

# Scottish Environment LINK

## Peatlands Briefing

May 2009



### Summary

Scotland supports the majority of the UK's peatland soils and internationally important peat bog habitat. Peatlands provide a range of valuable services but these benefits are at risk from past damage. Peatland restoration is an important Scottish Government objective that can bring biodiversity as well as potential greenhouse gas emissions savings. The science around understanding the carbon benefits of peatland conservation is still in its infancy and there is a need to coordinate the research and develop consensus on the findings. Such work should not however divert the Scottish Government's ongoing commitments to conserve and restore peatlands. **With international recognition of the role of peatlands in addressing climate change and considering Scotland's peatland significance, there is an urgent need to prioritise funding and statutory effort towards achieving peatland restoration targets.**

### Recommendations

- The Scottish Government should reinforce its commitment to deliver peatland restoration, with Scottish Ministers taking an active role in encouraging cross agency working to meet restoration targets for 2015.
- Increased funding options for peatland restoration should be explored in the short term and in the longer term through review of the Common Agriculture Policy.
- The Scottish Government should facilitate the coordination of research on peatlands to ensure a consistent scientific basis for understanding the greenhouse gas implications of peatland management.

### Background

Peatland is a general term for a wide range of peat soils and habitats that occupy up to a third of Scotland's land area. Scotland holds around 60% of the UK's peatland soils. The most extensive, and deepest peat soils occur under blanket bog and raised bogs. These habitats cover an area of around 1.9 million ha in Scotland, and are recognised as internationally important under the EU Habitats Directive. Almost 20% of this area has been designated under national and international wildlife conservation legislation. They are also priority habitats for conservation and restoration

under the Scottish and UK Biodiversity Action Plans. Much of the blanket and raised bog habitat has been damaged by past activity such as drainage (moor gripping), burning, conversion to agriculture and forestry planting. There are considerable areas where habitat restoration could help recover favourable conservation status. The Scottish target in the Biodiversity Action Plan for blanket bog restoration equates to around 600,000ha by 2015.

Peatland habitats provide valuable services of importance to human well-being, including biodiversity conservation and climate change mitigation. They have additional value in providing a range of water management and quality functions and as preserves of archaeological and other historic remains. With most of our peatland resource in a less than favourable condition, we are losing valuable services and experiencing costs arising from the breakdown of peatland ecosystems.

Climate change also poses a threat to peatlands, with the biggest impacts likely to be on damaged areas. Increased summer temperatures with increased fire risks can damage the habitat, and high rainfall events further erode bare peat surfaces. This in turn leads to more carbon losses, exacerbating the climate change problem. An effective way of addressing the impacts of climate change on peatlands is to restore damaged habitat and hydrological function to help make the system more resilient and continue providing valuable services.

## **Greenhouse gas benefits**

The climate change relevance of peatlands is widely appreciated, but further work is required to understand the greenhouse gas dynamics. The need for research does not justify delaying important and urgent activity to bring about restoration that has clear biodiversity and other benefits. There are concerns about methane emissions from peatlands, as this is a potent greenhouse gas. However, the science behind this is complex and the literature suggests that those peatlands in a favourable condition, rich in sphagnum, have a net climate change benefit. There is clear evidence that a restored peatland will have lower greenhouse gas emissions than a damaged peatland.

**Estimates for the carbon stored in Scotland's deep peat is around 3000 million tonnes of carbon.** This is around twenty times as much carbon as that stored in the whole of the UK's forests and equivalent to 190 years worth of Scotland's total emissions.

Peatlands supporting bog habitat, in a favourable, 'sphagnum rich' state, can deliver annual greenhouse gas savings through sequestration of up to 0.5 – 0.7 tonnes carbon per ha per year (over a 100 year time horizon). **Those areas of active bog habitat in Scotland covering 1.9 million ha could potentially be providing around 1 million tonnes of carbon sequestration per annum.**

Most of Scotland's peatlands are in a degraded state and may be losing between 0.8 and 8 tonnes carbon per ha per year depending on how badly damaged the sites are (bogs damaged by commercial peat extraction and conversion to agriculture are at the higher end). Restoring peat bogs therefore provides increased sequestration and has the additional benefit of avoided losses. **Taking the Scottish BAP target for blanket bog restoration alone (600,000 ha blanket bog restored by 2015) could deliver at least 0.3 Million tonnes carbon per year in savings.** This is a similar carbon return to than that proposed for Scotland's forest expansion estimated to provide 0.2 Mt C benefits per year by 2020 and the cost of delivery also compares favourably. The cost of restoring heavily drained (moor gripped) blanket bog is around £100 per hectare which would mean £60 million required over the next 6 years to deliver the 2015 target. This expenditure should be considered in the context of the social cost of the carbon being released from damaged bogs. Using standard carbon costs (in the UK 2009 - £79.5/tC) delivering the 2015 restoration target could avoid a carbon damage cost of over £47 million per year.

