

# Wales National Peatland Action Programme

## Case Study Database

A compilation of good practices and lessons learned to bring innovative subnational solutions to global problems



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RegionsWithNature

## Introduction

Worldwide, peatlands contain up to one-third of the world's soil carbon, which is twice the amount of carbon as found in the world's forests. Keeping this carbon locked away is absolutely critical to achieving global climate goals. However, about 12% of current peatlands have been drained and degraded, contributing to 4% of annual global human-induced emissions (Global Peatlands Assessment: The State of the World's Peatlands | UNEP - UN Environment Programme).

## Author

Welsh Government

## Project Summary

The National Peatland Action Programme is an initial 5-year plan of peatland restoration in Wales.

The programme prioritises action across the main areas of peatland damage for the combined benefit of biodiversity, decarbonisation and other ecosystem services.

The National Peatland Action Programme aims to facilitate co-ordination of efforts across the territory.

It also puts special focus on communicating the value of Welsh peatlands and on working with a wide range of projects and partners.

## Key Information

### Location

Wales, United Kingdom

### Areas of focus

Natural conservation, partnerships, capacity building, climate change and biodiversity, and monitoring tools

### Founded in

2019

### Investment

19/20: £1.889m

20/21: £2.069m

<b>Aichi addressed</b>	<b>Biodiversity</b>	<b>Targets</b>
Strategic goals C, D and E		

<b>Sustainable addressed</b>	<b>Development</b>	<b>Goals</b>
SDGs 3, 6, 13, 15 and 17		

"Wet peatland" by Alasdair MacDonald



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## BACKGROUND AND CONTEXT

Carbon-rich peatland environments across Wales<sup>1</sup> are in need of urgent action to reverse habitat loss and poor condition. Peatlands can only deliver the full range of environmental benefits and services when in good ecological condition.

Peatlands extend over at least 4% of the Welsh landscape and comprise one of the region's principal natural resources. They support a rich suite of important habitats and species and deliver a range of regulating ecosystem services of primary importance to the environment and people of Wales. Approximately 50% of all Welsh peatlands are designated and peatlands occur on 250 Welsh Sites of Special Scientific Interest (SSSIs). Peat is a fragile natural resource that takes around 1,000 years to build up to one metre in thickness. In Wales, peatlands occur in upland and lowland settings. Peat has formed widely in Wales as a result of the cool wet climate acting in combination with the undulating landscape and local hydrological conditions.

Welsh peatlands also provide a rich-record of how the landscape has evolved since the last ice age. Wales supports the largest expanses of near-natural blanket mire in southern Britain and also much of the ecological diversity of this habitat found nationally. Lowland raised bog and fen are more localised but provide a critical nature conservation resource of wider UK and European significance.

Wales' peatlands make a significant contribution to Welsh and British cultural heritage, enabling the preservation of artefacts and whole landforms within and beneath peat, and also pollen and other microfossils which are locked away as successive peat layers accumulate.

The current condition of the Welsh peatland resource reflects the long-legacy of human modification and management and also well over half a century of site safeguarding and increasingly positive management supported by statutory designation (notably SSSI and Special Areas of Conservation (SAC)) and a succession of environmental land management schemes and restoration initiatives. Current pressures upon the semi-natural peatland habitat resource were assessed most recently for the 2019 Article 17 reporting round (NRW, 2018a) and the most prevalent include:

- Atmospheric nutrient deposition
- Under-grazing / inappropriate grazing management, often coupled with management neglect
- Diffuse and point source pollution to surface and groundwaters
- Drainage
- Problematic native species
- Non-native species

Despite best efforts to improve peatland condition through the use of mechanisms such as SSSI management agreements, National Nature Reserves (NNR) management, LIFE programmes, Glastir and its predecessor schemes, and a range of other restoration initiatives, it is estimated that no more than 10% of the area of the near-natural and modified peatland resource is likely to be in favourable condition. This assessment is based on evidence assessed for the 2019 Article 17 reporting round which covered the seven core peatland habitats found in Wales which are listed under Annex 1 of the EC Habitats Directive, amounting to a sum area of 56,248 ha; (NRW, 2018a). The situation in Wales is broadly consistent with the rest of the UK, where an estimated 80% of the peatland resource is estimated to be in a "damaged and deteriorating state" (IUCN, 2018).

<sup>1</sup> Wales is a country that forms part of the island of Great Britain and of the United Kingdom. The United Kingdom of Great Britain and Northern Ireland is a "sovereign state" that is formed of four countries: Wales, England, Scotland, and Northern Ireland. This means that Wales has two governments - the Welsh Government and the Government of the United Kingdom of Great Britain and Northern Ireland, each one with power and responsibility over different things. Senedd Cymru (the Welsh Parliament in Welsh) and the Welsh Government have responsibilities for a range of subjects - these include agriculture, the economy, education, the environment, health and social services, housing, local government, transport, devolved taxes and the Welsh language. Visit [wales.com](http://wales.com) to find out more

Designation, agri-environment support and land management interventions have all proved highly beneficial in promoting the sustainable management of peatlands in Wales. However, these measures have been fragmented and lack wider strategic coordination and there remains a growing requirement for a national programme<sup>2</sup> of concerted activity. This is needed to deliver against the Welsh Government Peatland Policy ambition and respond effectively to the climate change emergency and nature crisis.

Ensuring peatlands are restored to functioning ecosystems will also help the natural environment in Wales become more resilient to the effects of climate change.

