Cynulliad Cenedlaethol Cymru | National Assembly for Wales
Y Pwyllgor Newid Hinsawdd, Amgylchedd a Materion Gwledig | Climate Change, Environment and Rural Affairs Committee
Ymchwiliad Bioamrywiaeth | Biodiversity Inquiry
BIO 12
Ymateb gan : Coed Cadw
Evidence from : Coed Cadw – Woodland Trust

1. Coed Cadw – the Woodland Trust is the UK's largest woodland conservation charity, working for a UK rich in native woods and trees, for people and wildlife. In Wales we have over 14,000 members and 85,000 supporters. We manage over 100 sites in Wales covering 2,697 hectares (6,664 acres). Wales is one of the least wooded countries in Europe, with woodland making up just 14% of the landscape and less than half of this is native woodland.
2. Coed Cadw supports the submission provided by Wales Environment Link (WEL). Our comments below go into more depth on matters of particular relevance to trees and woodland.
3. Paragraphs 5 to 26 summarise the five areas of action we think essential to arresting the current headlong decline in biodiversity. We think the proposed public goods scheme can play a vital part in this, but must be supplemented by substantive action across all parts of Government. Our responses to the Committee's three specific questions are in paragraphs 27to 83.
4. Appendix A provides a summary of evidence on the current state of biodiversity associated with trees and woodland.

## Stopping biodiversity decline

5. The widespread and dramatic decline in biodiversity is now well documented, especially in the State of Nature Reports [1] [2] for the UK and Wales. The report by Plant Link UK "*We need to talk about Nitrogen*" [3] summarises evidence on the substantial and rising impact of atmospheric nitrogen deposition on biodiversity. NRW, in their Corporate Plan to 2022 report that nearly two thirds (63%) of our freshwater bodies are not achieving good ecological status.[4]

[1] Hayhow DB, et al (2016) State of Nature. 2016. The State of Nature partnership. https://www.rspb.org.uk/globalassets/downloads/documents/conservation-projects/state-of-nature/state-of-nature-uk-report-2016.pdf
[2] Hayhow DB, et al (2016) State of Nature in Wales . 2016. The State of Nature partnership. http://ww2.rspb.org.uk/Images/StateofNature2016_Wales_English_1%20Sept%20pages_tcm9-425217.pdf
[3] Plant Link UK (2017) We Need to talk about Nitrogen: Atmospheric nitrogen deposition and its impact on UK wild plant and fungal communities. 20 pp https://www.plantlife.org.uk/uk/our-work/publications/we-need-to-talk-about-nitrogen
[4] NRW (2018) Our Corporate Plan to 2022: Managing today's natural resources for tomorrow's generations. 51 pp https://naturalresources.wales/media/684542/final-corporate-plan-english.pdf

6. Most of our ancient woodlands and ancient trees have no legal protection and are subject to similar pressures to those that cause biodiversity decline generally. Over the coming decades we will lose millions of ash trees to disease. Nearly one third of our ancient woods, including many on the Welsh Government estate, are subject to damaging forestry management and are not under restoration (see Appendix A).

7. We think it is crucial that this body of evidence is fully reflected and further extended in the next edition of the State of Natural Resources Report (SoNaRR).

**More quality habitat, everywhere.**

8. The objective of biodiversity policy should be **at least a halt in decline** (number and abundance) or preferably achieve an increase in biodiversity **AT A NATIONAL LEVEL**. Any policy which only delivers some site based improvement against a decline at a national level is failing.

9. We think that **more and better interconnected habitat everywhere** is the first and most essential requirement to prevent further biodiversity decline and create resilience. We think that loss, damage and fragmentation, experienced across all habitats, are the most universal drivers of biodiversity decline. All **surviving pockets of mature and ancient habitat**, **such as ancient woodland, must be retained** to provide the core resource on which any expansion and recovery is dependent.

10. Biodiversity **decline is the achievement of our generation**. It has happened in the last 50 years. We should not deprive future generations of their **right to experience wildlife everywhere**, as part of their heritage and for their health and wellbeing.

11. **Our designated sites are a critical resource but are not sufficient**, and cannot be sustained in isolation. All remaining long standing habitat now needs to be valued and protected and to form the nodes for expanded habitat networks.

12. We welcome the Welsh Government's commitment in Planning Policy Wales to the development of **green infrastructure plans.** We think that more substantial interconnected networks of habitat and tree cover need to be universal, across both urban and rural areas.

**Action across all parts of Government.**

13. The plan to reverse biodiversity decline needs to be **overarching across all Government departments.** We suggest the Decarbonisation Plan as the model to follow.

