Sphagnum reintroduction in the South Pennines: A Partnership Approach

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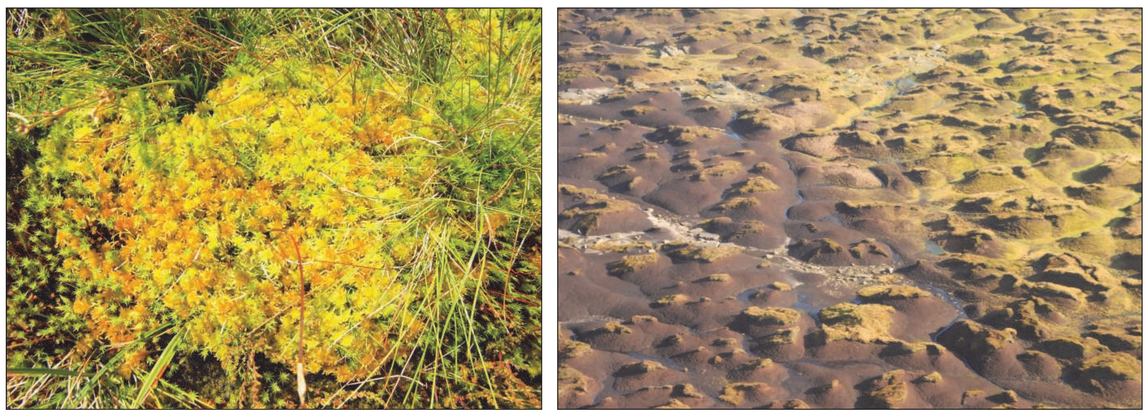
Introduction

The blanket bog habitats of the Peak District National Park and South Pennines are some of the most degraded in the world. 200 years of industrial pollution combined with wild fires and grazing pressures have resulted in extensive areas of bare peat.

and substantial erosion. Air pollution from the industrial conurbations of Manchester and Sheffield had catastrophic consequences for the *Sphagnum* that grew here.

The Moors for the Future (MFTF) Partnership has revegetated large areas of bare peat. This, along with cleaner air quality in recent decades, mean that conditions for Sphagnum to grow improved. However, one of the key constraints however is the limited amount source material, meaning that natural recolonisation is slow.

As a key peat building plant, the reintroduction of *Sphagnum* is seen as an important next step in moorland restoration.



Left: Patches of *Sphagnum* are slowly returning to some areas of revegetated blanket bog. Natural recolonisation however is slow due to the prominence of vegetative growth. Right: Degraded blanket bog on Bleaklow, Peak District. Revegetated areas, such as those in the top right of the image were devoid of vegetation ten years ago. These areas are now being treated with *Sphagnum.* propagules.

Above left: *Sphagnum* beads produced by Bead-A-Moss. Above right :The beads contain dozens of fragments of *Sphagnum* which begin to grow and reproduce vegetatively to form small colonies.

Sphagnum propagation

MFF contacted Micro-Propagation Services to find a way of finding creating a large quantity of South Pennine *Sphagnum* where there was no real donor source.

Using micro-propagation techniques large quantities of *Sphagnum* material was produced using a small amount of *Sphagnum* collected from the South Pennines. This technique allows a variety of species to be produced increasing the diversity of *Sphagnum* species on the moor

A bead was developed to allow landscape scale application. The bead offers a means of application and a protective surround to improve sphagnum establishment

Over 4 million beads are to be applied over the next 3 years.

