Queen's University Belfast, Marine Restoration Group response to:

Consultation on the Nature Recovery Strategy for Northern Ireland to 2032: A proposed strategy for halting and reversing biodiversity loss

Submitted: 9th March 2026

This consultation response is submitted on behalf of the Marine Restoration Group at Queen's University Belfast. The group comprises lecturers, research fellows and PhD students, including both natural and social scientists, with expertise spanning marine ecology, restoration, and as well as the social, cultural and policy dimensions of marine management.

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The UK Government's national security assessment on global biodiversity loss[1] makes clear that nature degradation is no longer solely an environmental concern but a material and escalating risk to national security, economic stability and societal resilience. It concludes with high confidence that ongoing ecosystem degradation and the increasing likelihood of ecosystem collapse threaten food security, public health, economic prosperity and geopolitical stability. Given Northern Ireland's reliance on resilient terrestrial and marine ecosystems for food production, water regulation and climate mitigation, the region has a direct and strategic interest in halting and reversing biodiversity loss. An ambitious, well-resourced and enforceable Nature Recovery Strategy for Northern Ireland should therefore be understood not only as an environmental policy, but as an investment in long-term security and resilience, that reduces future economic, social and political shocks.

1. Do you agree with the 5 Strategic Objectives in the draft Nature Recovery Strategy?

No

If no, please provide comment about alternative or additional Strategic Objectives

The five Strategic Objectives in the draft Nature Recovery Strategy generally align with the "*recovery wedges*" framework set out by Duarte et al. (2020)[2], in the seminal Nature paper "Rebuilding Marine Life", which demonstrates that substantial recovery of marine biodiversity

[1] DEFRA (2026), Nature security assessment on global biodiversity loss, ecosystem collapse and national security. Available at https://www.gov.uk/government/publications/nature-security-assessment-on-global-biodiversity-loss-ecosystem-collapse-and-national-security

[2] Duarte et al., (2020), Rebuilding marine life, Nature. Available at https://www.nature.com/articles/s41586-020-2146-7#Sec1

within a generation is achievable, but only if multiple complementary actions (i.e. wedges) are stacked and delivered in parallel (i.e., no single objective is sufficient on its own; recovery emerges from their combined effect). However, for this framework to translate into effective delivery, the Strategic Objectives need to articulate clearer, **outcome-focused targets that define the scale and ambition of protection and recovery required**, rather than relying solely on downstream plans to set this out.

Strategic Objective 1: Protection of remaining biodiversity and active restoration of degraded ecosystems are foundational recovery objectives or 'wedges'. The Strategy's focus on both protection and accelerated restoration is therefore strongly supported by the evidence. However, Strategic Objective 1 should clearly articulate the **outcome** it is seeking to achieve for protection and recovery, including explicit alignment with the Kunming–Montreal Global Biodiversity Framework commitments to effectively protect and manage at least 30% of land and sea by 2030 (Target 2), and to restore at least 30% of degraded land and sea by 2030 (Target 3). Making these targets explicit at the Strategic Objective level would help ensure that delivery remains focused on ecological outcomes rather than activity-based reporting. Therefore, we recommend Strategic Objective 1 is rephrased as "**Protect and manage at least 30% of all ecosystems and deliver accelerated recovery of at least 30% of degraded ecosystems by 2030**".

Strategic Objective 2: Reducing pressures is a critical enabling objective or 'wedge', without which protection and restoration efforts will fail or deliver only temporary gains. This objective is therefore essential and strongly supported by the science. Reframing this objective around outcomes for biodiversity, rather than the management of pressures alone, would clarify what success looks like and strengthen alignment with the Global Biodiversity Framework targets. It would also ensure that actions across pollution control, invasive species management and climate policy are clearly directed towards a shared goal: reducing pressures to levels that allow ecosystems to function effectively and biodiversity to recover. This should apply the DPSIR (Drivers, Pressures, State, Impact, Response) framework to specifically identify the drivers and pressures impacting biodiversity and utilise this framework to inform the most effective routes to reduce the impacts of the identified pressures. Therefore, we recommend Strategic Objective 2 is rephrased as "**By 2030, biodiversity loss is halted because pressures from pollution, invasive species and climate impacts, and the drivers behind these, have been reduced to levels that are not harmful to biodiversity."**

Strategic Objective 3: Sustainable use of natural resources, when properly governed, can support recovery by aligning human dependence on nature with long-term ecosystem resilience, therefore, this objective is appropriate and necessary. However, framing this objective around "nature-friendly" use is insufficiently ambiguous and risks allowing continued harm rather than driving recovery. To achieve nature recovery, policies and actions under this objective should aim for net positive or regenerative outcomes for biodiversity, rather than simply reducing negative impacts. Sustainable use must function as a recovery wedge that reduces overall pressure on ecosystems, rather than displacing impacts spatially or between sectors. We therefore recommend that Strategic Objective 3 is rephrased as: **"By 2030, biodiversity loss is halted**

because the sustainable use of biodiversity delivers net positive outcomes for ecosystems."