14. We think that land use, health and economic policies can be aligned to ensure the essential biodiversity **outcomes also secure co-benefits** for climate mitigation, health and wellbeing, water resources, tourism and economic development. Protecting biodiversity has a crucial role in ensuring resilience in the face of climate change.

15. **The Charter for Trees, Woods and People**, encapsulates these cross-sector co-benefits, and we ask that the Charter Principals are reflected in Area Statements and Wellbeing Plans. The Tree Charter is supported by more than 70 organisations and hundreds of community groups

and is a practical expression of the ideals and ways of working sought by the Wellbeing for Future Generations Act. [5]

**Delivery through landscape scale projects, prioritised in Area Statements.**

16. We suggest that delivery through **landscape scale projects** is the only mechanism that offers sufficiently wide ranging and substantive delivery, and is the best mechanism to apply the "**nature based solutions**" encouraged by government.

17. **Area Statements** provide the opportunity to identify a number of priority projects in each Area. We suggest that significant parts of the **budget for the Public Goods Scheme** should be assigned to such projects, for example, targeting a large river catchment or regionally distinctive area of landscape.

18. Delivery with landowners we think is best led by **local project officers** empowered to facilitate the preparation of farm and forest management plans and able to allocate budget from the Public Goods Scheme.

19. We suggest that the **Summit to Sea project**[6], covering a 60,000 ha area from top of Pumlumon, down through wooded valleys to the Dyfi Estuary and out into Cardigan Bay, can be used to pilot this approach. We **invite the members of the Committee to visit** and talk to stakeholders in this project.

**Enhance our existing wildlife sites as a core resource.**

20. By wildlife sites we mean all sites of high biodiversity value, irrespective of whether they have any legally designated status. For woodland this means **all ancient woodland** including Plantations on Ancient Woodland Sites PAWS). Ancient woods are where most woodland biodiversity survives; once the ancient soils that sustain them are destroyed they cannot be recreated.
21. **Most ancient woods have no legal protection**. This is highlighted in the GMEP Final report [7] *"Only around 5% of woodlands in Wales have been designated for their international and national importance to nature conservation and of this only 26% is classed as in a favourable condition."* (p20)
22. We need to **take all of these following actions** in parallel to use our surviving wildlife sites as the seeds for restoration [8] :-

    - **Improve the quality** of our current wildlife sites by better habitat management.
    - **Increase the size** of current wildlife sites.
    - **Enhance connectivity** between, or join up, sites, either through physical habitat networks, or "stepping stones".
    - **Create new sites** and habitat.

[5] https://treecharter.uk/home.html
[6] http://www.summit2sea.wales/
[7] Emmett B.E. and the GMEP team (2017) Glastir Monitoring & Evaluation Programme. Final Report to Welsh Government - Executive Summary (Contract reference: C147/2010/11). NERC/Centre for Ecology & Hydrology (CEH Projects: NEC04780/NEC05371/NEC05782). P20. http://nora.nerc.ac.uk/id/eprint/518194/ accessed 11.01.19

[8] The Woodland Trust (2018) Our Conservation Principles and Approach. Policy Paper 11 pp http://www.woodlandtrust.org.uk/publications/2018/01/woodland-trust-approach-to-conservation/

- Reduce the pressure on wildlife by **improving the wider environment**, including buffering wildlife sites and reducing pollution.

**A comprehensive response to the drivers of biodiversity decline**

23. This is the test of whether the Welsh Government's Nature Recovery Action Plan (NRAP) is fit for purpose. The State of Natural Resources Report Chapter 2 [9]provides an analysis of the drivers of biodiversity change:-
    a. Variability and **change in climate**
    b. Land and sea use change, leading to **fragmentation of habitats** and biodiversity loss
    c. Nutrient **enrichment and pollution**
    d. **Over exploitation** of natural resources
    e. Introduction of **invasive species, pests and diseases**

24. SoNaRR quotes the summary from the 2011 UK Natural Ecosystem Assessment [10] of the impact of these changes on the extent and condition of the main habitat types. We hope that the next edition of SoNaRR will provide a more comprehensive and updated analysis of the condition of habitats in Wales.

25. A pubic goods scheme is essential, but not on its own sufficient, to stop biodiversity decline. **Some drivers of biodiversity decline, for example, climate change and pollution, cannot be addressed by land management interventions alone**. Reversing biodiversity loss requires responsibility and action across Government. This is why we say that NRAP needs be a cross-government plan.

26. Some land management interventions are better addressed by **regulatory requirements** or the proposed **Economic Resilience Scheme**, especially in relation to the prevention of pollution and the reduction of nitrogen and phosphorus levels.

## QUESTION 1 How could the Welsh Government's proposed Public Goods scheme, set out in Brexit and Our Land, be applied to restore biodiversity?

