



The James
Hutton
Institute

Scottish Natural Heritage: A Consultation on the National Peatland Plan

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Introduction

Scottish Natural Heritage, working with Scottish Government and a range of stakeholders has drafted a National Peatland Plan to highlight the importance of our peatland. We draw attention to the poor state of large areas, and propose building on existing initiatives to secure their sustainable use, management and restoration. We also set out some proposals for research and awareness-raising.

To achieve these objectives we need the help and support of all those with an interest in ensuring that our peatland is managed as a national asset which benefits society as a whole. So whether you own or manage an area of peatland, represent others who do, or simply enjoy their open spaces, their wildlife or their tranquillity, we seek your views on this draft Plan.

Please use the form below to give us your views. Responses to specific questions are particularly welcome, but any comments you may have in relation to the future management of our peatland will be much appreciated and taken into account in developing the Plan.

Section 2 – Vision

Question 1: Do you have specific comments on the vision?

Response:

The document lacks an explicit vision statement, rather than the two pages dedicated in Section 2 (e.g. as per the Scottish Land Use Strategy). It would benefit from having one. The current text is as much about targets (which are fine) as a vision for peatlands.

Specific points:

- (i) The text includes a statement that peatland can benefit the climate. It would be desirable to explicitly state how: e.g. healthy peatland sequesters carbon as it grows.

- (ii) “By 2030 we want to see peatlands in a healthy state and widely regarded as resilient”. Does this mean all peatlands? If so, it may be too ambitious a target given that there are expansive areas of eroded peat that, even if all those areas were restored now, would not be in a healthy state in 16 years’ time (i.e. supporting a functional acrotelm, carbon accumulating). There is insufficient attention paid to the extent of eroded/hagged peatland (often located in rarely visited, open spaces), both in terms of how much of this type of peatland there actually is and the state of erosion. There is a tendency to associate the state with herbivores/burning, and the influence of humans. However, in general, this habitat is currently lightly impacted and least-favourable to grazing animals, very likely to remain in an actively eroding condition, and presents a great challenge in terms of restoration that might be attempted.
- (iii) It would be desirable to list the ‘many benefits’ earlier in the document, perhaps stating the list of topics, which are then expanded upon on page 14.
- (iv) Support for sustainable management is vague. Examples, or specific proposals could be included, such as public subsidy for the private sector, the use of PES-type schemes (e.g. Peatland Code), or offsetting schemes that ensure the private sector realises the value of this natural capital.

Section 5 – Benefits of well managed peatlands

Question 2: What additional important benefits should we highlight?

Response:

Page 14: The list of benefits should be more inclusive, or structured along the functional groupings of ecosystem services (i.e. provisioning, regulating, supporting and cultural).

For example - Cultural services: Landscapes, fishing, biodiversity (e.g. divers). The paragraph on International Image could be located under such a heading. This could also include other social benefits provided by the contribution which peatlands make to landscape character, such as ‘a sense of place’.

Comments follow with respect to existing headings:

‘Nature’ - The benefits listed are not convincing; species assemblages always vary from place to place and there is no mention of which species are supposed to be at the highest densities anywhere in the world.

‘Water supply’ and ‘flood management’ – These could be combined with other regulating services (e.g. managing carbon) to make a more cohesive storyline.

‘Historic environment’ - This section omits the environmental archive, not just of people. It is curious that the importance of peat for understanding palaeo-environmental and palaeo-climatic change is not presented, particularly in terms of its value in informing management of future change. The peat profile records changes in climate, vegetation, atmospheric chemistry, etc. since the last Ice

Age. Land cover was different under previous climatic conditions (evidenced by the remains of trees in the peat). Therefore it can be argued that peatland may evolve into other land cover types e.g. (bog) woodland under a warmer climate.

'Fuel' - There is no mention of how old peat banks are managed to minimise erosion – this should be illustrated by an example if included (unlikely to be a common scenario as most historic peat banks are simply abandoned). Peat banks are not really managed to minimise erosion, indeed some abandoned ones can become sources of erosion. Rather, they are managed, perhaps fortuitously, to promote regeneration of an acrotelm layer. Reference to visual evidence of domestic cutting, and its contribution to cultural landscapes, could be better presented under a heading of cultural services.

