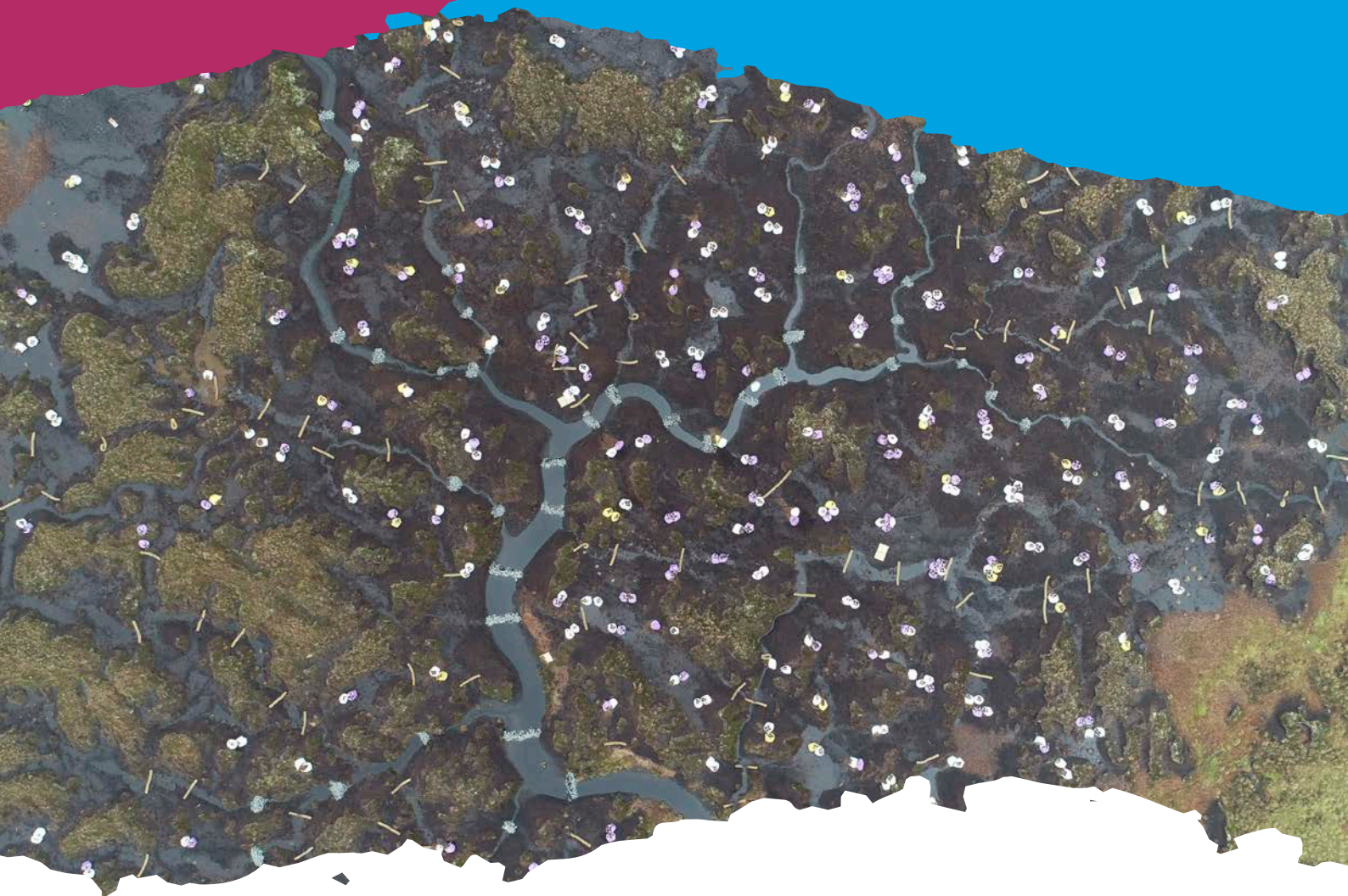


Summary Report

2017-2023



Peninne PeatLIFE

Pennine PeatLIFE was a partnership project, beginning in 2017, which invested €6.5 million into restoring blanket bog in the protected landscapes of the North Pennines, Yorkshire Dales, Forest of Bowland and Nidderdale. Pennine PeatLIFE was led by the North Pennines AONB Partnership in collaboration with Yorkshire Wildlife Trust and the Forest of Bowland AONB Partnership. The project received €3.8 million from the European Union LIFE programme, and was co-financed by the Environment Agency, Northumbrian Water, United Utilities and Yorkshire Water.