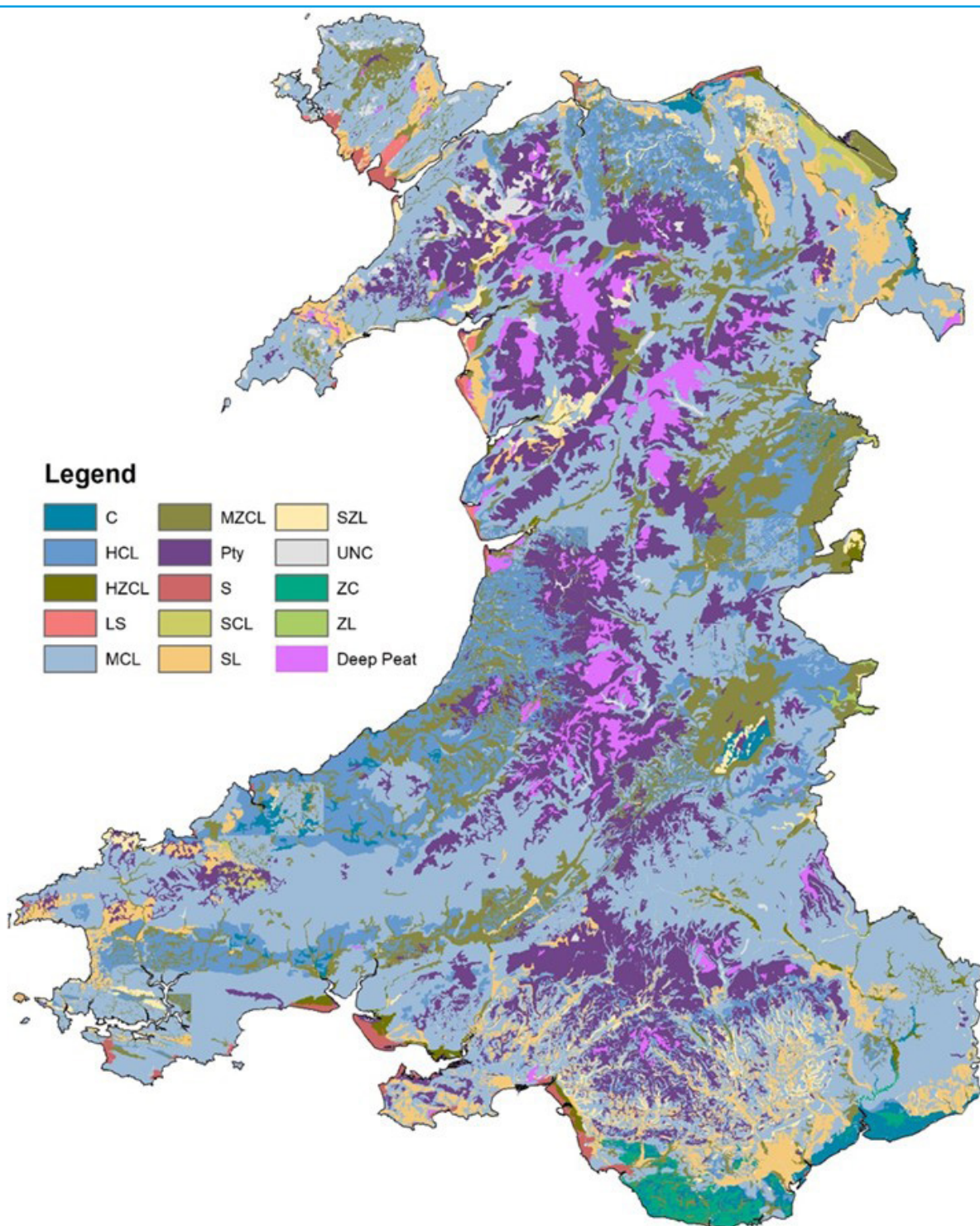


**Figure 1.** Rich-fens are one of the key peatland habitats in Wales and support a diverse range of plants and insects. Cors Erddreiniog National Nature Reserve, Anglesey



**Figure 2.** Significant peat erosion with hags and wide gulleys; Cribin Fawr, Gwynedd. National Nature Reserve, Anglesey

<sup>2</sup> In Wales, national policies and programmes refer to the entire Wales territory, but not the UK's. To learn more about this, please refer to footnote 1 in page 4 or visit [wales.com](https://wales.com)



**Figure 3.** The Soils of Wales Map (Cranfield University 2019) illustrating the distribution of both deep peat and peaty topsoils (1;250,000th scale, using the Soil Survey of England and Wales). The deep peats in this figure include raw peat soils and earthy peat soils

## KEY ACTIVITIES AND INNOVATIONS

Wales' first action programme represents a significant milestone for peatland restoration and a significant investment by Welsh Government. It provides the resources, direction and coordination to begin the process of delivering against the Peatland Policy ambition.

The Welsh Government's long term Peatland Policy (Welsh Government Ministers Decision Report 26, June 2019) is ambitious and focusses on (i) ensuring "all peatlands with semi-natural vegetation are subject to favourable management/restoration (a minimum estimated area of 30,000 ha)", and (ii) restoring "a minimum of 25% (~c. 5,000 ha) of the most modified areas of peatland".

The Programme targets peatland bodies most in need of restoration as well as safeguarding those in good condition and recovering. **The aim is to deliver 600-800ha of restoration per year** and activity is delivered across a range of land uses on both private and public land by Natural Resources Wales (NRW) and partner organisations.

