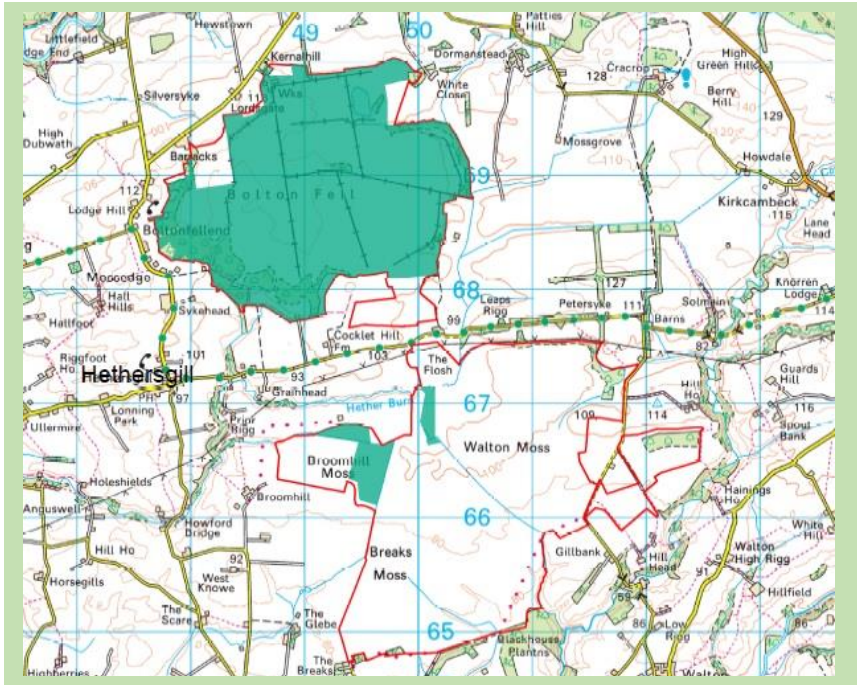
Summer 2019
Bolton Fell and Walton Mosses Edition

The Sundew

Cumbrian Bogs LIFE project newsletter

Our new National Nature Reserve: Bolton Fell and Walton Mosses

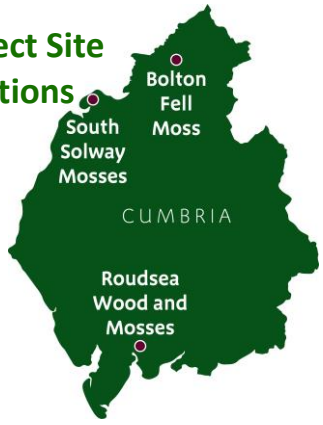
We are pleased to announce the declaration on the 9th of July of the newly extended NNR shown in **teal**. The **red** outline is the Site of Special Scientific Interest (SSSI) boundary which largely follows the extent of the peat body.



In this issue:

- Community consultation on future of NNR and map of new boardwalk
- New project film available on youtube
- Monitoring the NNR
- Timeline of project
- Deborah Land, Senior Manager for the NNR

Project Site Locations



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Local communities have their say on the future of Bolton Fell and Walton Mosses NNR

Before we declared the new NNR, we had stalls at Brampton Farmers Market and held open days in Hethersgill and site visits to find out what facilities and information people wanted to see available. People told us they were keen to see access onto the site in order to make it a place that the local community could enjoy for walking and to see the wildlife. They also wanted a leaflet and interpretation boards detailing the history of the site and the plants and animals to see.

In terms of infrastructure, the majority of those who commented, wanted to see a wide boardwalk to allow greater access for all. A viewing platform was preferred to a viewing tower.

Our project staff are keen to respect the wishes for a wider boardwalk. Unfortunately, the newly re-wetted peat body is unstable, and the peat surface will continue to settle for several years before it is possible to install this type of boardwalk. In the short-term, safe access will be provided to part of the site using a floating, 3-plank boardwalk. It will take visitors 1.5 km from the viewing platform at the edge of the factory site to the central woodland.

Simple floating boardwalk installed at Bolton Fell Moss © Natural England

New short film describes the Cumbrian BogsLIFE restoration

A 10 minute film now on youtube provides an informative overview of the restoration process at Bolton Fell Moss, Wedholme Flow and Roudsea Wood and Mosses. Its panoramic views of Bolton Fell Moss show the vast scale of the restoration.

See https://youtu.be/YTEjlaUT_sA

The viewing platform will also feature three interpretation boards. A leaflet about the site will be available shortly.

Factory site

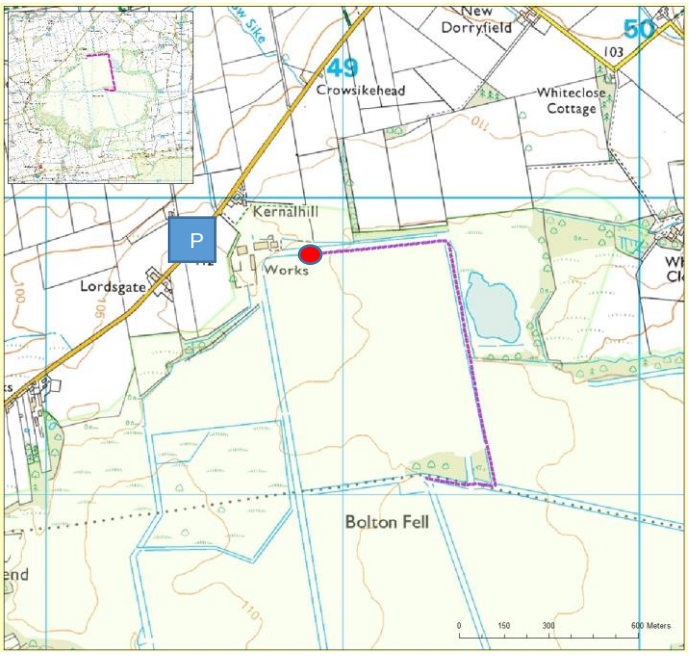
The long-term plan for the factory site at BFM is still being explored. Future options could include linking with the local Borderlands Initiative. This might include a solar farm, a small visitor centre and a hut on site for the Bewcastle Scouts.

