

RSE

*The Royal Society
of Edinburgh*

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Scottish Biodiversity Strategy



Summary

The Royal Society of Edinburgh (RSE), Scotland's National Academy, welcomes the opportunity to respond to the Scottish Government's consultation on a draft Scottish Biodiversity Strategy. There is increasing global recognition of the 'twin crises' of climate change and biodiversity loss, and Scotland has already set bold net zero targets, ushering in the need to impose correspondingly rigorous biodiversity protections. Scotland's natural environment is internationally renowned and yet many of its species and habitats are in notable decline, reaffirming the importance of a coordinated and deliverable approach to managing biodiversity. While we are supportive of the Strategy in principle, the RSE is concerned that 1) it **defers the question of delivery too far into the future**, at which point it may be too late, difficult, or costly to achieve its vision of 'substantially restored and regenerated biodiversity across [Scotland's] land, freshwater, and seas' by 2045; and 2) **it lacks an actionable and focused framework for delivery**. Such a framework must be founded on the following essential criteria: a baseline; a timeframe; a target; an appropriately costed action plan; an analysis of how these actions will deliver benefits; clear lines of accountability; recourse to legal enforcement; and regular and transparent monitoring. Many of these principles are reflected in Scottish Government's recently published Principles for Programme and Project Management¹ and in recent papers on mechanisms for achieving measurable biodiversity gain.²

While the Strategy's vision for biodiversity is necessary and laudable, it will remain unrealised in the absence of a **clearly articulated, measurable, and enforceable delivery plan**. On the topic of delivery, there should be an **unequivocal commitment to the co-production of delivery mechanisms with local communities**.

There is a need for an early formulation of changes to key policies and delivery instruments which most affect biodiversity - including across the agriculture, forestry and renewable energy sectors - to ensure that the Strategy will translate into tangible benefits for biodiversity.

¹ <https://www.gov.scot/publications/scottish-governments-principles-programme-project-management/>.

² <https://www.nature.com/articles/s41559-022-01845-5>.

Summary (continued)

Scotland's terrestrial and marine environments host a mosaic of differing - and sometimes competing – activities. **While no 'one size fits all' approach to biodiversity management will suffice, it will be important to achieve consensus around a set of key management principles and outcomes if Scotland is to successfully reconcile these competing land and marine uses for the benefit of biodiversity.** Unless we can achieve synergies between different land uses, policies, and funding mechanisms, biodiversity protection will remain fragmented in practice.

We would urge the development of a **formal, structured, and professionally managed programme office and programme governance approach.**

While legislation on its own cannot produce the sweeping mindset change necessary to achieve broad societal buy-in, it can nevertheless be a rapid and effective mechanism for halting destructive practices and for assuring accountability.

An effective Strategy will depend on the availability of **high-quality, consistent, accurate, and spatially and historically contextualised monitoring data** so that the impacts of any delivery measures are quickly understood.

Introduction

1. The Royal Society of Edinburgh (RSE), Scotland's National Academy, welcomes the opportunity to respond to the Scottish Government's consultation on a draft Scottish Biodiversity Strategy. There is increasing global recognition of the 'twin crises' of climate change and biodiversity loss, and Scotland has already set bold net zero targets, ushering in the need to impose correspondingly rigorous biodiversity protections. Scotland's natural environment is internationally renowned and yet many of its species and habitats are in notable decline, reaffirming the importance of a coordinated and deliverable approach to managing biodiversity. While we are supportive of the Strategy in principle, the RSE is concerned that 1) it **defers the question of delivery too far into the future**, at which point it may be too late, difficult, or costly to achieve its vision of 'substantially restored and regenerated biodiversity across [Scotland's] land, freshwater, and seas' by 2045; and 2) it **lacks an actionable and focused framework for delivery**. Such a framework must be founded on the following essential criteria: a baseline; a timeframe; a target; an appropriately costed action plan; an analysis of how these actions will deliver benefits; clear lines of accountability; recourse to legal enforcement; and regular and transparent monitoring. Many of these principles are reflected in Scottish Government's recently published Principles for Programme and Project Management¹ and in recent papers on mechanisms for achieving measurable biodiversity gain.²
2. This response was prepared by a group of Fellows and Young Academy of Scotland members who specialise in biodiversity research and various aspects of environmental science and policy. The RSE would be pleased to discuss this response with the Scottish Government and to offer its cross-disciplinary expertise to inform any subsequent activities or policy development in this area.