**Figure 4. Drained blanket bog on the Migneint (Gwynedd)**



**Figure 5. Cutting and harvesting of over-grown rich-fen vegetation to enable longer-term grazing as part of the sustainable management of this peatland site for both biodiversity and carbon benefits**





## Environmental monitoring

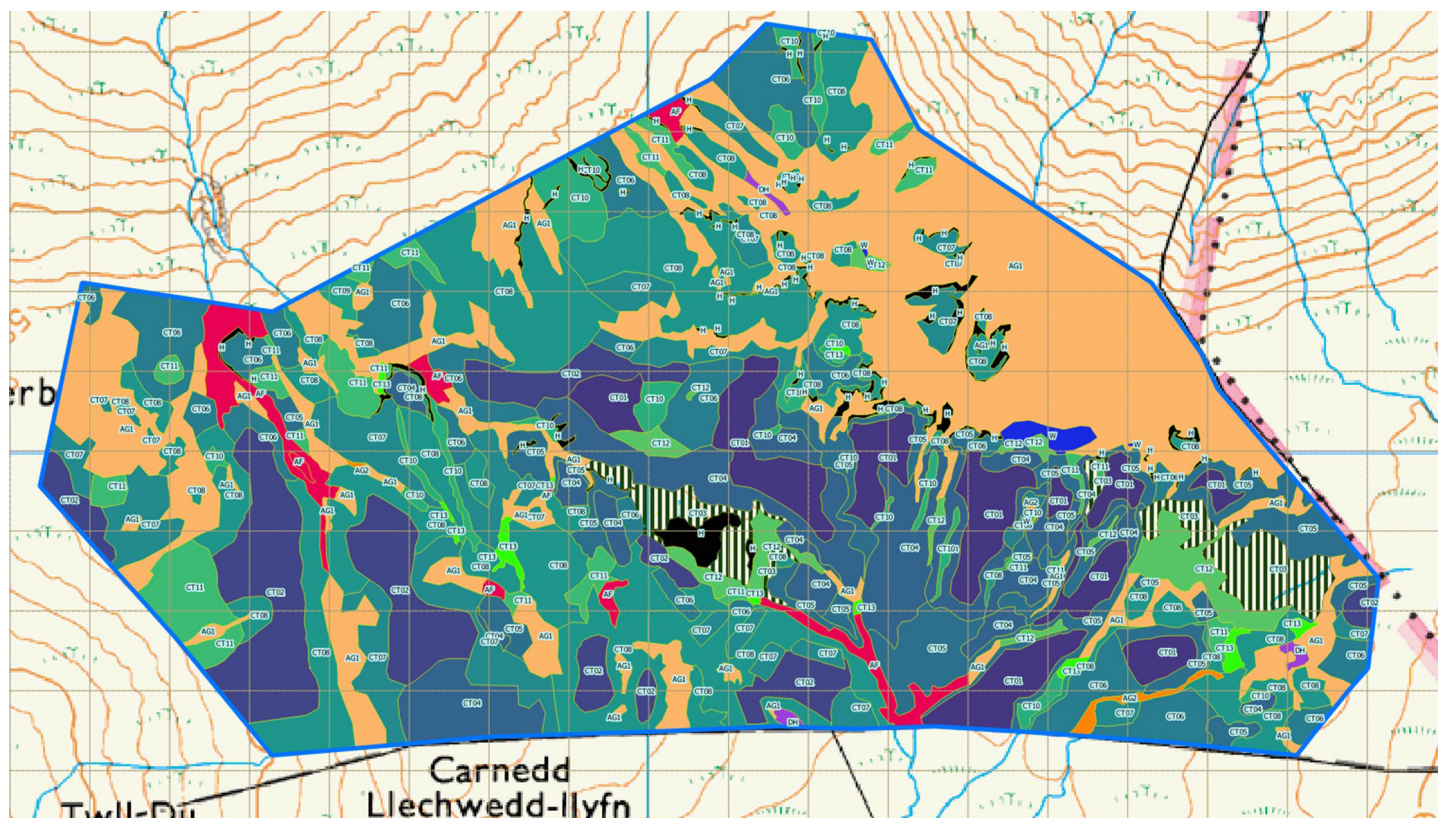
### Condition mapping

A monitoring programme for NPAP is under development. One established element of this concerns mapping the baseline condition of a selection of NPAP sites before restoration commences.

During 2021/22, the programme commissioned two such assessments under Lot 2 of the Peatland Survey Framework and these have been published as Turner (2021). This methodology was based upon the earlier condition mapping contract funded by Welsh Government in 2020/21 (Forster-Brown and Shepherd, 2021). Figure 6 provides the condition map produced for Y Gylchedd. In the future, NPAP will use this condition mapping approach for a range of applications, including:

- The production of baseline condition maps aligned to LULUCF reporting categories to enable assessment of baseline GHG emissions and reporting of changes in emissions resulting from restoration. These maps will also provide essential ground-truthing evidence to support future broader-scale assessments of condition based on Earth Observation evidence.
- Condition evidence to support other reporting priorities under the new Habitats Regulations Assessment and SoNaRR drivers and NRW's wider protected sites monitoring programme.
- A peat condition layer for the new Peatlands of Wales Map.
- Condition maps provide the basis for the stratified selection of permanent point-based sampling plots for assessing real change, both background and in relation to NPAP restoration.

