

Securing a Sustainable Future: Environmental Principles, Governance and Biodiversity targets for a Greener Wales: Draft Regulatory Impact Assessment

The draft RIA sets out an initial cost and benefit assessment of options to embed environmental principles within Welsh law, establish an environmental governance body, and introduce statutory biodiversity targets.

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Introduction

Summary of Bill Outcomes

1. This is a draft Regulatory Impact Assessment (RIA) supporting the white paper consultation “Securing a Sustainable Future: Environmental Principles, Governance and Biodiversity targets for a Greener Wales“, which sets out legislative proposals to further maintain and enhance our natural environment for the benefit of future generations across three key areas:
 - A. Embedding environmental principles into Welsh law;
 - B. Environmental Governance, including the establishment of an environmental governance body for Wales; and
 - C. A statutory targets framework to protect and restore biodiversity in Wales.
2. The proposals have been informed by previous consultation and engagement, including a [2019 public consultation](#) exercise, [a 2020 task and finish group](#) report, as well the establishment of the [Interim Environmental Protection Assessor for Wales](#) (IEPAW) and regular stakeholder engagement. The white paper seeks to build on this engagement through articulating clear proposals for public consultation.
3. This draft RIA sets out an initial cost and benefit assessment of the options and is a developing document. We are seeking additional and alternative evidence to help inform the final assessment which will form part of an explanatory memorandum published alongside any future Bill.

Why is primary legislation required?

4. The policy proposals set out in the White paper require primary legislation:
 - The **environmental principles** proposals seek to re-embed 5 core principles into the Welsh statute book, which includes integration, precautionary, preventative, polluter pays and rectification at source. Previously these principles were established in the UK via EU legislation and are no longer applicable in Wales since EU exit. Primary legislation is therefore required to embed these principles on a statutory footing within Wales.
 - The primary purpose of the proposed **environmental governance body** will be to provide oversight of the implementation of, and compliance with, environmental law in Wales by Welsh public authorities. They will need to be established in statute to be provided with the necessary functions in legislation that will enable them to advise, investigate and enforce effectively.
 - The approach to establish **biodiversity targets** will include a headline nature positive target ‘to reverse the decline in biodiversity with an improvement in the status of species and ecosystems by 2030 and their clear recovery by 2050’ aimed at driving ambition and actions to tackle the nature emergency. This will be further supported through:

- a duty on Welsh Ministers to set a suite of statutory supporting biodiversity targets. through secondary legislation to support the headline nature positive target, as well as powers to include interim targets and amend, revoke or replace the biodiversity targets to address the nature emergency.
 - Strengthening of implementation, monitoring and reporting of the targets.
 - a duty for the Welsh Ministers to make a statutory long-term Wales Biodiversity Strategy and Action Plan setting out how our biodiversity targets will be delivered.
 - a duty on key public authorities to ensure they contribute to the delivery of the biodiversity targets.
5. This approach will support the commitments in the Programme for Government and Co-operation Agreement to “work towards the establishment of an Environmental Governance Body, a statutory duty and targets to protect and restore biodiversity”. The First Minister also committed in his June 2023 legislative statement to bring a White Paper forward by January 2024 and a Bill to establish an environmental governance body for Wales, during this Senedd term
6. Further consideration of the rationale for legislation, and the assessment of cost / benefit, is provided within the relevant section.

Part A – Environmental Principles

Summary Of Proposals

1. Since leaving the EU, the role of EU environmental principles has changed, and the environmental governance structures no longer apply in Wales. During the previous Senedd term the Welsh Government sought views on how to provide Wales with an effective environmental governance framework that built upon the frameworks contained within the Environment (Wales) Act 2016 (Environment Wales Act) and the Well-being of Future Generations (Wales) Act 2015 (Future Generations Act).
2. Respondents to the 2019 consultation were strongly in favour of bringing forward a set of environmental principles to guide the development of Welsh environmental law. Most respondents supported the inclusion of the four EU environmental principles: precautionary, prevention, rectification at source, and polluter pays. Additional principles were suggested by some, many referencing the integration requirement found under the EU framework.
3. These points were supported by the 2020 Task Group, who recommended the four EU environmental principles (precautionary, prevention, rectification at source and polluter pays) should be provided for in Welsh legislation and that the interactions between environmental policy and other policy areas should be explicitly recognised (i.e. through a principle of integration).
4. Consultation respondents also felt that the principles should be clearly established within its own legislation as part of a foundational approach, rather than through amending of existing legislation. The Task Group concurred, considering the Environment Wales Act was not a framework for environmental governance, but that it should be viewed as a blueprint for sustainable management of natural resources that may be developed over time. They concluded the preferred way to embed the EU environmental principles would be to provide for them in a way that allowed for a more systemic approach which avoided overcomplicating existing legislation. The Task Group also recommended that a duty be imposed upon Welsh Ministers to apply these environmental principles in the development of policies and legislation.
5. The then Minister for Rural Affairs, Energy and the Environment accepted those recommendations and also, in principle, accepted a recommendation to explore the extension of the sustainable management of natural resources duty to other public bodies as a separate matter.
6. Further, in 2021 the UK and Scottish Parliaments enacted legislation to incorporate environmental principles, to apply in England, Scotland and Northern Ireland. The Welsh Government is yet to introduce comparable legislation in the Senedd, which means the environmental principles are not directly incorporated into Welsh law. This has resulted in a “principles gap” in Wales.
7. This background forms the basis of our proposals, which are summarised as:

- a) Embed the five EU-derived environmental principles into Welsh legislation
 - i. Integration
 - ii. Precautionary
 - iii. That preventative action should be taken
 - iv. That environmental damage should as a priority be rectified at source,
 - v. That the polluter should pay.
 - b) Introduce a Duty on Welsh Ministers to publish guidance to explain how the environmental principles are intended to be interpreted
 - c) Introduce a Duty on Welsh Ministers to have due regard to the environmental principles and the accompanying guidance during the development of its policies and legislation.
8. We are inviting stakeholder views on these proposals through the white paper's public consultation exercise. Our options appraisal will therefore reflect the output of this exercise, but our analysis and thinking to date is demonstrated in the next sections.

Options Appraisal

Option 1 – Business as usual (BAU)

9. Under this option the environmental principles would not be reflected in Welsh law. This would mean that the UK 'principles gap' would not be addressed, environmental protections could be weaker in Wales, and any EU law 'assimilated' into the UK that refers to environmental principles could become inoperable in Wales.

Costs

10. Option 1 would maintain the position as it currently stands. There would be no direct costs associated. However, the lack of environmental principles could become costly over time due to the likelihood of increased challenge at the courts of operational decision making under assimilated law, given the ambiguity of how the principles would apply in the UK.

Benefits

11. There would be no benefits to pursuing option 1. However, potential disbenefits could include:
- Greater risk of legal challenge over operational decision making under assimilated law
 - Not aligned or cohesive with the Welsh Government's wider environmental ambitions
 - Reference to environmental principles is contained within the UK-EU Trade and Continuity Agreement (TCA). It could be possible that the UK

Government would require Wales to embed the principles in order to meet the commitments of the TCA.

Option 2 – Principles only

12. Under this option, the principles would be reintroduced to the Welsh statute book, but there would not be a duty on Welsh Ministers or public bodies to give 'due regard' to the principles.

Costs

13. Option 2 would have limited financial implications, incurring only the administrative costs with enacting legislation through the Senedd,

Benefits

14. This primary benefit of pursuing option 2 is that it would address the UK principles gap and mitigate the risk of assimilated law-making reference to environmental principles that do not exist within Welsh law.

15. This approach would also mean that future policy and legislation could be made in a way that directly refers to the principles. However, it will stop short of the status quo in Wales in place before we left the EU, as it will not explicitly require the equivalent of a member state to give regard to the principles when making policy decisions.

Option 3 – Duty on Welsh Ministers to regard (Preferred Option)

16. In addition to embedding the principles, option 3 considers placing a duty onto Welsh ministers to give due regard to the principles (and any accompanying guidance) during the development of their policies and legislation. This purpose of this will be to ensure that on a statutory basis, future policies and legislation will be developed with due regard to the principles.

Costs

17. Option 3 would have minor additional financial implications. In addition to the administrative costs with enacting legislation through the Senedd, Welsh Ministers will need to demonstrate how they have regarded the environmental principles through the development of their policies.

18. The duty applies when making policy and in practice policymaking is typically undertaken by Welsh Government departments on behalf of Ministerial direction, whereby advice is then submitted for consideration and a decision.

19. In this context, resources such as training and guidance will need to be made available to policy departments to ensure they are able to demonstrate they have complied with this duty. Further, amendments to ministerial advice templates could be made to ensure all policy decisions have rightly accounted for this duty.

20. These administrative costs are difficult to quantify but are expected to be minimal on the basis that it could be embedded within existing policy making structures and practices. Further analysis will be undertaken to reflect these costs as the RIA is developed.
21. Additionally, the environmental governance body proposed through the White paper will have a role in assessing compliance with environmental law, which will include the duty to regard principles. As this option only applies to the Welsh Ministers, this would not require significant monitoring on their part and is not considered to apply a substantive associated cost risk for the body itself.

Benefits

22. Enshrining the principles in law and then placing a duty on Welsh Ministers to give regard to them would effectively address the principles gap and provide a return the status quo in Wales in place before we left the EU. By placing this duty on Welsh Ministers, any future policy and legislation will be unambiguously underpinned by the environmental principles. This approach better aligns with Wales's wider environmental ambitions and priorities, especially in the context of the Senedd's declared nature and climate crises.
23. This approach would ensure that environmental principles are underpinning policy at a strategic level – i.e. by the Welsh Government. However, a potential disbenefit could be that it might not directly apply to more 'local level' decisions made by local authorities, public bodies etc.

Option 4 – Duty on Welsh Public Bodies

24. Under option 4, we are considering expanding on the previous options by introducing the principles and placing a duty on both Welsh Ministers **and relevant public authorities** to give regard to the principles (and any accompanying guidance) during the development of their policies and legislation.
25. We have considered whether, and if so how, a duty should be placed on Welsh public bodies to apply the environmental principles and the accompanying guidance.

Costs

26. Option 4 would have additional financial implications. In addition to the administrative costs with enacting legislation through the Senedd, both the Welsh Ministers and each relevant public authority would need to demonstrate how they have regarded the environmental principles through the development of their policies.

27. The duty applies when making policy, and within Welsh Government, in practice policymaking is typically undertaken by Welsh Government departments on behalf of Ministerial direction, whereby advice is then submitted for consideration and a decision. For other public authorities, policy making approaches are more variable and will be difficult to be codified through a single 'one size fits all' approach.
28. As with the option for Welsh Ministers, using resources such as training and guidance can help ensure organisations are able to demonstrate they have complied with this duty. However, as this will be applied against a multitude of public bodies there is a notable chance of duplication of effort and potentially significant administrative costs when considered against the 50+ organisations (considered in Annex 2 of the white paper) which could be in scope.
29. These administrative costs are difficult to quantify but, if embedded within existing policy making structures and practices, could be minimal.
30. Additionally, the environmental governance body proposed through the White paper will have a role in assessing compliance with environmental law, which will include the duty to regard principles. As this option only applies to both the Welsh Ministers and 50+ Welsh public authorities, this would require significant monitoring on their part to ensure each body were complying with this element of environmental law.
31. Further discussion will be held with relevant Welsh public authorities throughout the consultation period to establish the estimated costs of this option.

