Issue 1 Autumn 2015

BogLIFE

Bringing Lowland Raised Bogs to Life

Welcome

Welcome to the first issue of BogLIFE, a bi-annual newsletter from the EU LIFE+ funded Cumbria BogLIFE and Humberhead Peatland Projects.

In 2014, the EU LIFE+ Programme awarded Natural England two match funded grants to deliver projects which aim to restore 6,080 hectares of degraded raised bog habitat on several Natura 2000 sites.

The projects are now delivering highly innovative habitat restoration and monitoring techniques on several raised bog sites. A key aim of all LIFE+ projects is to use work to illustrate a range of techniques to managers of similar habitats and academic audiences, both locally and across the European Community.

The BogLIFE newsletter will be just one way we hope to meet this aim by disseminating best practice and guidance and we invite you to join us to celebrate our successes! We hope you find this issue informative and that you can join us on one of our upcoming workshops, conferences and events.

We look forward to meeting you on a bog somewhere in the future.

Lowland Raised Bog

Lowland raised bog is one of western Europe's rarest and most threatened habitats.

Around 94% of this unique habitat has been destroyed or damaged in the UK.

Bolton Fell Moss (T Crockett, NE)

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’ The Humberhead Peatlands LIFE+ Project

At around 3,300 ha in extent, the Humberhead Peatlands form the largest complex of lowland raised bog in England and are designated as a National Nature Reserve.

The two main sites, Thorne and Hatfield Moors, were both exploited for peat over many centuries. The integrity of the bog and its unique biodiversity were severely threatened during the 20th century, by mechanised peat extraction and associated drainage. These activities finally ended in 2004 and provided the opportunity to restore the UK’s largest area of degraded raised bog. The LIFE+ project has enabled a step-change in the scale of restoration activities.

Tracked chipper processing rhododendron (E Brightman, NE)

Practical Restoration

Clearing 560ha of scrub, to reduce the amount of water lost from the bog through evapotranspiration. Targeting three main types of vegetation: birch succession, birch with a low understorey of rhododendron and dense rhododendron thicket. Retaining 10% residual scrub.

Preventing rhododendron from regenerating in drier areas through targeted herbicide spraying.

Managing water levels so that bog vegetation – notably *Sphagnum* mosses and cotton-grasses - can recolonise bare peat and the cleared areas. This has the added benefit of preventing scrub regeneration too. Water levels are controlled by a range of measures:

- contour bunding in open areas, to reduce flows in the surface layers of degraded peat
- dams or sluices on internal ditches and drains
- pumping excess water from low lying zone
- and tilting weirs on principal drains running off the Moors.

Monitoring

The effects of the restoration work are being measured by monitoring a suite of five, biological and socio-economic features. Some of these are being carried out in partnership with the University of York.

1. Tracking Nightjars with GPS tags, to understand better how habitat use changes in relation to the restoration. Nest monitoring to assess breeding success.
2. Assessing recolonisation of bog vegetation by sampling the cover of indicator plant species and using aerial photography to measure changes in habitat extent.
3. Studying the responses of invertebrates through changes in indicator assemblages, sampled at restored and control locations. Monitoring populations of flagship species, such as large heath butterfly.
4. Monitor water levels, using a network of boreholes with dataloggers, to help regulate levels within +/- 20cm of the peat surface.
5. Assessing the impact on the ecosystem services of the peatlands, in terms of cultural benefits, as well as regulating services such as carbon storage. An economic impact assessment will measure the effect of the project on the local economy.

‘Rope Dragging’ to detect nightjar nests (R Smith, NE)

www.facebook.com/humberheadpeatlands

www.gov.uk/government/publications/humberhead-peatlands-restoration-life-project

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Cumbria BogLIFE Project

In Cumbria, the project will focus on three lowland raised bog sites; Bolton Fell Moss to the north-east of Carlisle, Roudsea Woods and Mosses (NNR) in south Cumbria and Wedholme Flow (NNR) - one of four raised bogs within the South Solway Mosses. The project will directly restore 507 hectares of degraded raised bog and as these are part of wider areas of bog, this will result in improvements to 2,807 hectares of the Natura 2000 network in Cumbria.

Practical Restoration

Large scale practical restoration work commenced in Cumbria in August 2014 to include:

Re-vegetation of bare milled/cut peat – At Bolton Fell Moss and Wedholme Flow, formerly commercial and domestic peat cutting sites, innovative techniques are being developed to raise water levels and establish *Sphagnum* growth on extensive areas of bare, milled peat.

Cell bunding – This successful technique for reducing water movement and losses in surface peat (see image below from Roudsea Mosses), is being carried out on all three project sites using low ground pressure excavators.

Removal of rhododendron – At Roudsea Mosses excavator mounted flails are being used to clear extensive areas of tall, dense, invasive rhododendron.

Tree removal – Using a variety of techniques, such as skyline, low ground pressure tracked chippers and excavator mounted flails, dense woodland is being removed from deep, soft, wet peat at all three sites.

Restoration at Roudsea Mosses (A Brock, NE)

Baseline vegetation survey (T Crockett, NE)

Monitoring

Detailed monitoring will continue throughout the life of the project to assess the responses of vegetation, hydrology and carbon flux to the restoration works.

Drawing in data from over 20 years of bog restoration works within Cumbria, the project will seek to ascertain in detail the efficacy of past and present restoration techniques and disseminate recommendations widely to guide future bog restoration work.

Lowland raised bog sites offer great opportunities to demonstrate ecosystem services, notably in terms of carbon storage and water management, as well as biodiversity. This will form a key element of the Cumbria BogLIFE project as well as conducting a detailed assessment of the socio-economc impact of the project.

www.facebook.com/cumbriasnnrs

www.gov.uk/government/publications/cumbrian-bogs-life-project

Restoration of degraded lowland raised bogs on three Cumbrian SSSIs/SACs (LIFE 13 NAT/UK/000443)'

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Black Darter (R Petley-Jones, NE)

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Sharing Best Practice

Our two LIFE+ funded projects are working closely together to find and share best practice techniques in lowland raised bog restoration and associated monitoring.

Through communicating with a broad range of peatland practitioners, scientists and landowners, both in the UK and within the EU, we aim to use and trial cutting edge-techniques.

Throughout the life of the projects we will be delivering a programme of site-visits, workshops and project conferences that will illustrate a range of restoration techniques to managers of similar habitats, and disseminate best practice guidance associated with them.

Wetland Network event (T Crockett, NE)

BogLIFE Workshops

We are currently developing an exciting programme of workshops, conferences and events for 2016 that will aim to bring together peatland enthusiasts across the EU. These will include:

- Workshops to view restoration techniques on bare milled peat.
- Site visits to experience rhododendron removal techniques and cell bunding.
- A mid-project conference is planned for 2016 to demonstrate over 20 years of bog restoration on Natura 2000 sites in Cumbria.

Watch out for for further details soon, however please email us if you wish to know more.
cumbria.boglife@naturalengland.org.uk

www.gov.uk/natural-england
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