Strategic Objective 4 recognises that nature recovery requires biodiversity to be mainstreamed into decision-making, investment frameworks and societal values to avoid policy fragmentation and backsliding. This objective is critical for:

- aligning fiscal policy, planning, infrastructure and procurement with nature recovery goals,
- creating durable political and social support for long-term action,
- ensuring that sectors which depend on nature contribute to net positive outcomes.

However, to be effective, this objective must make clear that the value of nature is not limited to monetary or economic considerations alone. Explicit recognition of nature's ecological, social and cultural values is essential to ensure that mainstreaming biodiversity leads to better decisions for nature, rather than narrow valuation approaches that risk undervaluing recovery and resilience. We therefore recommend that Strategic Objective 4 is rephrased as: **"By 2030, the diverse value of nature, including ecological, social, cultural and economic values, is mainstreamed and reflected in decisions and investments across government and society".**

Strategic Objective 5: Nature recovery depends on robust evidence, transparent reporting and adaptive learning, particularly given uncertainty and climate-driven change. This objective underpins all other wedges by enabling:

- Clear baselines and evidence-based recovery targets
- Consistent monitoring of outcomes, not just inputs
- Rapid learning from both successes and failures.

Together, the five Strategic Objectives of the draft Nature Recovery Strategy form a scientifically credible, but high-level recovery framework for the marine environment. However, their effectiveness depends on being pursued **simultaneously, rapidly, and at scale**, rather than sequentially, hesitantly, or in isolation to avoid locking in continued decline. The Strategy should therefore make this explicit by clearly presenting the five Strategic Objectives as an integrated and indivisible package. This is particularly important where drivers, pressures and responses interact across objectives. For example, poor water quality driven by agricultural practices, land use impacting runoff and insufficient wastewater infrastructure can undermine investment in the protection and restoration of foundational marine habitats such as seagrass. Similarly, delays in the implementation of Fisheries Management Plans or intertidal harvesting legislation can compromise species recovery initiatives such as native oyster restoration. Without coordinated and rapid delivery, individual actions risk operating in isolation, limiting their effectiveness and reducing the likelihood of achieving long-term recovery. The strategy would therefore be strengthened by explicitly presenting the five Strategic Objectives as an integrated and indivisible package, with clear recognition that **progress under one objective is dependent on progress under others**.

2. **Do you believe that the proposed new actions for Strategic Objective 1, when considered with existing targets, will deliver Well Protected Nature and Accelerated Restoration?**

   No

   Please provide further detail to support your answer

Strategic Objective 1, and the Nature Recovery Strategy as a whole, will be strengthened by explicitly stating quantified, outcome-focused targets at the action level. As currently drafted, some actions focus on implementing plans without clearly stating the outcomes they are intended to deliver.

For example, the Strategic Objective 1 action *"By 2030: Implement the actions in the Northern Ireland Marine Protected Area Strategy"* does not make explicit the scale or quality of protection that implementation is expected to achieve. However, clear, outcome-focused and time-bound targets in relation to marine protected areas are already defined within the Environmental Improvement Plan, e.g., *ensure the protection and effective management of at least 30% of seas by 2030 through an ecologically coherent and well-managed MPA network* (pg. 45). We therefore recommend that such targets are explicitly reflected in the wording of relevant actions. In this example, the action within Strategic Objective 1 could be rephrased as: *"By 2030: Implement the Northern Ireland Marine Protected Area Strategy to deliver an ecologically coherent and well-managed MPA network that effectively protects at least 30% of seas and contributes to measurable improvements in the condition of designated features."*

Making the link between actions and existing quantified targets explicit would help ensure that delivery across policies and plans is consistently directed towards shared protection and recovery outcomes, while also providing a clear basis for monitoring progress and assessing effectiveness.

Where targets have not yet been defined, the Strategy should clearly set out when and through which processes they will be established. This is particularly important for protection and restoration, where the scale, quality and spatial configuration of interventions are critical determinants of recovery.