Benefits

32. The primary benefit of applying a duty to regard the principles onto Welsh public authorities would mean that the principles could be regarded at a more local level of decision-making. For example, local authorities when developing planning or housing policies will have to consider a wide range of environmental legislation and regulations, many of which are built from the foundation of the principles. Through option 4, they would also have to consider the five principles themselves as part of the decision making process.
33. As applying the duty on Welsh Ministers Welsh Ministers proposed under option 3 would mean the environmental principles will be applied at the strategic policy-making stage, it is considered this should cascade into operational policy and delivery by sitting at the highest level. Welsh Government will already have a form of oversight over the relevant Welsh public authorities, and the legislation and regulations which public authorities will need to consider when making decisions will have been made having given regard to the principles. It may therefore be disproportionate to place a duty on public bodies, even other public policy-making bodies to apply the environmental principles where there is already governmental oversight.
34. In this context it is also difficult to assess the benefits of applying the principles at a 'lower level' of decision making. When paired with the unknown and duplicative administration costs for both the authorities and the proposed governance body,

this option contains substantive risk with limited evidence as to its benefit at the present time.

Conclusion

35. Based on the options identified, we have concluded that the preferred option is Option 3, which would mean embedding the five principles within the Welsh statute book and placing a duty on Welsh Ministers to give regard to these principles.
36. On the balance of risk, we consider this would achieve the primary objectives of the policy by ensuring that the environmental are at the heart of Welsh Government policy and decision-making. This would exceed the pre-Brexit status quo by virtue of being specifically applied in the Welsh context, and Welsh Ministers would need to have a demonstrative process to evidence their compliance with this duty.
37. Option 4 considers extending this further to relevant public authorities (as listed in Annex 2 of the White paper). Whilst analysis to date shows this would have limited benefit and potentially high administrative costs, more evidence is needed to consider this comprehensively. We will engage specifically with stakeholders on this point through both the White paper consultation, as well as targeted engagement with the potentially impacted bodies.

Part B – Environmental Governance Body

Background to the Governance Body Proposals

1. Prior to leaving the EU, the European Commission monitored the implementation of, and compliance with, EU law by the UK. If the UK had failed to fulfil its obligations under EU law, then the European Commission had the power to investigate and could take enforcement action. This supported compliance with environmental law obligations because much of the environmental law in Wales was either transposed, or directly effective, EU law.
2. Following the UK's exit from the EU, the European Commission no longer has this oversight role in the UK. Post-EU environmental governance arrangements were considered in depth during the 2019 consultation and particular focus was placed upon developing an independent supervisory body to oversee the implementation of, and compliance with, environmental law in Wales.
3. The 2019 consultation sought views on the purpose, objectives, and functions of such a body, including ambitious objectives which would be applied to a wide range of Welsh public authorities. There was clear endorsement of both the approach and level of ambition from consultation respondents, and these proposals were shaped further by the Task Group in 2020. Further, the opportunity to reinstate as well as enhance this oversight over environmental law since Brexit was clearly understood by respondents and strengthened the case to establish a new governance body for Wales.
4. This case for change has been further enhanced through the ongoing work of the IEPAW. The IEPAW has carried out a valuable role in relation to the functioning of environmental law in Wales, but their remit and powers fall short of the arrangements that existed previously under the EU environmental governance framework. In particular, the IEPAW does not have statutory investigation and enforcement powers to address complaints about compliance with environmental law by public authorities.
5. After the 2019 consultation and Task Group in 2020, two new environmental governance bodies have been established elsewhere in the UK:
 - The **Office for Environmental Protection (OEP)**, established by the Environment Act 2021, is an independent non-departmental public body sponsored by the Department for Environment, Food and Rural Affairs (Defra). It provides oversight of public authorities in England and Northern Ireland, and non-devolved public authorities in Wales, and monitors whether such public authorities are complying with environmental law.
 - **Environmental Standards Scotland (ESS)**, established by the UK Withdrawal from the European Union (Continuity) (Scotland) Act 2021, is an independent non-departmental public body that scrutinises, investigates, and seeks to secure improvements in the effectiveness of,

and compliance with, environmental law by public authorities in Scotland. ESS also provides advice and guidance to the Scottish Government on environmental policy.

6. It is in this context that we are proposing to establish a statutory environmental governance body for Wales ("the governance body") through legislation. The governance body will help maintain and enhance high standards of environmental protection by overseeing the implementation of, and compliance with, environmental law in Wales by Welsh public authorities.

Summary of proposals

7. The primary purpose of the governance body will be to provide oversight of the implementation of, and compliance with, environmental law in Wales by Welsh public authorities.
8. In pursuit of this purpose, the Welsh Government considers the governance body should be defined by a clear framework. We therefore propose that the governance body should:
 - a. Monitor and advise the Welsh Ministers on the development of environmental law and policy in Wales.
 - b. Receive complaints / representations from the public as to alleged failures to comply with environmental law by Welsh public authorities.
 - c. Monitor Welsh Ministers and Welsh public authorities' implementation of, and compliance with, environmental law. This includes investigating alleged failures to comply and, where necessary, taking enforcement action.
 - d. Provide independent scrutiny and oversight of the delivery of any statutory environmental targets set by Welsh Ministers (such as the new biodiversity target framework proposed by this Bill).
 - e. Provide expert advice, as it deems necessary, to Welsh Ministers and Welsh public authorities in relation to environmental law.
 - f. Embrace a forward looking and preventative approach, promoting early detection, assessment and pro-active intervention against emerging risks relating to the environment in the context of the functioning and effective implementation of environmental law.
 - g. Exercise its functions independently from Welsh Government and with impartiality.
 - h. Work constructively to complement and be compatible with existing public bodies established to monitor, scrutinise, advise or hold Welsh public authorities to account, including the Public Services Ombudsman for Wales
 - i. Where appropriate, work collaboratively on areas of shared interest in respect of the functioning and effective implementation of environmental law, with the OEP and ESS.
 - j. Draw on practice within the European Union, while recognising the distinct legislative framework applying in Wales.

9. We have considered various options which could deliver on this purpose, guided by criteria for assessment which has been developed in collaboration with stakeholders following previous consultation and engagement.

Criteria for the assessment of future environmental governance model

10. Based on the framework above, we have we have identified a number of core functions that will be needed in order to deliver effectively against this framework. These include:
- a. Monitoring and reporting - Gathering data, reporting annually and case-by-case, and evaluating the effectiveness of existing environmental law in Wales
 - b. Scrutiny of targets - Monitoring statutory targets as they relate to environmental legislation, reporting regularly, including through their annual report on how these targets are being met.
 - c. Providing advice - Advice to Welsh Ministers on changes to environmental law, wider policy and systematic compliance issues; or to Welsh public authorities following consideration of complaints that do not warrant a full investigation and / or where formal enforcement action may not be necessary.
 - d. Handling complaints / representations - Considering representations from the public around the functioning / implementation of environmental law as well as alleged breaches of such law by Welsh public authorities
 - e. Investigation - Powers to gather evidence and effectively investigate alleged non-compliance with environmental law by Welsh public authorities
 - f. Enforcement - Powers to enforce non-compliance with environmental law by Welsh public authorities, including escalation to the courts, judicial review and intervention in civil proceedings.
 - g. Partnership - Duties to work in partnership with relevant organisations; WFG Commissioner, OEP
11. Furthermore, responses to the 2019 consultation and the Stakeholder Task Group concluded:
- the role of existing accountability bodies in Wales should be retained. Any new environmental governance should not infringe on or duplicate the roles of existing bodies;
 - any new body would need to be independent of Welsh Government with appointments made by the Senedd;
 - it would require certainty of budget across an extended period of time, similar to the budgetary provision for the Wales Audit Office, provided by the Welsh Consolidated Fund;
 - the performance of the body should be audited by the Auditor General for Wales;
12. Additionally, a set of characteristics representing good governance were developed by the Task Group for the assessment of future form of the new body, which were as follows:

- Independence;
- Ability to discharge multiple functions;
- Fit within existing infrastructure;
- Whether legislation is required to proceed;
- Operability/end to end tracking;
- Adequate political capital
- Reach and operability
- Expertise;
- Effectiveness (not assessed at this stage).

We have considered the options for delivering this policy against the combined criteria of the functions to be held, the findings from previous consultation and the good governance characteristics identified by the task group.

Options appraisal

Option 1 – Business as usual (BAU)

13. A “BAU” approach would mean that the Welsh Government opts not to take measures to replace the EU Commission role in environmental governance, instead relying on existing Welsh legislation and oversight and regulatory bodies to ensure Wales retains a high level of environmental protection.
14. The 2019 consultation paper contained an overview of existing measures in Wales and advised that domestic primary legislation would remain in place post EU exit, meaning the gaps in Wales are not the same as those in other UK administrations. In addition, legislation has also been passed, which has significantly reformed bodies responsible for supporting the delivery of environmental legislation in Wales. In having a set of environmental principles and a different set of bodies, Wales already has a legislative framework in place to build upon.
15. In Wales, the existing governance framework already includes:
- Long-term objectives for the management of our natural resources to contribute to the long-term prosperity of Wales and its people – including seven well-being goals;
 - Placing our natural resources within the wider context of contributing to the seven well-being goals;
 - An integrated approach to managing natural resources, which recognises our natural resources underpin our economy and society;
 - An iterative framework to deliver the long-term objectives including an evidence base, strategic policy and an area-based approach to delivery;
 - Duties on Welsh Ministers to contribute and deliver the objectives;
 - A set of principles to guide how to deliver on the objectives and integrate into policy-making and delivery – this includes 5-ways of working (long-term; prevention; integration; collaboration; and involvement) and a set of environmental principles to support the sustainable management of natural resources; and

- A requirement for Public Bodies to contribute to the long-term objectives, and a Future Generations Commissioner – the guardian of future generations.
- We already have well established structures for holding public bodies to account, in particular the National Assembly for Wales, the Public Services Ombudsman and the Future Generations Commissioner. These bodies will continue to operate post exiting the EU.

16. This option considers the continuation of the IEPAW's role in relation to the functioning of environmental law in Wales, though it is recognized their remit and powers fall short of the arrangements that existed previously under the EU environmental governance framework. In particular, the IEPAW does not have statutory investigation and enforcement powers to address complaints about compliance with environmental law by public authorities.

Costs

17. There would be no additional financial implications in pursuing option 1, though it is expected the circa £600,000 per annum costs associated with the IEPAW would continue into the longer term.

Benefits / Risks

18. The following table provides a summary of the benefits and risks of a BAU option

Benefits	Risks
<ul style="list-style-type: none"> ✓ No cost implications ✓ No implementation required ✓ In place immediately ✓ No additional pressures on public sector resource 	<ul style="list-style-type: none"> ✗ Wales will have a lesser oversight for environmental governance than the rest of the UK; ✗ UKG could legislate on behalf of Wales, undermining devolution. ✗ May not satisfy future trade deal requirements ✗ Stakeholders unlikely to support ✗ Does not fill the governance gap or meet Welsh Government commitments

Option 2 – Provide existing bodies with functions

19. The following options were considered as part of the analysis to support the 2019 consultation and further considered by the Task Group. Consultation responses did not consider any one of the existing bodies would be able to undertake the types of accountability mechanisms required. However, they supported the role of existing accountability bodies in Wales being retained and agreed any new environmental governance measures should not infringe on or duplicate the roles of existing bodies.
20. This section considers the merits of the existing oversight bodies with the most potential to deliver the required levels of environmental governance.

