

# Nitrogen Deposition and the Nature Directives

Impacts and Responses: Our shared experiences



Department  
for Environment  
Food & Rural Affairs



## Introduction to the Workshop

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To find out more about the workshop visit: <http://jncc.defra.gov.uk/page-5954>

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The workshop is being organised by JNCC on behalf of the UK Government, Devolved Administrations and country nature conservation bodies, in collaboration with the Dutch Ministry of Economic Affairs and in co-operation with the Task Force on Reactive Nitrogen.

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## 1. The context of the workshop

Atmospheric nitrogen deposition represents a major threat to biodiversity in Europe. Critical loads for the protection of habitats from nitrogen deposition are exceeded over large areas of Europe, including the Natura 2000 network, and will continue to be exceeded under current projections of reactive nitrogen emissions (Posch *et al*, 2012).

There have been a number of recent European reviews of nitrogen deposition impacts; covering biodiversity and the environment more widely (e.g. Hicks *et al*, 2011, Sutton *et al*, 2011, European Commission, 2013). Most notably, the European Nitrogen Assessment (Sutton *et al*, 2011) provides an authoritative and comprehensive report of reactive nitrogen in the environment. Five key societal threats posed by reactive nitrogen are assessed: water quality, air quality, greenhouse balance, ecosystems and biodiversity and soil quality, providing a framework promoting an integrated policy response.

Emissions of oxides of nitrogen (NO<sub>x</sub>) and ammonia (NH<sub>3</sub>) are controlled under a number of policy instruments. Recognising the transboundary nature of these pollutants, the Gothenburg Protocol (Protocol to Abate Acidification, Eutrophication and Ground-level Ozone adopted in 1999, revised in 2012) of the 1979 Convention on Long-Range Transboundary Air Pollution (CLRTAP) establishes emission reduction targets for NO<sub>x</sub> and NH<sub>3</sub> (and other pollutants) for signatory countries, with the objective to reduce impacts on ecosystems and on human health. In the European Union (EU), a range of directives tackle emissions of nitrogen pollutants including the National Emissions Ceilings Directive, the Industrial Emissions Directive and the Air Quality Directive. Together, the CLRTAP and EU policies have led to significant reductions in a range of air pollutants. 2013 is the “Year of Air Pollution” and as part of its air pollution policy review the Commission will publish, in November 2013, a revised Thematic Strategy for Air Pollution. This will set out its ambition for further reductions in emissions. It is important to recognise that a range of other policy areas, including agricultural policy, influence nitrogen emissions. Furthermore, whilst NO<sub>x</sub> and NH<sub>3</sub> are transboundary pollutants, there is potential for significant local impacts in source areas, particularly for ammonia. Measures to address nitrogen deposition impacts need to account for the local scale through to the transboundary scale.

The Habitats Directive promotes the protection of biodiversity in Europe. It requires Member States to take measures to maintain at, or restore to, favourable conservation status, the natural habitats and species of community importance. The directive establishes the Natura 2000 network, with the aim to assure the long- term survival of Europe's most valuable and threatened species and habitats. The provisions of the directive require strict site protection measures, avoidance of deterioration and introduces a precautionary approach to permitting “plans or projects” which may have a likely significant effect on a site.

The wealth of evidence of nitrogen deposition impacts on biodiversity (e.g. Dise *et al*, 2011) suggests that nitrogen deposition presents a significant threat to the conservation status of sensitive habitats and species, listed in the Habitats Directive.

In 2009, a European workshop “Nitrogen Deposition and Natura 2000” brought together scientists, environmental managers and policy makers to review, in the context of the Habitats Directive, a) the latest research on nitrogen impacts b) assessment and modelling

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procedures and c) European and Member State policies to address impacts. The conclusions and recommendations are collated in the proceedings of the workshop (Hicks *et al*, 2011; hard copies will be available for delegates at the workshop).