27. We support the Welsh Government's commitment to "**public funding for public goods**", and applying the strict economic definition of public goods which does not include products such as food or timber for which a market exists. We think that such a Public Goods Scheme should play a key part in funding biodiversity recovery. We welcome the recognition in the "Brexit and our Land" consultation document that an outcome for the new Public Goods Scheme is *'healthy and functioning habitats and ecosystems'*. (p42)

28. We also support the principle of the Public Goods Scheme being an **outcome based scheme.** The aim should be to ensure that substantive areas of high quality habitat **become valuable assets** which generate a sustained income to the landowner. This suggests that outcomes

[9] NRW (2016) Assessment of the Sustainable Management of Natural Resources. Technical Report. Chapter 2. Understanding drivers of change in natural resource use. https://cdn.naturalresources.wales/media/682376/chapter-2-understanding-drivers-final-for-publication.pdf

[10] UK NEA. 2011. The UK National Ecosystem Assessment (UK NEA) – Technical report. Cambridge, UNEP-WCMC

must not be over-narrowly defined in terms of target species or very specific habitat types, and that incentives have to be sufficient to provide realistic levels of income.

29. Our publication "**Sustainable Land Management: How woods and trees can deliver public goods in Wales**" sets out our thinking.[11]

30. We suggest a **multiple ownership premium**, or in some circumstances a requirement, to recognise that the most effective biodiversity interventions will need to apply across adjacent ownerships, for example to ensure habitat connectivity or viability of species management programmes.

31. We believe that the majority of funding under the public goods scheme should **be targeted at farmers and land managers unable to realise substantial commercial income** from farm products and timber. This will particularly benefit diversification and smaller landowners.

32. We support funding for **whole farm / forest management plans** as a means of planning and delivering schemes that integrate farming, forestry and biodiversity, including cross complying regulatory requirements. These should deliver multiple interventions across the whole property.

33. Advisory, technical and peer-to-peer support is essential with **experienced field officers interacting with the site and the landowner**.

34. **Biodiversity outcomes should be funded principally on the basis of the extent and security of features and habitats** rather than on increases in particular individual species. However selected species will be important as quality criteria. The high biodiversity value of ancient woodland derives from the continuity of woodland soil evolution over thousands of years, and much of the conservation value lies in the soil, leaf litter and dead wood. This supports the rich species assemblages that are found in these woods, much of which is in the form of poorly studied invertebrates and lower plants.

35. **Interventions targeted at individual species** should aim to manage sustainable meta populations rather than being focused on individual sites. A good example has been the g pine marten reintroduction programme. The interpretation of species protection legislation hasn't always driven a population centred approach.

36. The **restoration and expansion of surviving areas of priority habitat**, as defined in the Environment (Wales) Act, should be a priority. These habitats, including ancient woodland, cover about 20% of the land area of Wales and are the core resource essential to any biodiversity recovery. Recommended habitat expansion around these core areas could significantly contribute (1,500 ha/year) to the Welsh Government's woodland expansion target. Total cost of restoration and expansion programme estimated at £120 million/year and would be a major part of the Public Goods Scheme.[12]

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[11] Coed Cadw/Woodland Trust (2018) Sustainable Land Management: How woods and trees can deliver public goods in Wales. Policy Paper 8pp bilingual. Feb 2018.
https://www.woodlandtrust.org.uk/publications/2018/02/sustainable-land-management-feb-2018/

[12] Rayment (2017) Assessing the costs of Environmental Land Management in the UK. A report for the RSPB, the National Trust and The Wildlife Trusts

37. There is currently no public funding support for the management of woodland to deliver public goods such as carbon storage, biodiversity, water resource benefits and recreational, health and well-being benefits. This results in **dependence on timber income** which can result in **over-exploitation,** net loss of carbon, and marginalisation of these other substantial public goods.

38. We think the **priority for biodiversity funding in woodland** should be for the **identification, protection and enhancement of high value biodiversity features and habitats associated with ancient woodland and wood pasture.** These are our richest terrestrial wildlife habitat and include the wide variety of other habitats found within with native woodland and wood pasture. Activities sought would include ecological assessment, stock exclusion or appropriate grazing management, invasive species control and restoration techniques such as halo thinning. Payments can be related to outcomes such as the **area under restoration** management and the **status of ancient woodland features** on restoration sites.

39. For **ancient and veteran trees** support should be for assessment and incorporation these trees, and their next generation replacements, into farm and forest management plans, and for meeting requirements of essential care and protection. Payments should be on the basis of the **number and/or area of mature trees secured**, with a premium for ancient trees.