Public Services Ombudsman for Wales

21. The Public Services Ombudsman for Wales ('PSOW') investigates complaints about public services and independent care providers in Wales, and is independent of all public bodies. The PSOW is appointed by the Queen following nomination from the Senedd.
22. The PSOW receives funding from the Welsh Consolidated Fund issued by the UK Government and scrutinised by the Senedd.
23. The PSOW has powers to receive complaints specifically in relation to harm against individuals, maladministration and the conduct of public bodies. The PSOW's investigatory powers allow for the investigation of complaints of maladministration in respect of a relevant action, or failures relating to a relevant service. In investigating complaints they can obtain evidence, and they have a duty to report on the conclusion of an investigation.
24. Enforcement powers are via formal report which can be issued by the PSO on breaches of the code of conduct.
25. Whilst individuals and organisations can complain about the delivery of environmental authorities to the PSOW, the work of the PSOW is not specifically focussed on environmental issues. It would be difficult to frame their investigatory powers to allow for the investigation of "serious" failures to comply with environmental law.
26. Under this model, existing Senedd scrutiny of policy effectiveness would be enhanced through additional reporting requirements. Individual cases raised by the public, NGOs and others would be considered by the PSOW.
27. Whilst it would be possible to amend the PSOW functions to allow them to investigate complaints about compliance with environmental law it would represent a fundamental change to its remit and character. The PSOW's focus is on investigating where the conduct of public bodies has caused harm to individuals. Moreover the PSOW does not at present take significant enforcement action – adding this function would again be a fundamental change. Finally adding the significant responsibility for environmental governance has the potential to cause an imbalance with their existing oversight responsibilities. It

should be noted that PSOW, in their response to the consultation, did not consider it appropriate for them to take on the environmental governance role.

28. Welsh primary legislation would be required to establish this model.

Audit General for Wales

29. The Auditor General for Wales (AGW) is the statutory external auditor of most of the Welsh public sector. This means that he audits the accounts of county and county borough councils, police, fire and rescue authorities, national parks and community councils, as well as the Welsh Government, its sponsored and related public bodies, the Senedd Commission and National Health Service bodies.

30. AGW is primarily concerned with audits and studies centred on economic efficiency and effectiveness. Audit Wales publishes reports, some of which are submitted to the Senedd.

31. They can carry out examinations of public bodies for the purposes of assessing the extent to which a body has acted in accordance with the sustainable development principle when setting well-being objectives, and taking steps to meet those objectives.

32. The AGW has no public complaints process, limited public enforcement involvement (local government aside) and would be able to undertake very few, if any, of the environmental governance functions. To confer new environmental governance functions on the AGW would be a significant departure from its current character, core practices and legislative arrangements.

33. Welsh primary legislation would be required to establish this model.

Future Generations Commissioner for Wales

34. The Future Generation Commissioner (FGC) was established under the Wellbeing of Future Generations (Wales) Act with the general duty to promote sustainable development. The independent Commissioner is appointed by Welsh Ministers. Funding is provided by Welsh Government.

35. Key duties of the Commissioner include:-

- Providing advice to public bodies, supporting them to meet their well-being objectives and encouraging best practice
- Providing advice to Public Services Boards about the preparation of their Local Well-being Plan;
- Carrying out research to include the well-being goals, the national indicators and milestones, and the SD principle and how public bodies apply it;
- Conducting reviews into how public bodies are taking account of the long-term impact of decisions, and make recommendations based on the findings - body must take all reasonable steps to follow;
- Making recommendations to a public body about the steps taken or proposed to set and meet well-being objectives;

- Preparing and publishing a Future Generations Report every five years, which presents an assessment of the improvements that public bodies have made and should make in relation to setting and meeting well-being objectives in line with the SD principle.

36. The FCG does not have enforcement powers.

37. The Commissioner is supported by an Advisory Panel which includes the other Wales Commissioners, the Chief Medical Officer for Wales, a representative of Natural Resources Wales, Wales TUC and can be supplemented by others.

38. The FGC does not operate a complaints procedure and has little in the way of enforcement powers. They can provide advice, undertake reviews and have reporting functions. To confer new environmental governance functions on the FGC could skew the balance of their oversight role of the environmental, economic, cultural and social pillars of sustainable development.

39. Welsh primary legislation would be required to establish this model.

Costs

40. It is not possible to define clear cost implications for this option as no single body would be able to undertake all of the required functions. Given that all of the bodies are already established, the costs would be less than those required for a stand-alone body (option 3) but as significant additional staffing and new systems would likely be required, there would likely be a substantial cost to any organisation.

Benefits / Risks

41. A summary of the benefits and risks of existing bodies performing the oversight function is provided in the table below:

Benefits	Risks
<ul style="list-style-type: none"> ✓ Less cost implications than establishing a new body ✓ Established bodies so new functions could be operational more quickly ✓ Wales based ✓ Recognition, helping to promote acceptability and stature 	<ul style="list-style-type: none"> ✗ Absence of a distinct environmental champion ✗ May not meet independence criteria ✗ Does not replace enforcement function of CJEU ✗ No one body that could currently perform all necessary functions, which could result in split responsibility, eroding the

✓ **Ensures the functions of EU Commission replaced at domestic level**

expertise and resource benefits of functions being within a single body.

- ✗ Delivery by a number of bodies would be difficult for the public to understand
- ✗ Primary legislation is required to amend functions.
- ✗ Confuses and potentially dilutes the primary roles of the bodies. They were not established for this purpose.
- ✗ Confusing for public to understand which body undertakes which specific functions, and who to go to with complains / representations
- ✗ Resistance from some bodies, who do not consider it appropriate to be given this function.

Option 3 – Setting up a dedicated body

42. The following options explore a range of models for a new environmental governance body for Wales.

Option 3a - Commission model constituted as a Non-Departmental Public Body (Preferred option)

43. The Task Group recommended the creation of a new, tailor made governance body which would take the form of a commission (modelled on the Equality and Human Rights Commission (EHRC)). They recommended the Commission would be independent of Welsh Government with appointments made by the Senedd and would require certainty of budget across an extended period of time, similar to the budgetary provision for the Wales Audit Office.

44. The performance of the body should be audited by the Auditor General for Wales. The Task Group considered a Commission to be an appropriate constitution as it would allow the body to take a multi-functional approach focussed on promoting environmental protection.

45. The Task Group recommended the body could be constituted on a scale and in a manner appropriate for Wales and be able to draw on an expert panel to add to its functionality. This would allow the Commission to have a flexible approach, enabling it to draw on a wide range of expertise, including potentially from other public bodies if no conflict of interest was identified. In addition, supporting expertise could be requested from UK agencies with the idea that the relationship would be of a reciprocal nature.

46. The specific role and functions would be subject to future policy development. This option would also require additional enforcement measures. Welsh primary legislation would be required to establish this model.

Costs

47. Initial estimates of running costs for the establishment of a new, bespoke body for Wales have been taken from annual budgets of similar Welsh bodies and the cost estimates produced by the Scottish Government for the Environmental Standards Scotland (ESS). These estimates, in the region of £2.5m-£3m per annum represent the 'high' end of the costs scale, with other options scaled accordingly. This figure includes ESS set-up costs of around £24,000, though these costs will depend on the specific circumstances of our model.

48. We anticipate there will be administrative costs to public bodies within the scope of the new governance body. For example, they may need to provide further evidence or information at the request of the body, or even take corrective compliance action in the event that they have been found non-compliant with environmental law. These costs will vary considerably based on the nature of the action required, but the [public law project](#) provides a very rough estimate of judicial review costs at around £30,000 each. Further analysis will be undertaken

throughout the development of this RIA to establish the administrative costs with more precision.

Benefits / Risks

49. A summary of the benefits and risks of the commission model is provided in the table below:

Benefits	Risks
<ul style="list-style-type: none"> ✓ Status and a distinct body responsible for environmental protection ✓ Independent from Government ✓ Ensures the functions of EU Commission replaced at domestic level and separate from existing bodies ✓ Would address any trade deal requirements ✓ Tailor made for Wales ✓ Fulfils Welsh Government's commitments for no reduction in environmental protection and citizens rights ✓ Single point of focus for public and interaction with existing bodies and rest of UK ✓ Opportunity to appoint range of skills and experience tailored to case load and topic 	<ul style="list-style-type: none"> ✗ New body is the most expensive option ✗ Complexity – will require resource and time to establish ✗ Budget certainty may not be possible in the current climate ✗ Primary legislation required to establish role and functions. ✗ Resource and expertise stretched across the UK

Option 3b - Commissioner for the Environment Model

50. This model would establish a new Commissioner for the Environment based on the model of the Future Generations Commissioner or Information Commissioner with an individual appointed as Commissioner by the Monarch on the advice of the Senedd.
51. Whilst similar to the Commission model it which would mean providing an individual rather than a committee of members with the authority to perform duties in relation to the environment as ascribed in Welsh legislation.
52. There are examples of environmental governance being provided by Parliamentary Commissioners in non-EU countries, although their role is generally limited to providing advice to their Parliaments to bolster the effectiveness of Parliamentary scrutiny of the executive. A commissioner akin to New Zealand's Parliamentary Commissioner for the Environment (PCE) reflects what a country of Wales' size could reasonably expect to implement, with precedent already set with other Commissioners (Future Generations, Welsh Language, Children's and Older People's) already established in Wales.
53. The specific role and functions would be subject to future policy development and could exceed the remits of existing environmental commissioners in other countries.
54. This option would also require additional enforcement measures. Welsh primary legislation would be required to establish this model.

Costs

55. Initial estimates of running costs for the establishment of a new, bespoke body for Wales have been taken from annual budgets of similar Welsh bodies and the costs estimate produced by the Scottish Government for the Environmental Standards Scotland (ESS). These estimates, in the region of £2.5m-£3m per annum with other options scaled accordingly.

Benefits / Risks

56. A summary of the benefits and risks of the commissioner model is provided in the table below:

Benefits	Risks
<ul style="list-style-type: none"> ✓ Status and a distinct environmental champion ✓ Independent from Government ✓ Ensures the functions of EU Commission replaced at domestic level and separate 	<ul style="list-style-type: none"> ✗ New body is the most expensive option ✗ Body will have a broad range of responsibility with expertise needed around the environmental policy and law, legislative processes, regulation, financial and audit processes, and political awareness. It is not

<p>from existing bodies</p> <ul style="list-style-type: none"> ✓ Would address any trade deal requirements ✓ Tailor made for Wales ✓ Fulfils Welsh Government's commitments for no reduction in environmental protection and citizens rights ✓ Single point of focus for public and interaction with existing bodies and rest of UK ✓ Opportunity to appoint range of skills and experience tailored to case load and topic 	<p>realistic to expect a single commission to possess all of this expertise.</p> <ul style="list-style-type: none"> × Based on existing models in other countries, may not be able to discharge all functions. × Complexity – will require considerable resource and time to establish × Primary legislation required to establish role and functions. × Resource and expertise stretched across the UK
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Option 3c - Welsh Government Sponsored Body Model

57. A Welsh Government Sponsored Body Model (WGSB) is defined as a “body which has a role in the process of national government but is neither a government department nor part of one, and which accordingly operates to a greater or lesser extent as arm’s length from Welsh Ministers”.

