



Air Pollution Bulletin Number 2 October 2004

News from the Air Pollution Lead Co-ordination Network (APLCN)

The APLCN was established in 2000 to assist JNCC and the UK statutory conservation agencies with their air pollution work. The APLCN produces technical and operational advice for conservation agency staff; provides strategic advice on air pollution impacts on nature conservation to a wide constituency; develops air pollution policy; and manages air pollution research projects.

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1. Introduction

The Air Pollution Bulletin provides information on the APLCN's current activities. Produced every year, it is an update for conservation agency staff, but we hope it is also of interest to other environmental organisations, the research community and the general public. We welcome feedback on its format and content. If you have any comments, or would like more details on any of the topics covered, email the network officer at clare.whitfield@jncc.gov.uk.

2. Membership of the Network

The APLCN involves specialist staff from the three country conservation agencies, JNCC and the Environment and Heritage Service Northern Ireland (EHS). This year has seen a number of changes in membership. We welcome two new members: Zoe Masters at English Nature and Andrew McIntosh at EHS. Goodbye and thanks to Mike Harley who represented English Nature on the network since its inception and to Melina McMullan, from EHS, who joined us for a short, but productive, time this year.

Network Chair - Simon Bareham - Countryside Council for Wales

Network Officer - Dr Clare Whitfield - Joint Nature Conservation Committee

Other members - Dr Noranne Ellis - Scottish Natural Heritage; Dr Caroline Chapman - English Nature; Dr Zoe Masters - English Nature; Andrew McIntosh - Environment and Heritage Service, Northern Ireland



3. News

- **Air Pollution Information System (APIS) launched**

APIS was launched to the public in June 2004. It is an easy to use, freely available website (www.apis.ac.uk) which provides a comprehensive source of information on air pollution and the effects on habitats and species. APIS has been developed in partnership by the UK conservation agencies, environment agencies, the Scottish and Northern Ireland Forum For Environmental Research (SNIFFER) and the Centre for Ecology and Hydrology (CEH).

APIS is a support tool for staff in the UK conservation and regulatory agencies, industry and local authorities, for assessing the potential effects of air pollutants on habitats and species. As such, it aims to enable a consistent approach to air pollution assessment across the UK. Other potential users include non-governmental organisations, universities, students or anyone interested in finding out more about air pollution effects on wildlife.

- **New publications**

- **Nitrogen Bio-monitoring Methods - JNCC Report 356**

JNCC has recently published the results of a research project evaluating a range of biological monitoring methods for assessing the effects of atmospheric nitrogen on statutory nature conservation sites. This project was co-funded by JNCC, English Nature, CCW and CEH.

The project concluded that there are a number of bio-monitoring methods - biochemical and species based - which can help quantify either exposure to atmospheric nitrogen compounds or the effects of nitrogen and which warrant further investigation and testing. Using a suite of bio-monitoring methods perhaps with physico-chemical monitoring is most effective. JNCC, the UK statutory nature conservation agencies and SNIFFER are currently funding further work on nitrogen bio-monitors, including further development and testing of methods across the UK.

Copies are available to order from JNCC publications (01733 866888). Alternatively, electronic copies will be available to download from the JNCC website (www.jncc.gov.uk) from January onwards.

- **The Ecological Effects of Diffuse Air Pollution from Road Transport - English Nature Research Report 580**

This report provides an evaluation and synthesis of the evidence for local effects of air pollution from road transport on vegetation. The project was funded by English Nature with a contribution from JNCC.

Copies are available to order from English Nature's Enquiry Service (01733 455101) or to download from the website (www.english-nature.org.uk)

- **Guidance for Local Authority Pollution Prevention and Control**

In collaboration with JNCC and English Nature, Defra has issued guidance for local authorities, in England and Wales, on applying the requirements of the Habitats Regulations and the Wildlife and Countryside Act to applications for local authority Pollution Prevention and Control permits. This applies to Part A2 and Part B installations. A copy can be found at [http://www.defra.gov.uk/environment/airquality/lapc/aqnotes/pdf/aq17\(03\).pdf](http://www.defra.gov.uk/environment/airquality/lapc/aqnotes/pdf/aq17(03).pdf). In Scotland, both Part A and B installations are regulated by SEPA. In Northern Ireland Part A and B installations are regulated by EHS and Part C's by local authorities.

- **New version of the Integrated Pollution Prevention and Control (IPPC) Information Pack**

A new version of the IPPC Information Pack has been produced by English Nature, CCW and the APLCN. It provides a single document of information on IPPC, sources of information and advice, and summary guidance on the assessment of impacts from discharges to air, land and water. The recent update (Version 3) also includes new sections on waste and local authority PPC consultations. It has been produced for staff at English Nature and CCW. It is provided as information for SNH and EHS, whilst they develop their approach with the pollution regulators. The pack is issued as internal guidance only. It is available on the CCW and English Nature intranets, or you can contact clare.whitfield@jncc.gov.uk for a copy. It summarises publicly available guidance jointly produced with the Environment Agency.