Restoring 1780 hectares of blanket bog

Yorkshire Wildlife Trust is the only charity entirely dedicated to conserving, protecting and restoring wildlife and wild places in Yorkshire, with a vision for a Yorkshire that is abundant in wildlife, with more people having a genuine and meaningful connection with nature. They are a partner in over 40 projects both large scale and small, including Yorkshire Peat Partnerships's restoration of an area of peatland the size of Bradford. Their work inspires people to understand the value of nature and to take action for it.

The Forest of Bowland Area of Outstanding Natural Beauty is one of England's finest landscapes, internationally important for its heather moorland, blanket bog and rare upland birds, including hen harrier and merlin. The Forest of Bowland AONB Partnership is hosted by Lancashire County Council and managed by a partnership of local councils, government agencies, landowners, farmers, local businesses and wildlife and recreation interest groups, who work to conserve and enhance the natural beauty of this special landscape. Since 2010, the AONB team has led the delivery and management of peatland restoration projects and programmes across the area.

Who was involved?

The North Pennines AONB Partnership looks after the North Pennines Area of Outstanding Natural Beauty (AONB) and UNESCO Global Geopark. The team works with others to conserve and enhance this special place, prioritising nature recovery to protect what remains and restore what has been lost. Additionally, the team helps people to make a connection with nature, and encourages those who do, to go on to take action for conservation. The AONB Partnership's peatland programme has been running since 2006 and has restored an area four times the size of Newcastle.



The UK has 13% of the world's blanket bog

What are peatlands and why do they matter?

Peat is an accumulation of partially decayed organic material that forms in waterlogged, acidic, oxygen-poor conditions. As plants die, they slowly decompose, and over time this organic matter accumulates as peat. A peatland is an area with a naturally accumulated peat layer at the surface that is at least 30cm in depth. In the UK the formation of peat is a very slow process with an average peat layer growth of just 1mm per year. There are different kinds of peatlands but the main one of interest in the Pennine PeatLIFE project area is blanket bog – the UK has 13% of the world's blanket bog despite having only 0.16% of the world's total land area.



Emperor moth caterpillar

Carbon

Peatlands cover only 3% of the world's land surface yet contain 30% of the total global carbon stored in soils. Largely because of human activities and climate change, many peatlands are now damaged and no longer take in and store (sequester) carbon. Instead, damaged peat emits this carbon into the atmosphere, contributing to climate change. The UK peatland carbon store can only be maintained if peatlands remain wet and vegetated, or restored where needed. Through the work of Pennine PeatLIFE the delivery teams aimed to restore the carbon storage ecosystem services of blanket bogs in some of the most damaged parts of the northern Pennines.

By restoring over 1,780 hectares of blanket bog, we have avoided the loss into the atmosphere of an estimated 21700 tonnes of carbon dioxide (CO₂) per year. On sites where the land is now recovering after being restored, an estimated 4000 tonnes of CO₂ per year has been sequestered.

Reduced flood risk

Restored peatlands slow the flow of rainwater into streams and main rivers, reducing the risk of flooding in towns and cities downstream.

Biodiversity

Blanket bog is an internationally important habitat, with many sites within the Pennine PeatLIFE project area assigned national and European protections. Blanket bogs are important for the species that rely on healthy peat ecosystems such as the curlew, sundew, yellow marsh saxifrage, black grouse and common lizard.

Society

Blanket bog is important to local communities. These areas have long been used for farming, shooting and recreation, and have inspired artists for centuries.