3. **Are there any additional actions that you would like to be included with Strategic Objective 1?**

   Yes

   Please provide further detail to support your answer

Proposed additional action 1: By 2027, establish a coordinated pipeline of priority marine and coastal restoration projects, supported by appropriate funding and investment mechanisms, to enable delivery of large-scale, long-term restoration in the marine environment.

Delivering Northern Ireland's commitment to restore at least 30% of degraded marine ecosystems will require more than individual, project-based interventions; it will require a clear, coordinated pipeline of restoration projects capable of delivering recovery at sufficient scale and over appropriate timescales. Without such a pipeline, there is a significant risk that restoration activity remains fragmented, under-scaled and insufficient to contribute meaningfully to the 30% target.

The need for a coordinated approach and sufficient baseline evidence is already recognised within existing policy. The Northern Ireland Blue Carbon Action Plan 2025–2030 includes an action (pg. 15, Action 2.1) to agree prioritisation criteria for blue carbon habitat management, restoration and creation within six months of publication, and a further action (pg. 16, Action 3.1) to consolidate best available evidence on the location and spatial extent of blue carbon habitats by 2026. However, both these actions have not yet been delivered in line with the Plan's stated timelines. Given that they are intended to underpin delivery from the outset, the early slippage in deadlines is increasing risk of failure to deliver restoration at the scale and pace required to meet 2030 commitments.

Furthermore, restoration planning must reflect the ecological reality that marine ecosystem recovery often occurs over long timescales, frequently extending over decades. Achieving meaningful and lasting outcomes will therefore require dedicated, long-term and multi-year funding mechanisms, rather than reliance on short-term or one-off project funding cycles. Other UK administrations have already begun to put such delivery structures in place. England has established a growing pipeline of marine and coastal restoration projects through programmes such as ReMeMaRe, while Scotland has developed targeted funding and investment mechanisms, including the Scottish Marine Environmental Enhancement Fund (SMEEF), to support coordinated delivery of marine restoration at scale.

At present, there is no equivalent, clearly defined mechanism in Northern Ireland to support the systematic identification, coordination and long-term funding of marine restoration projects. Embedding a clear, time-bound commitment to establish a coordinated restoration pipeline within the Nature Recovery Strategy is therefore essential to provide strategic oversight, maintain delivery momentum, and would strengthen the Strategy's ability to move from ambition to implementation. A coordinated restoration pipeline would also provide assurances that would incentivise private sector investment, which is needed to compliment public sector investment given the scale of action required.

Proposed additional action 2: By 2030, deliver protection, effective management, and enhancement of blue carbon habitats as a priority nature-based solution to climate change and biodiversity loss

Current estimates indicate that Northern Ireland's marine habitats represent a significant blue carbon resource (14 and 22 teragrams of carbon), but confidence in baseline stocks remains limited due to gaps in spatial coverage and reliance on values derived from studies elsewhere (Hunter, 2024[3]). This uncertainty constrains the ability to target protection effectively, assess change over time, and demonstrate policy impact.

Emerging Northern Ireland-specific evidence, such as recent site-based measurements from seagrass habitats, confirms that these blue carbon habitats represent a nationally significant natural carbon asset while also highlighting the importance of robust, locally derived data (McIlvenny et al., in review[4]). Seagrass sediments in the upper 1 m across Northern Ireland hold approximately 73 gigagrams of organic carbon, equating to an avoided carbon cost of around £70 million based on central non-traded carbon values. This reinforces the need for sustained habitat mapping, monitoring and evidence generation to underpin effective protection, management and enhancement of these habitats.

Therefore, while the Northern Ireland Blue Carbon Action Plan is acknowledged in the draft Nature Recovery Strategy as a policy of relevance to biodiversity (pg. 15), we recommend its actions are embedded within Strategic Objective 1 to deliver the evidence base, monitoring, and management needed to safeguard and enhance blue carbon habitat benefits.

