Land Use Review

Assess the feasibility of schemes within land assets for resisting flood and drought while enhancing biodiversity and increasing carbon storage

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Presentation overview

- Background
  - Climate Emergency
  - Nature Emergency

- Project overview
  - Aims and objectives
  - Methodology

- Importance of the project
  - Ecological resilience
  - Carbon sequestration
  - Natural flood mitigation and resilience
  - Legislation and wider influence

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Climate Emergency

- Our planet is warming, leading to extreme weather events.

- The Paris Agreement – aim for global temperatures to stay below 2 degrees[1].

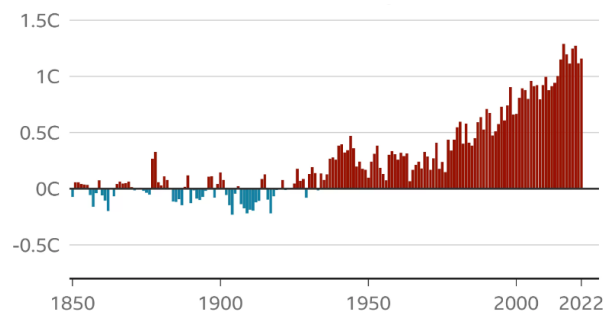- Welsh Public Sector has an ambition to reach net zero emissions by 2030[2].

Figure 1: Change in annual average global temperature from pre-industrial levels (1850-1900) in degrees C. Source: Met Office.

Figure 2: Photograph demonstrating UK flooding. Source: Itv news.

- Land Use currently accounts for 12% of our greenhouse gas emissions and is the only emissions sector which has the current capability to remove emissions from the atmosphere[3].

- Climate Change contributes to the loss and erosion of biodiversity, which in turn perpetuates the climate crisis.

[1]United Nations (2015), The Paris Agreement. https://www.un.org/en/climatechange/paris-agreement
[2]Welsh Government (2021), Net Zero Carbon Status 2030: Public Sector Route Map. https://gov.wales/net-zero-carbon-status-2030-public-sector-route-map
[3]Office for National Statistics (2022), Climate change insights, natural and rural environments, UK: November 2022. https://www.ons.gov.uk/economy/environmentalaccounts/articles/climatechangeinsightsuk/november2022

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Nature Emergency

- Of 240 countries, Wales is ranked 16th worst for nature loss[4].

- On average populations of mammals, birds, amphibians, reptiles and fish have dropped by 69% since 1970[5].

- 1 in 6 species in Wales are at risk of extinction[5].