- **Ozone**

When looking back at the summer of 2004 it is difficult not to be disappointed by the weather, especially compared to all that sunshine we had last year. But perhaps it is not all a bad thing. The findings of a Government funded study published this year suggest that the August 2003 heat wave may have caused about 600 deaths due to poor air quality. The main cause is ozone, an air pollutant which is very toxic to humans and vegetation, formed by a complex set of reactions of oxides of nitrogen, volatile organic compounds in the presence of sunlight. During a few weeks over August the ozone concentrations built up to the highest levels for a decade, however, this is still much lower than levels recorded in the summer of 1976. Find out more at Defra's air quality archive (www.airquality.co.uk).

If the impacts on human health were so serious, what were the effects on the natural environment? The Forestry Commission's intensive forest monitoring programme showed occurrence of visible injury from ozone to foliage of a number of tree and shrub species in southern England. However, whilst this provides a dramatic demonstration of effects of ozone it's very difficult to interpret the ecological significance of such effects.



a)
Ozone visible injury a) buckthorn b) wayfaring tree
© Mark Broadmeadow, Forest Research



b)

If hotter and sunnier summers occur as a result of climate change, the frequency of such episodes could increase. However, also of great concern is the predicted increase in background concentrations of ozone, a result of increasing global emissions of ozone precursors. This is likely to have large implications for semi-natural vegetation, especially in upland areas.

4. Air pollution impacts on protected sites

Over the last four years English Nature and CCW, with support from the APLCN, have been working with the Environment Agency to develop guidance for the assessment of air quality impacts on designated sites under the requirements of the Habitats Regulations and PPC Regulations. This has included developing approaches for a national risk assessment of air pollution impacts on Natura 2000 sites. More recently this work has expanded to include Scotland and Northern Ireland through collaboration with SNH, SNIFFER, SEPA and EHS. After a number of iterations the results of this risk assessment should be available in the spring of 2005.

Concurrently, we are considering how we can measure the impacts of air pollution on designated sites, including SSSIs and the Natura 2000 series, as well as the wider countryside. Whilst evidence of acidification on freshwaters is extensive, due to programmes such as the Welsh Acid Waters Survey and the Acid Waters Monitoring Network, there remains a paucity of field evidence of the impacts of air pollution on terrestrial semi-natural ecosystems. A number of drivers, such as the Habitats Regulations and the PSA target for SSSI condition in England, mean that it is crucial that we start to address this gap.

In response to this the JNCC air pollution and uplands LCNs jointly ran an Air Pollution and Ecosystem Change Symposium towards the end of last year. The proceedings of the symposium can be found at www.jncc.gov.uk. The symposium brought together habitat and monitoring specialists from the conservation agencies, leading air pollution researchers and policy advisers from government and its agencies. Following the recommendations of the symposium the conservation agencies, with Defra and the

Environment Agency, are funding a scoping study to provide options for the monitoring of nitrogen, ozone and acidification impacts on terrestrial semi-natural ecosystems in the UK, in the context of a changing climate. The main focus of the study is:-

- a review of relevant existing monitoring and surveillance activities;
- the construction of potential frameworks for the network; and
- the identification of potential mechanisms for operation and delivery of results.

A key part of the APLCN's work next year will be to take forward the recommendations from the scoping study and to consider how the monitoring of air pollution impacts on a subset of sites can be combined with a broader scale risk assessment. This builds on the work of the Environment Agency and SNIFFER along with other related initiatives currently being researched.

5. Research update

The APLCN is currently leading on the conservation agencies' input into two large multi-partner projects:-

Nitrogen Bio-monitoring Phase 2 - Refinement and testing of bio-monitoring methods, and development of protocols, for assessing impacts of atmospheric nitrogen deposition or concentrations on statutory nature conservation sites. Over the summer, methods have been tested at sites across the UK where nitrogen deposition and/or concentrations are measured. The final report is due at the end of March 2005. Funded by CCW, English Nature, SNH, JNCC and SNIFFER.

Air Pollution Monitoring Network Scoping Study Network - This project will develop frameworks for monitoring nitrogen, ozone and acidification on terrestrial habitats in the UK. The specific objectives of the study are described above in section 4. The project is funded by Defra, the Environment Agency, JNCC, English Nature and Environmental Heritage Service.

In addition, the APLCN represents or provides technical support to the country conservation agencies on a number of projects led by other agencies.

Atmospheric nitrogen pollution impacts on biodiversity: Phase 1 - Model development and testing. Principle funding organisation and lead: Defra.

PhD studentship to investigate the impacts of atmospheric pollution on vegetation at Epping Forest. Principle funding organisations and lead: Corporation of London and Environment Agency.

Assessing the threat to Natura 2000 sites from sources of atmospheric ammonia. Principle funding organisation and project lead: the Environment Agency.

Air Pollution Information System (APIS). Ongoing maintenance of the system and scientific updating. Multi-partner project funded by CCW, English Nature, SNIFFER, SNH, JNCC and CEH. Project managed by SNIFFER.

6. Priority work areas

The following areas of work are a priority for the network this year. Further details of the APLCN's work programme can be obtained from the Network Officer (clare.whitfield@jncc.gov.uk)

- Providing technical support to the country conservation agencies on air pollution impact assessments under the requirements of IPPC and the Habitats Regulations.
- Development of approaches for monitoring air pollution impacts on the SSSI and Natura 2000 series, and assessing sites 'at risk'.
- Strategic policy advice, including the review of the national ecosystem objectives under the Air Quality Strategy and work on ammonia emissions, impacts and control.