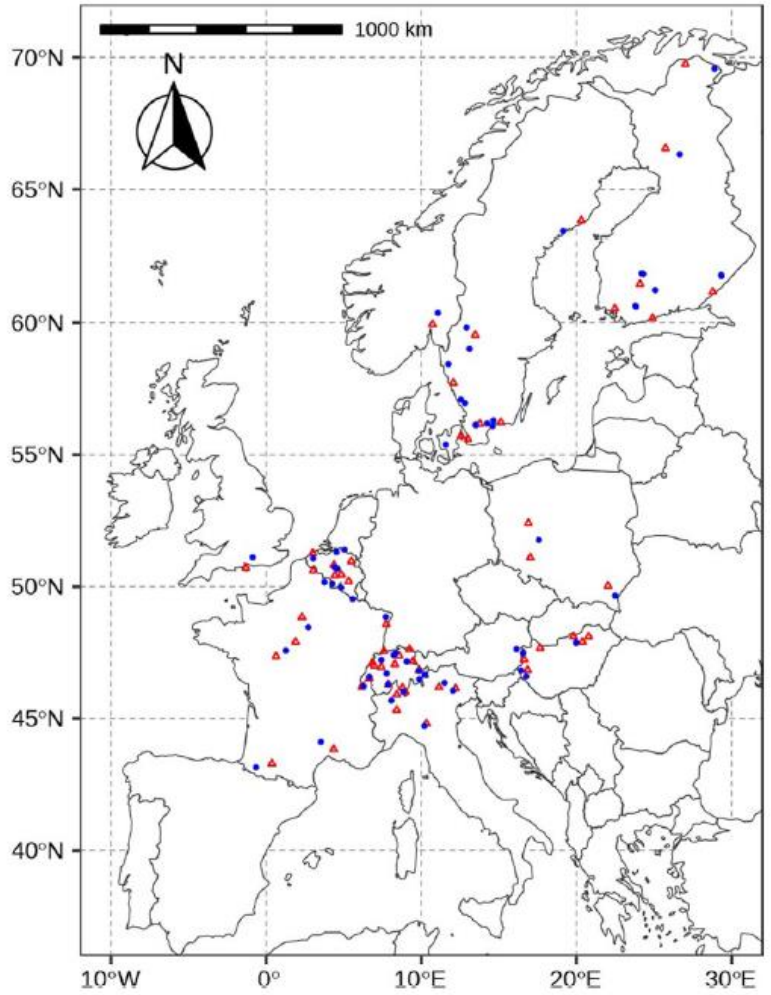

Tree pollen appears to affect throughfall inorganic nitrogen fluxes, acting as a source NH_4-N^+ and a sink of NO_3–N^-.

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Selected scientific papers relevant for the convention