Historic environment

Peat is a living history book which can show us what past environments were like, how people lived and even what they ate thousands of years ago. Peat is a waterlogged acidic environment and acts as a storage medium, preserving ancient pollen, remains of animals, and even cultural artefacts.

Restoration activities have avoided the release of an estimated 21700 tonnes of CO₂ and other greenhouse gases



Work in progress: contractors reprofiling peat hags

What did we aim to do?

- Halt the erosion and loss of peat in the blanket bogs of the northern Pennines
- Restore 1,353 ha of blanket bog and reduce the amount of peat entering watercourses
- Revegetate 111 ha of bare peat with blanket bog vegetation
- Slow water flow in 41km of water channels with sediment traps and dams
- Demonstrate cost-effective, region-specific and sustainable Sphagnum moss-based restoration techniques
- Demonstrate how payment for ecosystem services mechanisms like the UK Peatland Code can work
- Demonstrate new approaches to peatland restoration planning and monitoring using Unoccupied Aerial Vehicles (UAVs) - more commonly called drones
- Sharing knowledge gained throughout the project with other practitioners and stakeholders.



Before restoration with stone dams



After restoration with stone dams

| Restoration figures | Target | Achieved |
|---------------------------|----------|----------|
| Restoration area | 1,353 ha | 1,780 ha |
| Blocking gullies | 41 km | 175 km |
| Revegetation of bare peat | 111 ha | 146 ha |
| Reprofiling hags | 91 km | 98 km |
| Plug plants | 566,000 | 693,784 |

What have we done?

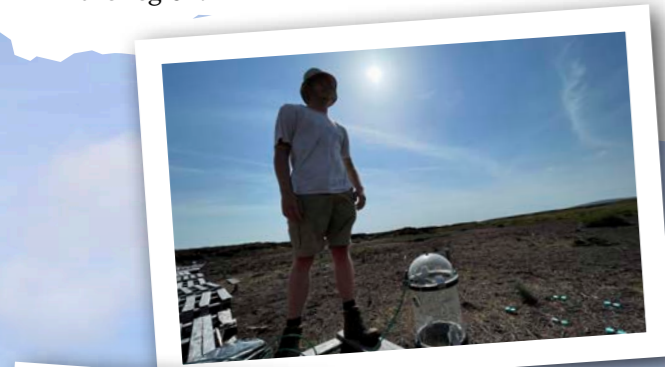
- ✓ Restored over 1,780 ha of blanket bog
- ✓ Reduced the erosion in 175 km of eroding gullies with sediment traps and dams
- ✓ Reprofiling 98 km of hagg edges and gullies
- ✓ Revegetated 154 ha of bare peat
- ✓ Re-established vegetation on bare peat areas with 696,784 plug plants, made up of Sphagnum moss, cotton grass and dwarf shrub plug plants
- ✓ Avoided the release of an estimated 21700 tonnes of CO₂ and other greenhouse gases through restoration activities
- ✓ Trialled the UK Peatland Code monitoring protocol and fed back results to the IUCN UK Peatland Programme
- ✓ Used UAV (drone) alternatives to ground-based monitoring to assess changes in bare peat and vegetation cover over large areas
- ✓ Completed a report that compares UAV and ground-based monitoring strategies.

Reduced the erosion in 175 km of eroding gullies with sediment traps and dams

Monitoring and main findings

Monitoring is an important part of peatland restoration, providing us with data to measure how successful our work has been. It also allows us to identify areas where we need to do further restoration. By trialling and monitoring new restoration techniques, the Pennine PeatLIFE project has added to the wider evidence base for peatland restoration practitioners and researchers, focusing on the following areas:

- Bare peat stabilisation and revegetation
- Hydrological restoration
- Sphagnum moss establishment
- The UK Peatland Code development and monitoring
- Developing robust UAV-based monitoring protocols
- The impacts of restoration on ecosystem functions (carbon dioxide gas, water colour and biodiversity)
- The socio-economic impacts of Pennine PeatLIFE in the region.