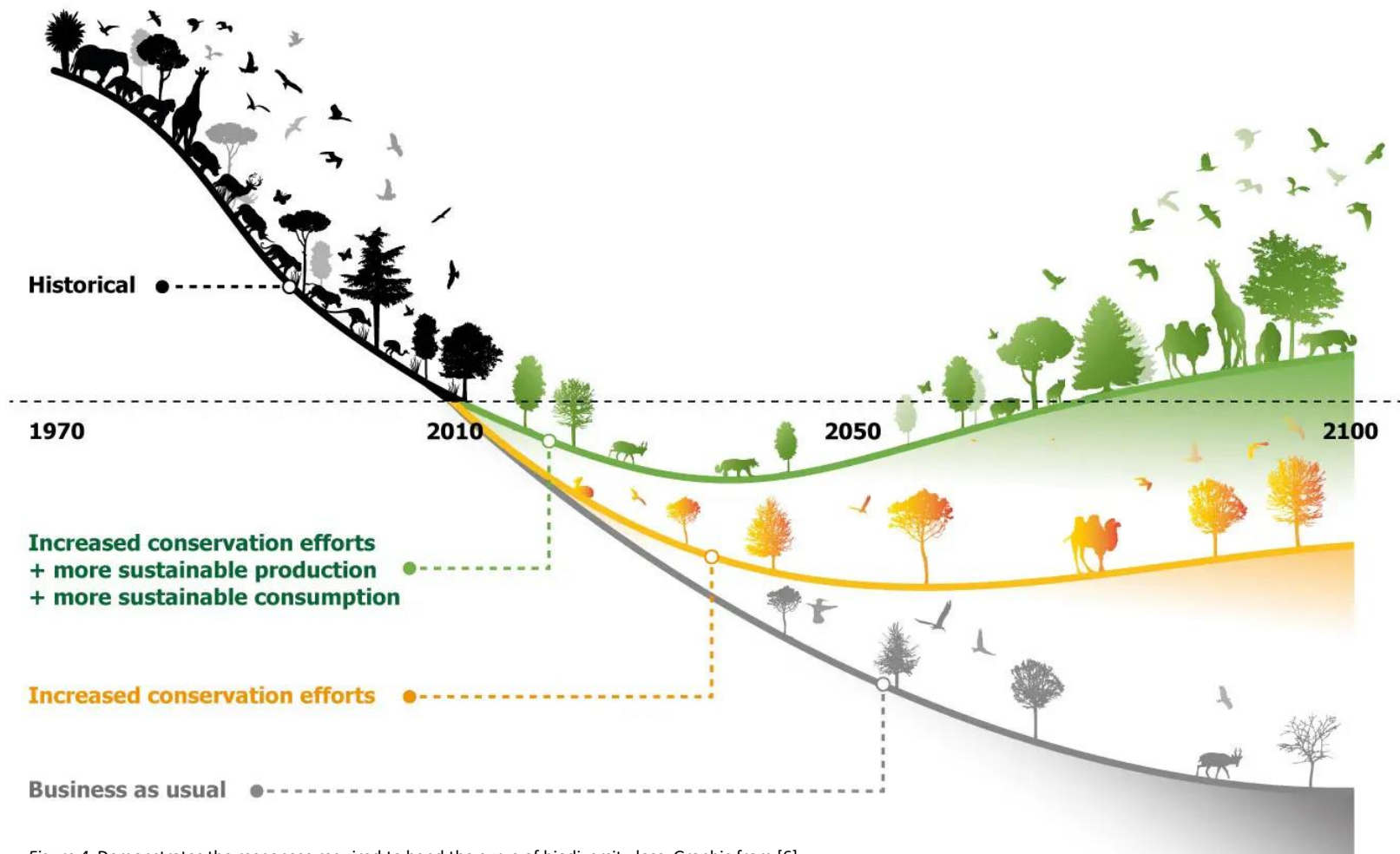*Figure 3*: Diagram demonstrating species reductions in the UK since 1970. Graphics from [5].

[4]Natural History Museum (2020.09.26). UK has 'led the world' in destroying the natural environment. nhm.ac.uk [Online]. Available: UK has 'led the world' in destroying the natural environment | Natural History Museum (nhm.ac.uk).
[5]Burns, F, et al., 2023. State of Nature 2023, the State of Nature partnership, Available at: www.stateofnature.org.uk.

Figure 4: Demonstrates the responses required to bend the curve of biodiversity loss. Graphic from [6].

[6]WWF (2020) Living Planet Report 2020 - Bending the curve of biodiversity loss.
https://files.worldwildlife.org/wwfcmsprod/files/Publication/file/279c656a32_ENGLISH_FULL.pdf?_ga=2.126200078.2006030610.1704800570-827652286.1704800570

Project aims and objectives

Aim:

- Develop a list of priority sites for considerations for alternative use such as future carbon and/or biodiversity projects.

Objectives:

