The one hundred and forty-seventh meeting of the Joint Nature Conservation Committee held on 23 and 24 June 2026 in Belfast

Paper JNCC 26 35P: Pollution strategy and UK opportunities

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Joint Nature Conservation Committee

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Joint Nature Conservation Committee

Pollution strategy and UK opportunities

Paper by Steve Wilkinson, Emily Forbes, Rosie Hallatt, Susan Zappala, Hannah McGrath and Amy Arnott

1. Proposal

1.1 As highlighted by the Global Assessment Report on Biodiversity and Ecosystem Services[1] , pollution is a major driver of biodiversity decline. The impacts are often amplified by other pressures including climate and land use change. JNCC's role is the development of cross-UK evidence and standards, as well as providing advice on their application to improve policy and enable efficient regulation and reporting – all with the aim of reducing the pollution pressure on biodiversity.

1.2 This paper provides a short introduction to the pollution theme and informs the Joint Committee of the rationale for and focus of JNCC's pollution work. The intention is also to show how JNCC operates through its bilateral engagement with the country governments.

1.3 The Joint Committee is asked to:

- **Comment** on the proposed focus and narrative for JNCC's pollution work.
- **Advise** on how further progress towards Global Biodiversity Framework Target 7 may be achieved, and JNCC's role in supporting this.
- **Consider** whether there is a stronger co-ordinating role that Committee itself could have to accelerate progress in tackling pollution across the UK.

[1] IPBES (2019): Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany. 1148 pages. https://doi.org/10.5281/zenodo.3831673

2. Background – Pollution

2.1 Pollution, here, refers to the addition and presence of nutrients and chemicals in the environment at levels that cause harm. Many major point sources of pollution in the UK have largely been resolved or regulated, and remaining biodiversity impacts are increasingly driven by diffuse and less visible forms of pollution, notably reactive nitrogen in air and chemical contamination, including nutrients, across terrestrial, freshwater and marine environments. The impacts of this pollution can be far-reaching, transboundary, chronic and cumulative.

2.2 Pollution is one of the five globally recognised drivers of biodiversity loss under IPBES, which underpins the Kunming-Montreal Global Biodiversity Framework (GBF). As a signatory to the GBF, under target 7, the UK has committed not only to halve pollution pressures, but to demonstrate that these reductions lead to real improvements in biodiversity outcomes. There are other international instruments including the Convention on Long Range Transboundary Air Pollution (CLRTAP) through the Gothenburg Protocol and the UN Global Framework on Chemicals under the Bonn Declaration.

2.3 These international frameworks increasingly emphasise ecological outcomes, cumulative exposure and transboundary impacts, reinforcing the need for consistent, system-level national evidence.

2.4 Further complexity is added when considering the effects of mixtures of pollutants and systems-level interactions with climate change and land use change. GBF Target 7, requires pollution to be reduced "to levels that are not harmful to biodiversity" which cannot realistically be delivered solely through emission controls or single substance regulation. Meeting environmental targets and recovering nature requires a broader picture of where chemical pressures (e.g. pesticides/biocides, pharmaceuticals, petrochemicals/plastics, heavy metals, PFAS, Persistent Organic Pollutants (POPs) etc) are rising, how they affect ecosystems, and which interventions offer the best return for people and the rest of nature.

2.5 Policy in relation to pollution is a devolved matter with countries responsible for setting their own targets. However, in addition to aligning these with the UK's international commitments there are legal precedents, primarily under the Habitat Regulations, that strongly influence this. A summary of delivery of T7 is in UK National report (https://uk.chm-cbd.net/sites/gb/files/2026-03/cbd-7nr-uk.pdf).

2.6 The regulatory picture is complex. National regulators such as the Environment Agency (EA) and Scottish Environment Protection Agency (SEPA) are responsible for permitting and monitoring major industry, whilst approvals for smaller facilities and cattle/dairy is devolved to local government. The interaction between these two scales is often poor, particularly in relation to information sharing to consider the cumulative impacts of all sources. Additionally, there is limited regulation of many aspects of agriculture, which is a key contributor to overall pollution. This also highlights the tensions between balancing the need to

address pollution effects on nature and enabling other societal priorities such as domestic food security and human health.