Research & Development

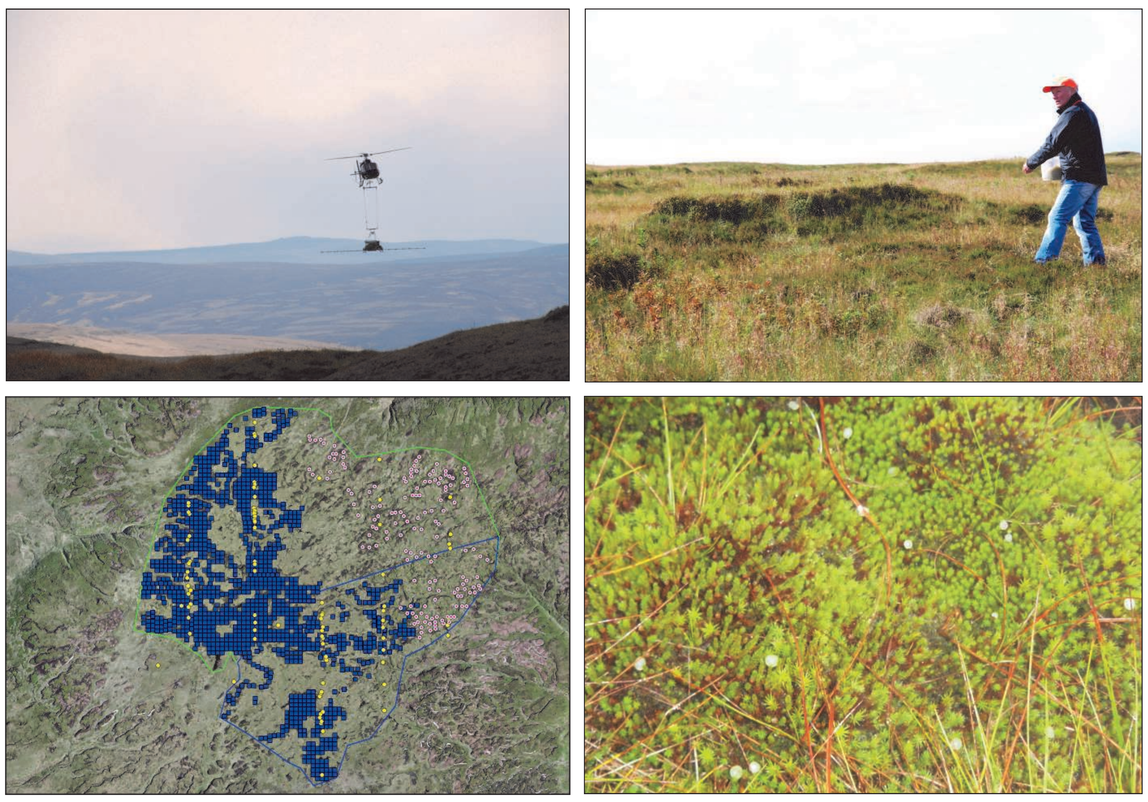
MFTF has commissioned and supported research into the development of *Sphagnum* beads—funded by The Cooperative Foundation and undertaken by Manchester Metropolitan University.

Field trials conducted by Rosenburgh *et al* (pers comm.) indicate that:

- *Sphagnum* can grow in areas of restored vegetation—areas which were totally devoid of vegetation 10 years ago
- Growth and early establishment of *Sphagnum* is not limited to intact areas of good blanket bog vegetation.
- The time of application, and weather conditions following are important factors in *Sphagnum* establishment. Warm and wet conditions following the spreading of *Sphagnum* propagules provide ideal conditions for growth.
- Contact with the soil surface is important for successful establishment of *Sphagnum* propagules, especially for fragments.

MFTF are building on this research and continuing the development of *Sphagnum* propagules as a restoration treatment. In September 2012, Black Hill was the first MFTF site to receive large scale application of *Sphagnum* beads as part of the EU funded MoorLIFE Project.

In addition to trials on revegetated areas, MFTF are also investigating the application of *Sphagnum* propagules to *Sphagnum* poor areas of molinia grassland, cottongrass dominated blanket bog, and intact areas of vegetation.



Above left: MFTF trialled helicopter applications of *Sphagnum* beads in 2010. Above right: hand application of *Sphagnum* beads on Black Hill. Below left: *Sphagnum* transect surveys are undertaken on restoration sites prior to propagule application. Below right: *Sphagnum* beads are monitored within fixed quadrats on the day they are applied to enable assessment of bead establishment.

Knowledge Sharing

Several partners within MFTF are undertaking sphagnum application projects on their sites. These techniques can be seen in the work undertaken by MFTF (MoorLIFE Project), RSPB, National Trust and Natural England.

MFTF have set up a *Sphagnum* Technical Advisory Group (TAG) to provide a forum for discussions and knowledge sharing. The TAG enables partners in the South Pennines to:

- Develop application techniques
- Share results and build on each others knowledge and experience
- Develop coordinated monitoring programmes across a range of sites and application methods
- Work towards comprehensive guidance on *Sphagnum* application on blanket bog

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