**Figure 6. Condition map produced for Y Gylchedd. Part of trial contract for condition mapping and assessment**



## Hydrological responses

The programme is continuing to develop an approach for monitoring hydrological responses to restoration. Hydrological metrics – particularly water table level – respond faster to restoration than changes in vegetation and habitat composition and this information also helps to assess transitions to lower GHG emissions states.

During 2021/22, NPAP continued the development of an overall monitoring strategy for the hydrological monitoring needs. It implemented, through contracts, the baseline monitoring and instrumentation of two sites, namely Cwrt – an afforested peatland site near Trawsfynydd, and Pentrosfa Mire SSSI, near Llandrindod Wells – a complicated part groundwater-fed fen site, where initial investigation is needed as a prelude to a future programme of planned restoration work. Work at the latter site was funded by NRW's Biodiversity and Resilient Ecosystems Fund rather than NPAP.

## Forest

There is continued surveying of afforested peat on the Welsh Government Woodland Estate (WGWE) to inform the upcoming Forest Resource planning process. Every 10 years NRW reviews the long-term management plans for each forest area. These are compiled in a new Forest Resource Plan (Figure 7).

**Figure 7. Map example of the peat survey results for Alwen Forest Resource plan Area**



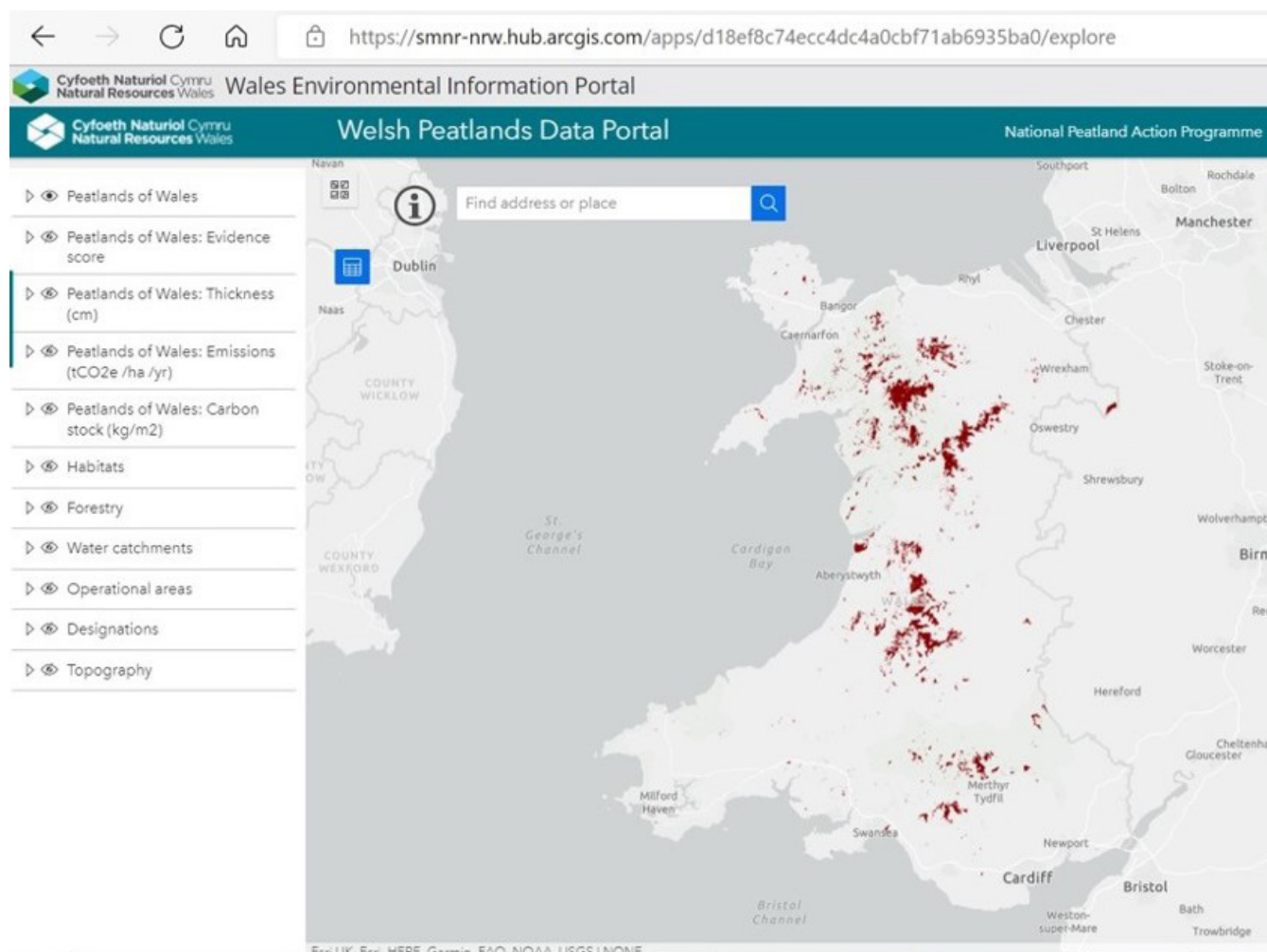
## Welsh Peatlands Data Portal

A peatland Geographic Information System (GIS) and data specialist was appointed to create The Welsh Peatlands Data Portal. This is designed as an interactive web-based mapping tool that brings together maps and associated datasets to facilitate engagement with partners undertaking or planning peatland restoration and to support NPAP's own action planning and reporting requirements.