58. Executive WGSBs are usually established under statute, although a small number have been established by Royal Warrant or Royal Charter. They are not part of The Crown but have their own legal personality.

59. They carry out a wide range of administrative, commercial, executive, and regulatory or technical functions which are considered to be better delivered at arm’s length from Welsh Government.

60. Their degree of autonomy or independence from Welsh Ministers varies but all operate within a strategic framework determined by Welsh Ministers.

61. Through their accounting officer, they are directly accountable to the Senedd and Parliament although Ministers are ultimately accountable for their performance

and their continued existence.

62. They are headed by boards (*or occasionally an officeholder*) whose members are appointed by Ministers. Some members may be Crown Appointments on the advice of Ministers or appointments may be made by the body itself.
63. The staff are not civil servants but employed by the body itself.
64. They produce their own accounts and annual report and the AGW is the external auditor in the vast majority of cases.
65. Funding is delivered through grant or, more commonly, grant-in-aid from the Welsh Government, although some may generate additional income through other sources.
66. Appointments to the board of WGSBs are regulated by the Commissioner for Public Appointments and must be made in compliance with the Code of Governance.
67. Given the need for environmental governance measures to be demonstrably independent, this model is likely to be open to challenge
68. This option would also require additional enforcement measures. Welsh primary legislation would be required to establish this model.

Costs

69. Initial estimates of running costs for the establishment of a new, bespoke body for Wales have been taken from annual budgets of similar Welsh bodies and the costs estimate produced by the Scottish Government for the Environmental Standards Scotland (ESS). These estimates, in the region of £2.5m-3m p.a. represent the 'high' end of the costs scale, with other options scaled accordingly.
70. It has not been possible to obtain confirmed information from Defra on the possible set up and running costs of the OEP but we understand the total programme costs to be in the region of £14m.

Benefits / Risks

71. A summary of the benefits and risks of the WGSB model is provided in the table below:

Benefits	Risks
✓ Status and a distinct environmental protection body	✗ New body is the most expensive option
✓ Could deliver multiple	✗ Potential for confusion with

functions	NRW's role
<ul style="list-style-type: none"> ✓ Ensures the functions of EU Commission replaced at domestic level and separate from existing bodies 	<ul style="list-style-type: none"> × Could be perceived as not sufficiently independent
<ul style="list-style-type: none"> ✓ Would address any trade deal requirements 	<ul style="list-style-type: none"> × Lack of perceived impartiality in advisory capacity
<ul style="list-style-type: none"> ✓ Tailor made for Wales 	<ul style="list-style-type: none"> × Complexity – will require considerable resource and time to establish
<ul style="list-style-type: none"> ✓ Fulfil Welsh Government's commitments for no reduction in environmental protection and citizens rights 	<ul style="list-style-type: none"> × Does not replace decision making and enforcement function of CJEU
<ul style="list-style-type: none"> ✓ Single point of focus for public and other bodies/rest of UK 	<ul style="list-style-type: none"> × Primary legislation required to establish role and functions.
<ul style="list-style-type: none"> ✓ Opportunity to appoint range of skills and experience tailored to case load and topic 	<ul style="list-style-type: none"> × Resource and expertise stretched across the UK

Option 4 – Engage UK Government to extend OEP functions to Wales

72. This section considers extending the approach taken in the Environment Act 2021 to Wales. This would involve extending the remit of the Office for Environmental Protection (OEP) and the environmental review mechanism to Wales. The OEP is a Government Sponsored Public Body with a secured budget.

73. The Environment Act 2021 establishes the Office for Environmental Protection to scrutinise environmental policy and law, investigate complaints and take enforcement action against public authorities if necessary, through an environmental review mechanism.

74. Under this option, a Wales based office with staff with the knowledge to underpin the Welsh legislative framework could be established as an arm of the Office for Environmental Protection (OEP). Extending the OEP could provide Wales with access to a greater pool of resource and expertise to consider complaints. In extending the OEP to Wales, there is the potential to reduce difficulties that may arise because of transboundary issues. However, any risks around policy divergence would be heightened as the OEP would be accountable to the UK Government and Parliament in the first instance.
75. The extension of the OEP to Wales would require new legislation in Parliament Government amendments to the UK Environment Bill currently before Parliament with the precedent for this being set by inclusion of tailored provision to extend the OEP to Northern Ireland.
76. This option would require Senedd approval for the UK Government to legislate for Wales allowing for Wales in a matter of devolved competence. Discussion would be required with the UK Government as to the feasibility of this option.

Cost

77. The OEP is funded by DEFRA and it is likely Welsh Government would need to fund a Welsh OEP office. There is potential for cost savings compared to a Welsh standalone body, through the sharing of back office functions such as IT and HR systems and through shared access to environmental experts. Costs for this option based on an estimate of four staff (including all operational costs) at £90,000 - £150,000 per FTE (dependent on grade) are estimated as in the region of £360,000 - £600,000.

Benefits / Risks

78. A summary of the benefits and risks of the OEP performing the environmental governance role for Wales is provided in the table below:

Benefits	Risks
✓ Status and a distinct environmental protection body	✗ No Welsh body responsible for the devolved area of environmental protection
✓ Reduced costs compared to a stand alone Wales body	✗ Constitutionally challenging – this could be perceived as rolling back devolution
✓ Could deliver multiple functions	✗ Politically challenging – accountability for the OEP is foremostly with Parliament and not the Senedd.
✓ Ensures the functions of EU Commission replaced at domestic level and separate	✗ OEP was developed as an England only model and, at

<p>from existing bodies</p> <ul style="list-style-type: none"> ✓ Would address any trade deal requirements ✓ Fulfils Welsh Government's commitments for no reduction in environmental protection and citizens rights ✓ Single point of focus for public and other bodies/rest of UK ✓ Wider pool for accessing expertise ✓ No requirement for Welsh primary legislation ✓ Timely ✓ Will aid the investigation of cross border/trans-boundary complaints and those of shared competence ✓ Less resource implications for Welsh Government in the longer term 	<p>present, doesn't recognise the different legislative framework in Wales.</p> <ul style="list-style-type: none"> ✗ Concerns over the GSPB model as not sufficiently independent from Ministers ✗ Little power to resist potential policy divergence, for example deregulation ✗ UK Government Ministers have financial control over the core of the OEP which could impact on effectiveness in delivery if reduced
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Conclusion

79. The options analysis has considered a wide range of options that could partially, or wholly, provide the functions required to address the environmental governance gap that will occur in Wales when the UK leaves the European Union. Each option analysis is summarised below.

Option 1 – BAU

80. Under this option no new measures would be put in place to replace the EU Commission role in environmental governance, instead relying on existing Welsh oversight and regulatory bodies. The benefits of this approach are that no primary legislation is required, there will be no additional costs and resource implications will be limited.
81. The risks of this approach is that Wales would be left without as strong environmental protection compared to other UK nations. The EU-UK Trade and Cooperation agreement also contains commitments that state environmental levels of protection or its climate level of protection should not be reduced below the levels in place at the end of the transition period (including by failing to effectively enforce its environmental law or climate level of protection). It could be perceived that not replicating the pre-transition governance arrangements would roll back on environmental protections.
82. Should any future trade deals require environmental governance measures to be in place for all parts of the UK, we would likely fall short of those requirements, putting potential deals at risk. This approach also fails to meet the Welsh Government commitment that there would be no reduction in citizens rights or environmental protection as a result of leaving the EU.

Option 2 - Use of an existing body or bodies

83. Under this option, enhancing the functions of existing bodies was considered. The Public Services Ombudsman for Wales (PSOW), the Auditor General for Wales (AGW) and the Future Generations Commissioner (FGC) were considered. A hybrid option of using the bodies to cover different required functions was also considered but discarded as overly complex and lacking clarity.
84. Benefits of this approach are that costs will be lower as the functions would be embedded within existing organisations, there would be existing expertise for some of the functions and the role would be given legitimacy by placing it the hands of a respected impartial body.
85. Risks with this option are that no one body, as currently constituted, could undertake all of the required functions, primary legislation would be required in all cases to add the additional functions and adding the environmental governance function would be anomalous to or distort their core role. It would also be more confusing for the public and wider stakeholders to identify which body is responsible for which set of functions.

Option 3 – Establishing a new body for Wales (Preferred option)

86. Under this option a new environmental governance body would be established for Wales. This was the option supported by the majority of respondents to the consultation and formed the basis of the recommendations from the Task Group.
87. Whilst the Task Group favoured a commission model, in the style of the Equalities and Human Rights Commission (ECHR), it was unclear from their report why this has been recommended so the options appraisal considered a number of models including the favoured commission model but also a commissioner model and a Welsh Government Sponsored Body. On balance, the recommendation of a commission model (or Arm's length body) is considered most appropriate as it will provide the necessary level of senior expertise across multiple subject areas, which will be essential towards achieving the intended policy objectives
88. The benefits of this approach are that a bespoke body strongly signals a commitment to environmental protection, it's the closest model to the current EU arrangements. Welsh Government commitments to no dilution of citizens rights and environmental protection are would be met, and the model will satisfy the requirements of the EU Trade and Cooperation Agreement.
89. The risks of this approach are that it requires considerable staffing resource to achieve. Primary legislation is required and this is the most expensive option, estimated at £2.5m - £3m p.a.

Option 4 - Use of the Office for Environmental Protection

90. This option would require amendment to the UK Environment Bill to extend the remit of the OEP to Wales.
91. The benefits of this approach are that it provides a timely legislative opportunity, there will be lower costs compared to establishing a standalone body and the approach provides for most of the desirable criteria identified by the Task Group. It would also allow for ease of investigation of cross border cases and those of shared competence.
92. The risks of this approach are that it would require allowing the UK Government to legislate for Wales in a matter of devolved competence and provide the UK government with control over a high priority policy area.

Funding and Affordability

93. The operating cost of a new body has been estimated on a comparative analysis approach based on the operating costs of independent bodies of similar likely complement. Further detailed work is ongoing to develop the final level of budget on consideration of the necessary staff complement and other costs.

94. Option 1 – BAU is the cheapest option but does not address the environmental governance gaps.
95. Option 2 – use of existing bodies has not been possible to quantify as no one body could undertake all of the required functions. It would require additional staffing, expertise and systems, so would exceed the costs of option 1 but be less than the costs for Option 3. Without a clear timetable to legislation, it is unclear when the costs will arise.
96. Option 3 – establishing a new body would be the most costly option and would require funding of between £2.5m-£3m based on the budgets of similar bodies such as the Future Generations Commissioner's office and the estimated costs of the proposed Scottish environmental governance body Environmental Standard Scotland (ESS). Without a clear timetable to legislation it is unclear when the costs will arise.
97. Option 4 – It is estimated funding the OEP to undertake this role in Wales would cost in the region of £360,000 - £600,000.