40. To meet the need for **universally available options** we suggest a **substantial farm boundary scheme**, incorporating road and riparian boundaries, and providing a connected **network of dense and wide hedges,** including mature trees, and extending to any associated verge and ditch and wall habitats. Support should be in the form of capital payments and outcome based payments covering fencing, the **retention of mature and ancient trees and hedges**, and an **ash replacement program.**

41. Such agroforestry approaches that actively **promote additional tree cover on farms** through shelterbelts, runoff interception belts, riparian protection zones [13] and other forms of agroforestry, design-in wildlife habitat networks on otherwise intensively managed farmland. They offers long term sustainability through providing some function and fit with modern farming systems and support the farm business and keep "**farmers on the land".** They can also substantially contribute to meeting the Welsh Governments woodland creation target. Agroforestry planting of just 5% of the 1.6 million hectares of farmland in Wales would create **80,000 hectares of new woodland**.

42. In **urban areas** we suggest funding to support **urban tree strategies and assessments**, and public engagement activities that acknowledge the substantial co-benefits from the **retention of mature trees** and meeting a minimum target of **20% tree canopy cover for all urban areas in Wales**. Good examples are the **i-tree Eco reports** now available for Wrexham, Bridgend and Tawe, and currently underway for Cardiff.[14]

[13] Thomas, S. M., Griffiths, S. W. and Ormerod, S. J. (2016), Beyond cool: adapting upland streams for climate change using riparian woodlands. Glob Change Biol, 22: 310-324. doi:10.1111/gcb.13103

[14] https://www.forestresearch.gov.uk/research/i-tree-eco/i-tree-eco-projects-completed/

43. For new forest creation we suggest that public goods funding should be focused on the **area of native woodland creation** specifically designed to maximise non-market outcomes including water resource management, flood amelioration, carbon storage and biodiversity. Favoured criteria should include expansion and connection of existing native woodlands and use of natural processes of regeneration.

44. Funding should also support the retention and management of **riparian, ride edge and open space habitats** in new commercial forests. The Public Goods Scheme can be used to ensure that **these habitats have value and are retained** and managed in newly planted commercial forests.

## Question 2: How could the various existing Welsh Government policies and legislation for biodiversity restoration be applied in the design and implementation of the proposed Public Goods scheme?

### Prosperity for All - Economic policy

45. Economic policy should recognise the substantial economic value that biodiversity provides, for example in terms of health and wellbeing outcomes; water resource management; soil conservation; carbon storage; and pollution amelioration. **Natural capital valuations** [15] can be used to quantify these benefits, and ensure they are acknowledged and considered, but cannot put an intrinsic value on biodiversity in itself.

### Other aspects of Brexit and our Land

46. We welcome the commitment to the provision of an **advisory service** and think it is important that this is not confined to what options the land manager could seek within a scheme, but rather should enable the delivery of the best long term outcomes.

47. We support the need for **investment** as outlined in the proposed new Economic Resilience Scheme, and want to see this **embedded within a sustainability framework**. Without that, the proposal risks recreating the unsustainable management of land that is currently happening. There is a need for a universal framework or vision for land management for both Schemes to avoid the two working against each other (or one compensating for the damage done by the other.)

48. We call for strong set of **basic regulatory rules**. We are concerned about possible use of public funds provided by the Economic Resilience Scheme to pay for basic regulatory compliance, thus contradicting the "polluter pays" principle. As regards forestry we are calling for the Welsh Government to review the UK Forest Standard (UKFS) – see paragraph 51.

49. We have advocated an **auditable sustainable production scheme** for agriculture, equivalent to UK Woodland Assurance Scheme (UKWAS). Without this, there is no definition of what is sustainable. There are alternative approaches, e.g. based on "earned reputation" leading to

[15] https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/methodologies/naturalcapital

lower regulatory oversight. We think such approaches should underpin "**Brand Wales**" as its credibility is dependent on strong environmental standards.

**The Woodlands for Wales Strategy**

50. The Welsh Government's woodland strategy contains many good aspirations and gives clear indication of the direction of travel sought, for example, that all Plantations on Ancient Woodland Sites on the Welsh Government Estate are prioritised for restoration. We suggest that achieving these objectives requires **commitment to targeted delivery** plans, both within the Woodland Strategy and NRAP.

51. One mechanism we suggest to help achieve this is for the Welsh Government to revise the **UK Forest Standard** (UKFS), which is currently used to screen applications for Glastir woodland grants. A **Wales Forest Standard** could include much clearer, specific and measurable requirements to ensure that forestry outcomes funded by the Public Goods Scheme will achieve Welsh Government policy goals.