**It is scientifically recognised that forests planted on peatlands provide significantly less overall carbon benefits than plantations on other soil types.** In addition, the long-term consequence of afforestation on peatlands is large carbon losses, damage to biodiversity and water management. Current forestry policy to avoid peatlands is therefore important in helping maintain these valuable peatland functions, as is the Scottish Forest Strategy commitment towards peatbog habitat restoration through tree removal.

**Removing plantation trees from peatlands makes an important contribution to peatland restoration and provides long term carbon benefits.** Whilst methane emissions can arise from peatland restoration, there is evidence that the net gains, through avoiding carbon losses from the afforested peatland, outweigh the carbon benefits of tree growth, particularly in the long term. Further research in this area is required but it is clear that peatland restoration has overwhelming benefits when considering all the values of this ecosystem.

Under present Kyoto protocol carbon accounting methods, emissions from Landuse, Land-Use Change and Forestry (LULUCF) do not currently recognise the benefits of avoided losses through peatland restoration. However, the international community in discussions, under the UN Framework Convention on Climate Change, is considering proposals for avoided losses through peatland restoration to be included in national greenhouse gas inventories.

## Water Quality benefits

Peatlands degraded by drainage, erosion and other damage such as burning can release high concentrations of dissolved organic material into rivers and drinking water reservoirs. One of the negative effects of this is water discolouration, which is costly to address. In England and Wales, water utility companies faced with spending millions of pounds for water treatment have chosen to pay for peatland habitat restoration as a long term cost saving exercise, with estimated benefits in some catchments of up to £2.5 million.

## Delivering Peatland Conservation

Scottish Government commitments towards peatland conservation have helped limit the amount of new damage. There are still some threats from developments such as windfarms and forestry/agriculture that need to be addressed by improved policies to protect sensitive peatlands. The restoration of peatlands has had some localised success but has not been widely applied at anything like the scale required to prevent the deterioration of this important ecosystem. **Whilst measures do exist under the Scottish Rural Development Programme for peatland restoration, this has delivered relatively small amounts and considerably more effort will be required to meet even the basic restoration targets for high conservation value areas.** In the longer term, the funding available through Rural Priorities will be insufficient to meet these aims. As the Common Agriculture Policy (both pillar 1 and the SRDP) is reviewed, the means to redirect funding towards peatland restoration should be considered. Additional means of funding outside the CAP may also be necessary.

The Forestry Commission Scotland has a valuable role in delivering peatland restoration on the national forest estate, alongside providing forestry grants to private landowners for similar restoration. It is recognised that this is only part of the solution, but often an important and cost effective one, particularly in areas where substantial high quality peatland habitats remain, such as in the Flow Country

Considering the biodiversity importance of Scotlands peatland habitats and the huge potential for climate change mitigation, this is an important time for the Scottish Government to provide a focus for coordinated effort to deliver peatland restoration, on a much greater scale than has been achieved to date. The establishment of a soil focus group under the proposed Scottish Soil Framework is a welcome step in providing this. **The Scottish Governments proposals to improve scientific understanding and build consensus, on the impacts of land management on the range of services that peatlands provide is welcomed.**

**We believe the strong involvement of Scottish Ministers is necessary to ensure restoration targets for peatlands are delivered.** The statutory agencies will benefit from clear Ministerial emphasis on the need to continue promoting peatland restoration work through their regulatory, grant awarding and other functions. In key areas, such as the Flow Country, where there are restoration strategies and good systems in place for coordinating different bodies, a new injection of emphasis and support is required from the Scottish Government to ensure that the right funding is available to deliver the objectives. Such areas have the potential to be world leading examples of sustainable peatland management, demonstrating the significant benefits for biodiversity and climate change which can be achieved.

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