



MOU Reference: DAHG/EPA 15/03/2016 (v2)

Collaboration Agreement No. 3

Project Title: Co-operation in the delivery of the National Ecosystems Monitoring Network in Ireland.

Context

The effects of air pollutants on the health of our ecosystems has been recognised for some time, with the UNECE Convention on Long Range Transboundary Air Pollution (CLRTAP). One of the first protocols under this Convention was the 1985 Helsinki Protocol which sought to reduce SO₂ emissions and address the effects of acid rain on ecosystems.

EU Member States then signed the 1999 Gothenburg Protocol to abate acidification, eutrophication and ground-level ozone, with the National Emissions Ceiling (NEC) Directive (NECD) being introduced in 2001. The directive recognised that significant areas of the EU are exposed to deposition of eutrophying and acidifying substances at levels which have adverse effects on the environment and can result in adverse human health impacts. One of the main additions in the most recent NEC Directive (published in 2016) is the introduction of a mechanism to measure and track the effects of these pollutants on sensitive ecosystems, identifying the effectiveness of current policy implementation and informing future measures needed to further reduce effects. The introduction of a network to assess the impacts of air pollutants on our sensitive terrestrial ecosystems will help to highlight the ongoing negative effects and ecosystem damage caused by these pollutants. Specifically, in relation to Ireland, the main pollutant of concern is nitrogen (both NO_x and NH₃). One of the most significant sources of nitrogen is related to agricultural activities, with Ireland facing challenges in meeting the emissions ceilings set under the NECD for ammonia.

EPA research projects on 'critical loads' in Ireland have highlighted the impacts of pollutants on ecosystem quality. Critical loads effectively reflect the deposition level of pollutants above

which direct adverse effects on receptors, such as plants, ecosystems or materials, may occur. Different critical loads are applicable to different habitat types, with certain Irish habitats such as raised bogs, blanket bogs and heathlands being sensitive to nitrogen deposition. EPA funded research estimates that at least 20 % of protected areas (SAC, SPA, pNHA/NHA) are impacted by nitrogen deposition above established critical loads. The same report also identifies that the most sensitive Irish habitats to damage from nitrogen deposition are raised bog, blanket bog and heathlands.

Overview of Proposed National Ecosystems Monitoring Network and its objectives

The overall objective of the National Ecosystems Monitoring Network (NEMN) is to gather robust intelligence on the long-term impacts of air pollution on sensitive habitats in Ireland, with a view to identifying trends in impacts and informing future policy measures to control and reduce impacts where needed.

The network is proposed to include sites in freshwater habitats and across a range of terrestrial habitats including woodlands, raised bog, blanket bog, calcareous grasslands and Molinia meadows with a minimum of 15 sites selected for monitoring within each of these habitats, with selection based on the inclusion of sites across a gradient of nitrogen deposition. Most of these terrestrial sites are proposed to be operated as 'Level I' sites that will be visited approximately once every four years and will be subject to a floristic survey as well as soil and moss sampling (for offsite analysis). A smaller number of sites will be designated as 'Level II' sites which means that in addition to the Level I survey they will also have some permanent monitoring equipment installed (e.g. ammonia samplers and rainfall samplers).

Role of National Parks and Wildlife Service

Under Article 11 of the Habitats Directive, each member state is obliged to undertake surveillance of the conservation status of the natural habitats and species in the Annexes and under Article 17, to report to the European Commission every six years on their status and on the implementation of the measures taken under the Directive. The major pressures and threats are also listed for each assessment. The impacts of these pressures and threats are used to determine the *Future Prospects*. The rate of loss or the distance away from Favourable Reference Values is used to determine whether a parameter is "favourable", "unfavourable – inadequate", "unfavourable – bad" or "unknown", following a rules-based approach. In Ireland, these assessments are undertaken by NPWS of the Department of Housing, Local Government and Heritage. Nitrogen deposition is a significant pressure on the condition of natural habitats such as bogs, heathlands and grasslands. The collection of additional information which improves understanding of these impacts and quantifies the significance of

this pressure on different habitats is beneficial to the ongoing work of National Parks and Wildlife Service to protect and improve the conservation status of these habitats.

