



**ENVIRONMENTAL AUDIT COMMITTEE INQUIRY
2011- AIR QUALITY:
A FOLLOW UP REPORT**

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By email to eacom@parliament.uk

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Dear Sir

ENVIRONMENTAL AUDIT COMMITTEE INQUIRY 2011 - AIR QUALITY: A FOLLOW UP REPORT

JNCC is the statutory adviser to Government on UK and international nature conservation. Its work contributes to maintaining and enriching biological diversity, conserving geological features and sustaining natural systems. JNCC delivers the UK and international responsibilities of the four country nature conservation agencies - Council for Nature Conservation and the Countryside, the Countryside Council for Wales (CCW), Natural England and Scottish Natural Heritage (SNH). This response is made on behalf of JNCC, CCW, Natural England and SNH.

1. JNCC submitted written evidence to the Environmental Audit Committee's air quality inquiry in 2009/10. Our evidence focussed on air pollution threats to the natural environment. It covered air quality effects on ecosystems, in particular in relation to UK nature conservation policy commitments, taking into account atmospheric deposition of pollutants in addition to concentrations, as these are both important pathways for exposure of ecosystems.
2. Our response to this succeeding inquiry focuses on the second question put to consultees "the impacts on health and the environment from particulate and NO₂ pollution, and how these should be measured", focussing on the natural environment and only covers new evidence since our response in December 2009.
3. In relation to this, in our previous written evidence we summarised:
 - 3.1 "There is strong evidence of the effects of air pollution on semi-natural ecosystems in the UK. Large areas of sensitive ecosystems remain at risk from atmospheric deposition in 2020. This includes nature conservation sites protected under national and European legislation.
 - 3.2 The Government's understanding of, and commitment to, investigating the environmental risks of air quality at a broad level is good. However, there is a need for more work to interpret effects in relation to policies for biodiversity and ecosystem services."
4. Addressing these points, during 2009 and 2010, JNCC together with Defra, and the country conservation agencies funded a major collation of evidence of nitrogen deposition impacts on biodiversity and an interpretation of this evidence in relation to biodiversity policy commitments (Stevens et al., in press; Emmett et al., in press). This has provided convincing evidence of nitrogen deposition impacts on biodiversity:
 - 4.1 Nitrogen deposition has resulted in changes in both plant species occurrence and ecosystem function across Great Britain.

- 4.2 This is compromising our ability to deliver current conservation commitments such as the objective to achieve favourable conservation status under the Habitats Directive and the country biodiversity strategies and frameworks.
- 4.3 Looking to the future, predictions of deposition in 2020 indicate risk levels will remain high and impacts observed on the ground may well increase in frequency and at lower deposition levels due to the cumulative effects of nitrogen deposition over time.
- 4.4 Recovery is only likely in local areas where emission control measures have been put in place as options for mitigation through management are limited.
5. We note that the primary focus of your report is the Government strategy for meeting obligations under EU Air Quality Directives for NO₂ and PM₁₀. However, this study provides convincing new evidence of nitrogen deposition impacts on UK biodiversity. Nitrogen deposition in the UK occurs as a result of transport and transformation of emissions of both ammonia and oxides of nitrogen. Reduced and oxidised forms of nitrogen contribute equally to the nitrogen deposition on average across the UK (RoTAP, in press). Therefore, emissions of NO_x make a significant contribution to the impacts on biodiversity. The reduction in emissions of NO_x seen over the last two decades (approximately 50%) has not been translated into an equal reduction in deposition in the UK (which has declined by approximately 24% over the same time). This non-linearity is thought to be due to changes in chemical processing of NO_x emissions in the atmosphere (ROTAP, in press).
6. JNCC can provide a more comprehensive briefing and/or the full report covering this new evidence if requested by the Committee.

Yours faithfully



Paul Rose
Director, Evidence and Advice

References

Emmett, B.A., Stevens, C.J., Rowe, E.C., Smart, S.M., Henrys, P.A., Maskell, L.C. & Gowing, D.J. in press, Interpretation of evidence of nitrogen impacts on vegetation in relation to UK biodiversity objectives. JNCC Report No. 449, JNCC, Peterborough, UK.

RoTAP. in press. Review of Transboundary Air Pollution: Acidification, Eutrophication, Ground Level Ozone and Heavy Metals in the UK. <http://www.rotap.ceh.ac.uk>

Stevens, C.J., Smart, S.M., Henrys, P., Maskell, L.C., Walker, K.J., Preston, C.D., Crowe, A., Rowe, E., Gowing, D.J. & Emmett, B.A. in press. Collation of evidence of nitrogen impacts on vegetation in relation to UK biodiversity objectives. JNCC Report No. 447, JNCC, Peterborough, UK