4. **Do you have any other comments about Strategic Objective 1?**

   Yes/No

   Please provide further detail to support your answer

5. **Do you believe that the proposed new actions for Strategic Objective 2, when considered with existing targets, will deliver Reduction of the Pressures on Biodiversity?**

   No

   Please provide further detail to support your answer

Reframing actions around outcomes for biodiversity, rather than the development or delivery of additional policies and plans, would clarify what success looks like and strengthen the overall Strategy. Additionally, explicitly stating quantitative and/or SMART targets already contained within referenced policies and plans would improve clarity, coherence and accountability. For example, the action *"By 2028: reduce the amount of phosphorus applied in chemical fertilisers to achieve a 50% reduction from 2023 levels"* provides a clear, quantified target that the other actions should be modelled on. However, this action could be strengthened further by explicitly

[3] Hunter (2024), Carbon storage in Northern Ireland's aquatic ecosystems: an evidence synthesis to support policy development. Available at https://eartharxiv.org/repository/view/7655/

[4] McIlvenny et al., in review. This work forms part of Heidi McIlvenny's PhD thesis. It is currently under review in an academic journal. Please get in touch with Heidi if you'd like further information hmcilvenny01@qub.ac.uk

linking the target to the intended biodiversity outcome. This could include stating that reductions in phosphorus are intended to ensure that phosphorus pollution is no longer a primary driver of biodiversity loss in marine, freshwater and terrestrial ecosystems in Northern Ireland.

Making the link between quantified action and biodiversity outcome explicit (utilising, for example, the DPSIR framework) would help ensure that delivery remains focused on reducing pressures to levels that allow ecosystems to function effectively and biodiversity to recover, rather than on meeting targets in isolation.

Specifically in relation to water quality, the Strategy correctly identifies nutrient pollution as one of the primary pressures resulting in biodiversity loss in Northern Ireland. Recent research indicates that nutrient enrichment is already impacting coastal ecosystems; early signs of eutrophic stress in seagrass meadows around the coast of Northern Ireland have been detected[5]. Therefore, reference to the Ammonia Strategy and a reduction in phosphorus in fertilisers is welcome, however, the proposed actions would be strengthened by clearer alignment with other key delivery mechanisms. In particular, embedding the Nutrient Action Programme (NAP) and River Basin Management Plans under the Water Framework Directive would improve policy coherence and confidence in delivery, given their central role in addressing nutrient pollution and achieving good ecological status in fresh and marine waters.

In relation to invasive non-native species (INNS), the proposed action to update the existing Invasive Species Strategy requires greater ambition. Rather than focusing primarily on the creation of a new or updated strategy, the proposed actions should place stronger emphasis on the implementation and enforcement of existing provisions. Of particular concern is the absence of a meaningful rapid response capability for marine non-native species (NNS). Established and spreading marine invasive species, including *Didemnum vexillum* and *Magallana gigas* in Strangford Lough, represent an active and escalating threat to biodiversity, yet the current response appears limited to monitoring and documentation of spread rather than proactive intervention to contain or eradicate populations. While DAERA has been made aware of these incursions, there is no evidence of a sufficiently urgent or coordinated management response, potentially due to a combination of legislative constraints, funding limitations, and fragmentation between relevant departments.

The Strategy itself acknowledges that no formal surveillance programme for INNS is currently in place. This gap must be treated as a priority. Invasive species that are already present and actively spreading pose a direct and immediate threat not only to existing habitats but also to habitats that are the subject of active restoration and conservation investment. The current approach of documenting spread without implementing proactive control measures risks undermining significant public, institutional, and voluntary investment in habitat restoration and conservation across Northern Ireland. While eradication and control of established marine invasive species can be technically challenging and costly, this does not diminish the urgent

[5] McIlvenny et al., in review. This work forms part of Heidi McIlvenny's PhD thesis. It is currently under review in an academic journal. Please get in touch with Heidi if you'd like further information hmcilvenny01@qub.ac.uk

need to develop and implement evidence-based management responses. The proposed actions should therefore include explicit commitments to establishing a formal and adequately resourced INNS surveillance programme; developing a rapid response protocol for newly detected or early establishing marine NNS; and investigating and resourcing feasible control or containment measures for species already in advanced stages of establishment.

6. **Are there any additional actions that you would like to be included with Strategic Objective 2?**

   Yes

   Please provide further detail to support your answer

Proposed additional action 1: By 2030, deliver the Nutrient Action Programme to ensure nutrients are no longer the primary driver of biodiversity loss in terrestrial and marine ecosystems in Northern Ireland.