3. The direction and rationale for JNCC's pollution work

3.1 The breadth of pollution as a topic means it is an ideal area for JNCC to operate, facilitating exchange and join up. There are multiple interactions from international commitments and national policies across all aspects of the environment including air, freshwater, land and sea. JNCC can help maximise devolved approaches whilst highlighting unintended outcomes to enable best value for investment.

3.2 JNCC's role is centred on:

- Maintaining an overview of international and UK commitments on pollution impacts on nature; ensuring that UK level assessments are sufficiently robust, integrated and comparable to inform international reporting and collective global progress.
- Sustaining expertise on how pollution drives ecological change (alone and in combination with other pressures) using systems approaches and developing tools based on these approaches to support identification of priority issues, drivers of biodiversity loss, potential intervention points and unintended consequences.
- Coordinating evidence across the UK countries, through focused inter-agency groups targeting air and chemical pollution pressures on biodiversity, identifying gaps and commissioning or supporting targeted work to fill them.
- Advising on and supporting policy development and operational implementation.

3.3 JNCC's work focuses primarily on air and chemical pollution across terrestrial, freshwater and marine habitats. There are also smaller amounts of activity in the marine environment on noise, plastic and radioactive pollution.

3.4 Our pollution work is funded through a variety of mechanisms and partnerships with governments, academia and industry. Core "UK Co-ordination" funding supports cross-UK engagement and maintenance of evidence and standards, while additional non-core funding has been used to develop and implement specific tools and services where there is a clear operational customer. Defra has been a significant contributor and values the JNCC role in assisting join-up across environmental quality and biodiversity. More recently, JNCC has sought more explicit co-investment from all four governments to support the "Get an Air Pollution Assessment" service, which is described in Annex 2.

3.5 Annexes 1 and 2 provide case studies to illustrate JNCC's pollution work. These projects are particularly relevant to Northern Ireland.

3.6 Annex 1 on Lough Neagh highlights the linkage between the indirect, UK scale drivers of pollution, in terms of demand for food, and the country scale pressures on the natural environment. It emphasises the challenges of viewing pollution solely in a local context. It also highlights some of the work JNCC is doing bilaterally with DAERA on spatial prioritisation of land.

3.7 Annex 2 on the Air Pollution Assessment Service highlights the challenges of getting evidence applied. JNCC has twenty years of experience in addressing the challenges of air pollution on nature, but highlighting that evidence alone is not enough to drive change. The case study describes the development of the "Get an Air Pollution Assessment" service, a practical tool for local authorities and developers to assess nitrogen-based air pollution impacts of developments.

4. Summary

4.1 JNCC's pollution work is targeted to ensure that we add value in what is a complex area with multiple interests. We work in close co-ordination with the CNCBs and governments of the UK, as exemplified by the case studies.

4.2 The Joint Committee is asked to:

- Comment on the proposed focus and narrative for JNCC's pollution work.
- Advise on how further progress towards Global Biodiversity Framework Target 7 may be achieved, and JNCC's role in supporting this.
- Consider whether there is a stronger co-ordinating role that Committee itself could have to accelerate progress in tackling pollution across the UK.

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Annex 1

Case study 1: Broader scale pressures on Lough Neagh

Whilst pressure from pollution and its management is felt most strongly within a local context, the indirect drivers operate at broader scales. This includes the overall human population pressure and the associated demand for agricultural and other production to support the economy. The JNCC role here is advising on:

- The potential impact of the ecosystem degradation on aspects of the UK's national resilience such as food and water security (see national security paper).
- Optimising land use within the UK to consider the broader benefits it provides to help reduce pressures, such as pollution, on ecosystems.
- The potential environmental pressures and risks from displacement of production to overseas.

Recent events at Lough Neagh, Great Britain and Ireland's largest lake, illustrate how multiple pressures combine: high nutrient loadings from agricultural runoff and sewage, climate impacts and invasive species have contributed to severe toxic algal blooms. These are severely affecting nature (e.g. wildfowl and fish) within the Lough as well as affecting water supply and wider economic activity.

Around 43% of Northern Ireland drains into the Lough Neagh catchment, concentrating much of an excess nutrient surplus within a single system and contributing to ongoing water quality pressures. Evidence suggests that there are around 3,400 tonnes of surplus phosphorus in the Lough Neagh catchment per year. About 62% of this comes from agricultural sources and a further 24% from wastewater treatment works[2].