'Grazing/sport shooting' - There is a need to emphasise that peatland can support deer, sheep and grouse but this is only resilient if the densities are low enough to minimise trampling and browsing damage and we need to be careful not to advocate muirburn on blanket bog (i.e. adherence to the Peatland Code). There is a remaining confusion over what might be called 'moorland management' (i.e. on shallower organic soils) and the management needs to be applied to peatlands. For example, burning as a management tool for grazing should not take place on peatlands and the National Peatland Plan should explicitly spell this out.

'Managing carbon' - The section on managing carbon mentions woodland expansion outwith peatland areas, which is out of place. A suggestion is for a short paragraph near the beginning of the document that lists ways of moving to a low carbon economy as advocated in the Scottish Land Use Strategy. This could note the role of restoring and improving peatland management, planting trees on soils that are appropriate (i.e. not on peat), not cultivating grassland, ensuring that muirburn does not take place on peat etc. The point can then be introduced that peatland is by far the biggest pool of carbon in Scotland, and therefore it is very important to manage it.

On page 9 (Types of peatland habitat), mention is made of the importance of the rare and unique habitat of bog woodland. On page 15 there is mention of the importance of woodland expansion outside peatland areas but there is no mention of bog woodland. Does this mean aim of the National Peatland Plan is only conserve this habitat in its current distribution? This is unlikely to be a viable long-term strategy under scenarios of climate change. There will be benefit from planning more dynamically for ecological changes to then maximise new opportunities across multiple habitats. For example, some degraded sites in marginal climatic locations are highly unlikely to be restored as active peatland but may provide an opportunity to establish another important habitat.

The future management of peatlands under commercial forestry, both private and Forestry Commission, should be given more consideration, as there are many instances of poor practice. For example, the draft Plan does not directly address the issue of woodland restocking vs peatland restoration; it is one of the major restoration challenges. The subject is relevant across Scotland, not just in the Flow Country, reflecting the extensive planting on peatlands (e.g. Toftgun Forest where >75% was on blanket peat with Lodgepole pine, now seeding out onto the surrounding bog, and Lodgepole pine on peatlands, Glenmore Forest, Mull, with extensive windthrow and limited commercial gain).

Page 13: The sentence starting “these are revered” reads as if in relation to the lochs and lochans. It should be clarified that this refers to the whole habitat.

Page 13: The last sentence should provide a clearer statement of intent.

Other comments of relevance to this section:

- (i) Restored peatlands have been noted to hold lower tick densities, thus providing a link between regulating services and human and animal health benefits.
- (ii) It should be recognised that people need to be taken along with this initiative for it to succeed fully.

Section 6 – Opportunities for having healthier peatlands

Question 3: What refinements or alternatives to these criteria for restoration should we consider?

Response:

At international level (IPCC 2013 Wetland Supplement and subsequent national implementation), there is increased recognition that drainage for commercial forestry has had detrimental effects on Greenhouse Gas Emissions, and that actively drained and planted areas should be viewed in a very different light to drainage of naturally occurring forests on peat (as in Scandinavia). The Plan should make reference to the challenges which are faced in dealing with the historical damage done.

Page 11: It would be appropriate to reference the criteria for restoration identified under the ‘WISE Peatland Choices’, provided in reporting to Scottish Natural Heritage by the James Hutton Institute. Its omission is surprising.

The potential benefits to the rural economy in certain areas of the country, and the concept of continuity within the landscape, could be included. Indeed, economic benefits are largely omitted.

As with woodland expansion there is a risk that the use of targets (e.g. 10 000ha/yr) creates perverse incentives and ignores quality and sustainability criteria in the restoration objectives. Instead, targets could be specified in terms of the extra benefits they provide for Scotland (as listed elsewhere in the document). For example:

‘xx’ additional carbon storage will be created;

‘xx’ additional area of priority habitat;

‘xx’ improvement in water quality.

If the step change in restoration activity is to be implemented, then an approach that deals with all peatland in the wider countryside should be developed, not only where collaboration with private owners is possible. This may mean that regulation as well as incentives and persuasion are needed.

Page 17:

- (i) The sentence starting “eroded and cutover” appears to be missing an ‘and’.
- (ii) The IUCN reference (39) has now been published.

In addition to the research needs listed could be added:

- (i) Research on the values local communities and the wider population (Scotland, UK, international) place on peatlands.
- (ii) Improved estimates of peat volume in Scotland.

Question 4: What other key policy or guidance documents should we be steered by in Scotland?