Part C Biodiversity Targets

Introduction

1. We have focussed our Cost-Benefit Analysis (CBA) on the economic implications of achieving the "30 by 30" targets in Wales, which align with the Global Biodiversity Framework (GBF). Adopted during the fifteenth meeting of the Conference of the Parties (COP 15), the GBF sets ambitious goals for 2050 and targets for 2030, aiming to realize a world living in harmony with nature by 2050. This framework emphasizes the importance of robust statutory mechanisms for monitoring, reporting, and accountability in biodiversity conservation (Conference of the Parties to the Convention on Biological Diversity, 2022).
2. Our analysis evaluates three primary options: maintaining current measures (Option 1 – “BAU”), introducing new non-legislative measures (Option 2) or introducing a robust statutory framework (Option 3). The latter, aligning with the GBF, is preferred due to the urgency of the Nature Emergency in Wales.
3. The targets for option 3 are not yet fully provided therefore the evidence needed for more precise monetary calculation is not available, and thus a comparative model to that outlined by Defra ([The Environment Act – Terrestrial Biodiversity Targets Impact Assessment](#)) is being used as a proxy at this time (the methodology is detailed in Annex A). As part of the process for identifying further targets in Wales, a more accurate comparison to DEFRA by habitat will be conducted, with the aim of conducting a full cost and benefit analysis of each action required to achieve the suggested targets.
4. Using the Defra analysis, the economic impact in Wales has been estimated using two comparative methods: comparison by population and by area, including total land, marine, and coastal areas covered in the targets. The population comparison employs the Barnett equation for proportional expenditure adjustment.
5. The process for calculating the Net Present Value (NPV) for each option is outlined as follows:
 - Determine England's annual cost/benefit value.
 - Multiply this value by the number of applicable years.
 - Ascertain the appropriate discount rate.
 - Compute the present value for each cost/benefit.
 - Adjust the English cost/benefit range to the Welsh equivalent, using the Barnett equation and ecosystem area comparisons.
 - Derive the NPV by subtracting total Welsh costs from benefits.
6. This approach provides a clear snapshot of the current situation and future projections. Importantly, it aligns with the urgent calls from experts for decisive action to address the nature crisis. Successful conservation efforts, like those for bats and butterflies, demonstrate the potential for recovery with targeted

action. Moreover, the public support for nature protection and restoration in Wales further emphasizes the need for ambitious and evidence-based policy formulation (NRW, 2020).

Options

Option 1

1 – Business as Usual

7. Under this option no additional action would be taken to protect and restore biodiversity across Wales. This would mean that one in six species in Wales would continue to be at risk of extinction. Further, this would not address our current Programme for Government to “work towards the establishment of an Environmental Governance Body, a statutory duty and targets to protect and restore biodiversity.”

Benefits / Risks

8. A summary of the benefits and risks of Option 1 is provided in the table below:

<i>Benefits</i>	<i>Risks</i>
<ul style="list-style-type: none"> ✓ Established Framework: Utilizes an already established legislative framework, which means there's no need to reinvent the wheel or undergo the legislative process to introduce new laws. ✓ No costs to the public purse. ✓ Flexibility: Without setting action now, we would have flexibility to respond if the situation were to change. 	<ul style="list-style-type: none"> ✗ Worsening Biodiversity State: The State of Nature report illustrates the dire situation of biodiversity in Wales, with significant declines in species and habitats. Continuing with current approaches would likely perpetuate these trends, leading to further degradation of natural ecosystems (NRW, 2020). ✗ Potential Inefficiency: Existing mechanisms may not effectively address the current inefficiencies or gaps in the system. The ongoing decline in wildlife, with one in six species in Wales at risk of extinction, demonstrates the limitations of current approaches (NRW, 2020). ✗ Less Urgency: The lack of clear action could reduce the urgency

	<p>or motivation to restore biodiversity. This is critical in light of findings like the 52% decline in butterfly numbers since 1976, indicating the rapid pace of biodiversity loss (NRW, 2020).</p> <ul style="list-style-type: none"> × Known Weaknesses: The current system has identified weaknesses, such as inadequate monitoring, which might not be adequately addressed without new mechanisms. The State of Nature report highlights the decline in iconic species like red squirrels and water voles, underlining the need for more effective conservation strategies (NRW, 2020).
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Option 2 – Non-Legislative measures:

9. We already have in place a world-leading legislative framework which we will continue to use as the foundation for our response to the nature crisis.
 - Wellbeing of Future Generations Act 2015: setting out well-being goals, national indicators, and milestones.
 - Environment (Wales) Act 2016: Putting in place a modern statutory process to plan and manage our natural resources in a joined-up and sustainable way.
 - Planning (Wales) Act 2015: Improves the existing planning process to ensure the right development is located in the right place.

10. Specific components will include:
 - Update our Natural Resources policy to take account of new evidence provided through State of Natural Resources Report (SoNaRR) for Wales 2020 and the Global Biodiversity Framework to strengthen our ecosystem approach, particularly in tackling some of the wider drivers of biodiversity loss.
 - Update our Nature recovery action plan.

- National Indicators: better use of these indicators to provide evidence of progress where possible.
- Biodiversity deep dive: implementation of recommendations and action plan. A key recommendation is to provide better monitoring of target 3 for example, as this is a known weakness in the current system.

11. In the context of the cost-benefit analysis component, this option aims to quantify the financial aspects associated with existing grant and subsidy schemes, such as the Local Places for Nature Capital Fund, along with dedicated budgets for biodiversity and marine biodiversity. This effort will enable us to establish a baseline for the cost-benefit dynamics of the current policies mentioned above. This, in turn, will help us thoroughly illustrate the added value resulting from the introduction of specific biodiversity policies.

12. Since this process requires a significant amount of time and effort, it remains a work in progress. In the interim, we are utilizing the cost of Invasive Non-Native Species (INNS) to society as a case study to demonstrate why option 2 is not viable as outlined in the study by Eschen et al. (2023) (Eschen, et al., 2023)

Benefits / Risks

98. A summary of the benefits and risks of Option 1 is provided in the table below:

Benefits	Risks
<ul style="list-style-type: none"> ✓ Established Framework: Utilizes an already established legislative framework, which means there's no need to reinvent the wheel or undergo the legislative process to introduce new laws. ✓ Short Term Cost-Effective: May be more cost-effective in the short term as it relies on existing mechanisms and doesn't require the establishment of new oversight bodies or reporting mechanisms. ✓ Flexibility: Without statutory targets, there might be more flexibility in adapting and changing policies as new 	<ul style="list-style-type: none"> ✗ Lack of Accountability: Without statutory targets, there is less accountability in achieving biodiversity goals. In the current fiscal climate, where resources are limited, the absence of legal mandates could lead to the reallocation of funds away from biodiversity, exacerbating the crisis. ✗ Potential Inefficiency: Existing mechanisms may not effectively address the current inefficiencies or gaps in the system. The ongoing decline in wildlife, with one in six species in Wales at risk of extinction, demonstrates the limitations of current approaches (NRW, 2020). ✗ Less Urgency: The lack of legal

<p>evidence or situations arise.</p> <p>✓ Consistency: Provides a consistent approach to biodiversity management, as it continues with the current system.</p>	<p>targets might reduce the urgency or motivation to achieve biodiversity goals in a timely manner. This is critical in light of findings like the 52% decline in butterfly numbers since 1976, indicating the rapid pace of biodiversity loss (NRW, 2020).</p> <p>✗ Known Weaknesses: The current system has identified weaknesses, such as inadequate monitoring, which might not be adequately addressed without new mechanisms. The State of Nature report highlights the decline in iconic species like red squirrels and water voles, underlining the need for more effective conservation strategies (NRW, 2020).</p> <p>✗ Worsening Biodiversity State: The State of Nature report illustrates the dire situation of biodiversity in Wales, with significant declines in species and habitats. Continuing with current approaches would likely perpetuate these trends, leading to further degradation of natural ecosystems (NRW, 2020).</p>
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Option 3: Statutory Biodiversity Targets Framework

13. This option will build upon all of the aspects outlined in Option 2 but also include the additional component of setting statutory biodiversity targets to strengthen monitoring and reporting as well as introducing a duty to implement, monitor, and report against these targets.

14. This option acknowledges that whilst we have already had these policies in place there has not been evidence of a slowing in the rate of biodiversity decline. Introducing legally binding mechanisms with appropriate reporting on a regular basis to the Senedd for increased scrutiny.

15. This option would also see the introduction of an oversight function for the proposed Environmental governance body.
16. For the purposes of this cost benefit analysis, the targets outlined in the Defra report (Department for Environment, Food & Rural Affairs (DEFRA), 2022) will be used as a proxy for the Welsh biodiversity targets (which have not yet been set).

England's Targets – Defra Impact Assessment

17. The UK government, under the mandate of the Environment Act, plans to establish legally binding biodiversity targets. This act necessitates at least one long-term biodiversity target and a specific species abundance goal by 2030. Designed to ensure continuous action and lasting clarity, these targets are poised to benefit the economy, public health, well-being, and vital ecosystem services.
18. The objectives, aiming to complement one another, foster progress for both habitats and species. This vision is reinforced by other provisions within the Environment Act, which address issues like poor air and water quality contributing to biodiversity loss. Beyond creating habitats for diverse species, the targets encompass broader benefits such as flood control, carbon sequestration, and pollination, enhancing overall human well-being.
19. Recognizing the intertwined challenges of climate change and biodiversity loss, the government emphasizes nature-based solutions and habitat investments. The health of an ecosystem is mirrored in species abundance, underscoring the need for expansive, interconnected habitats.
20. The overarching ambition is to forge a resilient ecosystem resilient to challenges like climate change, ensuring a sustainable path to species recovery and holistic nature restoration. The targets themselves are required to be SMART (Specific, Measurable, Achievable, Relevant, and Time Bound). The government's proposed targets aim to:
 - Stop the decrease in species abundance by 2030.
 - Boost species abundance by a minimum of 10% by 2042 compared to 2030.
 - Enhance the England-level GB Red List Index regarding species extinction risk by 2042 relative to 2022.
 - Develop or rejuvenate over 500,000 hectares of wildlife-rich habitats outside protected areas by 2042 relative to 2022 levels.
21. These objectives are further dissected into two series of targets:

Species Abundance and Extinction Targets – The UK Government's 25 Year Environment Plan focuses on the protection and recovery of key species of animals, plants, and fungi, aiming to prevent human-induced extinctions. These targets aim to rally public support for biodiversity recovery, emphasizing that their significance extends beyond individual species. They promote broader environmental engagement and investment from various stakeholders, benefiting society and the economy. The targets include:

- Halting species abundance decline by 2030.

- Increasing species abundance by at least 10% by 2042 compared to 2030.
- Enhancing the GB Red List Index for species extinction risk by 2042 relative to 2022 levels.

Wider Habitat Target – The government's wider habitat target focuses on restoring areas outside protected zones. Restoration signifies progress, and data suggests that renewed habitats aid nature's recovery. Many habitats are fragmented and in poor condition, often too small for diverse species. To combat this, the government's 25 Year Environment Plan seeks to create or restore 500,000 hectares of habitats, contributing to a Nature Recovery Network. This complements the 2030 species goal, with ambitions to exceed the 500,000-hectare restoration target for enhanced nature recovery. The target is given as:

- The set target is to create or restore over 500,000 hectares of wildlife-rich habitats outside protected zones by 2042 relative to 2022.

