Issue 5 Autumn 2017

BogLIFE

Bringing Lowland Raised Bogs to Life

Welcome to the winter edition of BogLIFE, where you can read the latest news and updates from Humberhead Peatlands, Marches Mosses and Cumbria BogLIFE projects.

Earlier in November, the three projects were able to get together in Kendal at a workshop exploring ways to gather data on Cultural Ecosystem services. Collecting this data is something all LIFE projects (and increasingly other funded projects) have to do to measure the impact of their work, but how do you go about it? You can find out more about the workshop further on.

In this issue you can also read about:

- The innovative paludiculture trial being set up at Bolton Fell Moss
- Exciting bog spider discoveries at Fenn's and Whixall Moss
- A Humberhead monitoring update from Richard Smith
- The trials and tribulations of Rhododendron management at Thorne Moors

We would also like to take this opportunity to wish you a very merry Christmas and a happy and peaceful new year!

While many adult insects disappear from the bog in autumn, their larvae or pupae will overwinter by sheltering deep in vegetation. Here, the caterpillar of the Beautiful yellow underwing moth (*Anarta myrtilli*) is protected in more ways than one – perfectly camouflaged against heather, one of its food plants. Photo © Richard Smith, Humberhead Peatland Project.

LIFE+
The LIFE+ Programme is the European Union's funding instrument for the environment. Funding is awarded to best practice, innovative demonstration projects that contribute to the objectives of Natura 2000.

That's LIFE – Restoring the Humberhead Peatlands LIFE+ project

Update from Dr Richard Smith

This autumn sees the final session of scrub clearance occurring across an area of about 50ha. It is being undertaken largely by the project's estate team, who will work through to March 2018. The project extension has allowed additional areas of birch to be covered, as well as some remaining, localised patches of rhododendron.

The practical sides of scrub clearance

Delivering conservation is sometimes more difficult than it seems, due to seasonal weather and sensitive species. For example, scrub clearance is timed to avoid the bird breeding season. However, in winter 2016, hen harriers began roosting in one compartment (a mosaic of heathy bog and birch scrub) just before contractors started work there. The project had to switch to an alternative area. So this autumn, the estate team finished their work, in the compartment used for roosting, well before the potential arrival of the reserve's special guests. This experience mirrors that of bog restoration projects in Estonia. They can only clear trees when the ground is frozen, but they then have to work around capercaillie.

Photo © Humber head LIFE project

Roe deer Buck. Photo © Steve Hiner

Hull University researching deer on Thorne Moors.

It is not clear how deer are responding to extensive scrub clearance, as part of the bog restoration, on the Humberhead Peatlands. So this winter, a new MSc study will use camera traps to establish the distributions and densities of red, roe and muntjac deer on Thorne Moors. It will also assess any impacts on the vegetation from deer.

LIFE monitoring draws to a close

The monitoring programme has now collected most of its follow-up data. This includes the University of York's work on nightjar tracking and cultural ecosystem services. The in-house surveys of invertebrates and vegetation also gathered their latest data in July and October, respectively. Only the 70-strong network of water level stations remains to be downloaded early next year. Some elements of monitoring the restoration will continue after the LIFE project, for example nightjar tracking in 2018 and longer-term initiatives for water levels, flagship invertebrates and vegetation.

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That's LIFE – Restoring the Humberheads Peatlands LIFE+ Project

Herbicide spraying large areas of Rhododendron re-growth: a logistical conundrum

Edward Brightman

One of the major objectives of the LIFE project has been to remove dense growth of invasive *Rhododendron ponticum* from substantial areas of Thorne Moors. The important follow-up work has been to control re-growth, because rising water levels will not do this alone. Such control has been achieved via targeted spraying, by hand, using the biodegradable herbicide Glyphosate. But the areas involved are a challenge: 96ha altogether, equivalent to about 150 Wembley football pitches!

Trialling different techniques, the LIFE team has refined its approach during the course of the project. Having begun spraying with knapsacks on uneven terrain in 2015, we tried some less back-breaking methods. In 2016, this involved using a 200L crop sprayer tank, attached to the back of a tractor or tracked all-terrain vehicle, fitted with 3 hand lances. While this reduced the number of stops to prepare knapsacks and reduce risks of spillages, the vehicles required too long to set-up and be moved on and off site.