Response:

There is a need to improve the links between policies relating to species and habitats. The Land Use Strategy (LUS) is an overarching policy but documents such as “Wild Deer: A National Approach” and the “Code of Practice for Deer Management” should be linked to the Peatland Plan.

Links to other policy areas of relevance which should be included are:

- (i) The Common Agricultural Policy (CAP) (e.g. use of cross-compliance to prevent overgrazing).
- (ii) The Water Framework Directive (WFD). The WFD requires Member States to prevent deterioration and to improve the ecological conditions of aquatic ecosystems with the aim of achieving ‘good ecological status’. Unequivocal attribution of peat degradation as a cause of failure to achieve the good ecological status is difficult in UK river systems, as the monitoring stations used for classification are overwhelmingly >10 km downstream of the headwaters and water quality is therefore influenced by additional factors. Nevertheless, in river catchments with significant peatland degradation, there is evidence of poor water quality leading to failure to achieve good ecological status consistent with the processes associated with peatland degradation.

There is also a need for an approach that recognises that owners and society derive multiple benefits from landscapes in which peat occurs. Therefore the management for delivering these benefits needs to consider the interaction of each: deer impacts, sheep impacts, grouse, woodland, recreation, carbon management, biodiversity action plans, water control and quality. We have advice or codes on all these things but they need to reference each other to develop integrated approaches to land management (e.g. catchment management or the Ecosystem Approach).

The International Mire Conservation Group (IMCG) produced a useful restoration manual, although this may be a work in progress [www.imcg.net/media/download_gallery/books/gprm_01.pdf].

Question 5: Have you suggestions about how we can best deploy management measures?

Response:

- (i) There is no mention of developing regulations as a backstop to poor peatland management in the wider countryside. There is a need to consider other legislation, such as land reform and how: a) property rights should also come with responsibilities for the natural capital they contain, and b) the impact of breaking up land ownership units on the ability to manage peat land and other land cover at the landscape scale.
- (ii) There is little substitute for local advisors who can share practical experience tuned to local conditions. However, a website or central deposit of information on prior restoration with at least site and site manager could be a first port of call. In this, the 'Peatland Action' programme could provide a world leading example.

Question 6: What other funding sources should we be directing land managers to?

Response:

There are various Payment for Ecosystem Services (PES) schemes in early phases that partner the managers of peat with the users of the peatland services (recreational users, distilleries etc.), i.e. Peatland Code, Peatlands+. The Peatland Code team have recently completed a series of papers that could be referenced in the Peatland Plan:

www.sciencedirect.com/science/article/pii/S2212041614000692# .

There are also cases where local peat bogs have been restored mainly by local volunteers with very little funding. So, success stories can be presented to illustrate what can be achieved by voluntary groups.

Question 7: What would make good measures of success?

Response:

It is important to take a long term view in relation to considering 'success', and the value of long-term monitoring because peatland is slow to improve. Therefore, care should be taken when using short-term indicators, such as recent grazing history, when looking for causes of peatland in poor condition. It may be that historical management practices are significant as a cause of a current situation, and so changing management today may not generate improvements for decades. Therefore, the vision for 2050 is ambitious given the timescale over which peatland reacts to improved management. The key test would be carbon (peat) accumulation but this requires decadal measurement intervals.

Under 'Monitoring and measuring success'

We note the goal to “focus the research and ensure the outputs are translated into good management practices. We propose to establish a time-limited group, making use of existing groups, expertise and information, to develop monitoring protocols and means of measuring success, and the means whereby these will be promoted and the data collated”?

There is no mention of a pathway to support the stated goal. Research questions will quite easily be identified by research-active individuals if there is financial support, but a crucial missing part is how integration of research efforts and collation of findings will be supported through the Peatland Plan. The inclusion of an indication of how the research group will achieve their aim would be desirable.

Question 8: What protocols should we use for measuring these?

Response:

- (i) Cranked wires have been a simple and favourite method for monitoring Sphagnum growth. Methodologies for monitoring water tables, etc. are given in the IMCG document referred to above, but there are numerous other restoration manuals available.
- (ii) The focus of the research group should include the provision of advice on ‘best protocols’ for a UK setting.

Question 9: Can you offer/suggest good demonstration sites?

Response:

The response to this question depends on the objectives of the demonstration site.