Ecological Indicators 158 (2024) 111486

Contents lists available at ScienceDirect

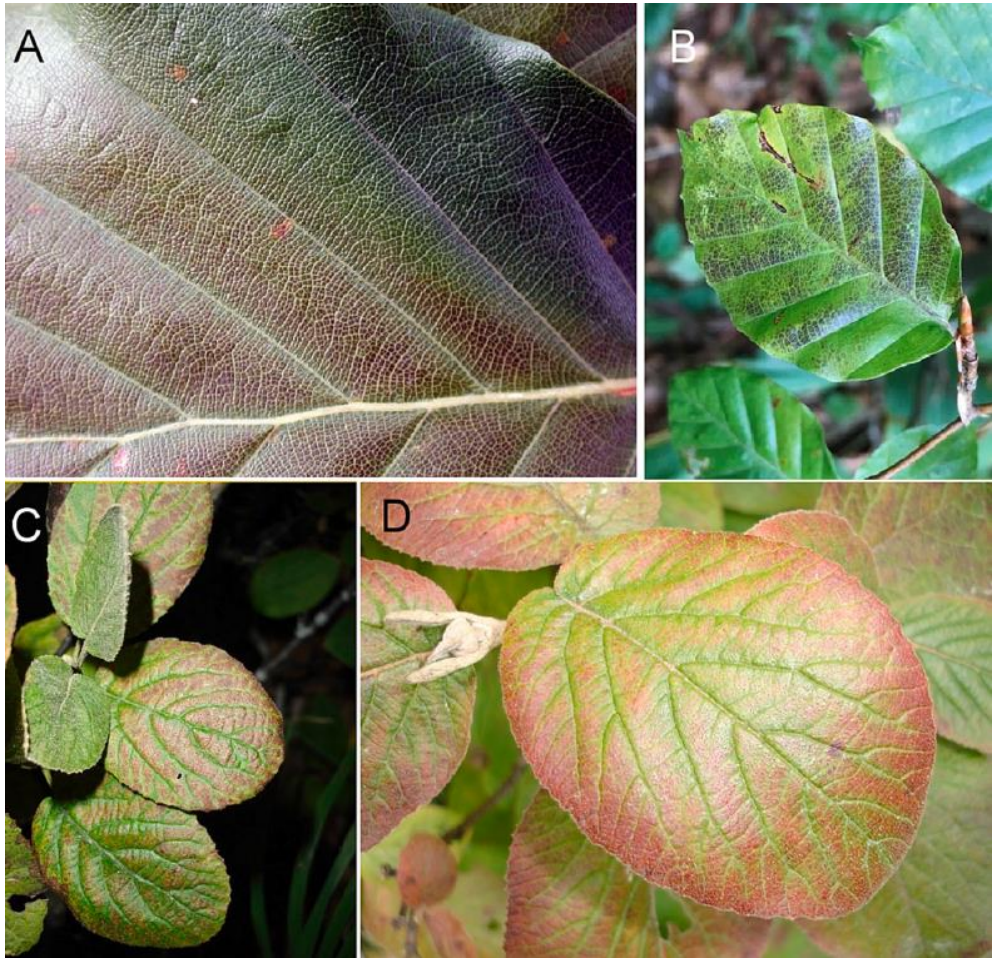
Ecological Indicators

journal homepage: www.elsevier.com/locate/ecolind

Original Articles

The fingerprint of tropospheric ozone on broadleaved forest vegetation in Europe

Marco Ferretti [a,*,1], Maxime Cailleret [a,b,1], Matthias Haeni [a], Volodymyr Trotsiuk [a], Vladislav Apuhtin [c], Valda Araminiene [d], Václav Buriánek [e], Sébastien Cecchini [f], Laurence Dalstein-Richier [g], Iva Hůnová [h], Tamara Jakovljević [i], Konstantinos Kaoukis [j], Johan Neirynck [k], Manuel Nicolas [f], Anne-Katrin Prescher [l], Radek Novotný [e], Hana Pavlendova [m], Nenad Potočić [i], Matej Rupel [n], Alexander Russ [o], Vidas Stakėnas [d], Arne Verstraeten [k], Pierre Vollenweider [a], Daniel Zlindra [n], Diana Pitar [p], Vicent Calatayud [q], Elena Gottardini [r,2], Marcus Schaub [a,2]



The ozone risk for vegetation can be higher in parts of the Alpine and Continental Europe than in the Mediterranean region.

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Air pollution and climate change