- Develop a matrix to assess sites

- All sites need to be included in the developed matrix

- Identify suitability sites

- Develop a land use report

Methodology

Sites have been put through a matrix – 11 criterion

Prioritised sites:
- high suitability
- low suitability
- discounted

Sites have been identified as high suitability

Further feasibility work with internal teams (E.g Planning, Ecologist)
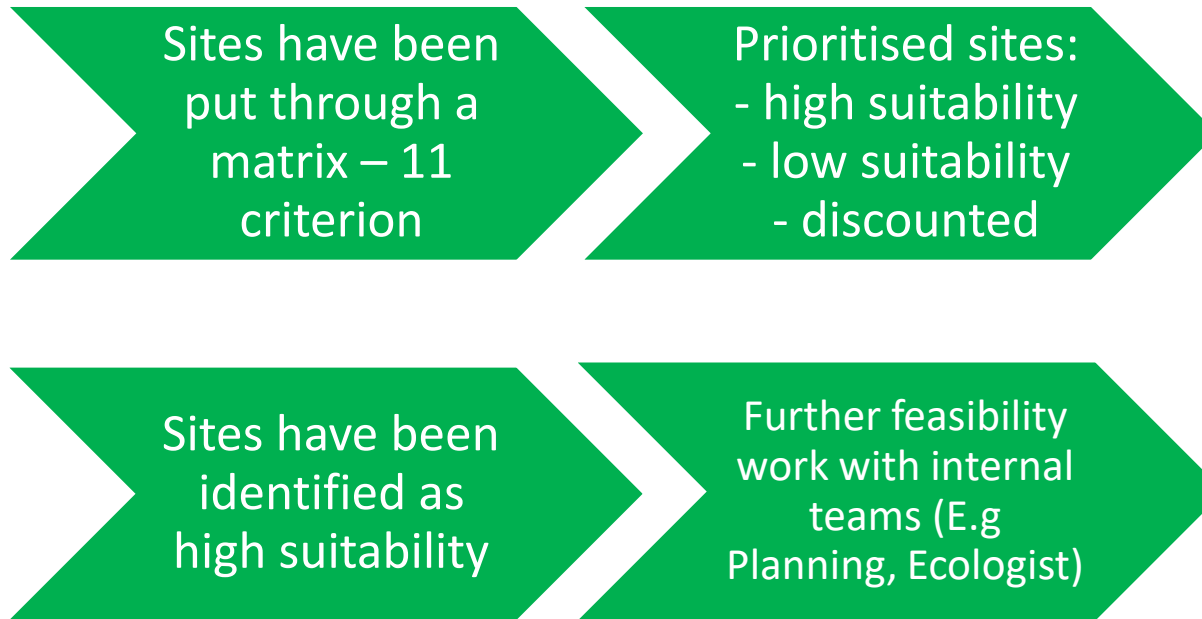
Ecological resilience – 30 x 30

Biodiversity deep dive

The Minister for Climate Change led a deep dive into Wales' approach to implementing the Convention of Biological Diversity (CBD) Global Biodiversity Framework target, to protect at least **30%** of the land and **30%** of the sea by **2030**.

The Biodiversity Deep Dive sought to develop a set of collective actions we can take immediately to support meaningful delivery of the **'30 by 30'** goal, recognising the capabilities we have in Wales, and reflecting our duties under the Wellbeing of Future Generations and Environment Acts.

Llywodraeth Cymru
Welsh Government

There were eight recommendations

1 Transform the protected sites series so that it is better, bigger, and more effectively connected:
- Expand and scale up Nature Networks programme
- Completing the Marine Protected Area network
- Develop a Nature Networks Map for key focus areas
- Increase delivery capacity of National Peatland Action Programme.

2 Create a framework to recognise Nature Recovery Exemplar Areas and Other Effective Area-based Conservation Measures (OECMs) that deliver biodiversity outcomes:
- Establish Nature Recovery Examplar Areas
- Explore the role of new IUCN defined status of OECMs.

3 Unlock the potential of designated landscapes (National Parks and Areas of Outstanding Natural Beauty) to deliver more for nature and 30 by 30:
- Support NPs and AONBs to develop prioritised action plans for nature restoration.
- Realign Designated landscapes priorities to enhance and accelerate nature delivery

4 Continue to reform land and marine management and planning (including spatial) to deliver more for both protected sites and wider land/seascapes:
- Develop strengthened guidance for Policy 9 of Future Wales
- Strengthen the policy protection afforded to SSSIs
- Implement a spatial approach to marine planning.

5 Build a strong foundation for future delivery through capacity building, behaviour change, awareness raising and skills development:
- Integrating the skills and expertise needed for nature recovery
- Include actions to tackle the nature emergency into the overall climate change behaviour change programme
- Improve education and awareness of the nature and climate emergency and actions individuals and organisations can take.

6 Unlock public and private finance to deliver for nature at far greater scale and pace:
- Develop a clear policy position on private investment in nature recovery
- Explore sustainable funding mechanisms and opportunities to support work delivering the marine component of 30 by 30
- Increase public investment in nature's recover by ensuring the response to the nature emergency is integrated across government departments.

7 Develop and adapt monitoring and evidence frameworks to measure progress towards the 30x30 target and guide prioritisation of action:
- Establish a monitoring and evidence task group.

