

Lindow Moss Cheshire: the uncertain path to restoration.

This is the story of one relatively small devastated lowland Cheshire peat bog that desperately needs restoration. The bog is privately owned and restoration depends on the owners, developers and the local council to enable restoration. Lindow Moss should be a functioning ecosystem acting as a carbon sink instead of a continual source of CO₂ as it is now. The path towards restoration is a fascinating story, with many twists and turns along the way:-



Figure 1 Cut over area of dried peat now



Figure 2 Peripheral pool with healthy Sphagnum moss

How Lindow Moss formed:

Lindow Moss is a lowland raised bog in the urban fringe of Wilmslow in Cheshire. Originally the moss covered a very wide area but now the remaining bog, after centuries of peat harvesting, has been reduced to 28 hectares. Peat cutting here ceased around six years ago and the drained bog is drying out year by year and releasing CO₂ to the atmosphere as the peat oxidises. It is a much loved wild area, well walked during the COVID lockdown, and it means a huge amount to the local community and it must be restored and saved!

Lindow Moss evolved over 10,000 years from landlocked patches of water created by blocks of melting ice as the glaciers retreated. It first developed into a sedge swamp and then between 4-6,000 years ago the climate became drier and a pine forest grew. Conditions then changed to a much wetter climate and the pine trees became waterlogged and died. The pine roots were covered by a Sphagnum moss dominated plant community fed only by rain water and the roots became partially fossilised. Moss only partially decomposes after it dies and in the acidic bog conditions a domed raised bog developed with metres of compacted moss peat above the sub-fossil pines. A healthy raised bog is a carbon sink capturing thousands of tonnes of CO₂ over its life time. Peat accumulates at the incredibly slow pace of 1 mm per year. Now, after centuries of cutting peat for fuel and compost, over four metres of the moss peat have been stripped off the surface and many hundreds of pine roots are starkly exposed over the surface of the cutover peat bog. They are a powerful image of the environmental destruction caused by peat cutting.

The cultural & historic importance of Lindow Moss:

Lindow Moss has a very rich cultural history and it came to international prominence in 1984 with the discovery of a very well preserved Iron Age bog body, Lindow Man, now in the British Museum https://www.academia.edu/404732/Lindow_Man. The body was found during routine peat extraction but the find spot is not marked in any way. Over the last 50 years peat has been removed on a large scale for mushroom compost and then for the horticultural industry and gardening. Lindow Moss desperately needs to be restored to a functioning peatbog and wild life habitat and to become a healthy carbon sink once again



Figure 3 4-6000 years old sub-fossil pine roots exposed after 4 metres of peat have been removed

The difficult path of restoration to a carbon sink and a healthy peat bog

The cutover peat bog owners are based in Somerset and the time for restoration has at last arrived. Six years ago the owners applied to Cheshire East Council (CEC) for permission to build 14 houses on a narrow piece of land to the side of the bog on the site of the peat processing works. They argued that part of the proceeds of selling land for housing would pay for restoration of the bog itself. If permission was not granted, Croghan Peat had planning permission to keep cutting peat until 2042 and the right to back fill a large part of the bog with inert waste and turn it into agricultural land. The application for housing on this sensitive site was very controversial. Because of the very real threat of backfilling the Moss with waste, permission was granted by CEC in December 2018 for the houses to be built and restoration to proceed. The housing development cannot proceed unless the bog is restored. A legal agreement secures this and requires the owners to carry through the approved restoration scheme and lodge £254,000 into a fund to support the aftercare of the restored bog.

Now in 2021 the restoration still has not started, over two years after planning permission was granted. The housing developer, Bowdon Homes, put in a new application in December 2020 to increase the footprint size of the houses. There have been many objections to this second application and CEC has not yet made its decision. Over the last 6 years since peat cutting stopped, the bog continues to dry out and release CO₂ and still the housing developer and the council have not found a way forward to restoration. That is why the restoration process is uncertain. The local community led by Transition Wilmslow <https://transitionwilmslow.co.uk/lindow-moss/> have set up a Lindow Moss restoration group who are doing all they can to ensure that restoration proceeds as soon as possible. Transition Wilmslow are also supported by a Lindow Moss Community Forum of 400 local residents committed to the restoration process. But the wheels of the planning system are turning very slowly. This is worrying and the restoration story is becoming a saga.

The restoration plan

In 2014 a Lindow Moss restoration plan was submitted to CEC by a peat restoration company, as part of the planning application. As soon as the housing development is granted final permission, the bog restoration must start ahead of any housing development. Many of the deep drainage ditches will be blocked and the water levels in each compartment of Lindow Moss will be controlled. This will be achieved by building a system of long bunds (narrow, low, peat walls) that will be set at different heights to trap the rain water. Excess water will then be able to flow slowly downhill, over the top of the bunds, to avoid flooding and into a controlled drainage system.

Lindow Moss – towards a brighter future:

As a result of this detailed restoration plan, recolonization of the rewetted surface with native bog plants will occur. These are mainly Sphagnum mosses & cotton grass on the wet peat and in the pools reed mace & bog water plants among others. The carnivorous sundew *Drosera rotundifolia* is already growing well in places on the heathland areas. All around the moss there are small areas of exquisitely beautiful eco-niches which support a whole range of bog plants, birds, insects & small mammals. Also, the drier areas are covered with dense heather where common lizards are found. It is very encouraging that a small colony of water voles live in a pool in the centre of the bog and these will be carefully protected. They have survived in spite of the continuous upheaval on the bog by machinery over the years.



Figure 4 Sundew on the heathland areas



Figure 5 bog pondweed, soft rush & reed mace

We have to be hopeful that restoration will start this year after the final wildlife assessments are completed by an ecologist working with the peat restoration company. The restoration of Lindow Moss is important not just for the 28 hectares of cutover peat bog, but because it is hoped that in future, a wider area of the original 1,740 hectares of linked raised bogs, that are now farmland, might be restored to wetland. Lindow Moss could become a key stepping stone mossland habitat between the restored Shropshire mosses to the south

<https://www.shropshirewildlifetrust.org.uk/marches-mosses-boglife> and the restored peatlands of the Mersey belt to the north <https://www.lancswt.org.uk/chat-moss-project>. After so many years of destruction of this very special landscape, we may be on the cusp of its restoration to wetland which is vital to its wildlife and to help the climate crisis.

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