

# Proceedings of the workshop:

## *Scotland's peat bogs, what do you think about them? - II*

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# Executive summary

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This document reports on the process and the outcomes of the workshop 'Scotland's peat bogs: what do you think about them? II' held in Aberdeen on the 19<sup>th</sup> of November of 2014 by researchers from the Scottish Rural College and The James Hutton Institute. The aim of the workshop was to gather information that would support the design of a survey to gather views and values from the public about peatlands in Scotland. It was part of a larger ongoing research project which aims to further the understanding of how people perceive and use peatlands, to help targeting restoration efforts by clarifying benefits that are connected with different restoration options and inform the development of the National Peatland Plan. This workshop followed a previous one held on the 14<sup>th</sup> of October.

The workshop, which a total of 21 participants from different age groups, backgrounds and locations attended, was organized as a series of different activities including individual, break-out group and plenary group activities, in which specific aspects necessary for the design of the survey were discussed, including elements regarding peatlands status, benefits produced by peatlands and peatland restoration.

The workshop confirmed that the images that had been designed for this study are useful tools for conveying the information on peatlands ecological status as desired. However, the opinions regarding the icons tested to express key benefits produced by peatland restoration (namely, reduced colouration of water and potential impact on ecology (fish) downstream; carbon sequestration (contribution to climate change mitigation) and support for wildlife and biodiversity) were mixed and some of the icons need further adjustment and revising.

The workshop clearly showed that people can have spatial preferences associated with peatland restoration, but that these do not follow the widely accepted *distance decay principle* by which the value of a natural asset or resource decreases with distance, generally from the place of residence of beneficiaries, and that the effect of available substitutes (in the forms of other peatlands) might not be in line with common expectations based on relative scarcity. Modelling spatial preferences following approaches commonly employed in the valuation literature might thus not reflect actual spatial preference patterns well and new approaches need to be developed. Notably, we will have to find innovative ways of dealing with the dichotomies of preferences for remoteness *versus* accessibility and cohesiveness *versus* fragmentation, and consider how areas of current natural interest and/or recreational interest may also be included.

Responses to 'willingness to pay' questions were within the range of the expected according to the environmental valuation literature, in terms of share of individuals not willing to pay and the reasons for that and the range of stated monetary amounts by those willing to pay. Differences in time scales (15 or 30 years until benefits are available) do not seem significant for peatland restoration, but the public might be more willing to pay for shorter term (5 or less year) time horizons.

The content reported here corresponds exclusively to the outputs of this workshop (the second of the broader research project), as an interim step of the research process and not as an end product. Therefore, it does not contain any policy recommendations.

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Annex 1: Workshop presentation

## 1. Introduction

This document reports on the process and the outcomes of the workshop 'Scotland's peat bogs: what do you think about them? II' held in Aberdeen on the 19<sup>th</sup> of November 2014 by researchers from the Scottish Rural College and The James Hutton Institute.

The aim of the workshop was to gather information that would support the design of a survey to gather views and values from the public about peatlands in Scotland. This workshop followed a previous one held on the 14<sup>th</sup> of October of the same year, for which a separate report is also available<sup>1</sup>. Both workshops are part of a larger research project which aims at furthering the understanding on how people perceive and use peatlands, so it can be used to inform policy and land management decisions in peatland landscapes.

The workshop was the second step in a series of events and tasks. Specifically, the outcomes of this workshop (and the previous one) are going to be used: 1) to help design a stated preference valuation survey for the estimation of the value of key ecosystem services provided by peatlands, 2) as the starting point of a qualitative research process for identifying and understanding cultural ecosystem services from peatlands. The project is expected to help decision makers to target restoration efforts by clarifying benefits that are connected with different restoration options and inform the development of the National Peatland Plan (<http://www.snh.gov.uk/climate-change/what-snh-is-doing/peatland-action/national-peatland-plan/>). This information can be used to prioritize restoration actions (e.g. by focusing on areas in which greater social value is to be obtained from restoration), or carry out cost-benefit analysis of restoration actions. This valuation work builds upon previous work on developing a framework for valuing spatially targeted peatland restoration<sup>2</sup>, which concluded that little is known about the social welfare impacts of peatland restoration and in particular how to spatially target restoration activities to maximise net benefits from investments in restoration. This research tries to address these knowledge gaps and will provide information to support the prioritisation of restoration. Furthermore, it will contribute to a better understanding of public support for restoration efforts more generally especially where these are long-term changes.

**It should be noted that the content reported here corresponds exclusively to the outputs of the second workshop, as an interim step of the research process and not as an end product. Therefore, it does not contain any policy recommendations.**

The remainder of this document is organised as follows: in section 2, the specific aims of the workshop are presented. Section 3 describes the stakeholder recruitment process and a brief description of workshop participants. Section 4 describes the workshop process in detail, while

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<sup>1</sup>Report available from author upon request.