The peat portal hosts all of the openly available peat data in a publicly accessible format for the first time. The portal includes various peatland related spatial data layers, including the recently completed new peat distribution and carbon attribute maps funded by Welsh Government.

Work has also been underway to develop standardised peatland restoration activity reporting formats, across NPAP and partners, to streamline reporting. NPAP has continued with preparatory work to develop a national outcomes monitoring programme to help evidence the ecological (biodiversity) and climate change mitigation outcomes of the programme, by trialling approaches and developing key collaborations.

**Figure 8.** Launched in April 2022, the first version of the Welsh Peatlands Data Portal provides: interactive access to existing maps and data relevant to peatland restoration in Wales; publication of the new Peatlands of Wales map series that provides current best estimates of peat distribution across Wales; a measure of the confidence we have in the presence of peat at a given location; peat depth measurements; carbon stock and emissions estimates across the peatland resource



## ENVIRONMENTAL IMPACTS

In 2021/22 NPAP built on the foundations of the first successful year to deliver an estimated c.2000ha of restoration activity across five of the six priority action theme areas.

**Figure 9.** Large-scale upland blanket bog restoration on Cerniau, part of Berwyn SAC. This area is included in a S16 agreement established in 2020/21, with works delivered across 2020/21 and 2021/22. The resulting pools closely mimic the natural patterning which is a feature of actively growing peatlands and of significant importance for peatland biodiversity – few Welsh peatlands now exhibit these features, with erosion and drainage likely to be key factors. (Photo: Alexander Falkingham)



**Figure 10.** Map showing the location of restoration sites, and the main type of restoration activity at each, overlain on the Wales Peatland Map

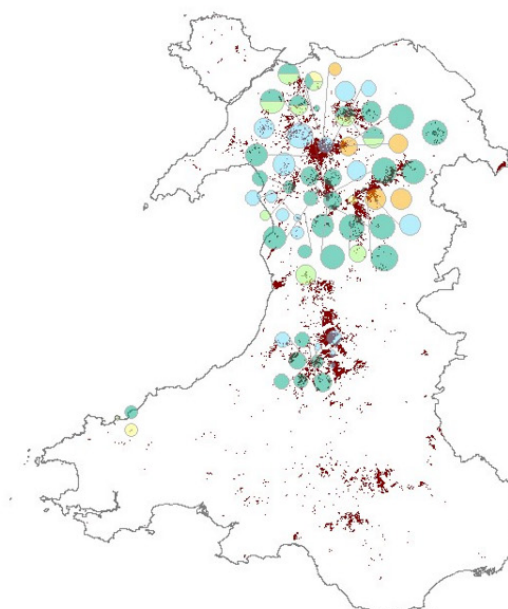
### Adrodd ar Weithgareddau Reporting Activities

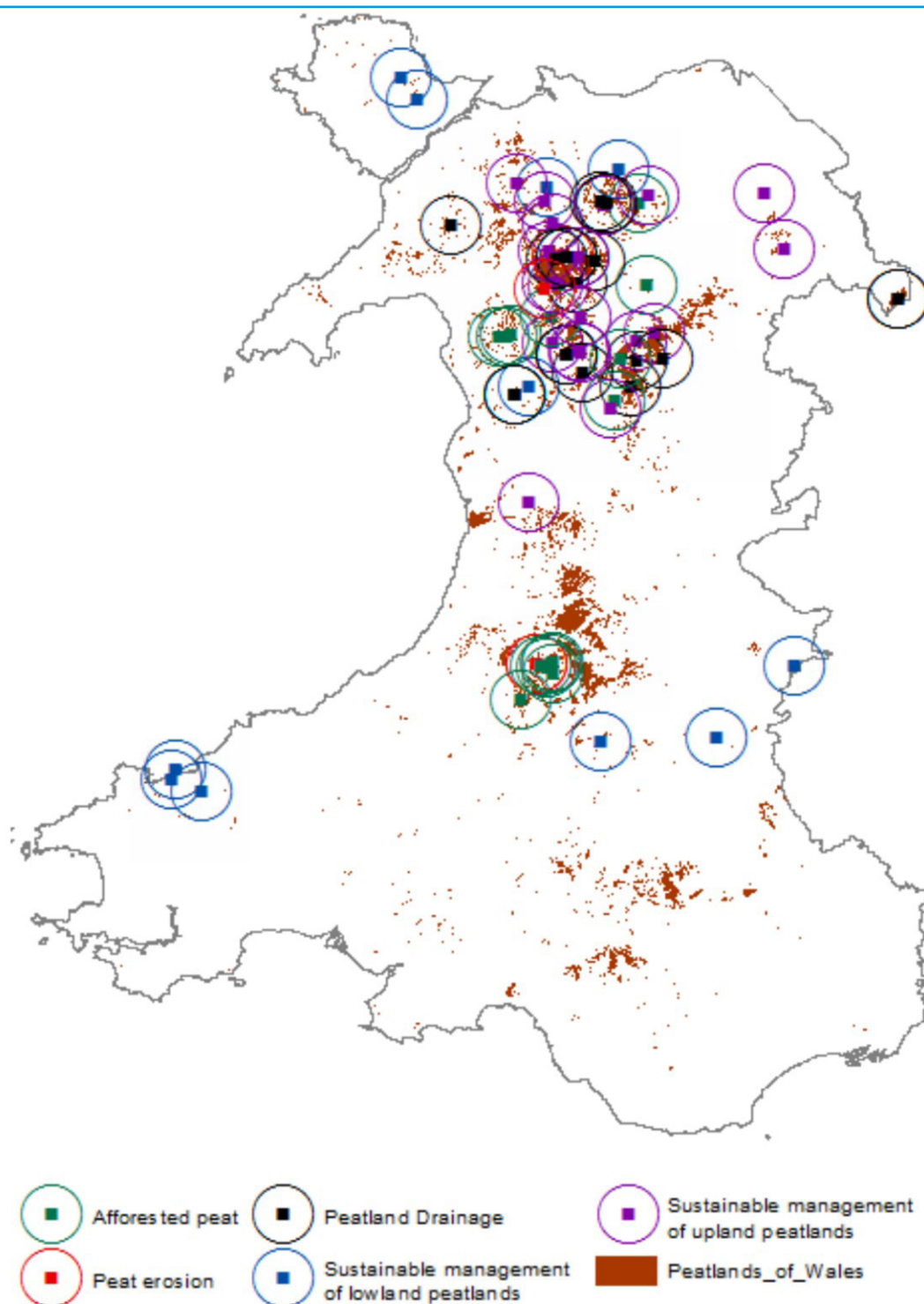
#### Wales Peatland Action FY21/22:

- 66 sites
- Over 2,000 ha activity

- Erosion Control
- Grazing Management
- Hydrologic Management
- Tree Management
- Vegetation Management

■ Peatlands of Wales





## Claerwen case example

### Key project outcomes:

- Restoration of 120 ha of formerly eroded upland bog, yielding a predicted net reduction in greenhouse gas emissions of 448 tCO<sub>2</sub>eq/year
- Detection of an early hydrological response in the form of raised and stabilised water levels within the peat body (monitoring is ongoing using automatic water level records and peat surface elevation rods to measure peat accumulation)
- Detection of an early positive biodiversity response in the form of colonisation by wet mire indicators, namely feathery bog-moss *Sphagnum cuspidatum* and bottle sedge *Carex rostrata* (see Figure 11)
- Increased retention of water within blocked gulleys and behind contour bunds (Figure 12), leading to anticipated flood risk and water quality benefits in terms of reduced and delayed peak flows and increased base-flows and improvements in water quality to a reservoir of national importance
- Increased resilience of an ecosystem critically sensitive to climate change (eroded bogs)



**Figure 11.** Raised water levels in erosion gulleys reprofiled and blocked with peat dams at Claerwen. The pool is already being colonised by bottle sedge, a good indicator of wet mire habitat. Image: Jack Simpson/NPAP



**Figure 12**



Photo by Doug Beckers

## SOCIOECONOMIC IMPACTS

Building public and cross-sectoral support for peatland restoration in Wales is essential and reflects the Sustainable Management of Natural Resources (SMNR) principles of promoting collaboration and cooperation and also public participation. Communicating the importance of peatlands is a key strand of the UK Peatland Strategy (IUCN, 2018) which defines the core outcome for 2018-2040 as “Peatlands are recognised for the benefits they provide and society is aware of both the benefits of healthy peatlands and impact of degradation”.

The programme will seek to promote public and cross-sectoral understanding of the benefits peatlands provide. Key themes and principles of the public engagement programme can be summarised as:

- Development of a Communications Tool Kit to include core aims, vision, messages and audiences;
- Development of a core suite of resources to explain the importance of peatlands;
- Ensuring information is based on the best available evidence and professionally communicated;
- Ensuring information is engaging and appropriate and relevant to the needs of the audience;
- Branding and format design promoting recognition of the National Action Programme;
- Engaging and encouraging in supporting public participation; and,
- Building investor support for peatland restoration.

There will be an important role for the partners of the reconstituted Welsh Peatlands Action Group in supporting and building public awareness of Welsh peatlands and the wider work of the National Peatland Action Programme.

## GENDER IMPACTS — POLICY IMPACTS

The Public Sector Equality Duty (PSED) requires listed bodies to review their existing equality objectives at least every four years.

In line with recommendations from the Equality and Human Rights Commission (EHRC) and The Welsh Government, the duty represents an opportunity for public sector bodies in Wales to work together to recognise and collectively impact against the challenges set out in the Equality and Human Rights Commission [‘Is Wales Fairer report, 2018’](#).

The Wales Public Bodies Equality Partnership represents a group of public bodies committed to working together to unite behind shared equality objectives. This approach promotes smarter working and creates opportunity for shared engagement, learning and intervention to achieve greater impact across the public sector and public services in Wales, contributing significantly to delivering equality.

### Net Zero and Natural Resources Policy (nature based solutions).

Peatland restoration is an enabling delivery mechanism for the Net Zero plan:

**Policy 1: Just Transition** – restoring peatland damaged by years of human activity; supporting the decarbonisation of land use sectors; and, developing the skills needed to restore and manage peatlands.

**Policy 2: Nature Emergency** – the NPAP integrates the climate and nature emergencies in its approach. Peatland restoration aims to restore functioning ecosystems which in turn safeguard and sequester carbon.

**Land Use Land Use Change & Forestry:** “Over the next 5 years Welsh Government will aim to restore 600-800 hectares of degraded peatland each year through our National Peatland Action Programme”.