Benefits / Risks

99. A summary of the benefits and risks of Option 3 is provided in the table below:

Benefits	Risks
<ul style="list-style-type: none"> ✓ Increased Accountability: Introducing statutory targets can lead to greater accountability and a clear direction for biodiversity conservation. ✓ Regular Reporting: Legally binding mechanisms with regular reporting can ensure consistent monitoring and evaluation of progress. ✓ Addressing Decline: Recognizes the ongoing decline in biodiversity and introduces mechanisms to actively combat this trend. ✓ Oversight: Introduction of an oversight function can ensure that policies and actions are being implemented effectively and can provide guidance or 	<ul style="list-style-type: none"> ✗ Implementation Costs: Introducing new statutory targets and oversight bodies might come with increased costs for establishment and maintenance. ✗ Potential Rigidity: Legal targets might make it harder to adapt policies quickly in response to new evidence or changing circumstances. ✗ Legislative Delays: The process of introducing and passing new laws can be time-consuming. ✗ Increased Bureaucracy: Introducing new reporting and monitoring mechanisms can lead to increased bureaucracy, which might slow down decision-making processes.

<p>corrections as needed.</p> <ul style="list-style-type: none"> ✓ Increased Scrutiny: Regular reporting to the Senedd can lead to increased scrutiny and public awareness of biodiversity issues. ✓ Policy Alignment: Adopting this option will foster alignment with the UK Government's biodiversity strategies, reinforcing the message that biodiversity is a high priority in Wales. This approach not only prevents the undermining of conservation efforts but also upholds Wales' reputation as a committed player in environmental stewardship. 	
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Costs

22. The costs presented in the following section represent the total expenditure incurred over the duration required to meet the specified targets.

Cost of Option 1 – Business as Usual

23. While there are no additional costs and benefits associated with this option, we are analysing the financial impact of existing grant and subsidy programs, such as the Local Places for Nature Capital Fund and biodiversity budgets. The purpose is to establish cost-benefit dynamics in current policies and demonstrate the added value of specific biodiversity measures. Due to the time and resource involved, this analysis is ongoing. Meanwhile, we're using the societal cost of Invasive Non-Native Species (INNS) as a case study to demonstrate the infeasibility of option 1, as per Eschen et al.'s (2023) study (Eschen, et al., 2023).

Invasive Non-Native Species (INNS)

24. Invasive non-native species (INNS) negatively impact various sectors in the UK, causing damage to crops, buildings, and affecting the economy. As of

2019, Great Britain recorded 3,224 such species, with over 2,000 established and reproducing. Addressing INNS is vital for the UK's environmental objectives and international commitments.

25. Despite efforts to manage these species, their numbers continue to grow, emphasizing the need for updated assessments and prioritized resource allocation based on the economic impacts of INNS (Eschen, et al., 2023).
26. In a 2023 study, researchers funded by Defra (Eschen, et al., 2023) found that these invasive species now cost the UK economy about £4014 million every year. Breaking it down, as of 2021, England faces the highest cost of £3022 million, followed by Scotland (£499 million), Wales (£343 million), and Northern Ireland (£150 million) (Eschen, et al., 2023).
27. When compared to the previous estimates from 2010, there's a notable 45% increase in comparable costs, with many estimated costs surpassing inflation rates.
28. A close consideration of Table 1 below gives a breakdown of the costs of INNS to different sectors, demonstrating the overarching impact of the problem with doing nothing. Table 2 demonstrates the change in departmental spending since 2010, and Table 3 presents the breakdown in spending via species.

Table 1 - Breakdown of the 2021 annual expenses for invasive non-native species in the UK by industry, incorporating the costs related to fungi taken from (Eschen, et al., 2023).

In £m	England	Scotland	Wales	Northern Ireland	UK
Agriculture	£1878	£278	£124	£40	£2321
Forestry	£614	£145	£167	£85	£1010
Quarantine and Surveillance	£19	£4	£1	£1	£24
Aquaculture	£9	£5	£4	£1	£18
Tourism and Recreation	£107	£19	£8	£2	£136
Construction, Development and Infrastructure	£231	£20	£13	£6	£270
Transport	£84	£12	£9	£5	£110
Utilities	£13	£2	£1	£1	£17
Research	£0	£0	£0	£0	£8
Biodiversity and Conservation	£14	£8	£8	£8	£37
Human Health	£54	£6	£8	£2	£71
Subtotal	£3022	£499	£343	£150	£4014

Table 2 - Percentage change in annual departmental spending since 2010 by sector and country including the cost of fungi taken from (Eschen, et al., 2023).

	England	Scotland	Wales	Northern Ireland	UK
Agriculture	123.7	78.4	74.7	64.2	112.7
Forestry	1240.4	197.4	1015.6	2942.1	800.6
Quarantine and Surveillance	33.1	177.4	-47.3		37.9
Aquaculture	101.1	579.2	75.0	82.1	139.5
Tourism and Recreation	36.1	42.5	38.5	175.5	38.0
Construction, Development, Infrastructure	18.7	196.4	20.7	82.3	25.4
Transport	33.1	27.3	-1.0	-60.6	16.0
Utilities	48.0	77.7	84.9		64.7
Research					-52.7
Biodiversity and Conservation	23.2	30.2	31.0		-8.9
Human Health	42.7	42.7	42.7	25.6	42.2
Subtotal	132.9	101.4	167.6		134.9

The strong increases in the forestry sector are almost exclusively due to *Hymenoscyphus fraxineus*

Table 3 - Annual cost per species in 2021. Fungi are highlighted in Italics taken from (Eschen, et al., 2023).

Species	England	Scotland	Wales	NI	UK
<i>Hymenoscyphus fraxineus</i>	£556.4	£120.3	£125.9	£80.9	£883.5
Japanese Knotweed	£207.4	£21.8	£11.2	£6.0	£246.5
Rabbit	£88.9	£38.1	£39.7	£3.0	£169.7
Rats and mice	£61.0	£8.4	£5.0	£10.0	£84.4
Cockroaches	£53.4	£6.3	£8.2	£1.9	£69.8
Deer	£47.7	£9.8	£4.6	£0.8	£62.9
Grey squirrel	£32.0	£1.1	£1.1	£2.5	£40.6
Varroa mite	£10.7	£5.4	£5.4	£1.0	£22.5
Box tree moth	£15.4	£0.0	£0.0	£0.0	£15.4
Green spruce aphid	£1.4	£10.3	£2.4	£0.5	£14.5
Zebra mussel	£11.2	£0.2	£0.1	£0.6	£12.0
Slipper limpet	£5.0	£0.2	£2.7	£0.0	£7.9
House mouse control	£5.4	£0.8	£0.0	£0.0	£6.3
Rhododendron	£2.2	£3.1	£0.7	£0.2	£6.2
Signal crayfish	£3.7	£0.6	£1.2	£0.0	£5.5
<i>Phytophthora ramorum</i>	£0.7	£1.5	£1.9	£0.0	£4.2
Geese and swans	£2.8	£0.4	£0.8	£0.0	£3.9
<i>Hydrocotyle ranunculoides</i>	£3.3	£0.0	£0.1	£0.1	£3.4
Killer shrimp	£2.4	£0.0	£0.4	£0.0	£2.9
<i>Thaumetopoea processionea</i>	£1.9	£0.0	£0.0	£0.0	£1.9
Giant hogweed	£0.7	£0.2	£0.4	£0.0	£1.4
Buddleia	£0.4	£0.6	£0.4	£0.0	£1.4
Mink	£0.6	£0.1	£0.2	£0.0	£0.9
Edible dormouse	£0.4	£0.0	£0.0	£0.0	£0.4
Dendroctonus micans	£0.1	£0.3	£0.0	£0.0	£0.4
Quagga mussel	£0.1	£0.0	£0.0	£0.0	£0.1
Topmouth gudgeon	£0.1	£0.0	£0.0	£0.0	£0.1
Parakeets	£0.0	£0.0	£0.0	£0.0	£0.0
Termites	£0.0	£0.0	£0.0	£0.0	£0.0
Himalayan balsam	£0.0	£0.0	£0.0	£0.0	£0.0

29. Invasive Non-Native Species (INNS) exert significant ecological, economic, and social impacts, which manifest in both direct and indirect ways. From an economic perspective, direct costs might arise from losses in agricultural productivity due to invasive pests, while indirect costs could be attributed to the diminished property values resulting from the prevalence of invasive plants (Eschen, et al., 2023).

30. Ecologically, INNS possess the capability to modify native ecosystems, diminish biodiversity, and vie for resources with indigenous species. Such alterations can culminate in the loss of vital ecosystem services, subsequently inducing economic repercussions. On the social front, the pervasive nature of INNS can detrimentally influence recreational endeavours, the aesthetic value of landscapes, and even human health. For instance, invasive flora might proliferate in recreational zones, rendering them inaccessible, while certain invasive fauna might introduce threats to human safety (Eschen, et al., 2023).

31. To counteract these detriments, remedial actions are often established to regulate, eliminate, or manage INNS. Remedial strategies to combat the impacts of INNS include both preventive and reactive measures. Biological control involves introducing natural predators to curb invasive species, while chemical methods use herbicides and pesticides for eradication. Physical removal and habitat modifications address localized infestations. Public awareness campaigns educate communities on identifying and managing INNS, and integrated approaches, blending multiple tactics, offer effective long-term control (Eschen, et al., 2023). It is evident that such measures represent a reactive approach to the challenges posed by INNS. Consequently, the financial obligations for these remedial endeavours form a fraction of the comprehensive societal costs instigated by INNS (Department for Environment, Food & Rural Affairs (DEFRA), 2022).
32. In essence, the financial burdens linked to INNS extend to the broader society, encompassing economic, ecological, and social ramifications, and are also evident in the investments directed towards their management and mitigation.
33. In 2010, the cost of invasive non-native species (INNS) to Wales was estimated to be £147 million, meaning in 11 years the cost of INNS has increased by £196 million, meaning that if the increase is linear, there will have been an annual increase in cost of \approx £17.8 million, demonstrating a significant additional cost and thus demonstrating the additional impact of inactivity (Eschen, et al., 2023).
34. Continuing this trend, the societal cost for 2024 becomes £396.4m this is shown below using an arithmetic series starting from a_0 :

$$2024 \text{ INNS cost} = [2021 \text{ Costs} + (\text{no. of years to 2024}) * \text{Annual Increase}] \quad (1)$$

$$2024 \text{ INNS cost} = [£343m + (3) * 17.8] \quad (2)$$

$$2024 \text{ predicted INNS cost} = £396.4m \quad (3)$$

35. The total cost from 2021 to 2042 can be seen below in Table 4. These values have not been adjusted for present value as these are the spends in each of the specific years.