7. **Do you have any other comments about Strategic Objective 2?**

   No

   Please provide further detail to support your answer

8. **Do you believe that the proposed new actions for Strategic Objective 3, when considered with existing targets, will deliver Sustainable Use of Biodiversity through Nature-friendly Policies and Practice?**

   No

   Please provide further detail to support your answer

In relation to the marine environment, the actions proposed under Strategic Objective 3 are necessary and appropriate in principle, as Fisheries Management Plans are the correct primary mechanism for delivering the sustainable use of marine biodiversity in fisheries. However, their effectiveness in achieving the objective will be highly dependent on timely implementation, strong alignment with ecosystem-based fisheries management, and robust enforcement, monitoring and review. The current timescale, with implementation not expected until 2030, presents a risk that biodiversity benefits will not be realised within the lifetime of the first cycle of the Nature Recovery Strategy.

Furthermore, some fisheries interact with especially sensitive habitats and species. The Northern Ireland Intertidal Gathering of Shellfish Fisheries Management Plan is of particular significance given the vulnerability of native oyster populations. In the absence of timely and effective management, hand-gathering has the potential to compromise ongoing DAERA-funded

restoration initiatives, including the removal of recently laid native oysters intended to support population recovery.

Similarly, the Irish Sea Demersal Fisheries Management Plan is highly relevant to pressures on sensitive seabed habitats, including the Irish Sea mud patch. Northern Ireland's offshore subtidal mud habitats are estimated to store between 7 and 11 teragrams of carbon, with an approximate economic value of £974 million to £1.656 billion (Hunter, 2024[6]). Delays in the development or implementation of this Plan therefore present a heightened risk to the integrity of these habitats and the significant carbon stocks they support.

While recognising the amended publication timelines set out in the UK Joint Fisheries Statement, the Nature Recovery Strategy would be strengthened by an explicit commitment to prioritising and, where possible, phasing early implementation of Fisheries Management Plans associated with the highest biodiversity risk.

In relation to the action "*By 2028, explore and review options around the adoption of a biodiversity net gain approach within the planning system"*, it is unclear if this applies to the marine environment, or solely terrestrial ecosystems. The existing action should be explicitly expanded to include the marine environment, recognising the critical role that seas and coastal waters play in biodiversity, climate resilience, and the wider economy.

Experience in England demonstrates how a clear policy direction on marine net gain can support nature recovery while providing greater certainty for regulators and developers. Although marine net gain is not yet mandatory in England, the government has articulated clear principles through consultation and policy development, establishing an expectation that marine development should leave biodiversity in a measurably better state than before. Key lessons Northern Ireland could draw from England include:

- Early policy signalling: England's consultation-led approach has helped embed marine net gain as a recognised objective, even ahead of full legislative implementation.
- Alignment with wider marine policy: marine net gain is being developed to complement marine protected areas, the UK Marine Strategy, and nature recovery targets, rather than operating in isolation.
- Recognition of evidence and metric challenges: England's approach acknowledges current data gaps and the need for proportionate, science-led metrics, providing a pragmatic model for phased implementation.

Expanding the Northern Ireland commitment to explicitly include the marine environment would ensure consistency with emerging best practice, reflect the shared pressures facing UK seas, and support long-term marine ecosystem recovery.

[6] Hunter (2024), Carbon storage in Northern Ireland's aquatic ecosystems: an evidence synthesis to support policy development. Available at https://eartharxiv.org/repository/view/7655/

9. **Are there any additional actions that you would like to be included with Strategic Objective 3?**

   Yes

   Please provide further detail to support your answer

Proposed additional action 1: By 2027, commence phased implementation and regular review of Fisheries Management Plans to ensure fisheries are managed in line with ecosystem-based and precautionary principles.

To strengthen the delivery of Fisheries Management Plans to achieve Strategic Objective 3: Sustainable use of biodiversity through nature-friendly policies and practice, the Strategy should:

- Commit to phased and early implementation of Fisheries Management Plans
- Explicitly state that Fisheries Management Plans will deliver ecosystem-based and precautionary fisheries management, ensuring impacts on wider marine biodiversity are minimised
- Include a commitment to regular review and adaptive management to ensure fisheries remain environmentally sustainable over time.

These refinements would improve confidence that the sustainable use of marine biodiversity through fisheries will be delivered by 2032, without duplicating or pre-empting the detailed provisions of individual Fisheries Management Plans.

10. **Do you have any other comments about Strategic Objective 3?**

    No

    Please provide further detail to support your answer

11. **Do you believe that the proposed new actions for Strategic Objective 4, when considered with existing targets, will deliver Nature Valued and Mainstreamed Across All of Government and Society?**

    No

    Please provide further detail to support your answer

We agree with the Strategy's statement that *"to achieve real change in the outcomes for biodiversity, the true value of biodiversity and any potential impact must be considered in the development of policies at all levels of government"* (pg. 26). We also strongly welcome the introduction of the Northern Ireland Environmental Principles Policy Statement (EPPS) and agree that it has the potential to guide policymakers to consistently consider environmental impacts, prevent harm, and identify innovative opportunities to enhance the environment. These commitments are necessary foundations. However, Strategic Objective 4 will only fully succeed

if it places citizens and society at the centre of delivery, recognising not just how nature is governed, but how it is experienced, valued and cared for by people.