8 Embed Nature Recovery in policy and strategy in public bodies in Wales:
- Revise the Natural Resources Policy and our National Biodiversity Strategy
- Strengthening delivery of the NRP and Section 6 of the Environment Wales Act to support the mainstreaming of delivery.
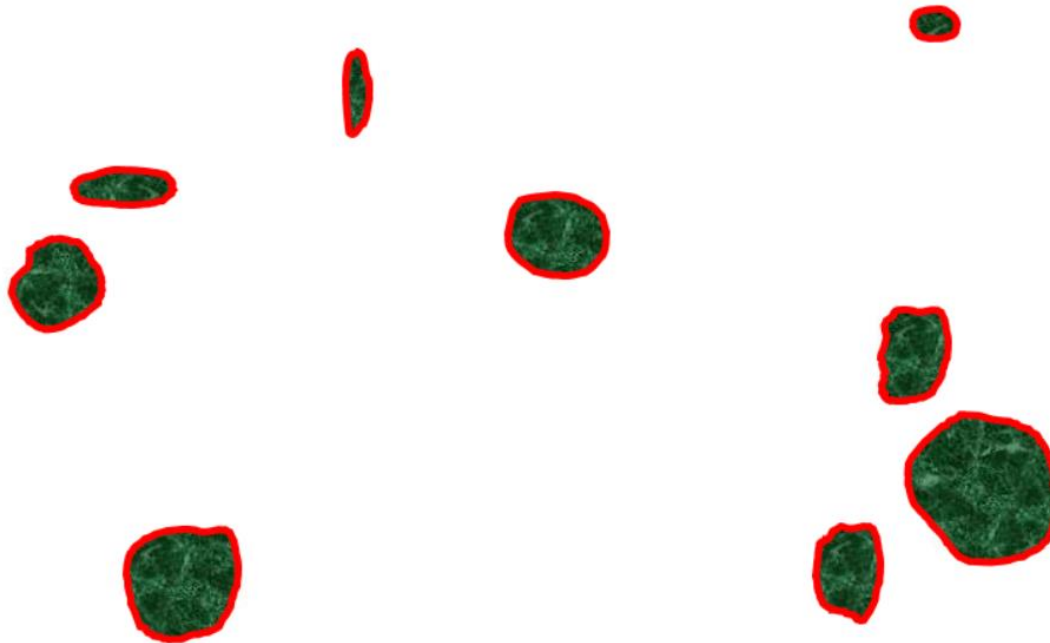
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OGL

Table 1: The 8 recommendations developed during the biodiversity deep dive to support natures recovery. Amended from [7].

Biodiversity Deep dive[7]:

- Protecting at least 30% of the land and 30% of the sea by 2030

- 8 recommendations

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[7]Welsh Government (2022.Oct, 03). *Biodiversity Deep Dive.* GOV.WALES. [Online]. Available: https://www.gov.wales/sites/default/files/publications/2023-05/biodiversity-deep-dive-progress-update-october-2022-to-april-2023.pdf.

Ecological resilience – Habitats Network

Protected sites[8]:

