

North Pennines AONB Partnership Peatland research & monitoring activities

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Research activities

The AONB Partnership supports new research into peatland issues through a series of calls for proposals. Proposals must show a need and relevance and must add to the overall scientific knowledge of peatlands. Projects should aim to yield results that are of practical benefit and inform decisions about land management and restoration efforts. The 2007 round supported five projects:-

- What promotes vegetation growth in grips post-blocking? Alona Armstrong
- Sphagna as management indicators. Clare O'Reilly
- Understanding moorland aquatic invertebrate ecology to inform biodiversity conservation and sustainable land management. Lee Brown
- Short-term effectiveness of drain-blocking in suppressing enzymic peat decomposition and DOC export. Ed Maltby
- Assessing successful strategies for grip-blocking in the North Pennines AONB. Fred Worrall

A second, directed call was issued in early 2010, based on this, a further five projects are underway:-

- How much peat is being lost from bare and eroding areas? Richard Grayson and Joe Holden from the University of Leeds are using the novel technique of groundbased LiDAR to measure accurately the loss of material from eroding peat surfaces.
- Do our restoration techniques reduce erosion rates and sediment loss? Jeff Warburton from Durham University is undertaking a range of measurements alongside one of our bare peat restoration projects.
- How can novel remote sensing imagery be used to map vegetation and land-use? Mark Kincey and colleagues from the University of Birmingham are investigating how new remote sensing data can be used to map vegetation types and different land-uses across large areas without the need for intensive ground-based surveys.
- What are the effects of grazing intensity on peatland carbon balances? Fred Worrall and Gareth Clay from Durham University are carrying out experiments to determine how the level of grazing affects the amount of carbon stored by peatlands.
- How is the carbon budget of a managed moorland affected by drain-blocking? We are contributing to Magnus Kelly's PhD project (CEH Edinburgh and the University of Edinburgh). Magnus is measuring carbon dioxide and methane fluxes before and after drains are blocked as part of a moorland restoration programme.

More details and report downloads are available at:-

<http://www.northpennines.org.uk/index.cfm?articleid=12222>

Peat depth and carbon mapping project

The AONB Partnership is about to begin a joint project with Natural England (Matthew Shepherd – national evidence team) that aims to improve our understanding of peat depth and carbon storage in England. The project will involve letting a series of contracts to:-

- Review existing survey techniques and methods used to map carbon content.
- Develop a survey methodology.
- Collate data from partners to contribute to a new community database.
- Undertake a limited number of surveys to collect new field data.
- Produce new estimates of total carbon stored together with new maps that will be
- Freely available to share with the community.

We will be in touch with relevant protected area authorities/partnerships, NGOs and restoration projects over the coming months to share the findings and discuss data sharing. Do get in touch if you would like to know more about this project.

Monitoring activities

The project supported a programme of hydrological monitoring at two sites gripblocking sites in the North Pennines. Data were collected for a period of two years following grip-blocking and the final report of this work is being redrafted following a review.

Vegetation monitoring following grip-blocking is undertaken on a selection of, but not all, sites. Transects with fixed-point quadrat locations have been established perpendicular to drain lines. The design aims to monitor changes in vegetation composition within the blocked drains and at various distances from the drain edge. Data from current surveys forms a baseline for monitoring future change. Restoring areas of bare and eroding peat is new and slightly more experimental for us as a project and fixed-point quadrats are established and will be monitored on all such sites.

Funding

The majority of the funding for these activities comes from a proportion of larger funding grants obtained from Biffaward, Northumbria Regional Flood Defence Committee with specific awards for vegetation monitoring and sediment work from Natural England and the Environment Agency respectively.

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