<sup>2</sup> Glenk, K., Schaafsma, M., Moxey, A., Martin-Ortega, J., & Hanley, N. (2014). A framework for valuing spatially targeted peatland restoration. *Ecosystem Services*, 9, 20-33. AND Martin-Ortega, J., Allott, T. E., Glenk, K., & Schaafsma, M. (2014). Valuing water quality improvements from peatland restoration: Evidence and challenges. *Ecosystem Services*, 9, 34-43.

section 5 contains the results. Section 6 summarizes the key messages from the workshop and section 7 briefly describes the next steps of the research process.

## 2. Specific aims of the workshop

The main specific objective of this workshop was to test a number of elements needed to design a survey for assessing the value of peatland restoration in Scotland. Namely, these elements are:

- Definition of a classification of peatland status that rigorously reflects bio-physical conditions of peatlands but that is easily understandable by the public.
- Identification of the best way of representing three key benefits produced by peatlands and enhanced by peatland restoration: reduced colouration of water and potential impact on ecology (fish) downstream; carbon sequestration (contribution to climate change mitigation); and support for wildlife and biodiversity.
- Clarification of the public's spatial preferences for peatland restoration (i.e. whether people care about where peatland restoration takes place and how to best capture these spatial preferences in the valuation survey).
- Getting an indication of the range of values, measured through individuals' willingness to pay (WTP), that people attach to peatland restoration.
- Collecting potential protest answers to using Willingness to Pay (WTP) statements (and specific payment vehicles) as a metric for the value of peatland restoration.
- Getting an indication of the extent of the potential trade-offs between services provided by peatlands and alternative uses of peatlands (forest plantations, wind farms, agricultural use) as well as the job opportunities related to this (as emerged from the first workshop), and how these might affect the applicability of a valuation survey.

## 3. Participant recruitment

The target audience for the workshop was the general public. Participants to the first workshop were recruited through social media and posters in public spaces in the local area around Aberdeen, and using a 'snowballing' technique which involves identifying participants through referrals from others. Participants were offered a £30 incentive and a buffet supper.

Participants to the first workshop were invited to participate in the second workshop. A total of 21 participants from Aberdeen and nearby rural (but not remote) areas attended the workshop, of which 19 had also participated in the first workshop and 2 attended for the first time. While not intended to be representative of the overall Scottish population, a good range of age groups was attained (from undergraduate students to retired citizens). Some people were born in the local area and others came originally from other parts of Scotland, or further afield (France). Also, motivations, interests and previous relationships with peat or peatland landscapes varied across participants, including participants who were professionally related to peatlands (e.g. involved in peat cutting, and land management), to participants who had no particular interest in peatlands.

The most commonly shared link between participants and peatlands had to do with hill walking and outdoor pursuits which had taken place in peatlands.

#### 4. Workshop plan

The 3-hour workshop took place on the 19<sup>th</sup> of November 2014 at The James Hutton Institute in Aberdeen. It was organised as a series of different activities including individual, break-out group and plenary group and plenary group activities.


Annex 1 includes the material presented at the workshop. The workshop was organized and delivered by four trained facilitators (the authors of this report).

After a short introduction about the broad aims of the project and practical information about the evening, workshop participants were reminded about the previous workshop and new participants were acknowledged.

A first activity was organized to test whether people see significant differences (and of what kind) across three peatlands categories that had been previously illustrated by a professional artists with the input of natural scientists specializing in peatlands. In three break-out groups, people were presented with the three drawings of the three peatland states (unnamed/uncategorized) in a flip chart. They were asked to describe each picture in their own words, positive and negative associations and to express the differences between them. After that, in plenary, the Chair presented a full description of the content of the drawings, informing the participants about the status that each drawing was meant to illustrate (see Table 1). After the presentation of these descriptions, participants were asked whether differences between the three categories were clear and well represented by the images.





