- Often not in good condition

- Sites are impacted by wider habitat loss

- Sites impacted by fragmentation

Figure 5: Demonstrates the impact of fragmentation on our priority sites created by J.Latham/NRW. Based [8].
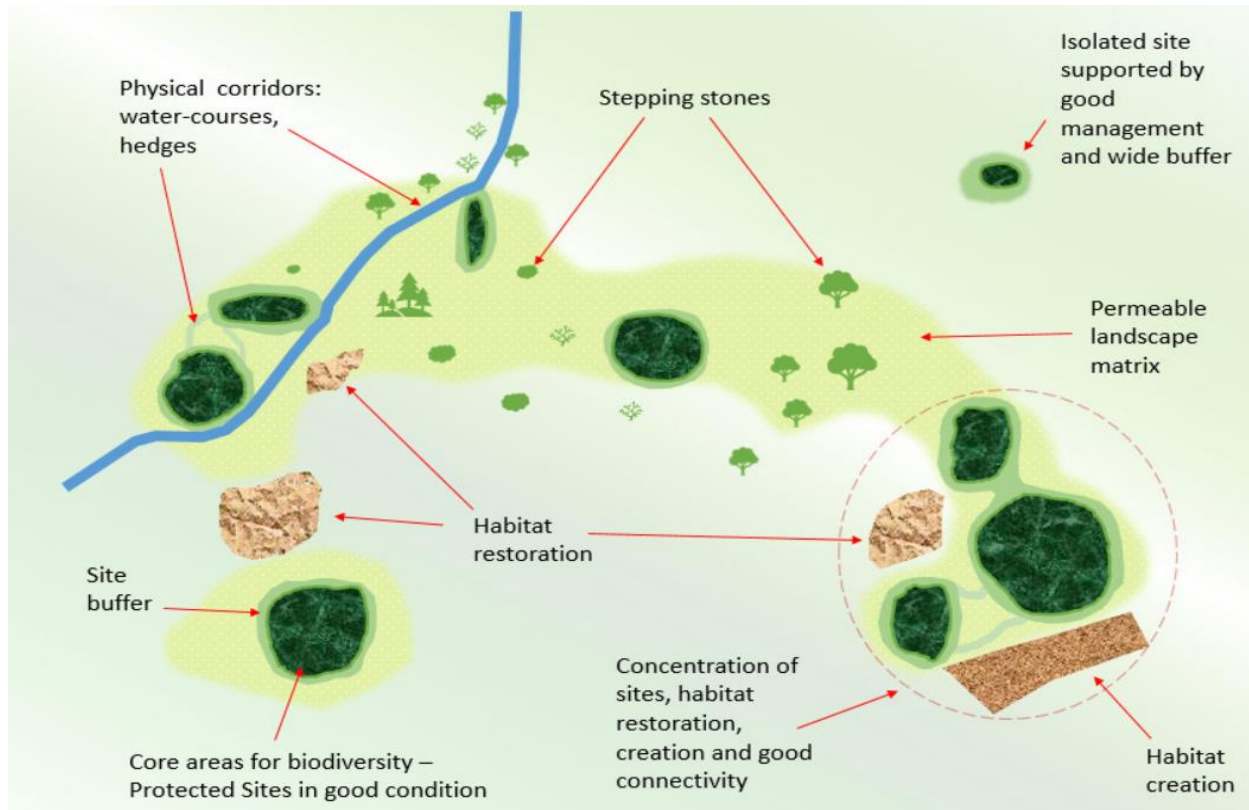
[8]Isaac, N.J et al., 2018. Defining and delivering resilient ecological networks: Nature conservation in England. Journal of Applied Ecology, 55(6), pp.2537-2543.

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Ecological resilience – Habitats Network

Figure 6: An idealised ecological network created by J.Latham/NRW. Based on [8].

Nature Network[9]:

- 3-year programme

- aims to address the nature emergency in Wales

[8]Isaac, N.J et al., 2018. Defining and delivering resilient ecological networks: Nature conservation in England. Journal of Applied Ecology, 55(6), pp.2537-2543.
[9]Natural Resources Wales (2023.April, 11). *Nature Networks - information on nature projects.* naturalresourceswales.gov.uk. [Online]. Available:
https://naturalresourceswales.gov.uk/about-us/what-we-do/our-projects/nature-projects/nature-networks-information-on-nature-projects?lang=en.