Year	2021	2024	2027	2030	2033	2036	2039	2042
Annual Spend on INNS /£m	343	396.4	449.8	503.2	556.6	610	663.4	716.8
Increase Since 2021 /£m	0	53.4	106.8	160.2	213.6	267	320.4	373.8
Cumulative total additional spend from 2024 onwards /£m		0	106.8	373.8	801	1388.4	2136	3043.8

Table 4 – Breakdown in additional annual spending on INNS from 2021 to 2042

36. From Table 4, for the period 2024 to 2042, costs are predicted to increase to £716.8m per year. This corresponds to a total additional cost to society of £3043.8m over the 18 years between 2024 and 2042 if no action is taken. There is a dangerous risk to quickly overwhelming annual costs as shown in Figure 1. It must be noted that this is a linear predictive model based on current trends and thus the rate in rise of costs may actually be even more dramatic as rates of INNS increase exponentially.

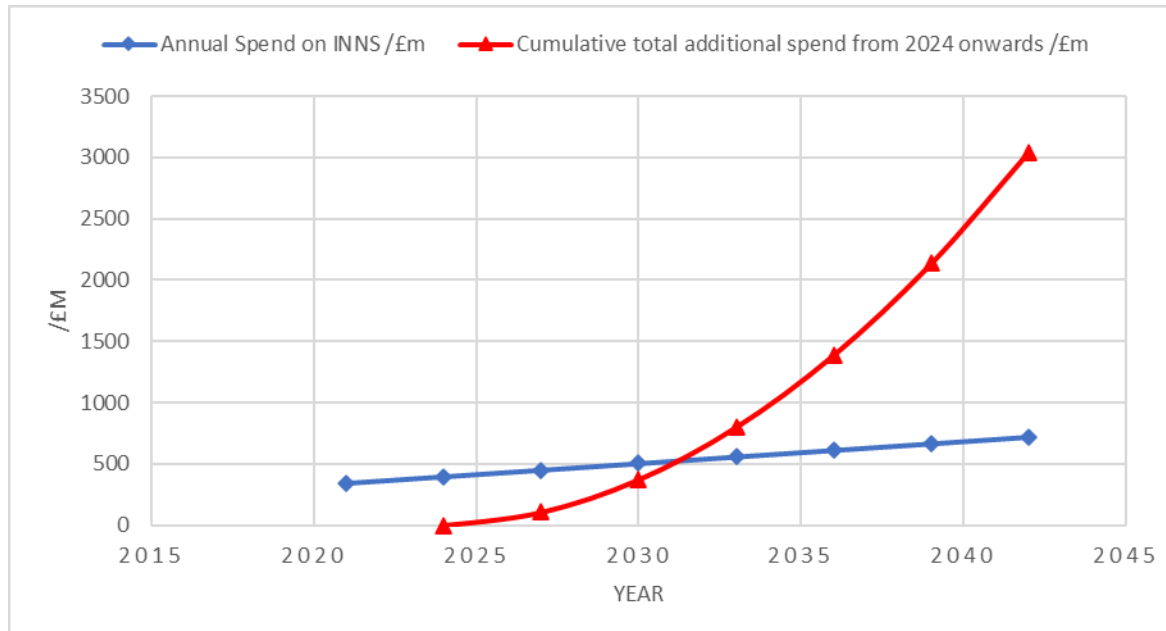


Figure 1 - Linear Predictive Model for Annual Spend on INNS and Cumulative Total Spend

37. This corresponds to an additional spend of £106.8m per year for that period.

**Total additional cost to society due to INNS for period
2024-2042 = £3043.8m**

Cost of Option 2 – Non-legislative measures

38. The majority of costs incurred would be around staffing costs to update natural resources policy, the nature recovery action plan and undertake further monitoring. Beyond this, the analysis applied to Option 1 applies equally here, including the the societal cost of Invasive Non-Native Species (INNS) as a case study to demonstrate the infeasibility of option, as per Eschen et al.'s (2023) study (Eschen, et al., 2023). This is because, based on the current plans in place, it is unlikely to effectively address the problem without more substantive action.

We will also conduct further analysis of the financial impact of existing grant and subsidy programs, such as the Local Places for Nature Capital Fund and biodiversity budget to establish cost-benefit dynamics of current policies and demonstrate the added value of specific biodiversity non-legislative measures.

Cost of Option 3 – Include Suite of Biodiversity Targets

39. The following section aims to quantify the cost and benefit of a suite of biodiversity targets aimed at halting the decline in biodiversity seen in Wales so that Wales can be in line with the 30 by 30 goal set out by the Global Biodiversity Framework. It is not comparative to option 1 in method but is instead meant to demonstrate the cost and benefit of these targets that are clearly needed.

40. As mentioned previously, targets have not yet been formally identified, and as such, the targets set out by Defra are being used as a proxy for Welsh targets.

41. Three key long-term targets are identified by Defra for England (Department for Environment, Food & Rural Affairs (DEFRA), 2022):

- Creating and/or restoring priority habitats outside of protected sites.
- Increasing species abundance.
- Preventing species extinctions.

42. All costs are set out over an 18-year period from 2024 to 2042. This is the predicted time taken to achieve the targets. These are all additional costs (i.e., those costs over and above what is currently being spent in these areas.

Species Targets

43. The identified species targets in England as outlined by Defra are:

- To halt the decline in species abundance by 2030 and increase species abundance by at least 10% by 2042, compared to 2030 levels.
- To improve the England-level GB Red List Index for species extinction risk by 2042, compared to 2022 levels.

England

44. For the species targets (£206.6m average annual cost in England), the most substantial costs are the cost of adopting land management approaches that support widespread species, the cost of remedial actions to improve the condition of protected sites, targeted actions to support threatened species.

45. This corresponds to a total cost from 2024 – 2042 of:

$$\text{England Species Target Costs} = [\text{£}206.6\text{m}] * [18\text{years}] \quad (4)$$

$$\text{England Species Target Costs} = \text{£}3718.8\text{m} \quad (5)$$

Wales

46. Using the Barnett equation, the species target cost in England (£3718.8m), a comparability percentage (CP) of 0.969%, and the population ratio (PR) of 0.055 we can obtain species targets costs in Wales of:

$$(\text{Wales Species Targets Cost})_{pop} = [\text{England Species Targets Cost}] * [CP] * [PR] \quad (6)$$

$$(\text{Wales Species Targets Cost})_{pop} = [\text{£}3718.8] * [0.969] * [0.055] \quad (7)$$

$$(\text{Wales Species Targets Cost})_{pop} = \text{£}142.4\text{m} \quad (8)$$

47. Using the species target cost in England and the area ratio (AR) of 0.159:

$$(\text{Wales Species Targets Cost})_{area} = [\text{England Species Targets Cost}] * [AR] \quad (9)$$

$$(\text{Wales Species Targets Cost})_{area} = [\text{£}3718.8] * [0.159] \quad (10)$$

$$(\text{Wales Species Targets Cost})_{area} = \text{£}591.3\text{m} \quad (11)$$

Total cost of Species Targets 2024 – 2042

= £142.4m – £591.3m

Wider Habitats Target

48. The Wider Habitats targets in England, as outlined by Defra, are set out as follows (Department for Environment, Food & Rural Affairs (DEFRA), 2022):

- Create or restore in excess of 500,000 hectares of a range of wildlife rich habitats outside of protected sites by 2042 compared to 2022 levels.

England

49. For the wider habitats target (£53.8m average annual cost in England), the costs incurred are related to the creation, restoration, and maintenance of wildlife-rich habitats. This corresponds to a total cost from 2024 – 2042 of:

$$\text{England Wider Habitats Target Costs} = [£53.8m] * [18 \text{ years}] \quad (12)$$

$$\text{England Wider Habitats Target Costs} = £968.4m \quad (13)$$

Wales

50. Using the Barnett equation, the wider habitats target (WHT) cost in England (£968.48m), a comparability ratio (CR) of 0.969%, and the population ratio (PR) of 0.055 we can obtain wider habitat targets costs in Wales of:

$$(\text{Wales WHT Cost})_{pop} = [\text{England WHT Cost}] * [CP] * [PR] \quad (14)$$

$$(\text{Wales WHT Cost})_{pop} = [£968.4m] * [0.969] * [0.055] \quad (15)$$

$$(\text{Wales WHT})_{pop} = £51.6m \quad (16)$$

51. Using the wider habitats target cost in England and the area ratio (AR) of 0.159:

$$(\text{Wales WHT Cost})_{area} = [\text{England WHT Cost}] * [AR] \quad (17)$$

$$(\text{Wales WHT Cost})_{area} = [£968.4m] * [0.159] \quad (18)$$

$$(\text{Wales WHT Cost})_{area} = £154.0m \quad (19)$$

Total cost of Wider Habitats Targets for 2024 – 2042

= £51.6m – £154.0m

Summary of Costs:

52. We have provided a detailed breakdown of the financial implications of addressing biodiversity and environmental challenges in the UK in the previous section, particularly focusing on the impact of Invasive Non-Native Species (INNS) and the potential costs of implementing biodiversity targets. The costs vary depending on the specific area of focus, with some areas requiring significant investment to address the challenges effectively. The overall message emphasizes the importance of proactive measures to protect the environment and the potential financial consequences of inaction.
53. The total cost of BAU doing nothing is 0, however there is a clear detriment to society if INNS are not rectified which, if dealt with by the targets in option 3, will amount to a significant benefit which will be discussed in more detail later.
- 54. Total costs in Wales by comparison to Defra's spending on wider habitats and species targets is £194m to £745.3m over the time period 2024-2042.**
55. These costs are estimates and we recognise there is a large degree of variance between the upper and lower range. Further analysis will be undertaken once the specific targets in Wales have been set to obtain more accurate values.

Benefits

56. For the purpose of this analysis, due to the strong similarities in culture and geography between England and Wales, the benefits to Wales of the highlighted targets are calculated using a population and area comparison with England as expressed earlier in this report (and detailed in Annex A). Information of Defra's methodology is given below.
57. Defra initiated a research project (8) in 2021, led by ICF and etec, to delve into the advantages of implementing biodiversity goals through the "natural capital approach." The investigation majorly revolved around the merits of creating and reviving habitats both within and beyond protected areas. However, certain conservation dimensions were not exhaustively evaluated due to limitations.
58. The findings suggested that the monetary benefits of more comprehensive habitat and species conservation could potentially be undervalued. Evident benefits encompassed environmental improvements, such as carbon sequestration, and human-centric benefits like leisure activities and health. It was presumed that most emerging habitats would be situated on farming lands, and the potential benefits from such transitions were estimated. Over time, rehabilitated habitats are expected to appreciate in value, while even

well-maintained habitats could deteriorate without consistent upkeep over a span of 60 years.

59. The study recognized its assumptions, particularly concerning the gains from deteriorated habitats, making some of its conclusions tentative. A more detailed review is anticipated before the study's conclusive publication.
60. The report evaluates benefits from two main objectives:
- Goals for Expansive Habitats.
 - Initiatives for Species Protection in Designated Sites.
61. The study calculated benefits for a 78-year timeframe, from 2022 to 2100 (as environmental benefits often take decades to be fully represented), and then adjusted them to represent the yearly advantage.
62. The subsequent section provides a conversion of benefits from English contexts to Welsh, typically based on population or geographical area, with the necessary background, and scaled up to represent the total benefit over the 78-year period from 2022 to 2100. It's vital to emphasize that these figures are estimations.
63. In examining the link between Option 3 (which aims to improve biodiversity and habitat conservation) and the costs related to invasive species discussed in Option 1, it's evident that taking good care of our natural environments can help control these invasive species and potentially reduce the related expenses. Properly managing different habitats and species is key to reducing the harm caused by invasive species. While we don't have exact figures on how much better biodiversity management under Option 3 will cut down the costs identified in Option 1, it's clear that protecting and restoring natural habitats is vital for controlling invasive species. This suggests that the strategies and goals in Option 3 could help lower the financial and environmental toll of invasive species, ultimately benefiting society.
64. We therefore assume that achieving the goals set in Option 3 will help stop the rising costs associated with invasive species, and this will be seen as a positive impact over the period these goals are active (2024-2042).