Candidate demonstration sites for good restoration practices might not be the same as those that could be good demonstration sites for e.g. GHG monitoring of success. There are several potentially appropriate sites, but their relative merits and accessibility probably have not been assessed against each other. This could be the topic of a process of engagement with relevant stakeholders. The James Hutton Institute will be willing to participate in such a dialogue, contributing knowledge of the findings from the Scottish Government Strategic Research Programme.

Question 10: Can you suggest further priority research questions?

Response:

- (i) The impact of grazing on soil carbon in peatlands. i.e. what is the sustainable level of grazing and therefore provisioning services, such as lamb and venison, that allows the carbon sequestration to be positive in these habitats?

- (ii) Impacts on methane emissions, before, during and post-restoration. There is a need to study the time-line of restoration, to improve understanding of how long it takes to reach certain points in different scenarios.

Two other areas on which there are gaps in research are: afforested peatland, and impacts of burning of which there are very few Scottish examples from which to learn.

Examples of gaps in knowledge identified by the IPCC 2013 Wetlands Supplement include:

- (i) GHG emissions from prescribed burning were noted as a serious data gap, and will present difficulties in national accounting.
- (ii) Data on particulate organic carbon losses in peatland streams under different land cover.

The last question in the list of research issues is more to do with peatland management.

Section 7 – Working with and supporting land managers

Question 11: What are your views on how we can best communicate with land managers to secure greater involvement?

Response:

Organisations participating in engagement

Many of the organisations listed, e.g. FCS, SNH, RSPB etc., have a dual roles as both land manager and advisor. It would seem appropriate to include Scottish Land and Estates to the list on page 27.

In addition, research organisations including the James Hutton Institute, and universities work with land managers, and land owning organisations, as part of the process of research and knowledge exchange. The inclusion of these types of organisations provides depth in the communications with land managers, often being able to draw on relevant experiences of international research and peatland management.

Mechanisms for communication

- (i) Demonstration events that highlight the ecosystem services, such as carbon sequestration properties of functioning peatland can provide good forums for exchanging knowledge between the land managers, advisory groups and other stakeholders.
- (ii) Drawing on existing knowledge of barriers and opportunities to improving the uptake of measures to mitigate diffuse pollution could also be relevant in relation to of land management changes required for peatland restoration. Examples of online materials are at the following links:

- www.hutton.ac.uk/research/themes/managing-catchments-and-coasts/guidance-to-improve-water-quality
- www.hutton.ac.uk/sites/default/files/files/DQIS%20information%20leaflet.pdf

Question 12: Do we have an adequate toolkit of guidance, incentives and regulation - if not, what is required?

Response:

There is a need to consider the regulatory protection required in case collaboration and incentives fail, whilst also considering the increase in the responsibilities for the natural assets which owners have on their land, which should be considered alongside their legitimate management objectives.

Section 8 – Development Planning

Question 13: Should more be done to encourage and promote good and proportionate mitigation and restoration on peatland sites subject to planning development – if so, what?

Response:

The current situation is highly unsatisfactory.

The new Scottish Planning Policy states that it considers wind farm developments on peat to predominantly fall into Group 2: Areas of significant protection: “Recognising the need for significant protection, in these areas wind farms may be appropriate in some circumstances etc.”

Within the National Peatland Plan, there should be some acknowledgement of the negative impact of wind farm developments on peatland in good condition on net GHG emissions. Evidence for this comes from the development team of the Carbon Calculator of Wind Turbines on Peatland at University of Aberdeen, James Hutton Institute and Forest Research, for example in the paper “Renewable energy: Avoid constructing wind farms on peat” (www.nature.com/nature/journal/v489/n7414/489033d/metrics/blogs).

The National Peatland Plan could consider taking greater account of the Carbon Calculator, perhaps in its use for all wind turbine developments on peatland, not only those above 50 MW.

As for section 7 above, there should also be consideration of the regulatory protections required should collaboration and incentives fail, whilst also considering the increasing the responsibilities for the natural assets which owners have on their land, which should be considered alongside their legitimate management objectives.

Question 14: Should industries other than commercial peat extraction have a specific planning steer towards degraded peatland?

Response:

Of the three activities noted as directly affecting peatlands that of renewable energy developments is the most significant in terms of delivering the stated aim of the Plan of the sustainable use, management and restoration of peatlands in Scotland. Investment in renewables schemes could include realising benefits from peatland restoration and addressing issues of degradation, with greater emphasis placed on a precautionary principle to improve assessments of environmental impacts of schemes during the planning process. Benefits could be accrued from linking restoration with development.