Table 1. Workshop participants at a plenary session

Drawings	Description provided by Chair
	<p><b>Good ecological status:</b> In good condition, the water table is high, so water is visible on the surface, slowly flowing through larger and smaller pools. Peatlands in good condition are dominated by small grasses and especially the peat moss called <i>Sphagnum</i> that grows well in wet conditions, stores lots of water and makes the peatland appear in a typical red-green-brown mosaic. A Peatland in good condition continues to grow – it adds further layers of peat. This means that it takes up more carbon from the atmosphere than it releases, it is a 'sink' for carbon, the carbon store grows. The additional amount of carbon stored increases as peat reduces the amount of carbon in the atmosphere, where it would otherwise contribute to climate change. Water that flows from peatlands in a good state is usually clear and of good quality. This means less need for water treatment. The water quality is also good for fishing, especially of salmon and trout, downstream. Peatlands in good condition are home to various bird species. This includes various species of waterfowl and wading birds such as curlew, and predators such as hen harrier and red kite. Lizards are abundant, and so are insects such as moths, midges and dragonflies; some plant species such as the insect eating plant sundew are also abundant.</p>
	<p><b>Intermediate ecological status:</b> The water table has been lowered, often by creating channels through which the water can flow more easily. This drainage means that surface water is rarely visible, and that taller plants, like cotton grass, or small bushes like heather can grow, sometimes with smaller grasses and peat moss growing in between. Once the peatland is dry enough, it is possible to use it for grazing sheep, planting trees, or for grouse shooting. The dominant colours are often a faded green to light brown, with little contrast, although if heather is present and for the short time it is in bloom, its purple colour stands out. Often, small darker patches can be seen, arising from peat that is exposed alongside small gullies. These gullies continue to grow through the forces of wind and water. Sometimes peatland in intermediate condition is burned regularly. This leaves patterns of burned and unburned land in the landscape, as here illustrated in the background. The vegetation is burned to create good feeding conditions for grouse and therefore good grouse shooting. Peatland in intermediate condition does not grow any more, it does not add further layers of peat. Instead, it gradually shrinks and then releases slightly more carbon to the atmosphere than it takes up. This means that it becomes a moderate carbon 'source': the carbon store slowly diminishes. Water flowing from peatlands in intermediate condition can be of lower quality. It can be slightly murky, especially after heavy rainfall. This can affect the fish population downstream thus affecting fishing activities, as well as increasing treatment costs for drinking water. Peatlands in intermediate condition may still harbour some of the wildlife that is present in peatlands in good condition. However, it is less abundant and some species may not be found any more. This includes some lizards, insects and bird species. It is more likely that you will see managed species such as deer, sheep and grouse.</p>
	<p><b>Bad ecological status:</b> Peatlands have been drained for longer. The forces of water and wind have now exposed larger areas of peat, often forming deep gullies and drenches that sometimes go down to the rock surface, or isolated peat 'stacks'. Few plants grow on the areas that are exposed, while patches of grasses or heather are still found on islands in between. The exposed peat areas will become larger through the forces of wind and water, leaving less plant cover on the surface, and peat will continue to be lost until the rock surface emerges. A peatland in bad condition loses carbon at a high rate. It has turned into a severe 'source' of carbon to the atmosphere, where it can contribute to climate change. Water that flows downstream from peatlands in this condition is often of bad quality. It is often murky and can be dark brown from organic components in the water. This can be worse after heavy rainfall events. The bad water quality will affect fish species downstream. It is not suitable for human consumption without a lot of treatment. Peatlands in this condition are home to little wildlife. Not many species can be found.</p>



A second activity was aimed at identifying the best way of illustrating three key benefits produced by peatlands: reduced colouration of water and potential impact on ecology (fish) downstream; carbon sequestration (contribution to climate change mitigation); and support for wildlife and biodiversity (these benefits had been previously identified in the first workshop). For this exercise, two sets of icons per benefit were produced, with three levels (corresponding to the three peatland statuses previously described) – see Table 2. Using a carousel format, three break-out groups were asked to express what they thought each of the set of icons represented, without being told what were they meant to represent. This tested whether the ideas which the icons were meant to express were perceived as intended by the workshop participants. After having been informed of the intended meaning of the icons, participants were asked to provide suggestions on which icon was best or how the icons could be improved.

**Table 2. Icons representing benefits of peatlands at different levels corresponding to ecological status.**

Benefit	Set 1	Set 2
Reduced colouration of water and potential impact on ecology (fish) downstream	  	  
Carbon sequestration (contribution to climate change mitigation)	  	  
Support for wildlife and biodiversity	  	  

Icons are organized in decreasing levels corresponding to ecological status (i.e. good status at the top and bad status at the bottom).

After a coffee break, participants were introduced to the idea of restoration. In a plenary, the chair presented the map of Scotland showing peatland areas and informed participants about status and expected changes in the future that under business as usual would likely result in a worsening of conditions (see Annex 1). Using photographic support the Chair explained that restoration can reverse degradation (see the Annex for the photos used), and highlighted the possibility of different intensities of restoration. Because, in reality, restoration cannot occur everywhere, spatial prioritization is needed. An activity to explore whether the public has spatial preferences about where restoration should take place followed. The idea of a potential restoration plan was presented. In the same three break-out groups, participants were given 3 sticky dots and invited to place them on the map where they would like to see restoration (no ranking involved). The opportunity to answer 'I don't know'; 'I don't care where' and 'I don't care about restoration' was also offered. After placing the dots on the map, participants were asked for the reasons for their choices and these were recorded.

