

Peatland Restoration for Water and Carbon benefits in South West England

Note of a two day meeting organised by the English Upland Peatland Network and hosted by the South West Water *Mires-on-the-Moors* Projects

Monday 12th - Wednesday 14th November 2012

There were three elements to the meeting: site visits to both Dartmoor and Exmoor, and an indoor workshop session at 'Parke', the headquarters of the Dartmoor National Park Authority.

1) Participants included individuals from:

- The Exmoor and Dartmoor Mires-on-the-Moors projects
- South West Water
- The Duchy of Cornwall and the Exmoor farming community
- NGOs: the Westcountry Rivers Trust, RSPB, Somerset Wildlife Trust and FWAG
- Defra Arm's Length Bodies: the Environment Agency and Natural England
- Upland projects in other parts of England: Moors for the Future, the Yorkshire Peat Partnership, the North Pennines AONB ("Peatscapes")
- Researchers from Bristol University, the University of Exeter and the University of the West of England.

2) Purpose

The meeting was convened to enable colleagues involved with different projects / working in different parts of the country to meet and learn from one another. Our discussions focussed in particular on how peatland restoration works might be funded through 'Payment for Ecosystem Services' (PES) Schemes. The ecosystem services we spent most time discussing were water (quality and flow) and carbon (storage and sequestration).

This note summarises some of the issues and questions raised during the meeting. We did not expect to reach a consensus over all these issues, and neither did we attempt to answer everyone's questions. The meeting was however successful in raising awareness and sharing perspectives in what needs to be an ongoing debate.



"The Beaver" at work on Dartmoor.

This machine, supplied by Alaska Environmental' www.alaska.ltd.uk is able to cross extremely wet, soft ground without sinking in.

3) Starting points: some definitions

Payment for Ecosystem Services

A “market based instrument that connects providers with consumers of Ecosystem Services”.¹

PES is:

- a voluntary transaction where
- a well-defined ecosystem service (or a land-use likely to secure that service)
- is being ‘bought’ by a (minimum of one) ES buyer
- from a (minimum of one) ES seller
- if and only if the ES provider secures ES provision.

The Ecosystem Approach

“Integrated thinking about the environment and its management”²

Ecosystem Services

Services humans obtain from ecosystems. These fall into a number of categories, including:

- Provisioning services (e.g. food and water);
- Regulating services (e.g. flood and pest control);
- Cultural services (e.g. spiritual, recreation)
- Supporting services (fundamental ecological processes, such as nutrient cycling and global climate) that maintain the conditions for life on Earth)²

4) The south-west

Characteristics of upland peatlands in the south-west (in comparison with the Pennines):

- No management of moorland for grouse
- Longer growing season / warmer climate
- Greater diversity of dwarf shrubs
- The scale of the moorlands, and the extent of moorland degradation, is much greater in the Pennines
- On Dartmoor:
 - Commoners highly influential
- On Exmoor:
 - 19th century drainage works are more extensive / are having a greater impact than drainage carried out in the mid-20th century
 - Peat depth typically only c. 30-40 cm
 - Deer hunting with horses

In terms of water flow, South West Water are interested in establishing whether restored peatlands can sustain low flows at times of drought. This would minimise the extent to which the company has to make use of its pump-storage reservoirs (involving expensive pumping operations).

In terms of water quality the company hopes moorland restoration works will lead to a decrease in water colour and amounts of Dissolved Organic Carbon (DOC) and perhaps reduce the risk of inundation of water treatment works as a result of flooding.

¹ Defra: PES Best Practice Guide

² Ecosystems Knowledge Network <http://ekn.defra.gov.uk>

5) Some landowner “Ecosystem Service Provider” perspectives

Most farmers have in practice long been involved in providing a range ecosystem services in exchange for money. For many receiving payment for water and carbon services would, in principle, be an acceptable extension to this. Farmers in Exmoor in particular have a longer history than most of agri-environment payments (the Porchester Enquiry in the late 1970s resulted in a scheme whereby farmers received payment for ‘profit forgone’ if they agreed not to plough up moorland).

Landowners’ concerns include:

- The need honestly and accurately to assess the long term implications of entering into a PES scheme. It was suggested that farmers would be wary of a possibly flawed scheme established in haste to meet what appears (to some) to be an arbitrary timetable.
- Imposition of random stocking rate limits
- The impact of re-wetting on ability of moorland to carry stock
- Bureaucratic hurdles. The one quoted was the way the RPA can define new pools (created by grip blocking) as ‘PIFs’ (Permanently Ineligible Features) in relation to Single Farm Payments. The worry results not so much from loss of payment because of the reduced area (which will usually be trivial) but rather the penalties which can be imposed if these are not mapped and reported to the Agency
- A fear that water companies might act in the way supermarkets have in relation to milk. The possibility that a landowner might agree to an irreversible change in the way the moorlands are managed, only then to find that the rate of payment tails off

NB A representative of the water industry expressed the very opposite view. He was concerned that a water company might enter into a 25 year covenant only then to find that their interests were not being met in later years.

A group of farmers brought together in October 2012 were asked for their views on Payment for Ecosystem Services.