The Strategy rightly recognises that behavioural change in patterns of consumption across all of society is required (pg. 26). There is a strong and growing body of evidence that shows that 'nature connectedness', a measure of the strength of people's relationship with the natural world, is positively associated with pro-environmental and pro-conservation behaviours, sustainable consumption patterns, and wellbeing. This positions nature connectedness as an effective intervention point through which behaviours can be influenced. Without explicitly addressing this human dimension, and by primarily focusing on governance mechanisms as reflected in the actions, there is a risk that biodiversity becomes mainstreamed administratively, but not socially.

Data from Natural England's national People and Nature surveys found that[7]:

- Individuals with high nature connectedness were 2 times more likely to report household pro-environmental behaviours and 1.8 times more likely to report conservation behaviours.
- Reported wellbeing and pro-environmental behaviours were highest among those with both frequent contact with nature and high nature connectedness, indicating that optimising outcomes requires strengthening both access ***and*** connection.
- Nature connectedness was found to enhance or moderate the positive effects of contact with nature, demonstrating added value beyond access alone.
- Importantly, nature connectedness showed little relationship with most socio-demographic factors, suggesting it is a broadly applicable and inclusive metric.

In addition, while natural capital accounting approaches are valuable, an over-reliance on them risks undervaluing the non-material contributions of nature, including mental health, wellbeing, cultural identity, social cohesion and spiritual value. These benefits are central to why people care about nature and are critical to sustaining long-term societal support for nature recovery.

With regard to the action "*By 2027, consult upon setting targets in law for nature restoration and related civil sanctions",* the need for this step is clearly evidenced by the continued failure of non-statutory strategies and policies to halt biodiversity decline in Northern Ireland. Reports from the Office for Environmental Protection (OEP) have highlighted systemic weaknesses in governance, including ineffective implementation of environmental law, unsustainable pressures on the environment, and persistent delays in putting in place plans required to drive change. These findings underline that ambition expressed through policy alone is not enough. Establishing legally binding targets for nature recovery should therefore be treated as a priority action within the Strategy. Targets in law are essential to create a statutory duty on government to act across departments, rather than rely on discretionary policy commitments, and to drive the allocation

[7] Martin et al., (2020), Nature contact, nature connectedness and associations with health, wellbeing and pro-environmental behaviours. Available at https://www.sciencedirect.com/science/article/abs/pii/S0272494419301185

of appropriate resources for delivery, monitoring and enforcement. They also provide a clear framework for accountability and independent oversight.

Prioritising targets in law would align Northern Ireland with all other UK jurisdictions, Ireland and the wider EU, which have already adopted or are in the process of adopting legally binding targets for nature recovery. Continued reliance on non-statutory approaches risks leaving Northern Ireland behind and failing both nature and citizens who depend on a healthy environment for clean water, clean air, food security and climate resilience.

Restoring nature is a matter of social and economic resilience, with the UK Government identifying global biodiversity loss as a national security risk[8]. Failure to address biodiversity loss increases long-term financial and societal risk, while investment in nature recovery delivers sustained benefits for communities, public health and economic stability. Legal targets provide the certainty required to support this investment, avoid the higher costs associated with delayed or piecemeal action, and move nature recovery from aspiration to delivery.

Effective delivery of legally binding targets for nature recovery will require strong, independent enforcement that applies across society, not only to public authorities. **Consideration should therefore be given to the establishment of an independent Environmental Protection Agency** with the powers and resources to regulate, monitor and enforce environmental standards across the whole economy and society. This would ensure that statutory targets for nature recovery are applied consistently and that legal commitments translate into real improvements for nature.

12. Are there any additional actions that you would like to be included with Strategic Objective 4?

Yes

Please provide further detail to support your answer

Proposed additional action 1: By 2028, adopt a national measure of human-nature connectedness for Northern Ireland, establish a baseline and reporting mechanism, and embed the five pathways to nature connectedness across government policies, programmes and public-facing delivery to support behaviour change and mainstream biodiversity.