A final set of activities was carried out aimed at testing the participants' willingness to pay (WTP) for restoration. In a plenary, workshop participants were reminded that restoration costs money. Following the principles of stated preferences valuation, they were presented with the hypothetical situation of a government planning a national tax to fund the restoration (to good ecological status) of 20% of areas that are in intermediate or bad ecological status, over a duration of 30 years. Participants were asked to anonymously place a post-it note on a wall paper indicating that they would either not be WTP in principle (and if so why) or if they were WTP, how much (per year). This was followed by an activity to test for temporal preferences when the chair suggested that the restoration effort could be intensified so the benefits could be obtained in 15 (instead of 30) years. People were again asked to record whether they would change their previous opinion and why or why not. This was followed by a plenary discussion to further understand participants' reasons for not willing to pay.

To get an indication on whether the potential trade-off between services provided by restored peatlands and alternative uses of peatlands (forest plantations, wind farms, agricultural use) might interfere with WTP answers, workshop participants were informed that under the proposed restoration programme, the land could not be used for grazing, tree planting or grouse shooting.

The workshop ended with a final plenary discussion aimed at collecting any further thoughts or points that participants wanted to raise. Finally, workshop participants were thanked and informed about the next steps of the research process.

Figure 1. Workshop participants at a plenary session



## 5. Workshop results

### 5.1. Peatland ecological status

Spontaneous impressions recorded from participants when viewing the three different peatland ecological status images confirmed that the information that the images were trying to convey was clearly being captured. Participants did not have any trouble identifying that the three images corresponded to three different states. Clear spontaneous reference to differences in water quality and wildlife were made. Views and perceptions evoked by the different pictures matched those recorded in the first workshop. For example, the picture depicting the good ecological status was associated with 'a beautiful view'; 'area in good health' and 'diverse, different plant life and species'; 'good habitat'; 'lots of life'; 'prolific'; 'vibrant'; while the picture of the bad status was associated with 'the kind of place I hate when I hike'; 'muddy and challenging to move'; 'uninviting'.

When establishing the categorization of peatland ecological status, our biggest worry was with regards to the intermediate status. Accordingly, this image generated a bit more discussion, on whether it represented a landscape on its way to degradation or on its way to recovery, but there it was undoubtedly placed, spontaneously by the respondents, in between the two other levels.

In summary, this exercise confirmed that the three images are useful tools for conveying the information on peatland ecological status as desired for the forthcoming survey.

### 5.2. Representation of benefits at different levels

The opinions on how useful the proposed icons were for expressing their intended meaning was mixed. Table 3 presents the outcomes of the workshops discussions on the icons. As a summary, it can be stated that generally there was consensus on the usefulness of one of the wildlife icons over the other one, while the idea of water quality is probably best expressed as a combination of the two icons and the carbon emission icons need to be fully revised, since it proved not to be a useful image based on the experience at the workshop.

**Table 3. Outcomes of workshop discussion about icons representing key benefits from peatlands**

Benefit	Outcome of workshop discussion
Reduced colouration of water and potential impact on ecology (fish) downstream	The set of Icons 1 seemed generally clear in terms of whether water is drinkable or not, but it was not clear that it would also reflect the water quality for fish life downstream. The set of Icons 2 seemed generally a better picture, but some people commented that it gave the impression of a 'fish tank' rather than a 'landscape'. There was mention that there needs to be more diversity and there was a suggestion of putting the fish in a glass or a test tube. There was a general feeling that a combination of the two icons together might give a better representation than either of them currently do.
Carbon sequestration (contribution to climate change mitigation)	Both sets of icons created confusion among workshop participants. The car and the cities did not help transmit the idea of carbon equivalents and acted rather as distracting elements. The key difficulty was associated with the idea that the good ecological status represents the <i>capture</i> (sequestration) of carbon, while the other two levels represent a <i>release</i> of carbon. The arrows did not help transmitting this idea and the carbon icon needs to be fully revisited.
Support for wildlife and biodiversity	There was clear consensus that Set of Icons 1 was the most suitable for representing this benefit. The presence of the sheep in Set of Icons 2 was judged to be too dominant, restricting the idea to areas where there are currently only sheep grazing, and also introducing a controversial element ('sheep might be seen as <i>political</i> '). Participants spontaneously arrived at references to abundance and variety of wildlife. Minor adjustments were suggested (e.g. stronger green colour for the top quality level; bird currently looking like a pelican).

### 5.3. Spatial prioritization of peatland restoration

The exercise on the spatial prioritization of peatland restoration probably gave the most interesting outputs of the whole process. We did not have any a prior idea about whether people would have any spatial preference for where peatland restoration should take place and whether that preference followed any particular pattern or criteria. The existence of preference heterogeneity in how people value natural resources is a well-known fact in environmental valuation, but that has never been stated for peatland ecosystems. The most common pattern in which people express spatial preferences in the valuation of natural resources is the so-called *distance decay effect*, by which the value of a natural asset or resource decreases with distance, generally from the place of residence of beneficiaries (for example, evidence shows that the value for improving the water quality of a lake or river is higher for those living closer by). Another well documented phenomenon is that of the effect of substitutes: the value of a natural assets or resource is influenced on whether there are other similar assets nearby (for example, evidence shows that the value for improving the water quality of a lake or a river is lower if there are many other lakes or rivers around).

