



The Peatlands of Scotland

The urgent need for restoration and conservation

Forsinard Flows, Caithness

Scotland supports the majority of the UK's peatland soils and the bulk of the UK's internationally important peat bog habitat.

Peatlands provide a range of valuable services but these benefits are at risk from past damage largely as a result of agriculture and forestry activities.

Peatland restoration is an important Scottish Government objective that can bring biodiversity as well as potential greenhouse gas emissions savings.

The science around 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 for prioritising of 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 (including the Forestry Commission Scotland and SNH) to meet restoration targets for 2015.**
- **Increased funding options for peatland restoration should be explored through review of the Common Agriculture Policy (CAP) and reprioritising of the Scottish Rural Development Programme (SRDP).**
- **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.**

Scotland's peatland

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, indeed, Scotland holds around 60% of the UK peatland soils.

The most extensive, and some of the deepest peat soils occur under blanket bog and raised bogs. These habitats cover an area of around 1.9 million hectares 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, and 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), agriculture and forestry planting, burning for agriculture and sporting management, and by accidental fires. There are considerable areas where habitat restoration could help recover favourable conservation status.

Peatland habitats provide valuable services of importance to human well-being. Alongside being a priority for biodiversity conservation, peatlands are important in regard to climate change, with estimates of deep peat storing around 3 million tonnes of carbon in Scotland (around twenty times as much carbon as that stored in the whole of the UK's forests).

Peatlands have additional value in providing a range of water management and quality functions and as preserves of archaeological and other historic remains. Delivering the multiple benefits of peatlands requires a whole ecosystem approach involving collaboration across different land use sectors to ensure the system properly functions.

Most of our peatland resource is in a less than favourable condition due to past damage and as a result, we are losing valuable services and experiencing costs arising from the breakdown of the system. Damaged bogs for example lead to water discoloration and contamination of important fishing rivers as well as releasing substantial amounts of carbon with implications for climate change.

Scottish Government support for peatlands conservation has helped limit the amount of new damage to peatlands but to date the funding, largely through SRDP, has delivered relatively

small amounts of peatland restoration and considerably more effort will be required to meet even the basic restoration targets for high conservation value areas. The Forestry Commission has helped deliver peatland restoration on the national forest estate, but there are still key areas requiring further tree removal, particularly in our most important peatland areas, such as the Flow Country.

Climate change itself poses a threat to peatlands, but the biggest impacts are likely to be on damaged peatlands with increased summer temperatures drying out the habitat, with increased fire risks. Also, high rainfall events will cause further erosion of bare peat surfaces. This damage will in turn lead to more carbon losses and further contribute to the climate change problem.

Studies suggest that the most effective way of helping deal with the impacts of climate change is to restore damaged habitat to help maintain biodiversity and make the system more resilient.

Greenhouse gas benefits

Peatlands provide a range of benefits and there is increasing recognition that their management should seek to deliver this full range of benefits without allowing focus on one service impacting negatively on the rest. The climate change relevance of peatlands is widely appreciated but to the extent is not clearly understood. Difficulties in interpreting the science should not be used to delay important and urgent work required 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 much of the literature suggests that those peatlands in a favourable condition, rich in sphagnum, do have a net climate change benefit. There is clear evidence that a restored peatland will emit less GHGs than a peatland that has been damaged.

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 hectares could potentially deliver around a million tonnes of carbon sequestration per annum.

Restoring peat bogs has the additional benefit of avoided losses of 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 the higher end).

Taking the Scottish share of the UK BAP target for blanket bog restoration alone (equivalent to 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 that of Scotland's proposed forest expansion as increased afforestation is estimated to be able to provide 0.2 Mt C benefits per year by 2020.

The cost of delivering savings from blanket bog restoration also compares favourably. Restoring heavily drained blanket bog costs around £100 per hectare which equates to £60 million over the next 6 years to deliver the 2015 target. This expenditure should be considered in the context of the social cost of carbon released from damaged peatlands—the current market price of carbon is £79.50 per tonne. Delivery of the 2015 target would avoid a carbon damage cost therefore of over £47million per year.

Under present Kyoto protocol carbon accounting methods, emissions from Land use, 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. This would be a welcome development.

Wind farms and peatlands

The carbon savings of wind farm developments can be seriously undermined or negated if large areas of important peatland are damaged in the process. The impact of wind farms on peatlands will depend on the location, design and management, with the lowest impact in situations where these important areas are avoided. Restoration of already damaged peatland as part of the project can bring additional carbon and conservation benefits.

Afforestation on peatlands

It is scientifically accepted that forests planted on peatlands provide significantly less overall carbon benefits than plantations on other soil types. In addition, the long-term consequence is large carbon losses, as well as 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.

Whilst there are methane emissions from certain types of 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.

The Forestry Commission's role in delivering peatland restoration on the national forest estate, alongside forestry grants to private landowners for similar restoration, is recognised as only part of the solution, but is an important and cost effective one in areas where substantial high quality peatland habitats remain.

Water Quality benefits

Peatlands degraded by drainage, erosion and disturbance can release high concentrations of dissolved organic material into rivers and drinking water reservoirs. In England and Wales, water utility companies faced with millions of pounds of water treatment costs have chosen to pay for peatland habitat restoration as a long term cost saving exercise, with estimated benefits in some catchments of up to £2.5million.

Golden plover on Shetland bog



Peatland Conservation coordination

Considering the biodiversity importance of Scotland's peatland habitats and the huge potential in relation to climate change it is time that the Scottish Government provided a real focus for coordinated effort to deliver peatland restoration on a much greater scale than has been achieved to date.

This will require concerted effort to ensure a strong scientific understanding and consensus on the impacts of land management on the range of services from carbon to biodiversity that peatlands provide. The establishment of a soil focus group under the proposed Scottish Soil Framework is a welcome step in providing this.

RSPB Scotland believe the strong involvement of Scottish Ministers is necessary to ensure that there is a focus on delivering restoration targets for peatlands and that the statutory agencies are given the support to continue promoting restoration work through their regulatory and grant awarding 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.

Vane Farm, Kinross



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