Photo © Humberhead LIFE project

Turning to 2017, we reverted to the knapsacks, but limited to 10L packs. Critically, the vast 40ha treatment area was divided up into blocks using canes – a classic case of breaking up a challenge into smaller parts! This made it much easier to track progress, achieve reliable coverage and motivate the team in relation to daily targets. This time, depots of clean water were stationed strategically across the treatment area to help regular re-filling.

Photo © Humberhead LIFE project

Unfortunately, in 2017 we had to contend with the 'reliably unreliable' British weather, which cut our operating window by half. It was not possible to spray before, during or after rain; when it was dry, it was unusually windy, so halting spraying; and when it was neither of these, the heat became a hazard, again reducing the operating time! So don't forget to build this uncertainty into spraying plans.

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Marches Mosses BogLIFE project

Rare bog spider discoveries

Spiders are not everyone's favourite creatures, but did you know that some really rare spiders live in wet bog habitats? The Marches Mosses BogLIFE project has been discovering some of the rarer species that now thrive on their sites.

Jumping spider species *Sitticus caricis.*
Photo © Stephen Barlow.

After a lapse of 24 years, a nationally vulnerable species of money spider *Carorita limnaea* has been re-discovered this autumn at Fenn's, Whixall and Bettisfield Mosses National Nature Reserve (NNR), the location of the Marches Mosses BogLIFE Project.

Other exciting discoveries include the nationally scarce jumping spider, *Sitticus caricis,* and *Glyphesis cottonae*, Cotton's amazon spider, both of which were recorded for the first time - as was the very rare pseudoscropion, *Microbisium brevifemoratum.* They were all found while searching for the rare jumping spider *Sitticus floricola,* which, despite extensive searches since, hasn't been spotted at the Reserve since 2004.

All these species are specialists of wet bog habitats in Britain, living in Sphagnum bogmoss. *Carorita limnaea* has only been recorded at two sites in the UK, Whixall Moss in 1993 and Wybunbury Moss.

In the last 25 years, the *Sitticus caricis* jumping spider has only been recorded at four sites on Anglesey and at a handful of sites in the south-east of England, and has shown major national declines over the last 30 years.

Cotton's amazon spider is currently only known from four others areas in the UK and similarly has been lost from much of its range in recent decades. Similarly *Microbisium brevifemoratum* is only known at two other locations in the UK.

Extensive restoration work to Fenn's, Whixall and Bettisfield Mosses has meant these rare bog spiders have been able to thrive. Internationally important raised bog wetland now replaces vast swathes of dry bare peat, allowing mire species great and small to flourish. In partnership with Natural Resources Wales and Shropshire Wildlife Trust, Natural England will build on this success in the coming years with a package of improvements funded through the European LIFE and Heritage Lottery-funded Marches Mosses BogLIFE Project.

Dr Joan Daniels, Marches Mosses BogLIFE Project Officer added "This is a fantastic haul of nationally important invertebrates which can only live on bogs. It's one of the many reasons to save and restore this, Britain's third largest raised bog. It is wonderful to know that all of that restoration work here is paying off and populations of this very rare money spider and the gorgeous little stripy jumping spider are now increasing. The BogLIFE works can only make things better for these once so threatened species"

These exciting discoveries were made by spider expert and editor of the British Archeological Society newsletter, Richard Gallon part of a survey for the Tanyptera Trust.

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Cumbria BogLIFE

Paludiculture Trials to start at Bolton Fell Moss

Deborah Land

Natural England are embarking on an exciting new project as part of the restoration of Bolton Fell Moss. Bolton Fell Moss was previously a commercial peat extraction site which left large areas of bare peat and very little of the original vegetation. Extraction ceased in November 2013 with Natural England acquiring the land in 2015 and restoration of the bare surface began.

Owing to the lack of available remnant bog vegetation on Bolton Fell Moss, contractors have had to import donor vegetation from other sites such as the Pennines. This has shown some success to date. However, for ongoing maintenance to the restoration, we felt that it would be advantageous to establish our own source of bog vegetation within the site.