In 2012, the European Commission established the Natura 2000 seminars series. This is a series of seminars, which are being held in each biogeographic region of the EU, with the intention of improving overall conservation status of habitats and species listed on the Habitats Directive and the status of birds listed on the Birds Directive, as well as contributing to the achievement of the EU Biodiversity Strategy. The aim of the seminars is to exchange experiences and best practices, identify common objectives and priorities, and enhance cooperation and synergies in managing Natura 2000 sites. Each seminar cycle aims to capture the latest information on the threats and priority conservation needs, as well as good management practices, for key habitats and species of EU importance. The seminar series will promote the continuous networking and exchange of information and best practice between experts involved in Natura 2000 management prior to and between the major meetings. As such the process encourages greater dialogue between key experts, policy makers, NGOs, stakeholders and site managers and stimulates more coordinated action and synergies amongst Member States as regards the management of the network.

At the Atlantic Natura seminar<sup>1</sup> in December 2012, nitrogen deposition was highlighted as a major threat to the conservation status of many habitat types. Consequently, it was agreed to hold a knowledge exchange workshop on nitrogen deposition in 2013.

This workshop, “*Nitrogen Deposition and the Nature Directives Workshop - Impacts and Responses: Our shared experiences*”, builds on the established evidence base of nitrogen impacts on biodiversity. It brings together representatives from the Member States in the Atlantic Region<sup>2</sup>, who have experience of either the assessment of nitrogen deposition impacts on conservation status and/or of measures or strategies to reduce the impacts. Environmental and agricultural non-government organisations are also represented. In this respect, this workshop updates and builds on the findings of the 2009 Nitrogen Deposition and Natura 2000 Workshop (Hicks *et al*, 2011). Moreover, the workshop has a greater emphasis on sharing experience and approaches and on the implementation of practical measures to reduce nitrogen deposition impacts: thus promoting the exchange of information and best practice between Member States.

It is noted that concentrations of NO<sub>x</sub> and NH<sub>3</sub> may also cause direct effects, in addition to effects through deposition. Whilst for simplicity the workshop documentation refers almost exclusively to nitrogen deposition, it is our intention to also consider concentration based effects and to gather information on if/how these are considered by Member States.

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<sup>1</sup><http://ec.europa.eu/environment/nature/natura2000/pdf/20130421%20Atlantic%20Seminar%20Report%20draft5.pdf>

<sup>2</sup> Belgium, Denmark, France, Germany, Ireland, The Netherlands, UK. No representatives from Spain or Portugal are attending the workshop.

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## 2. Workshop objectives

The workshop objectives are to:

- Share knowledge and experience of the assessment of nitrogen deposition impacts on conservation status of habitats,
- Examine (share best practice on) strategies and measures to reduce the impacts on Natura sites and the wider landscape.

## 3. Outline of the workshop structure and the working groups

The workshop objectives will be addressed via two themes which run in succession through the workshop:

- **Theme 1: Reporting and assessment of nitrogen deposition impacts**
  - Discussion of approaches to assessing nitrogen deposition as a pressure and threat for Article 17 reporting in 2013.
  - Exploring the impact of nitrogen deposition on conservation status and the implications of different approaches.
  - Agreeing if further development and harmonisation of assessment methods are required and if so, the best mechanism to do this.
  - Examining how Member States have considered nitrogen deposition impacts in setting conservation objectives, and how this relates to the setting of critical loads.
  - Exploring the potential links between the assessment process for nitrogen deposition impacts in the context of Article 17 and air pollution policy evaluations.
- **Theme 2: Knowledge sharing of practical solutions to reduce nitrogen deposition impacts**
  - Sharing experience of approaches and measures used to reduce nitrogen deposition and impacts at Natura sites.
  - Considering a range of sources and site management approaches; discussing their effectiveness and co-benefits/threats to other policy areas.
  - Identifying the extent to which the Habitats Directive has provided a driver for emission reductions of nitrogen pollutants.
  - Sharing experience of how stakeholder support has been achieved.
  - Identifying gaps and making recommendations for practical measures to reduce nitrogen deposition inputs and mitigate impacts on sites.