After bare peat restoration



Before bare peat restoration

Communication and engagement

- We have shared the importance of peatlands globally and in the Pennines with the public, school groups, university groups, and other members of the conservation and climate community, through engagement activities and events.
- Our Give Peat a Chance exhibition helped us share the importance of peatlands and the work of the project with over 7,300 people who may not have been able to access upland areas.
- The delivery teams have worked with other peatland practitioners to share knowledge about the specific restoration techniques needed for the harsh climatic conditions of the northern Pennines
- We have connected with local and national government, hosting MPs and government ministers at site visits to keep peatlands at the forefront of UK climate action.

We have shared the importance of peatlands globally

Pennine PeatLIFE ended in 2023, but the work of the partner organisations is far from finished

Legacy and further works

Pennine PeatLIFE ended in June 2023, but the work of the partner organisations is far from finished. The three partners will continue to restore, monitor and engage through new projects and funds, working to ensure that the peatlands of the northern Pennines are made resilient in the face of climate change.

The Pennine PeatLIFE partners have secured £15 million from Natural England's Nature for Climate fund, and £2 million of private investment to date to ensure peatland restoration works can continue in the northern Pennines.

Partners are also working together as part of the Great North Bog coalition. This is an ambitious peatland restoration enterprise being developed by the North Pennines AONB Partnership, Yorkshire Peat Partnership,

Moors for the Future Partnership, Cumbria Peat Partnership, Northumberland Peat Partnership and the Lancashire Peatlands Partnership. With a landscape-scale approach to upland peatland restoration and conservation across nearly 7,000 square kilometres of peatland soils in and around the Protected Landscapes of northern England, the Great North Bog represents the largest collaborative peatland conservation effort in the UK. The partners aim to deliver a 20-year funding, restoration and conservation plan to make a significant contribution to the UK's climate and carbon sequestration targets.



Sphagnum moss plug plant



Black grouse



Round-leaved sundew

Our delivery partners

“I think the Pennine PeatLIFE project has been transformational, both in terms of the scale and scope of the peatland restoration work delivered in the Forest of Bowland AONB, but also inspiring in us a greater ambition to do so much more into the future. Our local efforts have really been boosted and supported as a result of the outstanding partnership working, with many organisations and individuals offering their expertise and in-depth knowledge to help us move to the next level.”

Elliott Lorimer - Forest of Bowland AONB Manager

“Pennine PeatLIFE has been an important catalyst for blanket bog restoration and financing in northern England. The project has allowed us to refine our restoration techniques, develop better monitoring systems and significantly progress the peatland carbon credit market, leading to increased levels of blended finance becoming available for restoration. Thank you EU LIFE Programme.”

Paul Leadbitter - Peatland Programme Manager, North Pennines AONB Partnership

“Pennine PeatLIFE has enabled us to restore a huge area in Yorkshire. Just as significantly, the project has allowed us to expand our knowledge of how to restore upland peatlands. We’ve been able to experiment with new techniques, demonstrate their efficacy to funders and so scale them up for wider deployment. It has also unlocked funding to allow us to take big strides forward in engaging the public with the fragility, importance and beauty of these magnificent, brooding landscapes.”

Rosie Snowden - Peat Programme Manager, Yorkshire Wildlife Trust

Public feedback from the Give Peat a Chance exhibition:

“So fantastic that (Pennine) PeatLIFE exists, thank you so much, a wonderful exhibition.”

“Amazing. True superheroes saving our planet!”

“Extremely interesting – thank you – saving our planet and the effort people are making.”

“Really enjoyed the exhibition and film – really important work being done by exceptional people making such a difference to our planet – very informative.”

“Absolutely fascinating. I have learnt loads! Keep up the amazing work you are doing to restore the Peatlands.”

“A brilliant exhibition. A diverse and community centred approach to talking and thinking about our planet. Thank you for exhibiting such wonderful work. A brilliant exhibition.”

“Informative, beautiful, and thought-provoking. A testament to the young people who care about our world.”

Peninne PeatLIFE delivery partners



Peninne PeatLIFE is funded by



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