



Restoring active
blanket bog in
the Berwyn and
Migneint SACs
in Wales

Layman's Report





Introduction

Blanket bogs are one of the most important habitats found in Wales, if not globally. They are home to rare plants, invertebrates and birds, they provide much of our drinking water, underpin the rural economy; mainly through farming and in recent years their importance as stores of carbon has been recognised. Blanket bogs form part of an upland mosaic that we need to protect and enhance for the benefit of all.

Blanket bogs in Wales and across the world have suffered at the hand of man. In the past, activities such as drainage, burning and the planting of forestry have damaged the bogs. Only in recent years have we come to understand how valuable the habitat is in its intact state. Large areas of the Welsh uplands have been frequently burnt, drained and intensively grazed to such an extent that many of the natural habitats and species have been lost.

The LIFE Active Blanket Bog in Wales Project (LIFE06 NAT/UK/000134) was set up to tackle some of these issues

and ran from August 2006 to March 2011. The project was planned and managed by a partnership of environmental organisations, Royal Society for the Protection of Birds Cymru, Countryside Council for Wales, Environment Agency Wales and Forestry Commission Wales, with 75% of the €3.76 million project coming from the European Union under the EU-LIFE Nature Programme. Additional funding for the project was provided by Snowdonia National Park Authority and the National Trust.

The main aim was to “*achieve significant and sustained improvement in the condition of blanket bogs in key areas of two SACs in northern Mid Wales*”. This was largely achieved through blocking drains and re-wetting land that the project partners either owned or managed. The RSPB, as a charity, has provided an excellent platform which government agencies have been able to use to enable them to meet EU Habitat Directive and Welsh Assembly Government Environment Strategy for Wales targets for blanket bog condition.



Project Areas

The project worked on two Natura 2000 Special Areas of Conservation (SACs), the Berwyn & South Clwyd Mountains SAC (27,221 ha) and the Migneint-Arenig-Dduallt SAC (19,968 ha) in Wales. These two SACs are the largest in Wales designated for blanket bog. Between them, they cover a total area of more than 47,000 hectares. Of this area, 18,394 hectares are covered by blanket bog. The two areas are also protected as Sites of Special Scientific Interest and Special Protection Areas status.

Bird species found on these blanket bog dominated moors are also specialists, such as the red grouse (*Lagopus lagopus scoticus*), black grouse (*Tetrao tetrix*), hen harrier (*Circus cyaneus*), merlin (*Falco columbarius*), and golden plover (*Pluvialis apricaria*).



Blanket Bog Habitat

Peat is a waterlogged soil that is composed of compacted, partially decomposed vegetable matter. Blanket bogs are areas of wet peat-land on peat greater than 50cm depth, fed exclusively by rainwater. They are also one of the most extensive semi-natural habitats in the United Kingdom and are found from Devon in the south to Shetland in the north. Most blanket bog formation began between 5,000 and 6,000 years ago.

Blanket bog that supports significant areas of peat-forming plants and a high water table is referred to as "active" blanket bog, a priority habitat under the EC Habitats Directive 92/43/EEC. An active blanket bog increases the depth of peat by an average of 0.5-1mm per year over deep peat.

In Europe, blanket bogs are found primarily in the UK and Ireland, the United Kingdom has around 13% of the world's blanket bog. In Wales, it is estimated that 70,000 ha of deep blanket peat soils occur, although probably in excess of 10% of this no longer supports blanket bog vegetation.

The Welsh moorlands are a significant part of our cultural heritage. This continues today as the uplands are, primarily, used for agriculture, especially grazing sheep. They are important as water catchments for the supply of drinking water and play an important role in the context of climate change as stores of large amounts of carbon.



Threats to blanket bog

There is only limited information available on the scale of blanket bog loss in the UK, however, it has been estimated that between 1950 and 1980, 21% of blanket bogs in Scotland were lost with 51% of this loss attributed to forestry planting. On the Berwyn and South Clwyd Mountains, moorland areas dominated by heather declined by 43% between 1946 and 1984, with forestry plantations accounting for 14% of this loss.

Human pressures on blanket bog can lead to extensive erosion of blanket peat. Many of these pressures, in particular when linked with climate change, can be enhanced. Some of the major threats to blanket bog in the UK include:

- Drainage,
- Forestry plantations,
- Inappropriate grazing levels,
- Burning,
- Encroachment by non-native plant species e.g. Rhododendron and Sitka spruce,
- Pollution,
- Peat Extraction,
- Off-road vehicles,
- Development e.g. wind farms,
- Agricultural improvement,
- Climate Change.

These threats damage blanket bog by lowering the water table, competing with native flora and/or erosion of the peat.

Project objectives

The original aims of the project included:

- Blocking around 90 km of drains on the Berwyn and South Clwyd Mountains SAC, primarily on the Severn Trent Water/RSPB Lake Vyrnwy Reserve.
- Tree removal on Forestry Commission Wales land on the Migneint-Arenig-Dduallt SAC.
- Removal of non-native invasive species, in particular Rhododendron & Sitka spruce from 900 ha of Berwyn and South Clwyd Mountains.
- Creation of fire control areas.
- Purchase a piece of land on the Migneint-Arenig-Dduallt with good blanket bog habitat to conserve its fauna and flora.
- Extensive demonstration and advocacy work with local farmers and land managers.
- Extensive outreach with local communities, principally working with schools.