Figure 2. Participants locating their preferred sites for restoration in a break-out group



A first outcome of the workshop is that the public seems to care about where peatland restoration takes place. Although it cannot be ruled out that some of the workshop participants might have responded about sites of preference for peatland restoration just because they were asked and the workshop was set up for them to do so, we are confident that most of them responded as a result of careful consideration. None of the participants made use of the 'I don't care where' or the 'I don't care about restoration' options, and only one dot was placed in the 'I don't know' category; respondents took time to place their dots on the map and they gave well-articulated and elaborated reasons for their choices.

Figure 3 shows the maps with locations of preference for peatland restoration as produced by the three break-out groups. Reasons for why participants chose the locations they did were very interesting, and can be summarized as follows:

- Remote areas where peatlands would remain undisturbed after restoration;
- Close to cities so people can go and visit them;
- Areas of current natural interest, so wildlife and other environmental features and habitats would be enhanced or improved;
- Areas of recreational interest (e.g. national park) so people can enjoy them and they can work as tourist attractions;
- Areas where there is currently more peatland ('the heart of it');
- Areas where there is not much peat left, preserve what is left;
- Areas currently more damaged;
- Areas where local people could benefit from restoration, although there was no consensus about this one, since it was not clear that in some cases this would mean less possible activities for local people.

From the above reasons, it is interesting to observe how there seems to be a dichotomy in relation to two critical aspects: remoteness *versus* accessibility (remote areas *versus* close to the cities so people can visit) and cohesiveness *versus* fragmentation ('the heart of it' *versus* 'preserve what is left'). A third layer interacts with those two, but not necessarily in a mutually exclusive way, i.e. areas of current natural interest and areas of recreational interest, which could coincide and could be remote or accessible. What is clear from the above is that people might have spatial preferences associated with peatland restoration, but that these do not follow a *distance decay principle*, and that the effect of available substitutes (in the forms of other peatlands) might not follow

conventional patterns either, i.e. that greater availability of substitutes would imply a relatively lower value of an environmental good. Modelling spatial preferences following common approaches in the valuation literature might thus not truly reflect peoples' actual preference patterns regarding spatial allocation.

**Figure 3. Maps with locations of preference for peatland restoration by the three break-out groups**



#### 5.4. Willingness to pay for peatland restoration

Workshop participants responded well to the question on willingness to pay for peatland restoration. This is not to say that all participants were willing to pay, and some respondents revealed what is called a *protest response* in the literature, i.e. some respondents were indicating that they are not willing to trade-off a decrease in income through an additional tax for peatland restoration. Generally, responses were within the normal range in terms of magnitude of WTP and type of answers expected in this kind of valuation study.

Out of the 20 responses, 12 (or 60%) were positive answers (yes, will be willing to pay), and 6 were negative (not willing to pay). WTP amounts ranged from £10 to £100 per year. Table 4 shows the frequency of willingness to pay responses.

**Table 4. Frequency of willingness to pay responses.**

WTP amounts (in £ per year)	Number of times mentioned
10	5
12	4
20	1
25	1
52	2
100	1

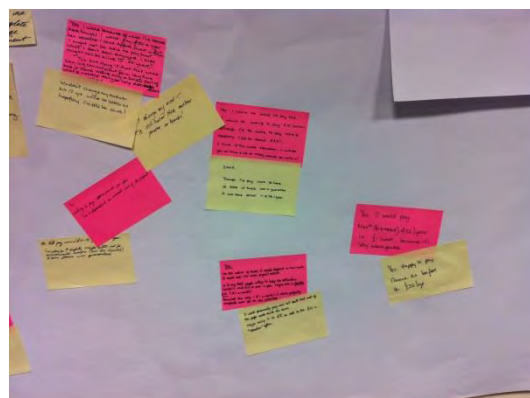


Reasons for not being willing to pay reflect what can be considered *genuine zeros* and *protest responses*. These are summarized next:

- Restoration should be paid with existing tax fund; I already pay lots of taxes (protest)
- Would prefer the tax money to be used for other public priorities (e.g. health care, education, public services) (genuine zero)
- I won't be affected by restoration on a personal level (genuine zero)
- Consequences of non-restoration don't appear to be that severe (genuine zero)
- Others should pay (e.g. countries who don't meet climate change targets, grouse shooters, car owners....) (protest).

There are advantages and disadvantages in using tax versus alternative mechanisms (voluntary donation; increases in utility bills) for payment in stated preference non-market valuation studies. Using a general tax increase has the advantage that it is mandatory and thus does not invite free-riding, and will affect all taxpayers. Some protest to paying taxes can always be expected, but the responses indicate that it may not be a severe issue, and we are therefore confident that it can be used for the valuation survey, with the necessary contextualization and follow-up questions to identify payment vehicle specific protests, and after further confirmation through thorough pre-testing of the survey. No significant protest answers in relation to the trade-off between services provided by restored peatlands and alternative uses of peatlands (forest plantations, wind farms, agricultural use) were detected.