Overarching points

3. The RSE has elected to focus its response on a selection of **key points which we believe underpin the entirety of the Strategy and which will determine its efficacy in practice**. These are most applicable to the questions presented under sections 4 and 5, 'How Will We Know When We Have Succeeded' and 'Conditions for Success.' Any outstanding points are presented in the following preamble.
4. Overall, the RSE is supportive of the Strategy's vision, outcome statements, and milestones. **The majority of our commentary centres on the need for an early formulation of changes to key policies and delivery instruments which most affect biodiversity - including across the agriculture, forestry and renewable energy sectors** - to ensure that the Strategy will translate into tangible benefits for biodiversity.
5. It is also our view that the Strategy does not take appropriate ownership of its stated objectives, relying too heavily on anticipated 'transformative economic and social change' and a 'fundamental, society-wide shift to sustainable consumption and production.' While these changes are indeed integral to tackling the joint climate and biodiversity crisis, **there is a high priority need for immediate and potentially dramatic action by Scottish Government to mitigate and appropriately legislate against drivers of biodiversity loss**.

¹ <https://www.gov.scot/publications/scottish-governments-principles-programme-project-management/>.

² <https://www.nature.com/articles/s41559-022-01845-5>.

4. How Will We Know When We Have Succeeded?

Questions:

- *To what extent will these outcomes deliver the Vision?*
- *What might be missing?*
- *What evidence and information should we use to assess whether we have delivered the Vision?*

5. The Conditions for Success

Questions:

- *Have we captured the key enabling factors which are essential in order for our strategy to be successful?*
- *Are there good examples of enabling conditions in other strategies we could learn from?*

Delivery

6. While the Strategy's vision for biodiversity is necessary and laudable, it will remain unrealised in the absence of a **clearly articulated, measurable, and enforceable delivery plan**. Although delivery plans are understood to be forthcoming, there is a risk that postponing any serious considerations of delivery to a future date could undermine the aspirations of the Strategy if said plans are not commensurate with the ambition of the Strategy. In other words, we could underestimate the challenge of delivering the Strategy if its aspirations are not immediately considered in the context of their implementation. We would urge a stronger consideration of delivery across all relevant land and marine policies at this stage to ensure that the true scale and scope of the Strategy's implementation is appreciated. This includes presenting some valuation of the associated financial costs to confirm the feasibility of any implementation activities.

7. Scotland's land hosts a mosaic of differing - and sometimes competing - activities, including agriculture, livestock production, forestry, hunting, tourism, recreation, nature conservation, and development. Land ownership is also largely concentrated across a small number of very large estates, many of which are managed (to some degree) for commercial purposes. Scotland's marine environment is six times larger than its land area and fulfils a similarly wide array of functions. Further, research suggests that marine habitats are experiencing biodiversity change at a faster rate than terrestrial environments.³ Given this complexity, it is apparent that no 'one size fits all' approach to biodiversity management will suffice. That said, **it will be important to achieve consensus around a set of key management principles and outcomes if Scotland is to successfully reconcile these competing land and marine uses for the benefit of biodiversity**. Although protected areas will remain a central measure for mitigating biodiversity loss – and indeed the Biodiversity Strategy Statement of Intent outlined a welcome commitment to increasing their spatial extent to at least 30% of Scotland's land area by 2030 – they alone cannot begin to tackle the magnitude of the biodiversity crisis. For example, we were surprised that the consultation document does not mention the pervasive issue of illegal bird of prey killing on managed grouse moors. **Unless we can achieve synergies between different land uses, policies, and funding mechanisms, biodiversity protection will remain fragmented in practice**. For example, while the Strategy lists related policies such as the Environment Strategy and the Forestry Strategy 2019-2029 to illustrate the Biodiversity Strategy's wider policy context, it does not indicate how these Strategies interact with one another to fulfil mutual aims. In addition, several key policies – such as the Land Use Strategy and the Fourth National Planning Framework⁴ – are not mentioned at all. Mapping the various interlinkages and indeed interdependencies across the present policy landscape would aid in determining where the greatest impacts could be delivered by appropriately coordinating delivery and investment, while also reducing or avoiding unintended negative consequences for biodiversity.

8. There is scope to consider whether existing management structures, including River Basin Management Plans or Regional Land Use Partnerships, could be capitalised upon to deliver biodiversity benefits alongside their intended outcomes. Any macroscale management structure must also be appropriately anchored in regional and localised delivery.

³ <https://www.science.org/doi/abs/10.1126/science.aaw1620>.

⁴ <https://rse.org.uk/expert-advice/advice-paper/fourth-national-planning-framework-npf4/>.