Ecological resilience – B-Lines

FCC landholdings for biodiversity opportunities

⬡ Survey Polygon

B Lines - Insect Pathways - B Lines Insect Pathways

◇

Figure 7: Demonstrates buglifes network of insect pathways connecting the best remaining wildflower-rich habitats in relation to high suitability site locations. Taken from [
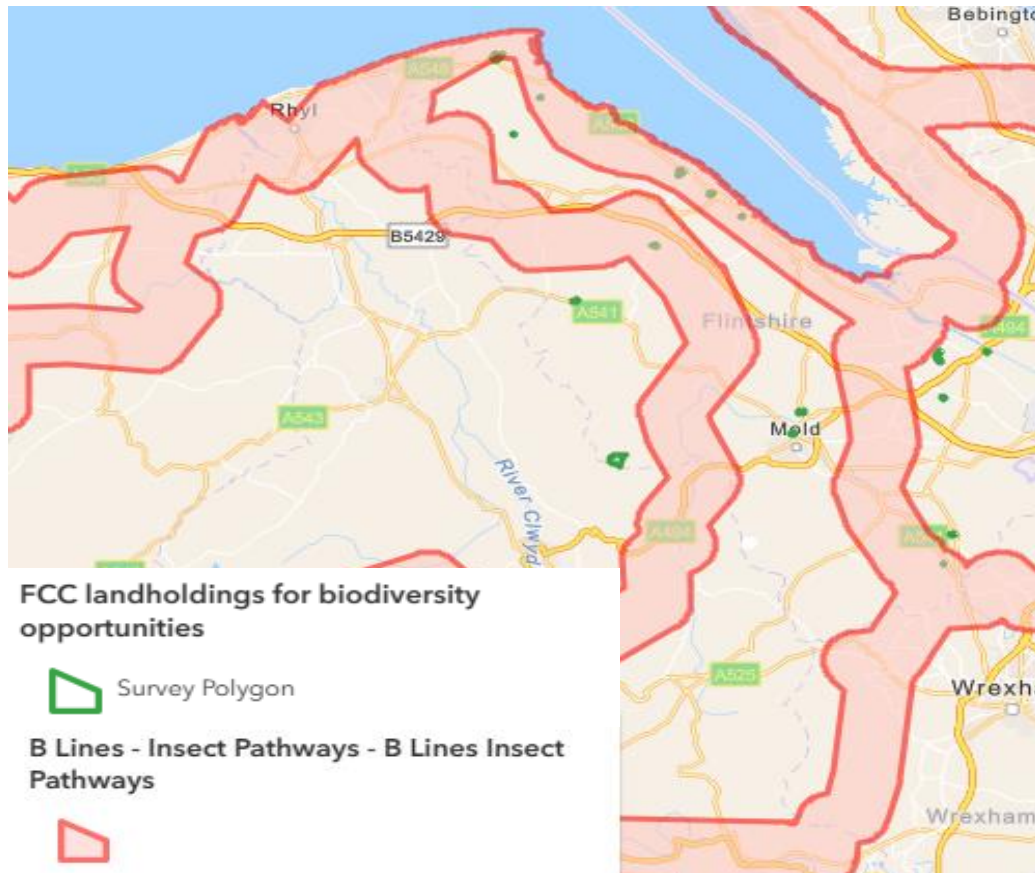
- Over 97% of all flower-rich grasslands have been lost since the 1930s[10].

- B-lines is a network of 3-kilometre-wide insect pathways[11].

- Reduce the impact of climate change on UK pollinators[11].

[10]Stevens, D. P., Smith, S. L. N., Blackstock, T. H., Bosanquet, S. D. S., Stevens, J. P. 2010. Grasslands of Wales. A survey of lowland species-rich grasslands, 1987–2004. University of Wales Press, Cardiff.
[11]Buglife (2021). B-Lines. https://www.buglife.org.uk/our-work/b-lines/

Carbon sequestration

Flintshire County Council 2018-2030 Emissions
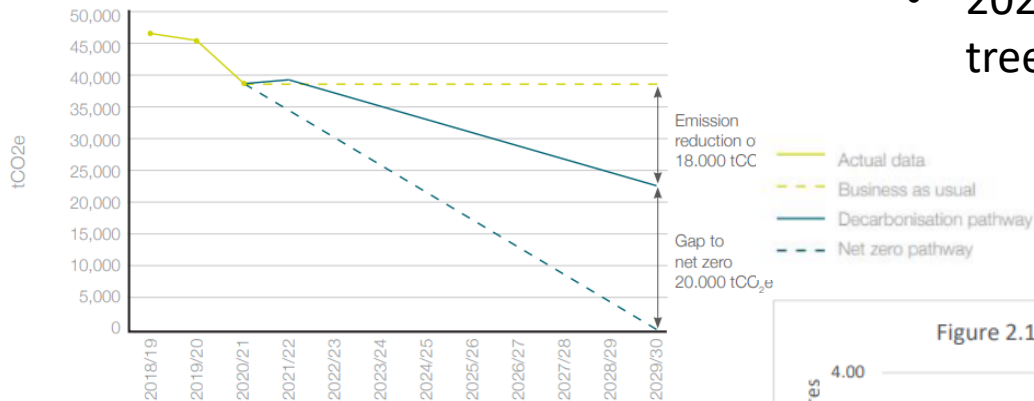
Figure 8: Flintshire County Council's projected emissions to 2029/30. Taken from [12].