Slurry is the primary contributor to the agricultural sources with cattle accounting for approximately 88% of this. However, pig and poultry slurry is significantly more nutrient-dense - containing up to ten times higher phosphorus concentrations - meaning these sectors can have disproportionately high local impacts.

Table 1: Destinations of subsector sales from Northern Ireland 2022[3]

Commodity	Total NI Sales (£m)	% of sales in NI	% of sales in GB	% sales in Republic of Ireland	% sales Rest of world
Beef/Sheep meat	1,711	16%	65%	9%	9%
Dairy	1,245	17%	30%	21%	32%
Pig meat	458	17%	*	9%	*
Eggs	201	23%	73%	4%	0%
Poultry meat	740	*	*	*	*

* Indicates information supressed

[2] https://www.daera-ni.gov.uk/sites/default/files/publications/daera/Lough%20Neagh%20Report%20and%20Action%20Plan.pdf
[3] https://www.daera-ni.gov.uk/sites/default/files/2026-03/Northern%20Ireland%20Food%20and%20Drink%20Processing%20Report%202022.pdf

Table 1 highlights that a significant proportion of protein produced in Northern Ireland is consumed in Great Britain, making Great Britain's demand an indirect driver of environmental decline. The intensive production relies on the import of nutrient-rich animal feed and fertiliser, concentrating nutrient pollution and creating a surplus that cannot be naturally absorbed. As well as affecting the water, the imports of feed and fertilizer are subject to vulnerabilities of global supply chains. As a result, Northern Ireland's intensive production is at risk, with Great Britain both contributing and exposed to these same risks.

Addressing these pressures will likely require tighter, better enforced, and more spatially-targeted slurry and nutrient management regulations, alongside action on underlying drivers such as production patterns and trade flows. While there is broad agreement among the public sector and environmental organisations on the need for stronger measures, there has been significant farmer concern regarding costs, data limitations, and perceived fairness of proposed Nutrient Action Programme regulations. Effective progress will depend on balancing regulatory reform with practical farm-level support and building trust, including consideration of how spatially-differentiated approaches and improved evidence can support both environmental outcomes and farm viability.

A key delivery mechanism to achieve this is DAERA's Farming with Nature (FwN) Programme, which will offer all farmers in Northern Ireland an opportunity to restore biodiversity and improve water quality and habitat connectivity on their land - to offer bigger, better and more joined up habitats by 2030. However, funding and resources for the scheme are limited, so an understanding of where actions could deliver multiple benefits is crucial to support the delivery of environmental targets and achieve good value for money.

To address this, JNCC secured multi-year funding from DAERA, under the Balancing Land Use Needs NI project to develop modelled outputs covering a range of scenarios to spatially target FwN actions, particularly the creation of riparian (river bank) buffer strips, hedgerows, and farmland tree planting. Over the next year these will be used to model nutrient delivery, carbon storage and habitat quality, demonstrating where multiple benefits, and thus improved value for money, could be delivered through FwN across Northern Ireland.

In parallel JNCC will continue to improve the evidence base to assess the pressures arising from the UK consumption on ecosystems abroad to better inform decisions on adjusting domestic production.

Annex 2

Case study 2: Making regulation work better — Get an Air Pollution Assessment Service

Nitrogen-based air pollution is a significant pressure on nature. Emissions, including ammonia and nitrogen oxides, are transported and deposited, enriching sensitive habitats and changing their resilience and the biodiversity they can support. At higher concentrations, impacts can be substantial and there are interactions with air quality and human health. JNCC's approach over the last twenty-five years has included:

- Building the evidence base to assess air borne nitrogen impacts on vegetation which was not acknowledged at the start of the work
- Setting standards for assessing feature condition in relation to nitrogen pressure to give a consistent comparison across the countries
- Developing guidance on cumulative effects and consistent assessment methods to provide a robust and efficient way to assess proposals in the context of neighbouring emissions
- Proposing potential strategic future emission reduction policies to suggest ways that the problem could be addressed more strategically.

In the recent Habitats Regulation assessment[4], of the fifty-three habitats assessed across the UK, thirty-nine exceeded nitrogen critical load over effectively 100% of habitat area and all bar two exceeded nitrogen critical load over >25% of their area. As a result, the "future prospects" of these habitats and therefore overall Favourable Conservation Status are classed as "unfavourable-bad" in the absence of measures to improve air quality substantially.