9. The agroforestry sector (both domestically and within Europe) could provide a useful precedent in terms of how public payments and incentives can be deployed to deliver environmental enhancement on a national scale across a diverse range of stakeholders.

These programmes can generate proven biodiversity benefits provided that their management measures are evidence-based, geographically targeted, and focused on clearly articulated outcomes. Scotland is still in the midst of devising a replacement for the Common Agricultural Policy and the land reform agenda remains a live issue; both of these developments provide a significant opportunity to link funding and grant schemes with biodiversity targets.

Accountability

10. We would urge the development of a **formal, structured, and professionally managed programme office and programme governance approach**. Similar to its response to the House of Lords Science and Technology Committee's inquiry into delivering a science and technology strategy for the UK, the RSE is 'supportive of responsibility resting with a **single appointed individual** with the requisite background, experience and level of authority so that responsibility... is not diluted across a large department which could make it difficult to ensure accountability.'⁵

11. While the RSE welcomes reference to a **high-level strategic** forum led by a Minister, it wonders whether it would be more impactful to assign this remit to an appropriate **Cabinet Secretary**. This would ensure that biodiversity is granted influential representation at the senior government level and situate it within a more holistic portfolio that could help overcome siloed implementation. In place of such a forum, a **programme board**, to which the responsible individual reports, could also oversee delivery and offer a more formalised means of guaranteeing accountability.

12. Relevant **non-departmental public bodies** have a critical role to play in enabling action and should be resourced accordingly.

13. Accountability should also mean **evaluation as well as delegation**. The question of evaluation is further explored under the 'Monitoring and evaluation' heading.

Legislative levers

14. There is surprisingly only one mention of the anticipated **Natural Environment Bill** in the Strategy. The Bill is expected to be introduced in year three of this parliamentary session and will apply a legal framework to the restoration and protection of biodiversity in Scotland, including through the setting of targets. It is important that the Strategy already signals the need for a robust and far-reaching legislative structure to uphold its ambitious vision.

15. Scotland is also beholden to 'keep pace' with future EU legislation where appropriate, by way of the **UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021**. EU policies around biodiversity (such as the EU Biodiversity Strategy for 2030) are recognised for their comprehensiveness and potency, and we would expect Scottish biodiversity laws to strive towards a similarly exacting standard. If Scotland is to effectively address the dual climate-biodiversity crisis, it must afford its natural environment the same stringent protections as are contained within corresponding climate change legislation.

16. While legislation on its own cannot produce the sweeping mindset change necessary to achieve broad societal buy-in, it can nevertheless be a rapid and effective mechanism for halting destructive practices and for assuring accountability. For instance, there are many notable global examples of legislative bans on polluting substances which have delivered significant benefits for biodiversity, such as prohibiting the use of certain pesticides to protect pollinators. Scotland should consider opportunities where such legal interventions might produce rapid and appreciable gains in biodiversity outcomes and aid in enforcement.

⁵ <https://rse.org.uk/expert-advice/advice-paper/delivering-a-science-and-technology-strategy-for-the-uk/>.

Monitoring and evaluation

17. On the topic of monitoring and evaluation, the document does acknowledge Scotland's lack of progress in halting biodiversity decline since the Strategy's inception in 2004, despite some noted successes.⁶ Unfortunately, the document offers **limited reflection on the factors that may have contributed to this outcome and how they may be mitigated or avoided in the present iteration of the Strategy.** This is particularly concerning as one of the cited reasons is 'key shortcomings relating to governance and accountability structures and mechanisms for mainstreaming biodiversity into all areas of policy, including economic policy making'; as this response makes clear, the RSE considers accountability to be one of the most critical aspects of the Strategy and so strongly recommends that past failures in this regard must be thoroughly understood and rectified. Although the Strategy sets out goals for 2030 and 2045, we would have expected to see further interim evaluation points to regularly gauge progress and allow for early course correction.

18. An effective Strategy will depend on the availability of **high-quality, consistent, accurate, and spatially and historically contextualised monitoring data** so that the impacts of any delivery measures are quickly understood. Technology to monitor biodiversity has become much more sophisticated in recent years, and the Strategy should look to capitalise on the new opportunities afforded by these advances and leverage the considerable domestic expertise that exists in this space. For example, environmental DNA ('eDNA'), advanced tracking technologies, and remote sensing (including through the use of satellites and drones) can offer powerful insights into biodiversity health and functioning. Despite the UK's departure from the European Union, it will be important that **domestic monitoring regimes are synchronised with monitoring activity in mainland Europe and further abroad,** to build a more comprehensive and reliable picture of how Scotland's biodiversity is faring in both relative and absolute terms.⁷ Indeed, we would have welcomed some **recognition of the regional and global context** in which Scotland's biodiversity inextricably lies. Actions taken domestically will likely have transboundary repercussions and vice versa, especially for highly mobile species and those for whom Scotland is a particularly significant habitat.