Specific Arrangements

Areas of activity where collaboration and engagement is proposed between the EPA and NPWS in relation to the development and operation of the NEMN is provided below.

Activity 1: Surveys of Annex I Habitats

The proposed NEMN Level I terrestrial habitats are aligned with EU Habitats Directive habitats for which NPWS has to report data every six years. The EPA and NPWS will agree the extent to which NPWS survey methodology would be adjusted (for the 15 relevant NEMN sites in each habitat type) to provide the additional data required by the NEMN. The sites to be chosen will be agreed between NPWS and EPA, with the key needs of both organisations being taken into account. The additional work includes in particular:

- Liaison with landowners to provide information relating to the methodology;
- The identification and marking of 5 NEMN permanent plots per site which would be revisited in future surveys;
- Completion of floristic surveys in line with standard operating procedures provided by the EPA, including:
 - Recording of presence/absence and visual estimates of cover for all vascular plants.
 - Recording bryophytes and lichen to species level.
- Collection and sample preparation of moss and soil samples at each plot based on procedures provided by the EPA;
- Dispatch of samples to a nominated laboratory for analysis;
- Provision of the raw data to the EPA.

The EPA agrees to pay the additional contractor costs incurred by NPWS in arranging for the completion of these surveys and will support NPWS in developing and evaluating suitable tender specifications for the survey work. The EPA will also provide necessary technical support to the contractors where required, including the provision of (or payment for) necessary sampling equipment such as soil augers. The EPA will also provide a point of contact for both NPWS and the contractor in order to ensure clear communications between all parties. The EPA will identify and procure laboratory services for the analysis of soil and moss samples. NPWS will also nominate contact points in the relevant NPWS work areas.

Activity 2: Knowledge Sharing and Provision of Advice and Guidance

The EPA request the expert technical support of NPWS with regard to issues such as:

- Engagement on the identification of NEMN sites including replacement sites where existing locations become unsuitable for the NEMN;
- Scientific advice to support appropriate assessment on designated habitats where the installation of monitoring equipment is proposed;
- Input to reports prepared by the EPA (or on behalf of the EPA) on the assessment of NEMN data, and in particular those aspects related to findings/assessments of habitat impacts at a local and national scale. Where feasible the EPA would also propose the preparation of joint reports on the assessment of NEMN datasets and the ongoing impacts on sensitive ecosystems. The EPA would also be willing to input into NPWS habitat assessment activities in relation to air pollution related pressures;
- Other aspects as may be agreed by both parties.

The EPA also agrees to providing data from the NEMN to NPWS for use in their own assessment and reporting activities. This could include both site specific raw datasets, site-based assessments, habitat-based assessments and national level assessments of the pressures related to air pollutants.

Activity 3: Engagement in the NEMN Stakeholder Group

The EPA proposes to establish an NEMN stakeholder group in 2022. The operational aspects of the group are yet to be established, however it is expected to meet two to three times per year to discuss how stakeholders can support and engage in the work of NEMN and how the NEMN can support the work of each of the bodies involved in its operation. NPWS will be requested to nominate a member to this group.

Activity 4: Provision of Local Support at Level II Monitoring Sites

NEMN Level II sites will be more labour intensive as they will require periodic visits for the retrieval of samples, their dispatch to a laboratory and deployment of new sampling equipment (e.g. passive ammonia sampling badges). The EPA and NPWS will investigate the potential for the support of NPWS local staff in supporting the operation of the Level II network. Where such arrangements are able to be put in place the EPA will provide relevant technical support and training to the staff and will agree alternative arrangement for occasions where NPWS

staff are not available. Where such arrangements are put in place they will be reviewed on a periodic basis (e.g. annually) and can be terminated by agreement between EPA and NPWS (ideally with a reasonable notice period to allow alternative arrangements to be put in place).

Signed:

Andy Bleasdale

A. Fanning

Date: 21/10/2021

**Department of Housing, Local
Government and Heritage**

Date: 21/10/2021

Environmental Protection Agency