Description of Benefits

65. The following describes the methodology from Defra (Department for Environment, Food & Rural Affairs (DEFRA), 2022) in obtaining figures for various benefits.

Carbon Sequestration

66. In an effort to quantify carbon storage, the carbon dioxide (CO₂) sequestration capabilities of wetlands and grasslands were assessed. The amount of CO₂e absorbed by these habitats was then multiplied by the established 2019 price per ton of CO₂e. When agricultural land transitions to habitats such as wetlands or grasslands, a specific sequestration rate for the initial 10 years is employed. Subsequently, an average sequestration rate is applied. To

ascertain the aggregate sequestration, these rates are then multiplied by the net change in hectares of the habitats resultant from a policy implementation.

67. It's worth noting that the current estimations in this report are based on the overall land conversion between England and Wales, without distinguishing the specific proportions of grasslands, wetlands, marine areas, and coasts in each country. A more precise estimate could be derived by taking this distribution into account.

Air Quality

68. The Defra study (Department for Environment, Food & Rural Affairs (DEFRA), 2022) qualifies air quality benefit as the health benefits derived from woodlands removing particulate matter (PM2.5) from the air. This value is based on reduced human exposure to these pollutants and consequent lowered healthcare costs. In the Defra Impact Assessment (IA) (Department for Environment, Food & Rural Affairs (DEFRA), 2022), air purification benefits from woodlands outside protected regions are excluded, but those within protected areas, as part of species targets, are included. The net yearly air quality improvement is calculated for woodlands in Sites of Special Scientific Interest (SSSIs). The PM2.5 removal value is multiplied by the woodland area in SSSIs undergoing restoration. This value takes into account saved healthcare expenses and welfare values, as established by CEH and eftec in 2019 using <https://shiny-apps.ceh.ac.uk/pollutionremoval/>, and considers changes in pollution and population from 2015 to 2030, stabilizing thereafter.

69. Current estimates again assume a relatively consistent ratio of habitats between England and Wales. For more accurate estimates of the benefits, the outline methodology must be applied to Welsh geography.

Recreation

70. Recreational benefits arise from visits to green spaces and the associated welfare and health gains. The Outdoor Recreation Valuation tool (ORVal) (<https://www.leep.exeter.ac.uk/orval/>) quantifies these benefits for newly created or restored habitats. Due to uncertain future locations of these habitats, ORVal evaluated 150 potential sites based on six representative areas, providing an average value for England.

71. Six Local Authorities in England were analysed to understand benefit variations based on location. A non-linear relationship exists between green space size and visitation rate, with larger spaces yielding diminished additional benefits.

72. Using the average size of a Site of Special Scientific Interest (SSSI) as a proxy, each habitat is approximated at 250 hectares. The ORVal tool estimated both total and new visits, with reported values reflecting the welfare of new visits. It's estimated that only half of these habitats are easily accessible, with recreational benefits stabilizing five years post habitat creation.

73. Improving the accuracy of the benefit estimate in Wales will require the application of this method using the ORVal tool within Wales.

Physical Health

74. When people visit newly created or restored natural areas and are active during their visits, they gain health benefits. About half of these visits are considered 'active', meaning the visitor is moving enough to meet certain health guidelines. For new natural areas, the number of people visiting and being active grows for the first five years, then levels off. These active visits improve health, measured by a metric called QALYs (Quality Adjusted Life Years) where QALY of zero denotes death, and 1 denotes full health.

75. The more one exercises, the better their QALYs. This not only boosts individual health but also saves money for the healthcare system. The savings are based on how much it would cost the system if these health improvements didn't occur. This monetary value is assumed to stay the same over time. So, creating or restoring natural areas can lead to both health and economic benefits. This methodology follows the guidance set out in ENCA. Available from: www.gov.uk/guidance/enabling-a-natural-capital-approach-enca.

Estimated Present Value Benefits for Wider Habitats Target

76. Using equations (6), (9), (14), and (17) it is possible to estimate the range of benefits in Wales, based on English values set out in Defra's report (Department for Environment, Food & Rural Affairs (DEFRA), 2022). Below details the benefits in England and the adjusted values for Wales for the benefits of Wider Habitats Targets.

England

77. Over the 78-year period set out in Defra's report, the total collective Wider Habitats Targets benefits in England amount to:

- Carbon Sequestration: £2,899 million.
- Recreation: £3,778 million.
- Physical Health: £1,171 million.
- Total: £7,848 million.

Wales

78. Using the Barnett equation, the total Wider Habitats Target (WHT) benefit (£7,848m) in England, a comparability Percentage (CP) of 0.969%, and the population ratio (PR) of 0.055 we can obtain wider habitat targets benefits in Wales by population.

$$(Wales\ WHT\ Benefit)_{pop} = [England\ WHT\ Benefit] * [CP] * [PR] \quad (20)$$

$$(Wales\ WHT\ Benefit)_{pop} = [£7,848m] * [0.969] * [0.055] \quad (21)$$

$$(Wales\ WHT\ Benefit)_{pop} = £418.0m \quad (22)$$

79. Using the wider habitats target benefit in England and the area ratio (AR) of 0.159:

$$(Wales\ WHT\ Benefit)_{area} = [England\ WHT] * [AR] \quad (23)$$

$$(Wales\ WHT\ Benefit)_{area} = [£7848m] * [0.159] \quad (24)$$

$$(Wales\ WHT\ Benefit)_{area} = £1247.8m \quad (25)$$

Total estimated Wales WHT Benefit

$$= £418m - £1247.8m$$

80. Totals in Wales by benefit:

- Carbon Sequestration: £154.5m – £460.9m
- Recreation: £201.3m – £600.7m
- Physical Health: £62.4m – £186.2m

Estimated Present Value Benefits of Protected Sites Actions for Species Targets

England

81. Over the 78-year period set out in Defra's report, the total collective Species Targets benefits in England amount to (Department for Environment, Food & Rural Affairs (DEFRA), 2022):

- Carbon sequestration: £2404 million
- Air quality regulation: £740 million
- Recreation: £3131 million
- Physical health: £1000 million
- Total: £7,275 million

Wales

82. Using the Barnett equation, the total Species Target (ST) benefit (£7,275m) in England, a comparability ratio (CR) of 0.969%, and the population ratio (PR) of 0.055 we can obtain Species Target benefits in Wales by population.

83. Using the Barnett equation, the species target cost in England, a comparability ratio (CR) of 0.969%, and the population ratio (PR) of 0.055 we can obtain species targets costs in Wales of:

$$(Wales\ ST\ Benefits)_{pop} = [England\ ST\ Benefits] * [CP] * [PR] \quad (26)$$

$$(Wales\ ST\ Benefits)_{pop} = [£7,275M] * [0.969] * [0.055] \quad (27)$$

$$(Wales\ ST\ Benefits)_{pop} = £387.7m \quad (28)$$

84. Using the Species Targets Benefits in England and the area ratio (AR) of 0.159:

$$(Wales\ ST\ Benefits)_{area} = [England\ ST\ Benefits] * [AR] \quad (29)$$

$$(Wales\ ST\ Benefits)_{area} = [£7,275] * [0.159] \quad (30)$$

$$(Wales\ ST\ Benefits)_{area} = £1156.7m \quad (31)$$

Total estimated Wales ST Benefit

= £387.7m – £1156.7m

85. Total in Wales by Benefit:

- Carbon sequestration: £128.1m – £382.2m
- Air quality regulation: £39.4m – £117.7m
- Recreation: £166.9m – £497.8m
- Physical health: £53.3m – £159.0m

Total Benefits

86. Total benefit range is found using the sum of range of benefits from species and wider habitat target benefits:

Total estimated Wales ST and WHT Benefit

= £805.7m – £2404.5m

Net Present Value (NPV)

Option 1 NPV

87. For the current draft of this analysis, the cost of inaction is £0 as this is the baseline for option 3. However, it is clear that doing nothing will have a detriment to society as demonstrated by the INNS case study, as they have a direct impact on species extinction, abundance, and the quality of habitats.

88. Benefits of current legislation are not yet taken into account in this draft.

Option 3 NPV

89. Present Value Estimates Over 78-Year Period from 2022 to 2100. Based on DEFRA Impact Assessment (Department for Environment, Food & Rural Affairs (DEFRA), 2022).

- Total Costs for species and wider habitats targets: £194m – £745.3m
- Total Benefits from species and wider habitat targets: £805.7m – £2404.5m
- NPV of species and wider habitat targets = £611.7m– £1659.2m

90. Benefits of halting the rising costs of INNS over the period 2024 – 2040 amounts to: £3043.8m

91. There may be additional costs associated with halting the rising costs of INNS. Further consideration will be given towards identifying and quantifying these costs during the engagement period. For example, WEL analysis has provided an estimate of circa £20.7m per annum, based on recommendations from a report by Wildlife and Countryside Link. These potential costs are comprised of hiring 340 staff, supporting 75,000 volunteers, and contracting 2,000 workers.

92. This is added as a base line to the lower and higher thresholds of the NPV calculation.

Total NPV of Option 3 = £3655.5m – £4703.0m

Summary of Net Present Value.

Cost-Benefit Analysis of a suite of targets in line with “30 by 30” as set out by the Global Biodiversity Framework		
Options 1 and 2 – No statutory targets and reliance on existing mechanisms	Description	NPV
	Wales leverages its existing legislative framework to address the nature crisis, focusing on sustainable resource management and biodiversity recovery. However, the current approach, lacking statutory targets, faces challenges in accountability and efficiency, risking further biodiversity decline, as highlighted by the plight of species like red squirrels and water voles.	Baseline and thus no cost or benefit = £0m

Option 3 – Statutory biodiversity targets framework	Description	NPV
	<p>Option 3 in Wales’s biodiversity strategy introduces statutory targets for better monitoring and accountability, with a focus on reversing species decline and habitat restoration. It promises increased accountability and alignment with UK Government targets but faces challenges like higher costs and potential bureaucratic delays. This approach represents a proactive commitment to combating biodiversity loss.</p> <p>It is quantified via appropriate comparison by area and population to similar targets set by Defra. There is additionally a considerable benefit recognised by halting the rise in societal costs caused by Invasive Non-Native Species (INNS)</p>	<p>NPV of species and wider habitat targets = £611.7m– £1659.2m</p> <p>Benefits of halting the rising costs of INNS over the period 2024 – 2040 amounts to: £3043.8m</p> <p>Total NPV of Option 3 = £3655.5m – £4703.0m</p>

Conclusion

93. The net present value of establishing species and wider habitat targets = £3655.5m – £4703.0m over the length of these projects.

94. This is a first estimate and further work will be conducted during the ongoing development of this RIA. However, there is clear rationale that the benefits clearly exceed the costs of implementing these actions.