Sphagnum Reintroduction in Practice: Workshop summary Wednesday, 11 June 2014, Manchester Metropolitan University

Aim of the day

The Moors for the Future Partnership, through their EU LIFE+ funded project, MoorLIFE, hosted a seminar in collaboration with Manchester Metropolitan University entitled "*Sphagnum* Reintroduction in Practice". The event brought together conservation practitioners, policy-makers and researchers from across the UK and Europe and focused on reintroducing *Sphagnum* to peat bogs, both upland and lowland, raised bogs and blanket bogs.

The morning of presentations at the event can be found at: www.moorsforthefuture.org.uk/moorlife-seminar. The presentations addressed the following issues.

- Why is *Sphagnum* so important – why do we need *Sphagnum*?
- Put *Sphagnum* reintroduction into context – why are we where we are?
- What work is being done at the moment – what are we currently doing on a landscape scale?
- What are the challenges and opportunities over the next 10-20 years – i.e. what are the issues we need to overcome and what should we be considering in future work?

The afternoon workshops were designed to provide a platform to bring together work taking place on *Sphagnum* reintroduction, with a focus on what the key unknowns and constraints are.

Delegates from the seminar signed up to one of two workshops – one focusing on conservation works and one focusing on current research and monitoring activities. Delegates could choose which session they signed up to.

Both workshops were set up by splitting the delegates into smaller groups. Each group was focused on one particular area of research or practical application, and worked through a short questionnaire to capture the discussions.

The event was funded by the MoorLIFE project, part of the European Union's LIFE+ programme and hosted by Manchester Metropolitan University (MMU). MoorLIFE is the largest moorland conservation programme in Europe — protecting Active Blanket Bog by restoring bare and eroding peat in the South Pennines Special Areas of Conservation (SAC) and Special Protection Area (SPA). MMU hosted the event as part of their series of 50|50 knowledge exchange events — celebrating 50 years of science education at MMU with 50 knowledge exchange events throughout 2014.

Workshops

Conservation and land management workshop

The conservation and land management workshop was designed to collect information on:

- what *Sphagnum* application is taking place on a landscape scale
- what methods are working, and under what conditions
- how conservationists and practitioners collate information from research and academic teams.

Research and monitoring workshop

The research and monitoring workshop was designed to answer the following questions.

- What research/monitoring activities are delegates currently involved in?
- What are the aims of the research?
- What are the project's targets?
- What future monitoring/reporting is planned?

Knowledge gaps

Following the work within teams, there was an open discussion in which both groups were asked the same question:

"What are the issues, barriers or opportunities in relation to the reintroduction of *Sphagnum*."

Results

Conservation and land management workshop

Techniques captured for reintroducing *Sphagnum* included the following.

Whole plants: Whole plants were being introduced, predominantly by hand, in a range of environments. Many organisations were introducing the plants in bare peat areas, as well as areas of standing water and onto heather coil logs being used to dam areas.

Spores: Spores were being used in one example where *Sphagnum* farming was taking place in Germany.

Beads*:* *Sphagnum* beads (propagules) were being used in both lowland and upland environments. They were being spread by hand and by mechanical methods. *Sphagnum* beads were being spread in all areas, including vegetated areas, onto bare peat, alongside heather brash and under straw.

Fragments/mulch: Fragments were being applied in similar environments as beads, and using similar methods.

Slime: *Sphagnum* applied in a liquid medium was being trialled in two projects – one in an upland

environment and one in lowland bogs. The upland project was still in trial phase, and techniques were still being established. Within the lowland setting, the slime was being applied by hand under straw.

Brash: *Sphagnum*-rich brash was being used in three upland projects. It was applied by hand using the same methodologies as usual brash spreading. In one project in Yorkshire, it was being applied as part of a project to reprofile slopes.

Research and monitoring workshop

This workshop looked at the variety of work taking place to monitor the impact and success of *Sphagnum* reintroduction.

Most of the monitoring and research fell under one of five themes, as follows.

1. Conditions required for *Sphagnum* growth and reintroduction. This included studies on:
    - microbial associations
    - simulation of climatic conditions
    - links with hydrology (primarily water table)
    - biochemical drivers
    - paleo-ecological studies to understand impact of past conditions on *Sphagnum*.

2. Surveys to assess the current condition of blanket bog, including:
    - baseline surveys
    - general vegetation surveys
    - Natural England condition assessments
    - water table monitoring.

3. What *Sphagnum* we currently have, including baseline surveys.

4. Monitoring of *Sphagnum* propagule applications.
    - Monitoring appearance and growth of *Sphagnum.*
    - Mix of trial plots, experimental design and monitoring of landscape-scale applications.
    - Associations with different plant communities and combinations of works techniques.