Strategic Objective 4 should explicitly recognise human–nature connectedness as a core societal outcome and a mechanism for achieving and sustaining biodiversity goals. Evidence from England demonstrates how this can be done in practice. Natural England has launched the UK's largest longitudinal programme investigating how exposure to natural spaces and

[8] DEFRA (2026), Nature security assessment on global biodiversity loss, ecosystem collapse and national security. Available at https://www.gov.uk/government/publications/nature-security-assessment-on-global-biodiversity-loss-ecosystem-collapse-and-national-security

biodiversity recovery affects environmental attitudes, behaviours, health, and wellbeing overtime[9]. Natural England also systematically monitors how people:

- Use and enjoy the natural environment
- Are motivated to protect it
- Change their engagement with nature over time
- Experience the impacts of environmental policy

This is delivered through the People and Nature/Monitor of Engagement with the Natural Environment (MENE) surveys[10], which includes a national measure of nature connectedness via the Nature Connection Index. The data also contributes to England's Environmental Improvement Plan. This approach provides a robust, policy-relevant model that Northern Ireland could adopt. It would strengthen the societal relevance of the Nature Recovery Strategy and ensure that success is measured not only by ecological and economic indicators, but also by how people relate to and benefit from nature. Measures of nature connectedness should be embedded into existing and future funding schemes and projects, such as the Mapping Offshore Northern Ireland project led by the Agri-Food and Biosciences Institute, such that wider benefits of biodiversity are properly assessed.

The proposed action to develop a Communications Plan to support behavioural change is welcome. However, to be effective, this plan should explicitly draw on evidence-based approaches to building nature connectedness, including the five pathways[11]: 1. Contact through the senses, 2. Emotion, 3. Beauty, 4. Meaning, and 5. Compassion. Beyond the communications plan, these pathways should be embedded across government policies, programmes and public-facing delivery to target the behaviour change and mainstream biodiversity that this objective aims to achieve. The application of these pathways can be implemented across a range of societal scales (from individuals to societies), and interventions can range from cultural programmes to urban design across policy areas such as education, health, housing, arts, health and transport, meaning that the pathways to nature connectedness have large scale societal relevance[12].

13. Do you have any other comments about Strategic Objective 4?

No

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[9] Natural England Blog: Study launched into relationship between people and nature. Available at https://naturalengland.blog.gov.uk/2025/03/11/new-study-launched-into-relationship-between-people-and-nature/

[10] Natural England and DEFRA: The People and Nature Surveys for England. Available at https://www.gov.uk/government/collections/people-and-nature-survey-for-england

[11] Lumbar et al., (2017) Beyond knowing nature: Contact, emotion, compassion, meaning, and beauty are pathways to nature connection. Available at https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0177186

[12] Richardson et al., (2020), Applying the pathways to nature connectedness at a societal scale: a leverage points perspective. Available at https://www.tandfonline.com/doi/full/10.1080/26395916.2020.1844296

Please provide further detail to support your answer

14. **Do you believe that the proposed new actions for Strategic Objective 5, when considered with existing targets, will deliver in Building Strong, Integrated Evidence and Knowledge to Enable Action and Reporting for Nature?**

    No

    Please provide further detail to support your answer

Strategic Objective 5 is fundamental to the success of the Nature Recovery Strategy, as all other objectives depend on credible evidence, clear baselines, and transparent reporting. While the strategy includes important commitments to publishing annual biodiversity indicators, enhancing evidence on ecosystem extent, condition and connectivity, and consulting on statutory monitoring and reporting of protected sites, there remains a risk that evidence generation becomes disconnected from delivery, accountability, and decision-making in practice. To avoid this, Strategic Objective 5 should more clearly articulate how evidence and indicators will be actively used to inform decision-making and delivery, rather than solely to meet reporting requirements, in order to:

- Guide prioritisation of action and investment
- Track progress against 30 by 30 and other biodiversity commitments
- Inform adaptive management where actions are not delivering results
- Build public trust through transparent and accessible reporting

Strengthening this objective would increase confidence that the strategy can deliver measurable, real-world nature recovery outcomes for Northern Ireland.