- 2016 – 2020 only **1,470** hectares of new planting in Wales[11].

- Current methodology estimates that FCC land sequesters **1,510** tCO_2e per year[11].

- 2022-2023 (financial year) **1,083** ash trees were felled by our tree team.
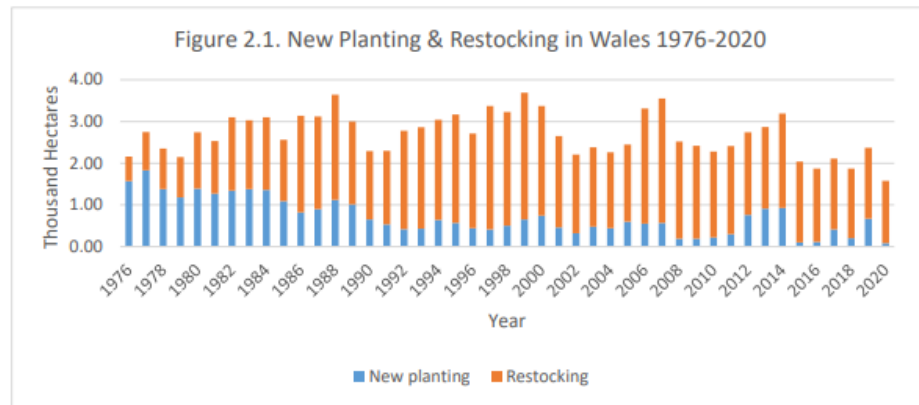
Figure 9: Planting & restocking in Wales 1976–2020, thousand hectares per year. Taken from [13].

[12]Flintshire County Council (2022, Feb. 15). *Climate Change Strategy.* Flintshire.gov.uk. [Online]. Available: https://www.flintshire.gov.uk/en/PDFFiles/Climate-Change/Climate-Change-Strategy-2022-2030.pdf
[13]Forestry Commission (2020) Forestry Statistics 2020. www.forestresearch.gov.uk/tools-and-resources/statistics/forestrystatistics/forestry-statistics-2020/

Climate risk & adaptation

- 2023 had the heaviest March rainfall in England & Wales

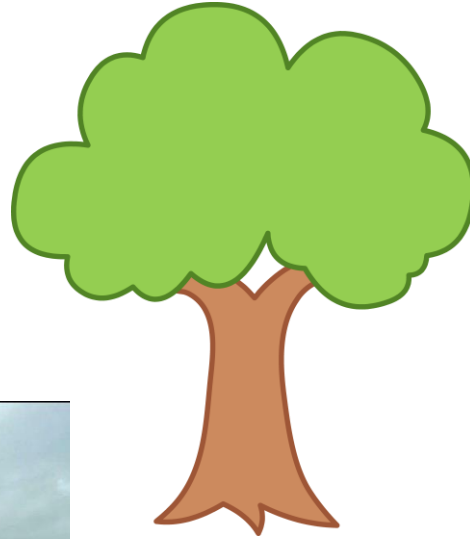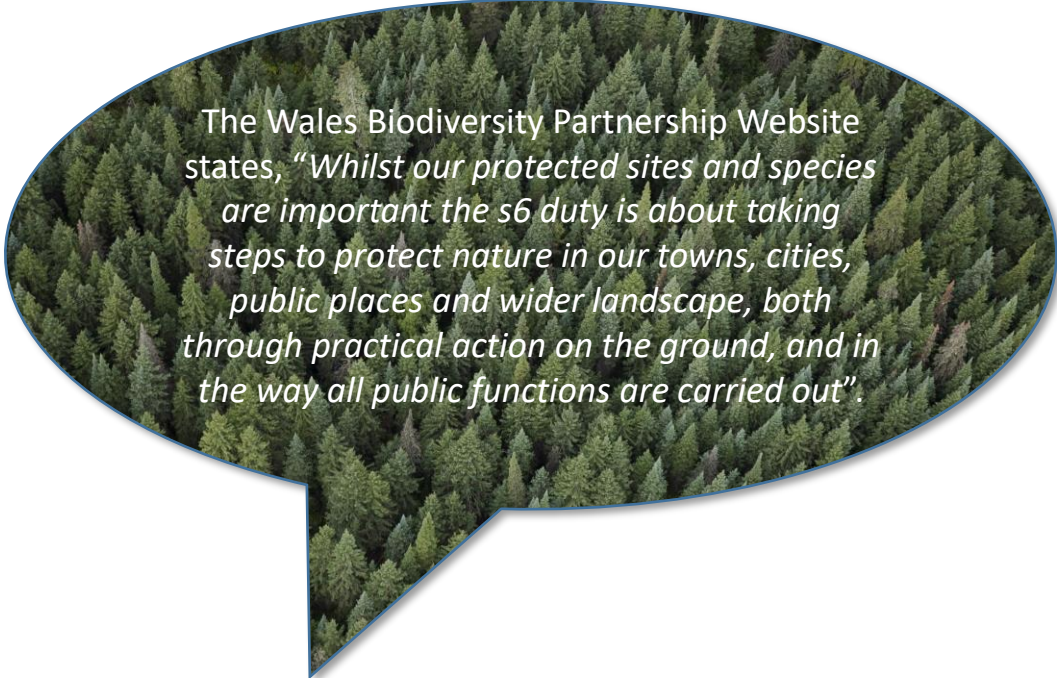*Figure 10*: Wildfire on Horseshoe Pass and Llantysilio Mountain, Denbighshire in 2018. Source: Shropshire Star.