Figure 4. A detail of the wall paper with responses to willingness to pay question



Regarding the sensitivity of responses to time (i.e. by when restoration would be completed), it did not make a difference whether the time horizon for restoration was 15 or 30 years, that is: people who said that they would not be willing to pay for restoration in 30 years, still did not want to pay even if benefits were to be attained in half the time. Workshop participants stated that it might have been different if the benefits were achieved in less than 15 years, for example, 5 years, or more than 100 years. Both of these time horizons would, however, pose challenges from a practical (5 years) and political (100 years) perspective.

## 6. Key messages emerging from the workshop

Here we focus on the key messages emerging from the workshop that can help in the design of the peatland valuation survey.

Spontaneous impressions recorded from participants when viewing the images of the three different peatlands ecological status confirmed that the three images are useful tools for conveying the information on peatland ecological status as desired for the forthcoming survey. Views and perceptions evoked by the different pictures matched those recorded in the first workshop.

Regarding the icons tested to express key benefits produced by peatland restoration, it can be stated that generally there was consensus on the usefulness of one of the wildlife icons over the other one, while the idea of water quality is probably expressed as a combination of the two icons and the carbon emission icons need to be fully revised, since they proved not to be useful tools based on the experience at the workshop.

The workshop clearly showed that people might have spatial preferences associated with peatland restoration, but that these do not adhere to commonly assumed relationships found in the literature and are heterogeneous across participants. Therefore, new approaches for capturing these heterogeneous spatial preference patterns need to be developed. Notably, we will have to find innovative ways of considering remoteness *versus* accessibility and cohesiveness *versus* fragmentation and consider how areas of current natural interest and/or recreational interest can be included.

Responses to willingness to pay questions were within the range expected according to the environmental valuation literature, in terms of share of individuals not willing to pay and the reasons for that and the range of monetary amounts stated by those willing to pay. A time difference between 15 and 30 years from start of a restoration programme to achieving a defined level of an improved status did not seem significant for peatland restoration, but the public might be more willing to pay for shorter term (5 or less year) time horizons.

## 7. Next steps

This report has been circulated to all workshop participants for information and it will be used by the researchers to design the rest of the research activities. Notably, the information reported here will be used to design a questionnaire that will be used in a survey to ascertain the preferences and values associated with peatlands by the population of Scotland which will be collected and analysed in a quantitative way.

The final outputs of the research will be used to produce scientific publications contributing to the scientific literature on the social values and perceptions of ecosystems. Also, they will be sent to the Scottish Government and other relevant stakeholders, including regulating agencies, NGOs, etc., to inform decision-making regarding peatlands in Scotland.

For more information on the content of this report or the research plans, please contact Carol Kyle at [carol.kyle@hutton.ac.uk](mailto:carol.kyle@hutton.ac.uk).

## Annex 1: Workshop presentation

# Scotland's peat bogs - what do you think about them? Workshop 2

## Welcome



## What are peatlands?

A peatland is simply an area where peat is found

It consist of layers of peat which have accumulated naturally over centuries

Peat is formed over time by the remains of plant matter



## Previous workshop

- Your perceptions of peatlands?
- The benefits & good things they provide?
- The uses and activities that can be done in peatlands?
- Are these good things and uses unique to peatlands?
- Negative things/conflicts connected with peatlands?
- How are all these things affected by changes in peatlands?

## Agenda

- 6.15: Welcome & introductions
- 6.30: Presentation and small group activity
- 7.00: Carousel activity
- 7.25: Coffee break
- 7.40: Group activity
- 7.50: Individual activities
- 8.40: Wrap up & close

## Small group activity

- 3 small groups
- 3 drawings representing peatlands landscapes
- Describe them in your own words
- What good and bad things do you associate with each drawing?
- Main differences between the drawings



**Good ecological status**





- High water table: water is visible on the surface, flowing slowly forming 'pools'
- Vegetation dominated by small grasses and the peat moss called *sphagnum*, which grows well in wet conditions – red-green-brown patches



- Continues to grow: added layers of peat
- More **carbon** is taken up from the atmosphere than released
- It is a '**carbon sink**': the carbon store grows



- **Water** flowing from the peatland is usually clear and of **good quality**
- Relatively low treatment cost and good for fish downstream



- Home to large variety of **bird species**, including waterfowl and wading birds (for example Curlew) and **predators** like hen harrier
- **Abundant wildlife**: insects (moths, dragonflies), lizards but also midges



### **Intermediate ecological status**



- Water table is lowered through drainage
- Water rarely visible on surface
- Plants are taller: cotton grass, heather



- The drained land can be used for
  - grazing (mainly sheep, deer)
  - planting trees
  - field sports: grouse shooting