52. We support the commitment in the Woodland Strategy, and previous recommendations by CCERA, that the Public Forest Estate should continue to be managed to the much **more demanding and independently audited UK Woodland Assurance Scheme (UKWAS),** and that further adoption of this standard by the private sector should be encouraged. UKWAS certification could be made a **necessary condition of funding under the Public Goods Scheme.**

**The Welsh Government's Forest Estate**

53. The Welsh Government and NRW have a considerable opportunity and responsibility to manage their own land to reverse biodiversity decline. The intention to do this is set out in many policy statements including the Woodlands for Wales strategy. We think a much higher priority must be given to the practical delivery of good intentions, including the **commitment to substantive delivery targets**. Areas where particular focus is needed to meet published commitments to address biodiversity loss include:-
    - Delivery of the **commitment to restore PAWS** and improve the condition of priority native woodland and open habitats on the Welsh Government woodland estate.
    - Meet the commitment to ensure that woodlands on the estate play their full role in improving environmental quality, particularly **water and soil resources**, at a local and catchment level in Wales.
    - Meet the **commitment to restore priority open habitats such as deep peat** on the estate.
    - Address the deficiencies exposed by the **UKWAS certification** audits of the estate.
    - Provide reports demonstrating timely and significant progress in these areas.

54. The estate should be delivering public goods of most relevance to the people of Wales, not simply meeting a quasi-commercial role as producers of cheap timber. **Re-purposing of the Public Forest Estate** could play a major role in creating habitat networks in some parts of Wales.

**The Nature Recovery Action Plan (NRAP)**

**55.** Our comments in paragraphs 7-26 set out what we would like to see achieved by NRAP. We are, with other environmental NGOs feeding into the development of NRAP, particularly emphasising the need to **commit to substantial and measurable delivery targets.**

**Decarbonisation plan**

56. We suggest that there needs to **be more focus on climate change risks and mitigation** in land use and biodiversity policy, both to protect biodiversity and to achieve the wider economic and social resilience that is dependent on maintaining a healthy environment.

57. We believe that there is now a need, and an opportunity, to align land use and biodiversity policy with the need to protect the very significant **carbon stores in peatland and native woodland**, as well as enabling a significant increase in tree cover. The soil and vegetation carbon store in broadleaved trees and woodland equals or may even exceed that in commercial softwood crops [16], and the carbon store in peatlands greatly exceeds that in all woodland. [17]

58. Our view is that new woodland can and should include new commercial woodland, provided that **forest design addresses climate mitigation needs and biodiversity** and other co-benefits. It is these latter benefits that should receive funding through the Public Goods Scheme.

**Planning Policy Wales**

59. We greatly welcome the expectations in PPW10 of **Green Infrastructure Plans** and we see the opportunity to create and maintain substantial connected networks of habitats throughout both urban and rural areas. It is vital that these networks incorporate **existing mature habitat, ancient woodland remnants and mature trees**.

60. We wholly **reject the concept of biodiversity offsetting**, which seeks to prioritise economic outcomes by justifying the trading away quality ancient habitat in favour of immature low diversity replacements. **This is not an acceptable approach**. It contributes to biodiversity decline and social inequality[18], and is not consistent with the requirement to maintain and enhance biodiversity in the Environment (Wales) Act. The Future Generations Commissioner has clearly advised that a trading-off approach is not acceptable under Wellbeing for Future Generations Act. [19]

61. We propose its replacement with the principle of **Biodiversity Net Gain**, founded on the protection and retention of all ancient and mature habitats such as ancient woodland and trees. Success requires the retention of existing habitat as core to recovery; new habitat cannot substitute for the continued destruction of ancient habitats.

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[16] Forest Research (2012) Morison, J., Matthews, R., Miller, G., Perks, M., Randle, T.,Vanguelova, E., White, M. and Yamulki, S.. Understanding the carbon and greenhouse gas balance of forests in Britain. Forestry Commission Research Report. Forestry Commission, Edinburgh. i–vi + 1–149 pp.

[17] Office for National Statistics (2016) UK Natural Capital: Experimental carbon stock accounts, preliminary estimates.https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/uknaturalcapital/experimentalcarbonstockaccountspreliminaryestimates#biocarbon

[18] Townsend M (2013) Biodiversity offsets - an unnecessary evil? ECOS 34(3/4) 2013

[19] The Future Generations Commissioner (2017). The M4 Corridor Around Newport Public Local Inquiry. Letter to Planning Inspector 13 September 2017.

**Roads programme and the National Development Framework**

62. Major infrastructure projects contribute to permanent biodiversity decline by destroying mature habitat. Our records show that over the last 10 years such projects have threatened more than 100 ancient woodlands in Wales, and caused damage and loss in about a third of these cases.

63. Whilst major new infrastructure can be judged to be in the national interest this does not allow impacts to be ignored. Future Generations Commissioner has stressed that a dramatic shift is needed in the way decisions are taken in Wales and it is no longer acceptable to give precedence to economic benefits. We ask that legislators **challenge economic and business models that discount environmental destruction**. Biodiversity decline cannot be prevented unless attitudes change on the destruction of ancient habitats for economic purposes.