Figure 11: Flooding experienced in Flintshire School.

- Nature-based solutions can help to reduce extreme weather events caused by climate change

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National and Regional Policies

- Section 29 of Environment (Wales) Act 2016 on carbon budgeting

- Section 6 of the Environment (Wales) Act 2016

- The Well-being of Future Generations (Wales) Act 2015

- Bionet NRAP

- Climate Change (Wales) Regulations 2021

The Wales Biodiversity Partnership Website states, *"Whilst our protected sites and species are important the s6 duty is about taking steps to protect nature in our towns, cities, public places and wider landscape, both through practical action on the ground, and in the way all public functions are carried out"*.

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Council policies

- Council plan
- Climate change strategy
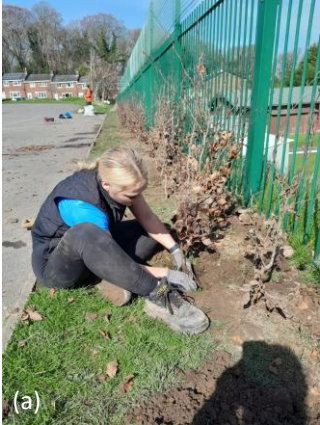- Asset management plan

Source: Stock images
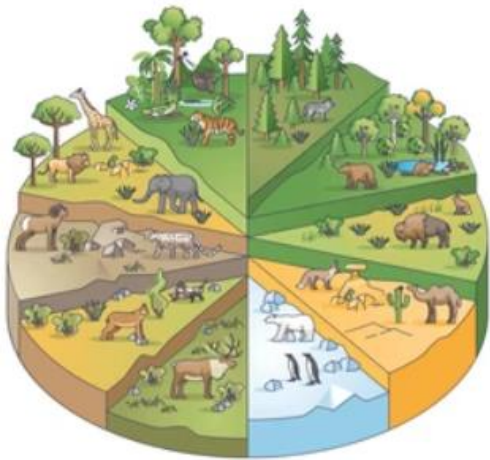
Source: Stock images

- Biodiversity and Ecosystem Resilience Duty Delivery Plan

- The Urban Tree and Woodland Plan

A joined-up approach

- Climate change has caused major changes to nature on land and at sea.

- Well-designed nature-based climate mitigation measures have positive impacts for nature

- Healthy ecosystems generate many benefits for people

- Reduced impact of storms, flooding or coastal erosion.

- 47% of carbon stocks are found within existing protected areas[14].

- Restoring degraded sites in the network will protect carbon stocks and, in some cases, increase them via sequestration.

Figure 12: Climate and biodiversity team coming together to create nature-based climate mitigation across the county. (a) Tree planting. (b) Wildflower meadow creation with the help of primary school pupils. (c) Creation of a shelterbelt at Flint Solar Farm to reduce the impact of future storms.

[14]Field, R., et al., The value of habitats of conservation importance to climate change mitigation in the UK. Biological Conservation, 2020. 248: p. 108619.

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Contact

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