Furthermore, access to environmental data held by public bodies such as DAERA is not merely a matter of administrative convenience, it is a democratic right, underpinned by legislation including the Environmental Information Regulations 2004 and the Aarhus Convention, which guarantee public access to environmental information held by public authorities. Strategic Objective 5 of the Strategy itself states that "*the best available data, information and knowledge must be accessible to decision-makers and stakeholders to ensure the most effective and integrated management of biodiversity*" (pg. 29). However, the proposed actions do not include a clear, explicit commitment to open and timely data sharing, nor do they address existing barriers to access. This is a significant omission. The proposed actions should therefore include an explicit commitment to proactive, timely, and open publication of biodiversity-relevant data held by DAERA and its partners, in line with both the letter and spirit of existing environmental information legislation and the Strategy's stated ambitions.

15. **Are there any additional actions that you would like to be included with Strategic Objective 5?**

    Yes

Please provide further detail to support your answer

Proposed additional action 1: Decisions and investments for nature recovery are consistently evidence-led and adaptive, supported by clear processes learning across all levels of delivery.

An action is needed to clearly define how biodiversity evidence and indicators generated under Strategic Objective 5 will be actively used to inform decisions and guide delivery across the Nature Recovery Strategy, rather than functioning primarily as a reporting exercise. This should include explicit mechanisms for using evidence to:

- Reprioritise action and funding where indicators show continued decline in priority species, habitats or ecosystem condition
- Trigger adaptive management responses where monitoring shows that actions are not delivering intended outcomes
- Strengthen planning and land-use decisions by embedding up-to-date ecological evidence
- Increase transparency and accountability by demonstrating how monitoring results influence policy choices and investment

Together, these actions would help ensure that evidence genuinely enables action and accountability, in line with the stated ambition of Strategic Objective 5.

Proposed additional action 2: Implement transparent and standardised biodiversity data access and sharing

An additional action should be included to ensure that biodiversity data collected or funded through this strategy, in addition to data generated through mandatory reporting processes such as protected area condition assessments and the Water Framework Directive, are made publicly available as standard, alongside clear metadata, and methodological descriptions, following the FAIR principles (Findable, Accessible, Interoperable, Reusable). Data should be shared at an appropriate spatial and thematic resolution, as excessive aggregation can significantly limit its usefulness for local action and independent analysis. Concerns that data may be 'misunderstood' or 'misused', or that users may not fully understand how data were collected, are not sufficient justification for restricting access. These issues should be addressed through transparency and supporting information, rather than withholding data.

Without a firm commitment to data sharing, the ambition to build "*strong, integrated evidence and knowledge to enable action*" cannot be achieved. Open access to data is essential for collaboration, independent scrutiny, innovation, and for enabling communities, NGOs, and delivery partners to meaningfully engage with and contribute to nature recovery.

16. Do you have any other comments about Strategic Objective 5?

Yes

Please provide further detail to support your answer

A more robust and accountable monitoring system needs to be in place, one that can correctly and confidently identify areas that are genuinely in favourable condition, but also detect the first signs of decline in sufficient time to allow a meaningful management response. Early detection is critical: the sooner decline is identified, the greater the chance of halting or reversing it. Much of the monitoring data currently available appears to be based on extrapolation from a limited number of survey points, which raises serious questions about confidence and representativeness (see, for example, the latest Habitats Regulations Reports).

Monitoring methods must be appropriate and suited to the specific habitat or species being assessed and should actively utilise new technologies that improve data coverage, resolution and interpretation. This includes remote sensing data processing pipelines, marine imaging, and environmental DNA (eDNA) techniques, all of which offer significant potential to improve the quality, frequency and spatial extent of monitoring in Northern Ireland.

The consequences of poorly chosen monitoring methods are not merely technical, they can result in habitats in serious decline being misreported as recovering, with management responses delayed or absent as a result. A clear example of this is the *Modiolus modiolus* biogenic reef in Strangford Lough, a key Northern Ireland priority habitat, which was erroneously reported as "recovering" in the DAERA Habitats Regulations Report (Explanatory Note 6.1, p.137). The monitoring tool used (BH3a) relied on fishing vessel ping data as a proxy for disturbance; because the area is a restricted zone with no vessel activity, the absence of pings was interpreted as indicating good condition. This is a fundamental methodological flaw. All other available evidence indicates that this habitat is in fact in unfavourable, i.e. bad, condition. This example illustrates why monitoring methods must be independently scrutinised, validated against multiple lines of evidence, and updated where they are demonstrably unfit for purpose.

17. Are you aware of any other existing targets for nature recovery that may help deliver for SO1 – SO5 that you feel have been omitted from this draft strategy?

Yes

Please provide further detail to support your answer

The Northern Ireland Blue Carbon Action Plan – see response to question 8.
The Nutrient Action Programme – see response to question 11.