Top concerns included:

- Whether landowners could be confident that the schemes would endure, and had been properly thought through (what will happen if ...)
- Where the balance would lie between revenue gained and cost of compliance
- Legal / ownership concerns (e.g. obligations which might come into play if they want to sell land)
- How the relationship with the purchaser of the ecosystem service would be managed.

The three principal benefits perceived by land-owners were:

- An improvement to the environmental condition of their holdings
- Additional revenue stream(s)
- (Possible) long term increase in asset value.

6) Managing the PES process

Ecosystem service providers (landowners) will do what purchasers require of them:

- (i) When regulations require it (e.g. cross compliance, nitrate vulnerable zones)
- (ii) When it is in their own interest (e.g. best practice farming which maintains yields etc.),
and
- (iii) When purchasers pay them (e.g. stewardship, grants).

These three mechanisms are dependant, respectively, on enforcement, education and incentives. All parties involved in a PES agreement need to be clear about the position regarding all these options in any particular case.

It has been established that PES is one way in which peatland restoration can be funded, but to date this has generally only involved only a single purchaser and (sometimes) multiple sellers. The challenge now is to create an integrated market where multiple purchasers co-operate in a way which provides a significant and regular income to the providers, and long term benefits to the purchasers.

A further complication is that reaching agreement on a PES scheme may involve a number of different players on the seller side. These might include not only the owner of the freehold, but also others with an interest in the land including mortgage companies, tenant farmers, commoners and those with sporting rights.

The value of a trusted intermediary between the supplier and purchaser of ecosystem services was discussed. Such an intermediary could be paid for by a group of purchasers wanting to buy services from one or more landowners, or by a group of landowners, wanting to sell services to one or more purchasers. If the intermediary had the confidence of all parties they would be in a position not only to secure multiple benefits but also to monitor compliance with agreements which have been entered into.

7) The economics of PES

Providing multiple services may mean the provider gains less in traditional 'profit' from their land. This will be acceptable when the additional payments exceed the loss in profit.

It would be useful to establish some broad brush figures for what sort of sums we are talking about; to quantify in financial terms the ecosystem services which are provided by a peatland.

Some services will have a different value put on them in different places. In different situations water companies / the Environment Agency might be prepared to pay varying amounts for the same improvement in water quality. Other services (e.g. carbon storage) might be expected to have the same value at any location at any one time, but some sites will be deemed to be more secure, and so could merit a premium price.

8) Reservations about the overall approach

The values ascribed to different ecosystem services vary as a result of one's interests or personal philosophy. Some participants questioned whether everything can have an economic value – suggesting that "some things just don't fit" into an economic model. Examples quoted were social, cultural and historic interests, which might consequently be undervalued if a purely utilitarian approach is followed.

One unintended consequence of the PES approach is that certain landscapes may be perceived to be of lower overall value. This flies in the face of the idea that 'All Landscapes Matter', in different ways to different people.³

³ A concept enshrined in the European Landscape Convention

9) Challenges

A lot more work needs to be carried out before both the concept and the terminology around payment for ecosystem services is widely accepted and understood. Specific challenges include:

- Collecting sufficient evidence to quantify the benefits and costs of different land management options.
- Winning the confidence of all stake-holders, in particular the sellers and buyers of ecosystem services, regulatory bodies (e.g. OFWAT) and government (Defra and its agencies)
- It was suggested that there is still a long way to go before we have a fully functioning market for carbon storage. One legacy of the IUCN peatland programme is work on a peatland carbon code which would parallel the existing woodland carbon code (<http://www.forestry.gov.uk/carboncode>).

Monitoring work on Exmoor is encompassing water quality (DOC, POC, colour) water flows and storage, GHG flux (CO₂, CH₄), vegetation, bio-diversity and agricultural productivity and parasites. These monitoring programmes have been jointly developed by the Environment Agency, South West Water and the Project Manager. Delivery of the monitoring programme is being carried out by the Universities of Bristol and Exeter, First Ecology, RSPB, the Westcountry Rivers Trust and consultant ecologist David Boyce.



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Further information

Presentations from the Tuesday afternoon session can be downloaded from www.uplandhydrology.org.uk

www.upstreamthinking.org provides information about South West Water's catchment management partnership, including links to the work of the Exmoor and Dartmoor Mires projects as well as the projects run by Devon and Cornwall Wildlife Trusts and the West Country Rivers Trust.

The Exmoor Mires facebook page: <http://www.facebook.com/ExmoorMires>

A briefing note on 'Catchment management using payments for ecosystem services to restore and maintain upland peat' (lead author, Viki Hurst of 'Water@Leeds') is available here:

<http://www.valuing-nature.net/news/2012/restoring-peatlands-payments-ecosystem-services>

For information about the new collaboration between South West Water and researchers from the Universities of Leeds and Birmingham City University see <http://www.watratleeds.org/water-research-news-and-events.php?i=57> and

<http://www.bcu.ac.uk/news-events/news/peatland-restoration-project-set-to-have-huge-benefits>

The Ecosystems Knowledge Network <http://ekn.defra.gov.uk/> provides a reasonably straightforward introduction to the 'ecosystems approach'. For more detailed work on valuing biodiversity, ecosystem services and natural resource use visit the Valuing Nature Network website: <http://www.valuing-nature.net/>.

David Mount

Upland Hydrology Group

david@countysidetraining.co.uk

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