The workshop will involve a mixture of plenary sessions and working in smaller groups. The plenary sessions will include a series of presentations providing background and contextual information and will then be the mechanism for the working groups to report their findings. At the end of the workshop, the key findings and the conclusions and recommendations will be summarised and agreed. During the plenary, Member States will present an overview of their strategy or approaches for reducing reactive nitrogen emissions and nitrogen

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deposition impacts. This will include to what extent this is driven by the Habitats Directive and/or other drivers.

There are a total of seven working groups; three under Theme 1 and four under Theme 2. A chairperson and rapporteur have been allocated to each group. Background papers have been produced for each group providing background information, setting the objectives of the working group and setting out discussion points or questions which will be covered by the working group. In each case, representatives from each Member State attending the workshop are invited to present their country's approach to the topic matter of the group. Further details are given in the background papers.

The working groups are summarised below and Figure 1 provides a schematic of the workshop structure, highlighting the linkages between the two themes and the seven working groups.

## Theme 1

### ***Working Group 1: Assessing Nitrogen Impacts on Conservation Status for the 2013 Habitats Directive Article 17 Reporting round: methods and outcomes***

Chair	Jessa Battersby, UK
Rapporteur	Amanda Gregory, UK
Scope	This working group will to share information on the approaches taken for nitrogen assessment within Habitats Directive Article 17 assessments in 2013. It will examine and summarise what impact nitrogen has on conservation status, and compare this to results of other assessments of nitrogen impacts on biodiversity. It will then make recommendations to support future reporting rounds, including identifying gaps in understanding of impacts and recovery or guidance, and make recommendations for how these can be addressed.

### ***Working Group 2: Establishing Conservation Objectives and Conservation Measures for Natura 2000 sites and applying critical loads/level at sites***

Chair	Greg Mudge, UK
Rapporteur	Alison Lee, UK
Scope	The working group will examine if and how Member States have taken into account nitrogen impacts when setting conservation objectives and conservation measures for sites. It will look at methods used to set critical loads (and critical levels, where relevant) for Natura 2000 sites. It will then examine whether and if and how Member States establish the maximum level of nitrogen deposition that will not prevent achievement of the relevant conservation objectives for a site.

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## **Working Group 3: Impact assessments for air pollution policy and nature conservation policy**

Chair	Rob Maas, The Netherlands
Rapporteur	Mark Wilmot, The Netherlands
Scope	The aim of this working group is to identify the key biodiversity and air pollution policy drivers and what the scientific and evidence requirements are to enable a better integration of these two policy areas. The working group will draw on examples from local, national to EU scales, identifying examples of good practice and the examining the various challenges to better integration.

## **Theme 2**

### **Working Group 4: Measures for reducing impacts from agriculture**

Chair	Zoe Russell, UK
Rapporteur	Jean Smyth, UK
Scope	The aim of this working group is to share knowledge and experience from implementing measures and programmes to reduce atmospheric ammonia emissions (and the associated nitrogen deposition) from agricultural sources. It is to build upon work already undertaken by expert groups under the UNECE and EU and to share experience of how Member States are taking this work forward.

### **Working Group 5: Measures to reduce nitrogen deposition from sources other than localised agriculture (e.g. transport, power generation, industry and long range emissions)**

Chair	Simon Bareham, UK
Rapporteur	Peter Coleman, UK
Scope	The aim of this working group is to share knowledge and experience of measures for non-agricultural sources (i.e. transport, electricity production, industry) to address local impacts from NO <sub>x</sub> and measures or strategies for long range pollution (including oxidised and reduced forms of nitrogen).

### **Working Group 6: Approaches to assessing and permitting plans and projects (where they are sources of air pollution) for Article 6.3 assessments**

Chair	Rudi Uhl, Germany
Rapporteur	Khalid Aazem, UK
Scope	Article 6.3 of the Habitats Directive requires strict site safeguard measures for Natura 2000 sites. It provides a mechanism by which plans and projects can only be permitted if they are shown to have no adverse effect on the integrity of a Natura 2000 site (subject to certain provisions). At the Nitrogen Deposition and Natura 2000 Workshop in 2009 (Hicks <i>et al</i> , 2011), delegates presented and discussed the Member State approaches to appropriate assessments to evaluate impacts of nitrogen deposition. The main intention of this workshop is to provide an update on Member States' approaches and experience since 2009. With the main objective being to understand how each country makes the decision on what is considered an adverse effect.

