Peatland Tipping Points

Values and policy workshop report

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Summary

The project: The Valuing Nature Programme's Peatland Tipping Points project is investigating how changes in climate and how we manage land might lead to long lasting changes, or "tipping points", in the benefits that peatlands provide to UK society. The aim is to identify signs of the potential for, and likelihood of, such changes and provide evidence about their likely economic and social impacts. This information will be used to develop options for policy and practice that can help prevent tipping points being reached and facilitate restoration and sustainable management of peatlands across the UK.

Our approach: A stakeholder workshop was designed to create a platform for knowledge exchange and deliberation. Through storytelling participants explored values connected to the peatland of the North Pennines. Peatland Tipping Points project members gave feedback on the research results to inform further group discussions on the post-Brexit scenarios, developed in the first stakeholder workshop of the project. Participants then deliberated fair prices for agri-environmental policy options post-Brexit.

The results: In their stories participants describe a close connection with the North Pennines peatlands through working and living in this landscape. They showed appreciation for its history and biodiversity of the area providing freedom and tranquillity. Participants named many different ecosystem services and goods provided by the surrounding peatlands like flood regulation and cultural identity during the scenario discussions. With regards to a new agri-environment scheme participant emphasised their wish for it to be locally co-designed and adaptive, and the importance of an extended toolkit to create more flexibility in options for peatland management. During the fair price discussion, one sub-group identified payments of £100/ha for restoration and maintenance of blanket bogs as fair. However, it was challenging to set clear fair prices because respondents felt more needed to be known about benefits to the public, and this should be an important informant of payment levels. New agri-environment scheme options were also elaborated like payments for woodland and native breed support or target predator control.

Next steps: Findings from the workshop have already been reported to Defra and the team are working with Defra and Northumberland National Park to run a test and trial project for the Environmental Land Management Scheme (ELMS) later in 2019, where ideas from this workshop can be explored in greater depth. This in turn will feed into a peatland pilot scheme being designed by Natural England and Defra to look at synergies and trade-offs between public goods. This will report in in early 2020 and inform the English Peat Strategy and other related policy areas that are prioritising public goods post-Brexit. The findings will also be incorporated into an academic journal article.

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1 Introduction

A workshop was organised on 5 February 2019 at the Elk's Head, Whitfield, with stakeholders in the North Pennines Area of Outstanding Natural Beauty (NPAONB) in the north of England, to (1) update the attendees on the project research results (survey responses and new modelling work) and to see how this shapes the values peatlands provide; and to (2) discuss results and consider implications for peatland management in the North Pennines and to deliberate fair prices for future agri-environment payments. The workshop was attended by 21 stakeholders representing farming, estate management, conservation, contractors, local businesses, local artists and research. 19 participants stayed for the post-Brexit scenarios and fair price discussions.

2 Methods

2.1 Stakeholder selection

Stakeholders, who were previously involved in the project through attending the first workshop in May 2017, or being interviewed in 2018 in relation to cultural values of peatlands, were invited to join this follow-up workshop. Through snowballing (asking existing contacts for suggestions of further contacts) and internet searches, additional stakeholders were identified and invited. The goal was to invite stakeholders of the North Pennines region who have a connection to the local peatland. This could be through their jobs (e.g. farming, estate management, conservation organisations, businesses) or simply by living in the area and enjoying the moorland environment for e.g. recreational or art purposes, aiming to represent as many different stakeholder categories involved with the North Pennines peatlands as possible. The number and background of the workshop participants are visible inTtable 1. In total 21 people came to the workshop. Almost all of them were not only interacted with the moorland through their jobs, but also by walking, shooting and other hobbies that took them out on the peatland. Participants were allocated to two equal sized sub-groups within the workshop based on their stakeholder interest and expertise, and gender.

Table 1: Backgrounds and number of workshop participants.

Participants backgrounds	**Number of attendees**
Farmer	3
Estate management	3
Conservation	8
Business	4
Other (Art, Student, Biostatistician)	3

2.2 Workshop outline

The workshop consisted of two presentation parts conducted by the researchers giving feedback on the pre-workshop survey and the project research results. In three deliberation parts stakeholders got to share stories about living and working in the North Pennines moorland and discussed the post-Brexit scenarios as well as the desirability of different agri-environmental policy options and their monetary value (figure 1).

