

# INTERNSHIP 1: INVESTIGATING THE IMPACT OF OZONE POLLUTION ON BIODIVERSITY IN FOREST ECOSYSTEMS

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**Internship Location:** UKCEH Bangor, Environment Centre Wales, Deiniol Road, Bangor, Gwynedd, LL57 2UW

## **Project Description:**

ICP Vegetation is an international research programme under the umbrella of the United Nations Economic Commission for Europe (UNECE), investigating the impacts of air pollutants on vegetation. Ozone is the most important phytotoxic air pollutant, negatively affecting photosynthesis and plant growth.

The intern will conduct a review of the impact of ground-level ozone pollution on biodiversity in forest ecosystems, working as part of the ICP Vegetation Coordination Centre team at UKCEH Bangor.

The review will include an investigation of the potential impact of ozone on insects (including plant-pollinator interactions) and how the pollutant may impact species richness, ecosystem structure, and forest dynamics. The intern will also produce a global map of modelled ozone levels alongside forest species richness, to highlight hot spot areas at particular risk from ozone pollution.

## **Tasks:**

The key tasks of the intern will include planning the structure of the review, including key topics to focus on; searching for relevant literature and extracting useful information; writing the review; collating/processing relevant spatial data, including modelled ozone data, species richness index for forests and producing maps (using either GIS software or R/Python, depending on the expertise of the intern) revealing high risk areas. The intern will also produce a report and short presentation summarising the key results of the project.

## **Expected Outcomes:**

The main outcome of the internship will be increased understanding of how ozone pollution may impact biodiversity in forests, and how this may vary around the world. Key knowledge gaps and topics of concern will be identified that could be followed up by further work (and funding proposals) involving UKCEH international partners.

A report will be produced by the intern, which will be summarised as a policy document for presentation to the UNECE, with the aim of also publishing the results in a high impact scientific journal.

The results will be part of the output for the year for ICP Vegetation, and they will be reported/shared at international meetings. This will complement existing work by UKCEH investigating impacts of ozone on carbon sequestration in forests. There is also the potential (time/dates permitting) that the results could be presented at a relevant international conference (e.g. IUFRO 2025), thus sharing the outputs of the project to a wide international audience.

Any data collated (licences permitting) could also be shared on the EIDC (Environmental Information Data Centre), for use in future projects by other scientists around the world.

In addition to having outputs of the internship shared internationally, the intern will benefit from gaining research experience working within a team of scientists who are established experts in their field and gaining directly transferrable skills for any future employment or further post-graduate level studies.

**Required Skills and Background:**

Essential:

- Currently in undergraduate or postgraduate (**not** including PhD) education at university or have graduated within the six months prior to the start of the internship (30th June 2025)
- Background in environmental science/ecology
- Good skills in report writing and reviewing scientific literature
- Experience with GIS software and/or R, Python
- Good time management and strong communication skills