Peatland habitats are included in the State of Natural Resources Report being of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales produced under s.7(1). As such, s.7(3) places an obligation on the WMs to:

Take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section, and encourage others to take such steps.

Photo by David Jones



## SUSTAINABILITY

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The core-funded National Programme will help give funders and funding mechanisms confidence that investment is contributing to genuine national priorities within the context of a strategic coordinated programme. The initial five-year Programme represents a significant investment by Welsh Government, with a focus on those peatlands most in need of restoration and safeguarding those in good and recovering condition.

The initial 5-year Programme is just the starting point for meeting the peatland ambition. It will take many more years of work by Government, NRW and partners to achieve the ambition in full. Action now, across the priority themes and supporting measures, will make a crucial contribution to improving the condition of peatlands and addressing the nature crisis and climate change emergency in Wales.

The minister for Climate Change announced a set of Biodiversity Deep Dive recommendations in October 2022, which is a set of collective actions Wales can take to support nature's recovery. They included a commitment to increasing the delivery capacity of the NPAP, so that by 2030 the programme will be delivering at a scale capable of reaching the net zero 2050 target of 45,000 ha of peatland restored.

### Grants

To reverse habitat loss and improve the condition of Welsh peatlands there are capital development grants of between £10,000-£30,000 available.

The development grant will enable individuals and organisations to:

- explore if their peatland restoration project is feasible
- develop a costed peatland restoration project by March 2024 that has a realistic chance of delivery
- gather the information they will need to apply for future delivery grant funding rounds

All projects will need to address one or more of the National Peatland Action Programme priorities. Grant funded projects will ultimately contribute towards the current target of 600 hectares restoration activity in Wales each year.

There are currently two grant types available:

1. Strategic allocated funding with approved organisations
2. The competitive Development grant

A third, competitive grant is also being established to fund restoration for organisations or individuals. This then builds on the development grant - so involves a two-stage process of developing proposals and then implementation.

## PARTNERSHIPS

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NPAP is a collaborative project between **Natural Resources Wales (NRW)** and **Welsh Government**.

Welsh Government provided £1M for capital restoration works to which was added an additional £0.145M from the Water Quality capital budget and £0.573M from the Biodiversity Ecosystem Resilience Fund (BERF) capital budget. A revenue allocation of £0.276M was provided for programme staffing. Welsh Government also provided a budget of £0.075M to address priority evidence needs. Welsh Government's lead on peat policy is represented on the National Peatland Action Programme Board.

Partnership working is critical to the restoration effort. The National Peatland Action Programme convened a workshop jointly with the Peatlands Evidence Research fellow at Swansea University, in January 2022, to bring together key strategic delivery partners with an interest in and experience of peatland monitoring in Wales.

The virtual event was attended by 26 staff from 10 partner organisations (not including NRW). The objectives for the workshop were to:

- Identify monitoring needs, i.e. which outcomes of peatland restoration are we seeking to evidence?
- Identify available methodologies and those in use
- Identify best practice and gaps/needs
- Understand the potential contribution of emerging methodologies and approaches
- Progress towards agreeing a standard agreed minimum monitoring methodology for use by NPAP and partners

### 2021/2022

In 2021/2022, around 50% of the spend on restoration activity was delivered in collaboration with partners across Wales, funded by mechanisms including: Procurement, Grants, Land Management Agreements and a Memorandum of Agreement.

A significant engagement programme was also undertaken, enabled by the appointment of an NPAP Communications and Partnerships officer, including events, web content, informative videos, and media engagement.

NPAP has continued to build and maintain relationships that lead to direct delivery with external partners. The NPAP team also built new relationships within Natural Resources Wales (NRW) which led to restoration activity on the Welsh Government Woodland Estate (WGWE) in 2020/21 and 2021/22, and a plan for more in future years. This internal relationship building has developed key mutual understanding of different business aims and found common ground that led to direct results on some of Wales' most modified peatland types. NPAP, in conjunction with **forest policy teams**, is continuing to undertake peatland restoration potential assessment on the WGWE. This will be used to inform new Forest Resource Plans that identify peatland restoration opportunities.

NPAP has further developed the national co-ordination of peatland restoration. The project team has developed lines of communication with each of the six Area Statements<sup>3</sup> (AS) leads to identify options for integrating NPAP

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<sup>3</sup> Natural Resources Wales has developed a series of innovative Area Statements covering seven separate yet hugely diverse parts of the country (Wales). Each Area Statement outlines the key challenges facing that particular locality, what can be done to meet those challenges, and how to better manage the natural resources in the region for the benefit of future generations. To learn more, please visit [www.naturalresources.wales](http://www.naturalresources.wales)