19. Despite the obvious role for more refined monitoring, **citizen science** programmes provide an affordable means of gathering valuable data. These programmes can also be extremely educational and rewarding for participants, helping to instil an enduring regard for the natural world that can manifest as more environmentally conscious attitudes and behaviours and thus be an important instrument in bringing about the type of cultural shifts mentioned in the Strategy. The Scottish Biodiversity Information Forum has been campaigning for actions that could be taken to resource and coordinate the voluntary collection of biodiversity data across Scotland.⁸

20. It bears mentioning that **many biodiversity assessments are taxonomically biased** in favour of certain organisms, such as birds and fish. While it is essential that we continue gathering data on these groups, we should also consider how to build a more taxonomically representative evidence base that covers understudied species, providing a richer and more accurate indication of biodiversity status. This could also include the introduction (or greater prevalence) of assessments at the ecosystem scale.

21. We would encourage the **use of multiple metrics** of biodiversity health. Indices and indicators are useful under the right circumstances, but they can also easily be misinterpreted to give a false or misleading picture of prevailing trends, particularly if the underlying data are not transparently presented. For example, in the case of indices, it can be difficult to discern species-specific patterns that may differ from the overall trend. In addition, the associated timescales can be arbitrary or dictated by the available data, potentially obscuring longer-term trends. This also highlights the need for balanced reporting of biodiversity trends, continuous improvement of statistical methodology and approaches, and data transparency.

22. We would recommend that the role of **Environmental Standards Scotland in providing an independent review and monitoring function** be explored, given its responsibility for scrutinising environmental compliance. This could be entrenched within a formal statutory responsibility if appropriate.

⁶ For example, these include rebounds in corncrake and corn bunting populations in Scotland through agri-environment schemes.

⁷ <https://europabon.org/>.

⁸ <https://nbn.org.uk/about-us/where-we-are/in-scotland/the-sbif-review/>.

23. The **Endangered Landscapes Programme**⁹ and its Scotland-specific project, **Cairngorms Connect**¹⁰, could provide a useful case study of a project where a commitment to regular monitoring has been implicit to its design and governance.

24. Biodiversity is often regarded as inherently valuable and worthy of protection. Unfortunately, as public resources are becoming increasingly constrained, decisions will need to be taken on the basis of practicality. Indeed, a recent estimate by the Green Finance Institute places the investment gap for nature restoration over the next decade at over £20 billion, highlighting the scale of additional investment that will be required. **In the first instance, Scotland should prioritise those actions which promise wider benefits (such as carbon sequestration or climate change adaptation) and which are centred on species or communities of international biological importance.** For example, actions such as wetland creation, coastline adjustment, and the expansion of seagrass beds can all yield multiple benefits for biodiversity and climate change mitigation at a reasonable cost. Similarly, Scotland is home to a number of globally significant seabird populations, including 60% of the world's great skuas and 46% of breeding gannets, and so actions targeted at these seabirds could be particularly impactful.

25. On the topic of delivery, there should be an **unequivocal commitment to the co-production of delivery mechanisms with local communities.** Scotland's natural environment is geographically diverse and the vast majority (95%) of its land mass is classified as rural and designated for a variety of purposes. The marine environment is similarly composite and subject to increasing competition for finite space and resources. It will be impossible to achieve the objectives of the Strategy if these stakeholders are not empowered to contribute to the solutions that will directly impact their lives and livelihoods.¹¹ The implementation of the Peatland Management Schemes is one example where effective community engagement led to widespread buy-in and positive environmental outcomes.

Additional information

26. Any enquiries about this advice paper should be addressed to Daria Tuhtar, Policy Manager, at dtuhtar@theRSE.org.uk.

⁹ <https://www.endangeredlandscapes.org/>.

¹⁰ <http://cairngormsconnect.org.uk/>.

¹¹ Dave Coulson offers a useful account of facilitating multi-stakeholder collaboration in the context of protecting pollinators. <https://www.the-tls.co.uk/articles/silent-earth-dave-goulson-book-review-barbara-j-king/>.



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