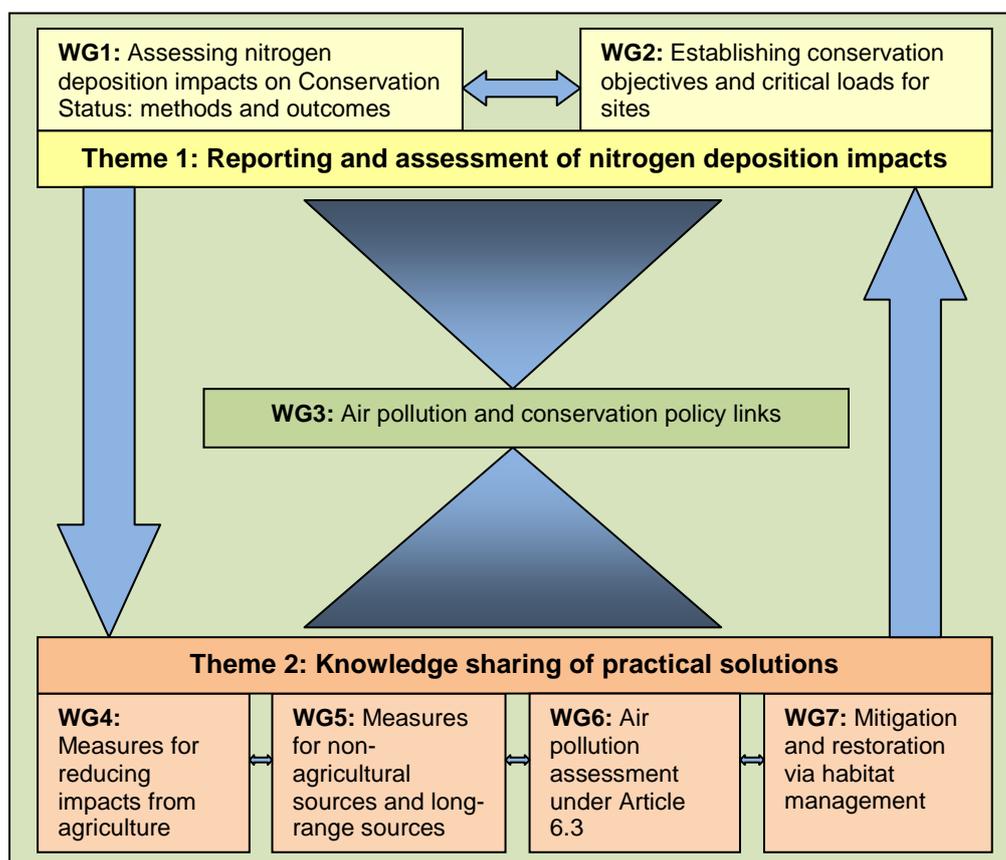
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## **Working Group 7: The effectiveness of on-site (intensified) habitat management measures and restoration measures to mitigate nitrogen deposition impacts and to promote recovery**

Chair	Dick Bal, The Netherlands
Rapporteur	Neil McIntosh, ECNC, The Netherlands
Scope	This working group aims to share knowledge and experience of using habitat management to reduce nitrogen impacts and in cases of “damaged” habitats the use of restoration measures. The working group will produce recommendations to include in the workshop report.



**Figure 1: Summary of the workshop structure, highlighting the linkages between the two themes and the seven working groups.**

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## 4. Workshop outputs

A report of the workshop will be produced and made available electronically via the JNCC website and the EU Natura Seminars communication platform. This aims to be a concise report documenting the key messages from the workshop, together with a report from each of the working groups which will collate the approaches and examples provided at the workshop. In addition, summaries of the plenary presentations will be included with links to the presentations which will be provided on the workshop web pages.

## 5. References

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