Section 9 - Implementation

Question 15: Who should be members of the stakeholder group, and why?

Response:

To help inform proposals for membership of the Stakeholder Group it would be helpful to have sight of its expected remit. For example, is it to guide policy, on-the-ground restoration practices, or the research agenda. The James Hutton Institute will be very willing to participate in such a group if these are examples of its intended purpose.

Question 16: Are there further benefits to having well managed peatlands not detailed here?

Response:

See detailed comments under Section 5.

Question 17: What else should we be doing to benefit peatlands?

Response:

Ways of increasing the inclusion of peatlands into the education curriculum should be explored. As restoration activities will probably continue over the next 20 to 30 years, thus making them of relevance to different aspects of the Curriculum for Excellence.

Any other Comments

In addition to quantifying the benefits of peatlands there needs to be further understanding of how such benefits are perceived and valued by the public. This is particularly relevant in the case of regulating and cultural services. Regarding the latter, it is important to understand the aspects of cultural ecosystem services that are related to peatlands' unique features (i.e. not just associated with recreational use of the landscapes more broadly).

The outcomes of the research at the James Hutton Institute indicate that the main challenges for the valuation of benefits from peatland restoration can be clustered around the following key issues:

- (1) the availability of evidence on effects of peatland restoration in terms of ecosystem services, and how these translate into goods and benefits that are perceived and valued by the public;
- (2) the temporal and spatial processes and relationships affecting peatlands' response to restoration;
- (3) how to relate cultural ecosystem services to peatlands and peatland features *per se*, and not restricted to aspects such as access to recreation (e.g. existence of paths), or to aesthetic and symbolic values associated with the broader landscape (e.g. Scottish Highlands).

Challenge (3) above represents a direct research question that can be best addressed through quantitative or qualitative research techniques, such as participatory mapping and deliberative processes, to reflect the spatial context in which cultural ecosystem services emerge. The ultimate consequence of (1) and (2) is uncertainty about the specific benefits of peatland restoration and, hence, the challenge on how to deal with that uncertainty in valuation. This requires interdisciplinary research into the bio-physical processes associated with peatland restoration and the delivery of ecosystem services, and the way these are valued by the public. As an immediate way forward, we suggest developing valuation scenarios on a case-by-case basis, based on best available evidence of the changes associated with restoration in some form of peatland status ladder or categorisation, similar to the ladders of ecological status developed for the Water Framework Directive (WFD). Such status ladders would need to be tested with the public, for example using participatory techniques, to ensure that specific goods and benefits can be meaningfully defined, particularly in relation to changes in regulating and cultural ecosystem services. The valuation scenarios should include an element of uncertainty in ecosystems provision.

Additional specific comments:

Section 1: The role of peatlands in mitigating climate change is only relevant if they are in a condition to actively sequester carbon (i.e. accumulating). Most areas at present are net emitters, thus contributing rather than mitigating. The carbon storage function in itself does not have a role in climate mitigation.

Page 3, last paragraph: the 'a'; before 'cooperation' seems misplaced.

Section 3: We question the use of the word 'wide' in the first sentence in relation to soil types.

Page 7, Protected areas box: we question whether the use of the term 'environmental justice' in the context provided.

Page 9, Bog woodland: From the field experience of the research teams, scattered and stunted Scots pine on peatland is not "hard to get into". So, the explanation which followed may need to be revised.

Section 4: It might be useful to state the extent of designated peatlands as a proportion of the whole peatland area of Scotland. The figures given for the amount of designated habitat in 'favourable' or 'recovering' status may then not look as out of place with the preceding statement of the condition of the resource overall being 'unfavourable, declining'. It is possible that only people who are aware of the site condition monitoring programme will be able to translate these two statements as not being in direct contradiction of each other.

It would be useful to include an information box on the monitoring programme for designated areas as well as highlighting the lack of condition assessment data on any areas outwith the designated sites. It should be noted that there is a hierarchy of protection (Natura, SSSI, etc.), and for those peatland areas outside the protected area network the only protection is from Scottish Planning Policy. Given the message in the Foreword regarding the importance of peatlands, is this level of protection sufficient? One option would be to ensure that all areas of active peatland are well protected as they provide maximum benefits.