- Small channels or gullies emerge
- Small spots where blank peat is exposed (dark colour)
- Spots of blank peat can grow through forces of water and wind (erosion)



- Does not grow any more: it shrinks slowly
- More **carbon** is released to the atmosphere than is taken up
- It is a **moderate 'carbon source'**: the carbon store **slowly diminishes**



- **Water** flowing from the peatland can be slightly murky and is of **lower quality**
- Increased treatment cost and impacts on fish downstream



- **Less abundant wildlife**
- Some insects (moths, dragonflies), lizards, and bird species found in good status peatlands gone
- More 'managed' species: deer, sheep or grouse





**Bad ecological status**



- Larger areas of blank peat exposed through forces of wind and water
- Deeper gullies and drenches, isolated peat 'stacks'
- Sometimes bare rock can be seen



- Little plant cover, only grasses or heather on isolated patches
- Exposed areas will become larger



- Peat is lost at high rate
- Much more **carbon** is released to the atmosphere than is taken up
- It is a **large 'carbon source'**: the carbon store diminishes **at a high rate**



- **Water** flowing from the peatland is murky and is of **bad quality**
- High treatment cost and severe impacts on fish downstream



- **Not much wildlife at all**
- Only **few species** found in peatlands in good condition remain with **low abundance**

## Summary

Good ecological status



Intermediate ecological status



Bad ecological status



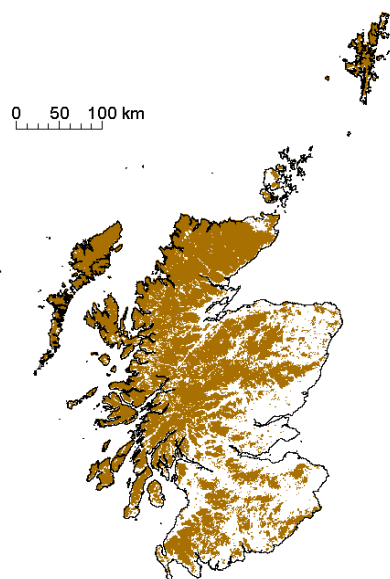
## Carousel activity

- 3 small groups
- Look at the images that you are shown:
  - Does this image mean anything to you? What?
  - Can this idea be expressed better?
- Move clockwise to the next station till you have covered the three stations

Coffee!



## Peatlands in Scotland

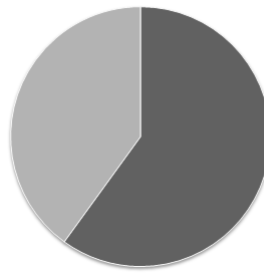


Peatlands cover at least 1,7 million hectares of Scotland, 20% of the land area (possibly more).

This is equal to about 80% of the size of Wales

## Peatland degradation

- More than half of the peatlands in Scotland are in intermediate or bad ecological condition



## Peatland degradation

- Often the result of
  - drainage
  - burning for grouse shooting
  - tree planting
  - too many sheep/deer on the land
- Impacts on carbon emissions, water quality, wildlife and biodiversity





## Peatland restoration



- Creating right conditions for peat moss to grow: re-wetting
- Different techniques can be used for this