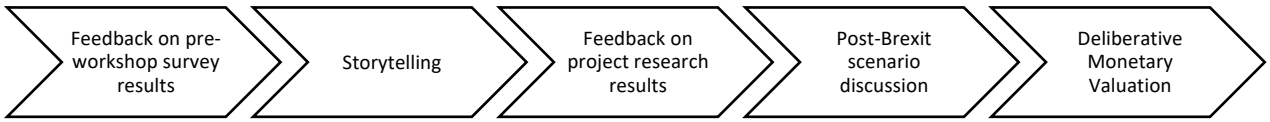

Figure 1: Outline of the Peatland Tipping Points workshop in the North Pennines.

The following chapters will describe the steps of the workshop more detailed.

2.3 Feedback on pre-workshop survey results

A week prior to the workshop, a questionnaire was sent out to participants. 17 of the 21 participants filled out the pre-workshop survey. This focused on understanding peoples broad, guiding values that were relevant to management of peatlands (a 'value compass'), and to help familiarize participants with a number of post-Brexit agri-environment scenarios, which participants were asked to rank in terms of likelihood and desirability. The results of the value compass and the scenario ranking were presented during the workshop.

2.4 Storytelling

Following introductions and discussion of informed consent for participation, the workshop commenced with a storytelling session, in two sub-groups (facilitated by Dr Jasper Kenter, University of York; and Prof Mark Reed, Newcastle University). This was used to explore broad and more specific, contextual values of each participants connected to the peatland of the North Pennines. Workshop attendees got the chance to tell a story inspired by the following questions: What are your favourite places in the NPAONB peat/moorland? How do you feel when you are in these places? What is important about them?

2.5 Feedback on project research results

Researchers of the Peatland Tipping Point project then gave short presentations on the project research outcome in relation to ecological analysis (computer modelling of a peatland and impact of grazing on carbon sequestration; Dr Dylan Young, University of Leeds), economic models (presentation of project results around recreation, carbon sequestration and grazing; Dr Simone Martino, University of York) and cultural values interviews in the region (Nora Albers, University of York).

Furthermore, another presentation provided an overview of the current post-Brexit policy plans and the lookouts on possible impacts of a No-deal Brexit on the uplands (Prof Mark Reed, Newcastle University).

Finally, four post-Brexit peatland management scenarios and their management policy measures were presented to the participants. These had been developed based on storylines originating in the first set of project stakeholder workshops[1] and the project modelling results and expert knowledge as to the most likely implications of these storylines for a range of ecosystem services. They included:.

- Scenario 1: Maximize production
- Scenario 2: Market collapse

[1] A report on these workshops is available at https://docs.wixstatic.com/ugd/6e5046_d116b5814345448d8c0e22729af5a37e.pdf

- Scenario 3: Public money for public benefits
- Scenario 4: Sustaining agricultural communities

The different scenarios are compared in table 2.

Table 2 Comparison of the four post-Brexit scenarios. The post-Brexit scenario comparison shows the expected environmental as well as management consequences of each scenario.

	Scenario 1: Maximise production	**Scenario 2: Market collapse**	**Scenario 3: Public money for public benefits**	**Scenario 4: Sustaining agricultural communities**
Post-Brexit funding for land management (cost to taxpayer)	Significantly reduced	Significantly reduced	Overall slightly reduced	Current levels retained
Focus	Markets are able to sustain hill farming on peatlands and a lower regulatory burden makes more intensive management possible	Markets are not able to sustain farming in peatlands, leading to a significant reduction in the intensity of management and land abandonment in some areas	Reduced but continued public support, with payments linked to the delivery of public benefits such as climate mitigation and water quality	Current funding levels maintained, sustaining rural communities through LEADER style projects in addition to payments to land managers
Expected consequences:				
Grazing	High intensity	Further reductions in grazing intensity, with removal of grazing in many areas	Grazing continues at low density similar to current levels	
Managed burning and wildfires	• Managed burning for grouse, similar to current levels in many areas	• Managed burning for grouse, similar to current levels in many areas • Higher wildfire risk in drier areas dominated by dwarf shrub	• Managed burning for grouse, similar to current levels in some areas • Burning reduced or ceased on restored peatland • Decreased wildfire risk on rewetted peatland	• Managed burning for grouse, similar to current levels in some areas • Burning reduced or ceased on restored peatland • Decreased wildfire risk on rewetted peatland, further decreased by pro-active wildfire mitigation and management measures
Vegetation	• More accessible areas are limed and converted to permanent improved grassland. • Elsewhere, increased grazing intensity leads to increases in grass and sedge cover and reductions in dwarf shrubs • Where grouse moors are under current management there is little change in vegetation composition.	• Gradual shift from grass to dwarf shrub in sites where grazing is lost, and dwarf shrub is managed via burning • Gradual conversion of drier sites to shrubs and trees in absence of grazing or burning • Little change in less modified blanket bog	• Increase in blanket bog vegetation in re-wetted areas	