**64.** We suggest that all major infrastructure projects must include Green Infrastructure plans, and use nature based solutions consistent with the **Biodiversity Net Gain** approach. They also should be assessed on what they can contribute to, and how they impact on, landscape scale projects prioritised by Area Statements. We hope that the National Development Framework will demonstrate this approach.

**Environment (Wales) Act**

65. The Environment Act provides the essential framework for addressing biodiversity decline. We particularly highlight the importance of vigorously applying the Section 6 biodiversity duty and of developing **SoNaRR** and **Area Statements** in a sufficiently determined and focused manner with this objective in mind.

**Health Policy**

66. We applaud the publication by Public Health Wales of "**Creating healthier places and spaces for our present and future generations**[20]" the to support Public Services Boards, public bodies, cross sector organisations and individuals take forward actions that address and enhance the health and well-being opportunities afforded by the natural and built environment. This fully recognises the value of accessible and well-maintained green infrastructure, open green spaces and blue spaces. It demonstrates the substantial co-benefits that arise from securing biodiversity and illustrates the need for the biodiversity recovery plan to be a responsibility across all parts of the public sector.

67. We suggest that the next step is for Health Authorities and policy makers to accept responsibility for enhancing biodiversity on the health estate and through the activities undertaken to deliver health and well-being outcomes. These for example should include **funding of social prescribing activity** which contributes to the care and appreciation of wildlife sites, such as are run by the Actif Woods project in Wales.[21]

**Environmental Governance**

[20] PHW (2018) Creating healthier places and spaces for our present and future generations 2018 Public Health Wales NHS Trust. 28 pp http://www.wales.nhs.uk/news/49430

[21] https://www.coedlleol.org.uk/actif-woods-wales/our-reports/

68. All of the above policy measures may fail if there is no adequate governance mechanism to provide a back stop to ensure that policy is delivered. We are concerned about the **lack of clarity on the Welsh Government's intentions** on post Brexit Environmental governance.

69. The value of effective independent oversight is illustrated in Wales by the work of the Future Generations Commissioner and by actions on air pollution that have been forced on governments by legal action. The need is illustrated by the **serial failure to achieve previous biodiversity targets** set by international treaty.

70. The provisions included in the **Draft Environment (Principles and Governance) Bill** represent a weakening of environmental governance post Brexit and do not achieve the UK Government's stated aim of to "strengthen and not simply maintain environmental protection measures when we leave the EU"[22]. The litigation powers of the proposed Office for Environmental Protection are limited to judicial review and there are questions as to whether there are sufficient measures to ensure its independent status. There remains **a great deal of ambiguity** about the geographical extent of UK Government proposals for environmental governance post Brexit and the position of the Welsh Government.

71. We think **a strong environmental governance structure** must be put in place as we leave the EU. Without this we think there will be a further widening of the already substantial gap between actual delivery and the good environmental intention of the Welsh Governments "world leading" policy

## Question 3: What lessons can be learned from the Glastir Monitoring and Evaluation Programme (GMEP) to ensure effective monitoring and evaluation of schemes to support the restoration of biodiversity. How should the new Environment and Rural Affairs Monitoring and Modelling Programme (ERAMMP) be designed and implemented effectively for this purpose?

72. There can be two different purposes to monitoring, one being **to track the status of biodiversity in general,** and the other to ascertain **whether public goods scheme interventions are achieving the objectives set for them**. There is a danger that focusing on the later can create a situation in which scheme interventions are judged to be successful in their own narrow terms (e.g x km of new hedge established) but fail to achieve the wider purpose of stopping biodiversity decline.

73. Monitoring to detect trends has to be long term, but there are few such studies. ERAMMP needs to commit to a long term programme and be academically independent.

74. As we state in paragraph 8, monitoring that focuses on demonstrating recovery on individual sites whilst on-going decline continues at national level reflects **a failure in policy**. This is a

[22] https://consult.defra.gov.uk/eu/environmental-principles-and-governance/supporting_documents/Environmental%20Principles%20and%20Governance%20after%20EU%20Exit%20%20Consultation%20Document.pdf

problem of either unclear objectives (or wrong objectives) or post-rationalising monitoring outcomes.

75. There are **apparent contradictory messages** between the GMEP conclusions and other assessments, and these need fuller explanation. They may arise from limitations in sampling, time periods and what is being measured.

76. **SoNaRR should provide a framework**, collating and analysing all available information on the overall state of biodiversity in Wales and providing clarity on what Is the particular role and contribution of ERAMMP.