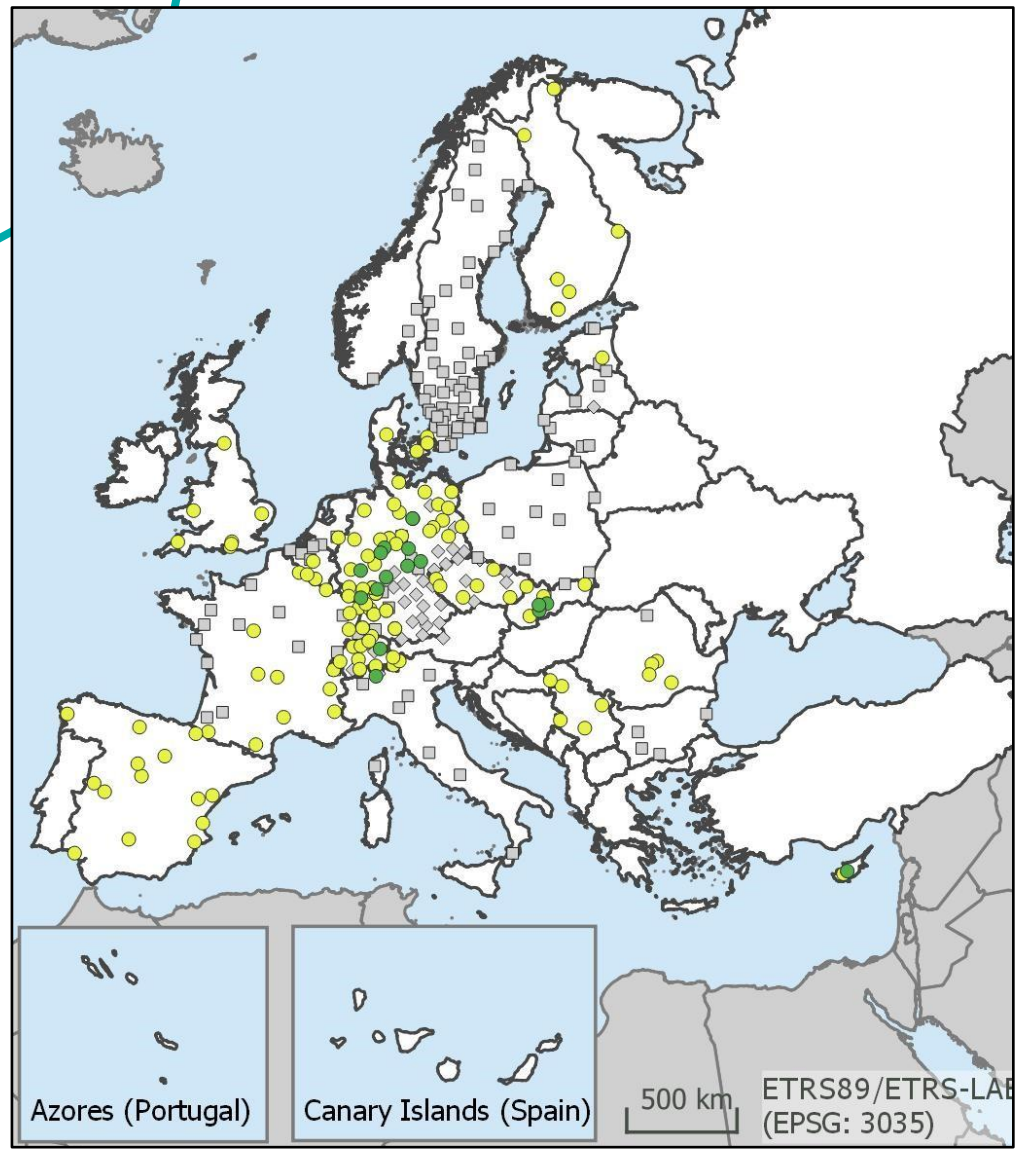
The link between air pollution and climate change: how is it integrated into ICP Forests' activities?

The ICP Forests strategy states the following:

The work of ICP Forests aims at a better understanding of the cause-effect relationships between anthropogenic and natural stressors and forest conditions as well as processes.

- broaden the scope of monitoring activities … by investigating topics such as climate change effects …

Monitoring of meteorological conditions (MM), deposition (DP) and ambient air quality (AAQ) at ICP Forests Level II plots



- MM, DP and AAQ
- MM and DP | MM and AAQ
- only MM
- onlv DP

ICP Forests plots can be a platform for (i) joint studies and (ii) further development of the CC/AP monitoring

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Ongoing activities to improve coverage and data quality for climate change and air pollution investigations