Blanket bog restoration

Management interventions to restore the blanket bog habitat has three main aims:

- To protect the underlying peat from erosion.
- To raise the water table to allow the native blanket bog plant species to thrive and continue forming peat.
- To establish appropriate grazing levels to encourage the growth of native plant species and discourage non-native invasions.

Across Wales, artificial drains were dug in blanket bog in an attempt to increase the amount of food the mountains could produce. This was unsuccessful but the legacy of this work is continuing to destroy this important habitat. Blocking artificial drains helps to raise the water table returning the bog to a natural state as well as providing additional benefits (see later).

The project has also been working to remove non-native plants such as Sitka spruce and Rhododendron that self-seed onto the open moor, removing water from the blanket bog and out competing native plant species.





Project Achievements

All the original aims of the project were completed successfully and the project partners were able to build on the success of their work. Through demonstrating how the restoration of blanket bog is carried out and allowing local farmers to see the work and understand its importance, it was possible to extend the work of the project to private farms.

	Actual	Target
Drain blocking		
Partner owned land	304 km	101 km
Private farms (either owned or grazed outside partner control)	181 km	0 km
Grand totals	485 km	101 km
<i>That's Lake Vyrnwy to Aberdeen as the crow flies!!</i>		
Plantation forestry removal		
Grand total work on	249 ha	230 ha
Non-native plant species removal		
Grand total cleared	5,733 ha	900 ha
Fire control breaks mown		
Grand total mown	292 ha	

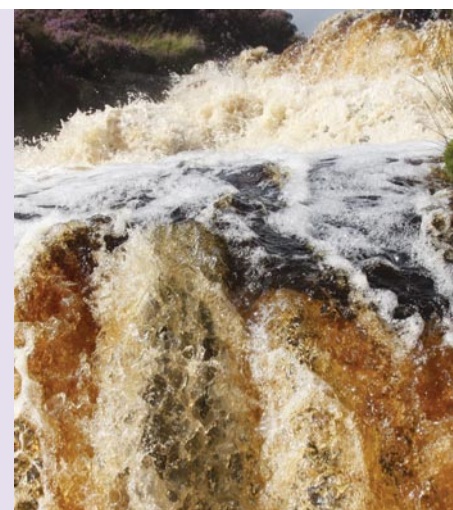
Community work

- **Education** Over 1900 children were involved with project.
- **Community talks** 48 talks were given to 1,176 people
- **Guided walks** 58 walks were run involving 1,303 people.
- **Stands** were taken to the National Eisteddfod, Royal Welsh Show, Shrewsbury Flower Show, Oswestry Show and International Bog Day
- **The project's education program** received the Learning Outside the Classroom Quality Badge "Outstanding" award and the community work was awarded Second Prize by the IUCN UK Peat Programme's Communicating Peatland Issues competition.
- **Purchased Tan'r Allt** – new RSPB reserve (253 ha).

Ecosystems services

Restoration of blanket bog and other upland habitats, enhance a wide variety of environmental services that many people can benefit from. Monitoring work by the project has added to the evidence base for many of these services, which include:

- Improvements to water quality within the uplands and downstream.
- Reduction in water colour.
- Potential reduction in downstream flooding by levelling flow rates during storm events.
- Reduction in erosion – resulting in the retention of peat, vegetation and carbon.
- Carbon storage in the peat.
- Carbon uptake (in the long term of carbon dioxide).
- Benefits to farming practice and stock safety.
- Archaeological resources – humans have used these areas for thousands of years.



Conclusions

The LIFE Active Blanket Bog in Wales Project was both challenging and extremely rewarding. It was funded and managed by a successful and committed partnership of organisations working together to demonstrate effective habitat restoration on a landscape scale. The final achievements of the project are far in excess of the original aims and objectives. In its five year lifespan, the project delivered a large amount of practical restoration work for the benefit of one of Wales' most important and dramatic habitats. The project was particularly effective in reaching out into the local community, stimulating interest and significantly increasing the understanding of blanket bog amongst local people in these two Special Areas of Conservation.

The project blocked 485 km of drains, 375 km more than originally planned, re-wetting some 7,200 ha of upland habitat. The extension of the project to block drains on land owned and tenanted by other local farmers during the project demonstrated, in a very practical way, the success of the advisory work carried out. It also allowed the project partners to achieve excellent value for money by enabling the original funding to restore more habitat than originally planned. This land is now in the process of establishing a more natural water table, allowing native plant species to thrive. In turn, the benefits that this work will have on water quality, carbon storage and capture, and the wider upland environment in the future may be vast.



Over 4,000 people have been involved with the project over the last five years. These people are the custodians of this habitat, from present day farmers to future managers still at primary school. It is vital that the work begun by the LIFE project continues through practical work, advice, education and advocacy.

This work has been successful at many levels, changing attitudes locally and bringing blanket bogs and their importance to the notice of decision makers and policy formers. Through the high profile combination of practical work on a landscape scale, supported by rigorous monitoring and cutting edge science this work in one area of Wales has informed policy across the whole of Wales, and contributed to the understanding of this ecosystem on a UK and international platform.

Active blanket bog is an extremely important habitat globally. In Wales, we have a responsibility to protect it to ensure that future generations can profit from the sheer beauty and considerable benefits that this rare habitat can provide.

For further information about the project please see the website at www.blanketbogswales.org