77. There is a considerable challenge in constructing a **sampling regime** that will allow an adequate description of the state of biodiversity. Sampling issues include

    - Biodiversity is not evenly distributed, but is concentrated in "hot spots" such as ancient woodland;
    - our cataloguing of landscape into different habitats is entirely arbitrary and artificial, and means that some characteristic landscapes such as wood pasture and ffridd, and components such as ancient trees, are ignored in assessments;
    - Changes in biodiversity does not necessarily mean decline, creating the difficulties of monitoring against a constantly evolving baseline.

78. **Wildlife is an emergent property of land use**, and inevitably changes as land use changes. A significant increase in tree cover, as envisaged by the Welsh Government's woodland creation aspirations, will benefit some species at the expense of others. This could be an opportunity to create a **future biodiversity** that is more sustainable than the species assemblages that were characteristic of the pre-war farming landscape. Biodiversity recovery indices need to measure absolute diversity rather than change from past locations or species assemblages. We should consider the historic, cultural and geographical heritage from the past without being constrained by it.

79. **Spurious assumptions** can be made about change meaning decline. Succession from open habitats to woodland is a natural process that inevitably changes species assemblages but does not necessarily amount to biodiversity decline. [23] Management interventions in woodland tend to favour light demanding species of the woodland edge and open habitats, but this should not be assumed to "improve biodiversity". Such changes may harm woodland obligate species that depend on shade, high humidity and stable conditions. Such species tend to include lower plants and invertebrates that are much less well recorded.

80. Given these complexities important that environmental NGOs, professional institutes and other specialists **contribute fully** to the design of the ERAMMP programme.

[23] Burton et al (2017) Reviewing the evidence base for the effects of woodland expansion on biodiversity and ecosystem services in the United Kingdom. Forest Ecology and Management 430 (2018) 366–379. https://www.sciencedirect.com/science/article/pii/S0378112718306662?via%3Dihub

81. There is a need for indicators for both **total range**, area, scale and connectivity of biodiversity; for **total amount** of biodiversity; for **retention of ancient and priority** habitats; for **local distinctiveness** and for **pollution levels** e.g.

- Invertebrate biomass.
- Population levels for suites of species, eg butterflies, breeding birds.
- Species diversity within small target areas of habitat.
- Species that indicate habitat quality – ancient woodland indicator species are a good example.
- Species groups such as bats, which are good indicators of habitat density and connectivity.
- Species groups such as lichens that are good indicators of pollution levels;
- pollinator groups that reflect diversity of nectar sources.

82. Monitoring based on individual species cannot give a sufficient picture, but some species are habitat quality measures and rare species have intrinsic worth.

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## APPENDIX A: Biodiversity Decline in Woodland – a Brief Summary

A1. One of the few long term monitoring studies last reported in 2005 and showed a marked decline (32%) in overall species richness of woodland specialist plants since 1971. [24] [25] Sites in Wales are well represented in this study. The Woodland Trust, in partnership with Professor Robert Bunce and the Centre for Ecology and Hydrology, are proposing, subject to funding, to conduct a full resurvey in 2019-2021. This will provide an invaluable 50-year dataset, the analysis of which will provide important insight into changes taking place in the woods and the drivers of those changes.

A2 The State of Nature Report [1] highlights mixed, but predominantly negative, long-term trends in woodland including: that 53% of woodland species have declined and 47% have increased; a 24% long-term decline in the index of change in the abundance and occupancy of woodland species; a 20% decline in the UK woodland bird indicator since 1970; and that 11% of woodland species are threatened with extinction from Great Britain.

A3 State of Nature in Wales Report [2] highlights that species of conservation concern have fared poorly; of the 12 woodland birds listed as conservation priorities , eight have declined in range since the first breeding bird atlas. The ranges of two of these birds – the willow tit and lesser spotted woodpecker – declined by over a quarter.

[24] Kirby, K. J., Smart, S. M., Black, H. I. J., Bunce, R. G. H., Corney, P. M., and Smithers, R. J. (2005). Long term ecological change in British woodland (1971-2001). A re-survey and analysis of change based on the 103 sites in the Nature Conservancy 'Bunce 1971' woodland survey. Final report, Peterborough: English Nature. (English Nature Research Reports Number 653), 139 + appendices.

[25] Wood, C.M., Smart, S.M. and Bunce, R.G.H., 2015. Woodland Survey of Great Britain 1971–2001, Earth Syst. Sci. Data, 7, 203–214. http://nora.nerc.ac.uk/id/eprint/511482/

A4 The GMEP final report [7] however suggests some stability in flora of large broadleaved woods, emphasising the importance of avoiding fragmentation. GMEP monitoring also found "..*an improvement in ancient woodland indicator plant species in large broadleaved woodlands which have increased in the last 10 years. These plants may have benefitted from shadier up until 2007 after which no change has been observed. This is not seen in small woodlands*." It reports "*…stability in all other condition metrics including connectivity, patch size and light/shade index over the last 10 years, And "an increase in BTO/RSPB/JNCC Breeding Bird Survey (BBS) woodland bird indicator over the last 8 years*."