Regulation, particularly under the Habitats Regulations, exists to manage these risks. Recent scrutiny of processes in Northern Ireland by the Office of Environmental Protection highlighted weaknesses in process and led to a freeze on development. However, the processes that were in use within NI were similar, although more stringent, to elsewhere across the UK. This highlights the opportunity for sharing experience across the four countries and underscores the need for consistent, efficient and well-evidenced implementation in reducing challenge.

In terms of broader commitments, the UK is not currently on track to meet 2030 ammonia emissions targets[5]. The expectation in relation to this could rise as the UK potentially strengthens alignment with the EU. A robust, shared assessment approach across the UK reduces legal and delivery risk, improves consistency of decisions, and supports better targeting of mitigation. Additionally, there is potential to begin to integrate the air quality benefit from other non-regulated activities such as agri-environment schemes, investment in better food production infrastructure such as better slurry stores or low emission spreading equipment.

[4] https://jncc.gov.uk/our-work/habitats-regulations-reporting-2019-to-2024/
[5] https://www.gov.uk/government/statistics/emissions-of-air-pollutants/emissions-of-air-pollutants-in-the-uk-ammonia-nh3

Despite all of this evidence, delivering impact through operational uptake has been very limited in some countries. Key barriers have included:

- **Fragmented decision-making across national and local levels** – national regulators have responsibility for approval of larger developments, with smaller ones devolved to local decision making. There are differences in expertise and approach at these levels and not enough awareness of what is being approved.
- **Limited shared visibility of emission sources and their cumulative contribution** – with the separate operations at national and local level there is no single overview of where emissions are coming from and what the cumulative impact is. This limits the ability to develop spatial strategies and provide more certainty on where development is possible.
- **Insufficient systems and capacity to implement standards efficiently at pace** – the fragmented decision making means the benefits of any improved tooling is spread across many actors making it difficult to drive change.

To address these barriers, JNCC secured investment (c. £5.8m) from Defra, with additional funding from Northern Ireland and Scotland, to develop a shared service supporting assessment across sectors, data sharing and efficient implementation of cumulative assessments. The service was based on the Dutch AERIUS approach and adapted for UK needs. This system, "Get an Air Pollution Assessment"[6], previously referred to as the Air Pollution Assessment Service, was launched in May 2026.

The "Get an Air Pollution Assessment" service is designed to integrate evidence efficiently into much more efficient and integrated regulation from local to national scales. It also provides more transparent modelling providing greater certainty to developers at the outset in relation to the likelihood their proposals will be approved. It also provides a mechanism to capture details of developments in a standard format to enable more strategic planning.

This demonstrates the potential for integrating evidence to enable more efficient regulation across a range of scales. It also provides more transparent modelling visible to anyone, and greater certainty to developers at the outset on the likelihood their proposals will be approved. This, alongside capturing information on approved developments to enable more strategic planning, provides a model for what environmental regulation needs to evolve into.

The service has just been launched as a pilot in Northern Ireland. In parallel, work in England and Wales is collating evidence on the contribution of smaller (locally approved) sources to overall nitrogen pressures. Scotland has less acute ecosystem pressure in many areas but retains hotspots; future expansion of the system in Scotland aims to incorporate human health considerations. This would be a major enhancement but would require additional design and stakeholder management.

Ongoing running costs of the system are significant (c. £1.3m per annum). From the outset, the intention has been that costs are shared equitably across benefiting governments and agencies, supported by agreed governance.

Although discussions are ongoing, there is still no agreement across the four governments on how the running on onward development costs of the system will be collectively met. This highlights that, despite the overall benefits in terms of efficiency and impact, there is a

[6] https://www.gov.uk/guidance/get-an-air-pollution-assessment

significant challenge in working closer to operational level across the four countries, and there can be a range of risks to JNCC in taking on such challenges.

Experience from "Get an Air Pollution Assessment" shows that evidence alone is not enough - real impact comes from embedding it in day-to-day decision-making. While this requires sustained effort and comes with cost and risk, early experience demonstrates clear value: more transparent, consistent and efficient assessments, and greater certainty for regulators and developers. As adoption grows, the service will enable more strategic, spatial planning and better-targeted mitigation, unlocking both environmental and economic benefits through an integrated and data-driven system for people and the rest of nature.