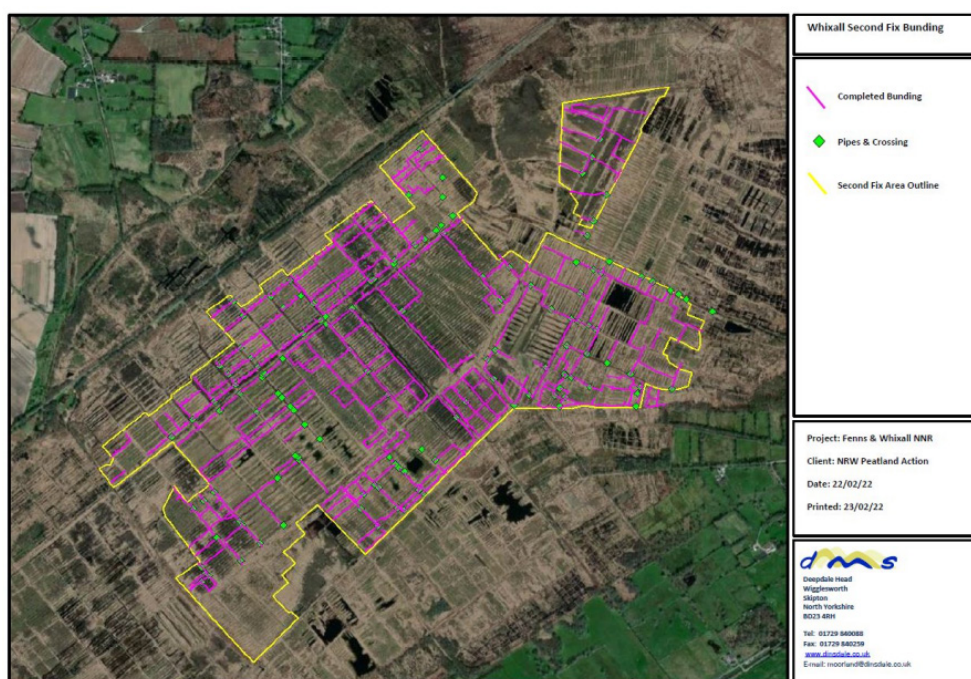
with each of the Area Statements. NPAP held a joint workshop with the North West AS team in June and July 2021 and had very positive feedback from external and internal participants. NPAP has also held an internal AS workshop for the Mid region, again with positive feedback, and will endeavour to work collaboratively with **AS teams** to structure engagement in a collaborative and place-focused way.

During early 2022, NPAP convened the first meeting of the new Strategic Peatland Delivery Partners Group. The new group replaces the original Welsh Peatland Action Group with a forum more appropriate to the support of a core-funded programme with a primary focus on peatland restoration, and reflects the very immediate need to respond effectively to the Climate Change and Nature Emergencies. In 2022, the team also established a National Peatland Monitoring and Research Forum in collaboration with **Swansea University**.

NPAP has led on a pioneering approach in NRW to build positive working relationships with **contractors**. NPAP and Procurement have been undertaking operational site visits to meet and get to know the suppliers on the frameworks that were established in Year 1. This has been positively welcomed and has resulted in quicker resolution to contractual issues and earlier alerts of issues from contractors. Contractor availability is a key risk for the peatland programme and this engagement approach is proving very positive.

The programme team has made connections with other similar UK projects, namely **Peatland Action in Scotland**, **Natural England's Peatlands for Climate Grant Scheme**, and the **emerging Peatland Strategy programme in Northern Ireland**. These contacts are revealing common challenges which could be resolved more effectively through collaboration, with an initial focus required on reporting standards and methodologies.

The National Peatland Action Programme used an **existing MoA with Natural England (NE)** to fund work on the cross-border lowland raised bog Fenn's and Whixall Mosses where both the Welsh and English components are managed by NE under an agreement with NRW. A primary focus of the work on this site in 2021/22 concerned a major phase of hydrological restoration to further raise and stabilise water levels across a large part of the Fenn's moss area in Wales.



**Figure 13.** Bunding installation on the Welsh section of Fenn's and Whixall Mosses, Procurement by NRW and managed by NE using MoA

## REPLICATION AND APPLICABILITY

Worldwide, peatlands contain up to one-third of the world's soil carbon, which is twice the amount of carbon as found in the world's forests. Keeping this carbon locked away is absolutely critical to achieving global climate goals. However, about 12% of current peatlands have been drained and degraded, contributing to 4% of annual global human-induced emissions ([Global Peatlands Assessment: The State of the World's Peatlands | UNEP - UN Environment Programme](#)).

Wales's NPAP demonstrates that widespread peatland restoration is possible, and provides a successful template for other regions to implement.

NRW also learns from their devolved equivalents. NRW and Welsh Government participate in the IUCN Peatland Programme, where the 4 countries working group sits (Gov officials group).

These are the main lessons learned from this project:

- Sustained and coordinated action at a national level<sup>4</sup> allows the building blocks to be put in place for delivery at pace at all scales.
- Embedding peat in the policy landscape also provides the foundation for action.
- Coordination and consistency at a national level allows for confidence by landowners, NGOs and contractors to invest for the future and to build capacity because there is a stable future rather than uncoordinated ad hoc disparate grants schemes.

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<sup>4</sup> For clarification on the use of national level in this document, please refer to footnote 2 in page 5

### FOR MORE INFORMATION

For more information about this project, please visit <https://naturalresources.wales/evidence-and-data/maps/the-national-peatland-action-programme/?lang=en>

You can also contact us at [info@regions4.org](mailto:info@regions4.org) to set up an informative meeting, solve doubts and get support in implementing similar projects.



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## ABOUT

Regions4 (formerly known as the nrg4SD) is a global network that solely represents regional governments (states, regions and provinces) before UN processes, European Union initiatives and global discussions in the fields of climate change, biodiversity and sustainable development. Regions4 was established in 2002 at the World Summit in Johannesburg and currently represents over 40 members from 20 countries in 4 continents. Through advocacy, cooperation and capacity building, Regions4 empowers regional governments to accelerate global action.

For more information visit: [www.regions4.org](http://www.regions4.org)

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