A5 The apparent contradictory messages between the GMEP conclusions and other assessments need fuller explanation. Biodiversity is not evenly distributed, but is concentrated in "hot spots" such as ancient woodland, and it may be that the GMEP assessment is too coarse grained to show what is happening in such hotspots.

A6 The threats and pressures that drive decline in biodiversity in trees and woodland are not well analysed in the current edition of SoNaRR. Several pressures particularly affecting trees and woodland are highlighted below and Coed Cadw intends to commission further work to improve the coverage of this topic in the next edition. We think the drivers are broadly similar to those affecting all wildlife, but in particular:-

**Direct loss and fragmentation**

A7 Direct loss and fragmentation of ancient woodland, hedgerows and loss of mature and ancient trees remains a significant issue. The Woodland Trust's own recording of damage to ancient woodland through the planning system has revealed 440 cases of ancient woods threatened since 2000, of which 69 have resulted in actual loss and damage.

**Nutrient enrichment and pollution of air, land and water**

A8 An evidence synthesis report by the Royal Society concludes that " *Ammonia can also significantly alter the diversity and composition of woodland ground flora and other vegetation*" and notes that "*In small, fragmented woodlands, such as those in the UK, a higher proportion of all vegetation may be strongly affected by ammonia pollution due to all vegetation being nearer the edge*."[26]

**Inappropriate management and over-exploitation**

A9 The NEA assessment [10] referred to in paragraph 24 highlights "overexploitation" as the most substantial driver of woodland habitat decline. We consider the condition of Plantations on Ancient Woodland Sites to be a particular concern. 34% of ancient woodlands in Wales have been replanted with conifers. The restoration of these sites is highlighted as a priority in the Welsh Governments Woodlands for Wales strategy, but the Woodland Trust estimates that UK wide only 11% of sites are in or committed to a restoration process.[27] No grant funding is

[26] Guthrie, S., Giles, S., Dunkerley, F., Tabaqchali, H., Harshfield, A., Ioppolo, B. and Manville, C., 2018. The impact of ammonia emissions from agriculture on biodiversity. https://www.rand.org/content/dam/rand/pubs/research_reports/RR2600/RR2695/RAND_RR2695.pdf

[27] The Woodland Trust (2018) The current state of ancient woodland restoration. Research Report http://www.woodlandtrust.org.uk/publications/2018/07/current-state-of-awr/

currently available for restoration and we still seeing some woods being clear-felled and replanted with another rotation of conifers.

**Tree disease**

A10 The disease Phytophtera ramorum is currently wiping out larch woodland in Wales. The main biodiversity impact of this is the premature felling of larch woodland, particularly on ancient woodland sites. This is very likely to be deleterious to species dependent on stable woodland conditions. There is no monitoring being carried out of these impacts.

A11 Much greater direct biodiversity impact is certain to arise from Ash Dieback disease. We are already seeing the rapid death of young ash trees in all parts of Wales and the current best estimate somewhere between 50 and 99% of all ash trees will be lost. Ash is a "foundation species" supporting hundreds of heavily dependent and obligate species.

**Climate change**

A12 Climate change is complicit in driving many changes to biodiversity, with unpredictable impacts expressed through mechanisms such as establishment of new pests and diseases, phenological effects, changes in species behaviours and distributions, and higher risks of catastrophic damage from fire and storms. The Woodland Trust and the Centre for Ecology and Hydrology lead the Nature's Calendar citizen science project which tracks the effects of weather and climate change on wildlife. On-going research projects using the Nature's Calendar data includes studies of the effects of earlier springs on feeding relationships in deciduous forests; of the changing in timing of spring flowering, of oak bud burst and food availability for Great Tits; changing in timing in the availability of buds, flowers and fruit as food for dormice.

**Invasive Species**

A13 Aggressively invasive species drive biodiversity decline by creating low diversity monocultures. Rhododendron is one of the prime examples having impact on woodlands in Wales. Coed Cadw is one of the partners in the £7.8 million Celtic Oakwoods EU LIFE project running over the next 7 years to control rhododendron in Wales' designated oak woodland sites. This is one example where action focused on designated sites alone cannot be fully effective and £ millions of further funding will be needed to control rhododendron throughout the affected landscapes.

A14 The dominance of low diversity monocultures is a widespread that can be driven by poor management of native species, for example bracken and purple moor grass, or commercial species such as Sitka spruce and western red hemlock.

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