5. Impact of conservation works, including:
    - vegetation surveys
    - water table surveys
    - Natural England condition assessments
    - impacts of lime and fertilizer on *Sphagnum*.

Knowledge gaps

The top things identified as being barriers to *Sphagnum* reintroduction were as follows.

1. Source for *Sphagnum* and donor site impacts.

   One of the reasons for the slow recovery of *Sphagnum* in the South Pennines SAC has been identified as the lack of source material. In some parts of the Pennines, *Sphagnum* is harvested from a donor site and then spread at a new location. However, this technique is not widely used in the South Pennines where conservation areas tend to be very large. The size of the area, and its conservation designation, lead to a number of questions, including the following.
   a. How much *Sphagnum* can be taken from a donor site without damaging it?
   b. Does the scale of works required make this an appropriate technique for the South Pennines?
   c. How can *Sphagnum* be introduced in this way within protected areas?
   d. How far away can donor sites be from reintroduction sites?

2. Long timescales for *Sphagnum* growth and understanding — disconnect with funding objectives.

   It will take many years to fully understand many of the issues surrounding *Sphagnum* reintroduction. Many projects are only funded over short timeframes and therefore monitoring options are limited, with many projects only collecting baseline data. Under this system monitoring of the longer-term survival and growth of *Sphagnum* is not guaranteed.

   From a monitoring perspective this presents problems for the continuity and consistency of monitoring *Sphagnum* applications. From a conservation point of view, it makes it difficult to determine the success of any one technique. Furthermore, this short-term approach often means that other changes that could be associated with *Sphagnum* survival, such as water table, cannot be properly monitored.

3. What bogs were like in the past — what are we 'restoring' to?

   Understanding the past conditions of our blanket bog habitats can better inform scenarios for today. This can be especially useful in understanding how our blanket bogs will adapt to future climate conditions. In particular, this area of research needs clear objectives and targets from Natural England on how to move Active Blanket Bog towards Favourable Condition. Clear aims will be crucial in determining what the end goal is for any area of land.

4. Funding in the current climate.

   Funding for conservation work is often dependent on key legislative and social drivers, and in financially challenging times, funding is for smaller sums and over shorter time periods, compounding the problems described in point 2, and frequently leading to a piecemeal approach to conservation work.

In addition, valid monitoring periods for *Sphagnum* reintroduction are needed over a long period of time, and not just over the short time periods of funding. A stable system is needed that can accommodate long monitoring periods. These systems need to be stable enough to take into consideration changes in politics and policy.

5. Techniques for distribution on a landscape and ecosystem scale.

   Lots of techniques for *Sphagnum* application are in development. There are a large number of variables to explore, requiring significant resources that are not always available. There is also the question of how to translate trials from small plots to a landscape scale – both from a logistical perspective, but also in terms of costing and the budgeting of different methods.

6. *Sphagnum* reintroduction — impact on water quality and quantity.

   Looking beyond the habitat condition and biodiversity benefits, a number of studies indicate the wider benefits of increased *Sphagnum* cover on blanket bogs, including the impact on water quality and quantity. These benefits are advantageous for the wider conservation community and other stakeholders, and investigating these wider benefits may help land managers access additional funding.

7. Communications needed beyond the conservation community.

   More communication is needed with landowners. Often it is difficult for landowners and farming tenants to attend seminars held during the day. Findings also tend to be published in publications that are not accessible to landowners and farming tenants. More consideration is needed to where best to publish findings, and also how to best communicate with these crucial stakeholders.

8. Knowledge exchange to the wider public.

   It is important to raise awareness locally to increase sense of ownership with local communities. Some delegates felt that the messages that need to be conveyed are so important it needs to be done professionally. For example, some projects, such as the Great Fen Project, have celebrity champions. Peatland habitats and work on *Sphagnum* reintroduction could benefit from such an association.

Next Steps

The MoorLIFE project goes some way to improving knowledge exchange within the conservation, land management and scientific community. The *Sphagnum* seminar provided an opportunity to consult with the wider community and identify areas that are deemed to be lacking in research and guidance.

This report is designed to as a first step in addressing some of the issues identified. It provides an

overview of responses from delegates, and therefore acts as a starting point for organisations keen to find out more about what other work is taking place.

Through the MoorLIFE project, the team also intends to pull together a reference guide of conservation and research actions involving *Sphagnum* reintroduction, as well as examples of monitoring and research work.

In terms of education for members of the public, the MoorLIFE project will be producing the following tools to help share our knowledge.

- Produce a *Sphagnum* field guide app that can be downloaded by members of the public to help promote this valuable species and the conservation work taking place to reintroduce it.
- Produce a layman's report which will be accessible for members of the public. The layman's report will outline our work and the valuable part played by *Sphagnum*.