Germany has been trialling sphagnum farming since 2004. However, there have been limited trials of sphagnum farming on milled peat in the EU. Following an excursion to Germany in spring 2017, we have identified an area at Bolton Fell Moss to establish a number of Sphagnum farming trials. A total of 6 trial beds will be established implementing different methods of vegetation establishment. This will include:

- Donor vegetation from other sites
- *Sphagnum* hummock plugs
- Micropropagated *Sphagnum* gel/beads
- *Sphagnum* pellets

The contractor will also be encouraged to trial a further method should they have one.

The aim of Natural England's sphagnum farming trial is twofold:

- Creation of a suitable sphagnum-rich donor site for future restoration of Bolton Fell Moss and other bogs
- To investigate the practicalities of sphagnum farming on cut-over peat bogs

The aim is not to establish monoculture stands of sphagnum, but sphagnum rich beds of donor material that can be used to provide material for maintenance of the restoration within Bolton Fell Moss.

Works will commence in the New Year with completion of the trial beds in spring 2018.

Sphagnum cultivation trials in Germany.
Photo © Deborah Land

For further information on this project, please contact:
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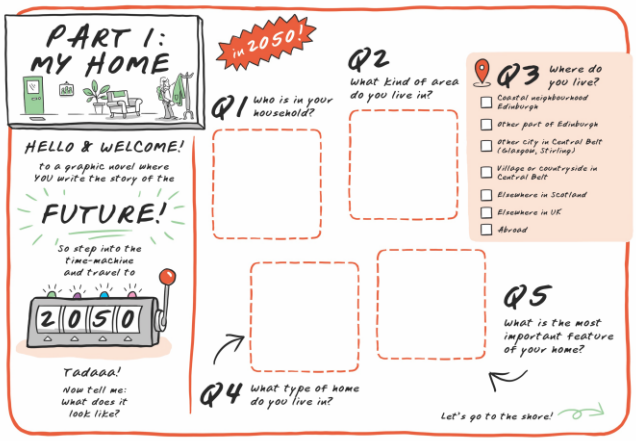
Cumbria BogLIFE+
Cultural Ecosystems Services Workshop

A requirement for many funded projects is to measure the 'cultural ecosystem services' that result from our sites and the project work taking place there. These services can be hard to quantify; things like a sense of place and community, mental wellbeing, educational benefits and experiential benefits. It is also a subject many people feel ill equipped to tackle.

With this in mind, Cumbria BogLIFE+ team organised and hosted a Cultural Ecosystems services workshop on the 6th November. Attended by other LIFE+ project teams including the Humberhead Peatlands, Marches & Mosses BogLIFE and Hoveton Broads, the day was designed to provide project staff with practical methods for engaging communities in meaningful evaluation of these ecosystem services.

Natural England Social Science Specialists introduced a variety of methods for capturing data around these benefits. This included the standard questionnaires and semi-structured interviews, but also participatory methods, which are far more engaging. These included:

- Mapping – the use of maps to mark out places of value/non value on a site.
- Photography – participants take photos of places/things they feel strongly about, either positively or negatively, which they then discuss with the researcher.
- Postcard to my future self – a way to gauge whether an event has encouraged a behavioural change in an individual. The participant fills in the postcard which is sent back to them 1-3 months later to remind them of the change they said they would make.



One of the canvesses used in "Streamline"

In the afternoon, Marc Metzger and Crawford Paris from the University of Edinburgh introduced us to their innovative programme 'Streamline', which encourages participants to imagine an area twenty or thirty years into the future. This is an exciting and engaging method of involving local communities in future planning for a site and can be applied to a wide range of situations. Find out more here:
https://www.streamline-research.com/home

If you would like to know more about the day or any of the techniques discussed, please get in touch!

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Photo © Rob Petley-Jones

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Workshops, Conferences and Demonstration Days.

Save the Date!

Humberhead Peatlands LIFE+,
End of project Conference:
Tuesday 15th –Wednesday 16th May, 2018, in Doncaster.

More details to follow soon.
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Humberhead Bog Beasties

Photos © Richard Smith

Of several hundred kinds of tiny money spiders (family Linyphiidae) in Britain, a few tens are closely associated with bogs. You're unlikely to notice them unless morning dew picks out their sheet webs.

Our habitat specialist, the Bog bush cricket (*Merioptera brachyptera*) is on its last legs by October. This female found her way onto the clipboard while surveying, moving very decrepitly.

www.gov.uk/natural-england
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