Access to Bolton Fell Moss

Footpath access will be allowed from the factory site entrance. Cars may be parked on the slip road to the entrance before the gate. However, no parking will be permitted inside in order to discourage anti-social behaviour and misuse.

Hethersgill residents are keen for access to Bolton Fell Moss from the south end, so that they can walk to the bog from the village.

We are reviewing the options to make a nature trail linking the two bogs together via permissive paths, east of the village and exploring links to existing rights of way such as the Coast to Coast Trail.



Bolton Fell Moss access. From the factory site, there is a short length of all access boardwalk leading to a viewing platform (red dot). New 1.5 km narrow boardwalk (purple line).

Monitoring Bolton Fell Moss restoration impact

Natural England scientists have been measuring the hydrological, greenhouse gases and vegetation levels before and after the restoration.

Vegetation monitoring

Prior to revegetation, square frames called quadrats, measuring 2 x 2 meters and split into 25 cells, were distributed at randomly generated GPS points on the site and all species recorded. The percentage of bare peat was also recorded and each quadrat photographed.

Example of quadrat used for vegetation survey © Natural England

Recent findings suggest that after 2 years of restoration, Sphagnum moss cover increased by 6%, and bare peat cover was reduced from 87% to 49%.

Hydrological monitoring

Dipwells are used to measure the water table (level of water underground). The blue tubes sit vertically to the peat and have small holes which allow them to fill with water and which can then be measured. Good water levels for restoration generally stay within 10 cm of the surface.

Example of a dipwell at Bolton Fell Moss ©Natural England

Greenhouse gas monitoring and carbon modelling

The 'static chamber method' was used to measure carbon dioxide, methane and nitrous oxide levels. The lids of the chambers were covered with reflective material to reduce heating of the headspace. Gas was collected through a rubber septum using a syringe. After 2 years of restoration work, it is possible to model the carbon fluxes and see they are converting from source (peatbog giving off carbon into the atmosphere) to sink (peatbog capturing and holding carbon).

Greenhouse gas measurement © NE

Bolton Fell Moss works timeline

2009	Bolton Fell Moss designated as a Site of Community Interest
2013	NE purchase of Mineral Rights from William Sinclair
2013	Milling ceases in November on Bolton Fell Moss; restoration of BFM commences
2015	Start of Cumbrian Bogs LIFE+ project restoring the bog
2016	Bolton Fell Moss and Walton Moss re-notified to form Bolton Fell & Walton Mosses SSSI
2016	Bolton Fell Moss confirmed as a Special Area of Conservation (SAC)
2018	Completion of purchase of all land necessary for restoration

Meet Deborah Land, Lead Advisor and Senior Manager Bolton Fell and Walton Mosses National Nature Reserve

Deb has been involved in the conservation and restoration of peatlands for almost 15 years. Further to her practical experience, she undertook an MSc with an emphasis on the role of peatlands in climate change. Deb is also interested in the practice of paludiculture and in seeking new ways to sustainably farm peatland soils in the UK without the need for drainage.

What do you like about the peatbog habitat?

Peatbogs are our rainforests. They hold more carbon on just 3% of the earth's land than all the woodland on the planet. They are the 'cinderella' of our habitats, a fact not helped by their name – bog. But, when you view them up close, you can see they support a carpet of colourful mosses, berries and flowers which in turn support a myriad of birds and insects. And most important of all, this habitat helps to regulate our climate through storing carbon.

What are the greatest challenges with peatbog restoration?

Damaged peatlands can be particularly challenging to restore. They are often damaged through drainage, and this alters the supported vegetation. In the case of commercial extraction, this results in the complete removal of vegetation.

LIFE+ is generously supported by the European Union's LIFE+ Nature and Biodiversity Programme, which is the funding instrument for the environment. Funding is awarded to best practice and innovative demonstration projects that contribute to the objectives of **Natura 2000** - a network of the very best areas for wildlife across Europe.

It is also crucial to control the hydrology to ensure that the body of peat remains saturated throughout the year. This requires the removal of woody vegetation and the blocking of drains and ditches to raise the water table on the site. On peat where the vegetation has been completely removed, it is important to create a 'nurse crop' - mosses and grasses that the bog-building sphagnum mosses can feel at home on and eventually start to store carbon again from the atmosphere.

What part have you found most exciting in the recovery of Bolton Fell Moss?

The restoration of BFM has been a long and challenging journey. New and innovative techniques had to be trialled to ensure that the vital sphagnum mosses could colonise the bare peat surface. We worked closely with the contractors in order to shape the restoration process and adapt to the many challenges we faced. It's been hugely satisfying to see the coverage of all the bare peat with an established nurse crop rich in pioneering sphagnum plants in just 6 years.

What are your hopes for the future of this new National Nature Reserve?

I think extending the Walton Moss NNR to include its damaged sister bog Bolton Fell Moss is an important reflection of the vulnerability of these fragile, often underrated habitats. We hope to work with the local community to develop the access across the sites and link them up so that visitors can appreciate both the intact beauty of Walton Moss and the extensive restoration of Bolton Fell Moss.

New contact details for the Bolton Fell and Walton Mosses: CumbriaAreaTeam@defra.gsi.gov.uk

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 www.gov.uk/natural-england

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