Blocking ditches, channels, gullies

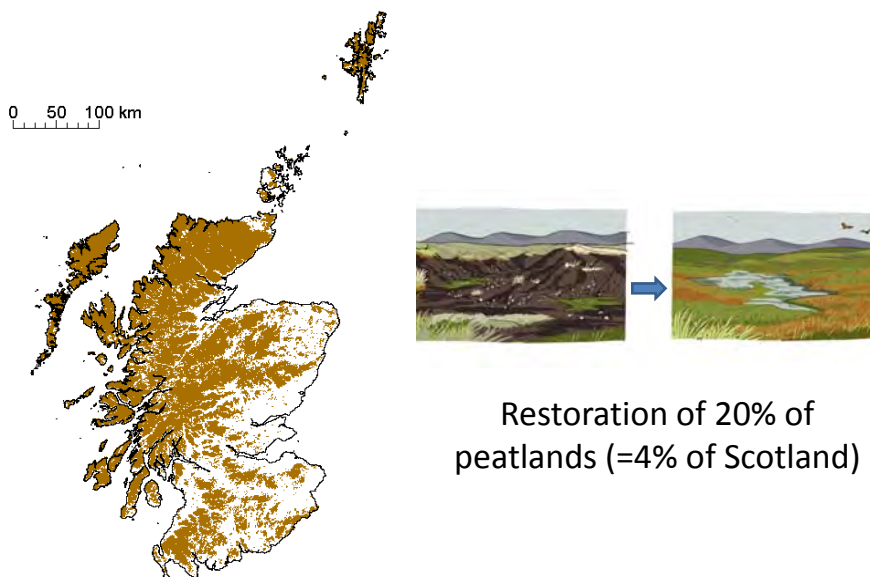




## How long does it take?

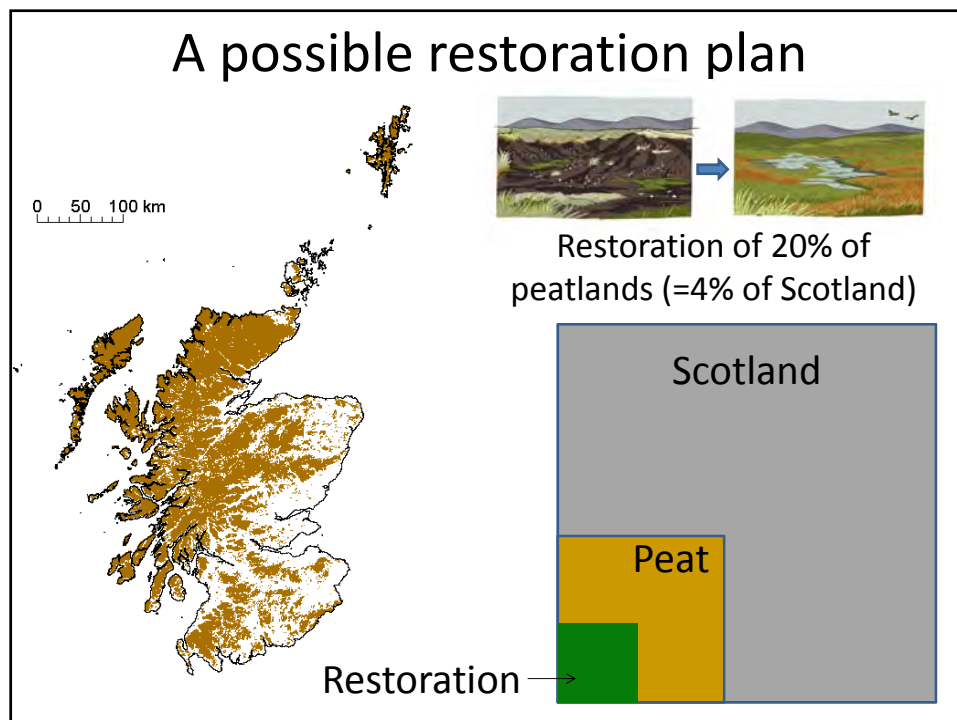
- Full recovery can take decades
- Improvements start shortly after
- Clearly visible after 3-5 years
- Peatlands under restoration cannot be used for grazing, tree planting, grouse shooting
- These activities continue to happen elsewhere

## A possible restoration plan



## A possible restoration plan

- Small groups
- Where would you like to see this restoration happen? (3 priority sites)
- Why?



## A possible restoration plan

- Costs associated with restoration measures and compensation to land owners
- Public budgets are already tight
- Funded by the tax payer through annual tax to a Peatland Trust, advised by independent body of:
  - Scientists, government agencies, farmers and land owners organisations and NGOs
- From now onwards and indefinitely

## A possible restoration plan



- Would you be willing to pay that tax?
  - NO, why?
  - YES, how much? (maximum per year)

**No right or wrong answer: whatever you honestly think!**



## A possible restoration plan

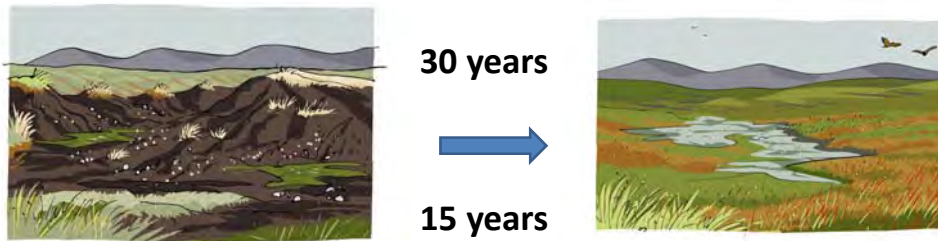
- Peatland restoration can be speeded up by increasing the restoration intensity and the effort put into it
  - For example, more drainage channels blocked more effectively
- Tax still to be paid annually, from now onwards and indefinitely

## A possible restoration plan



- Would you change your previous answer?  
(different colour post-it note)
- Why?

## A possible restoration plan



- Did you change your mind?
  - Why?
  - Why not?

## Why not pay?

- Why not pay at all?
- Under which circumstances would you or others consider paying?

## Wrap-up

What is the point of all this?

- Help to design a survey about peatlands to gather the views of the whole of Scotland's population (representative sample)
- Part of a broader research programme

No report from this workshop, but pre-test of the questionnaire with you

## Scotland's peatlands

Any further thoughts, comments, questions?



## Wrap-up

- Compensation forms
- Future contact
- Any other comments? Please tell or write us ([Carol.Kyle@hutton.ac.uk](mailto:Carol.Kyle@hutton.ac.uk))



**Thank you!**