Improve data quality by gap filling

- Meteo data: gap filling by using ERA5 data

→ provision of a data set from 1990 with weather data in daily resolution

→ Numerical modeling of soil water availability and deep seepage

- Depo and AAQ data: gap filling by using EMEP data

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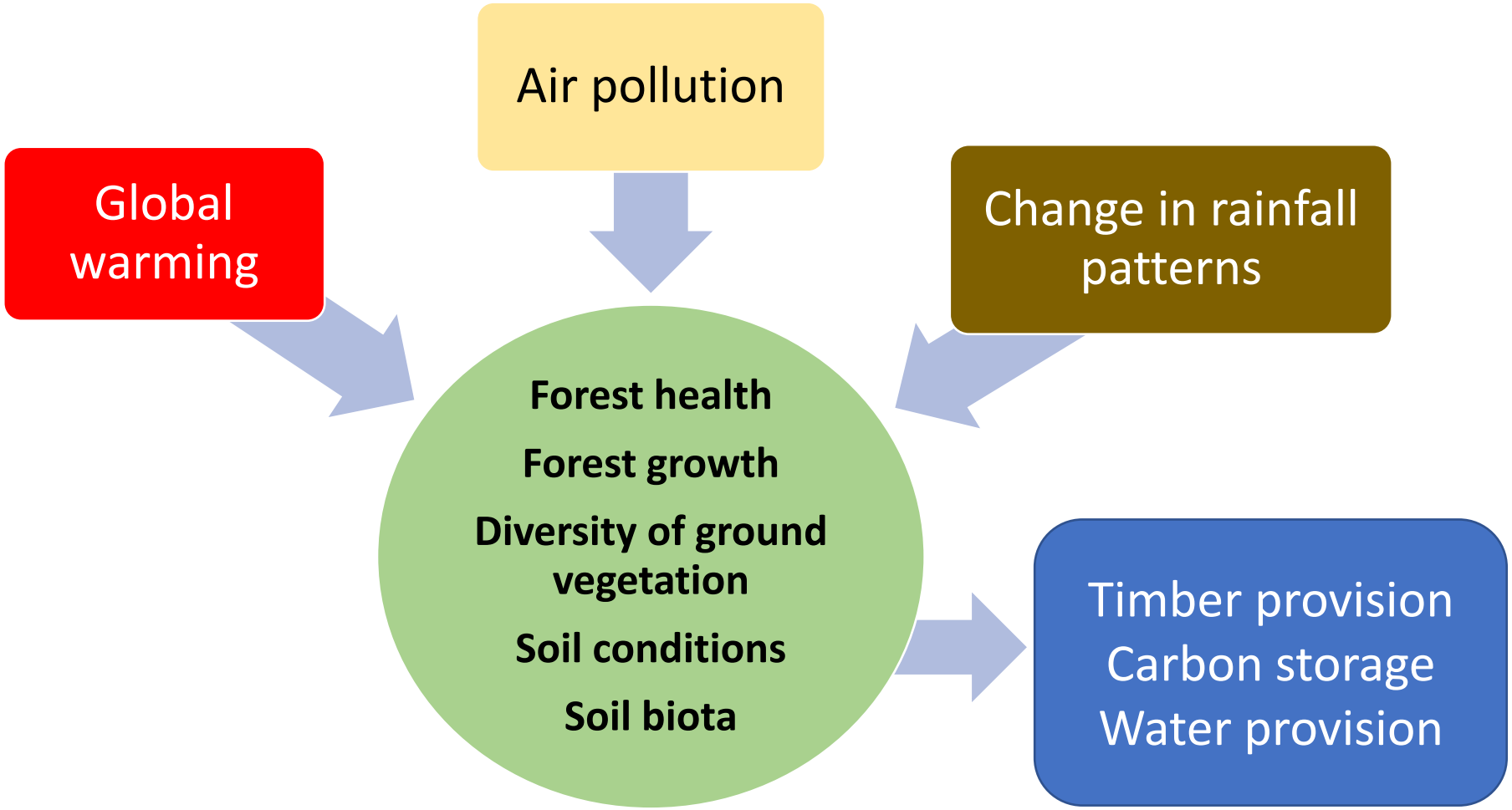
Systematic investigation of the relationship between air pollution, climate change & forest condition using ICP Forests data & infrastructure



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