	Scenario 1: Maximise production	Scenario 2: Market collapse	Scenario 3: Public money for public benefits	Scenario 4: Sustaining agricultural communities
Peat and hydrology	• Drainage ditches left unblocked and in some cases dams removed from blocked drains. Increased erosion from • Increase in vehicular access and supplementary feeding leading to localised erosion • Increased runoff may contribute towards localised flooding	Drainage ditches left unblocked and unmanaged, leading to creation of gullies in some steeper slopes. Eroded areas left untouched. In places, ditches revegetate without intervention.	Drainage ditches progressively blocked and eroded areas revegetated, leading to shallower water tables and peat maintained or building	
Wildlife	• Reduction in insects associated with wetter habitats. Some increases in beetles and caterpillars where the peat becomes drier. Effects on abundance of ground nesting birds is likely to depend on predator management. • Reduction in aquatic diversity due to runoff of nutrients from intensively managed new grassland and supplementary feeding. Increases in sheep density lead to more disturbance and trampling of nests.	Large-scale land-abandonment likely to reduce abundance of ground-nesting species requiring elements of short vegetation - although less on the wettest peat. And due to any increases in predators. Species associated with woodier habitats will benefit if there has been no previous restoration of ditches and gullies.	Management to promote diversity through appropriate grazing, cutting or burning regimes can lead to • Increase in ground nesting birds in re-wetted areas • Increase in bog specialist plants and insects.	
Carbon emissions	Increased	Similar to current levels in most years, but substantially higher in the growing number of years where there are wildfires	Decreased	
Water quality	• Dissolved (brown) and Particulate (eroded) Organic Carbon increases (lowering water quality) • Increased risk of eutrophication from intensively managed new grassland and supplementary feeding	No significant change in water quality most years, but substantially higher in wildfire years	Erosion of ditches reduces, consequently Dissolved (brown) and Particulate (eroded) Organic Carbon may reduce from restored peatland, improving water quality.	
Communities	Farming communities retained	Farming communities decline, although many grouse moor operations continue	• Consolidation of land-holdings and rented farms in locations with (relatively) limited public benefits • Jobs associated with peatland management retained or increased	• No change in agricultural regime (community is sustained, small scale farming is not lost) • Jobs associated with peat-land management increased

	Scenario 1: Maximise production	Scenario 2: Market collapse	Scenario 3: Public money for public benefits	Scenario 4: Sustaining agricultural communities
				• Attention is paid to the needs of tenants and commoners in addition to landowners, to ensure all groups benefit fairly • Improved transport and other infrastructure

2.6 Post-Brexit scenarios discussion

In the two sub-groups, participants then discussed the post-Brexit scenarios based on the following questions:

- How do the different scenarios meet the values identified in the values compass and storytelling exercise?
- What should agri-environment policy post-Brexit look like? What are the objectives? How should outcomes be assessed?
- What different policies are driving the scenario results and thus how to evaluate them, and what combination of different policy options might be most desirable in terms of achieving multiple objectives. Consider 4 management measures relevant to agri-environment policy:1) managing grazing stock, 2) revegetation, 3) grip-blocking / rewetting, 4) measures related to burning.
- Given the results of the scenarios in terms of different ecosystem services, how would you evaluate the different management policy measures we presented at the start and that were part of the scenarios?

2.7 Deliberative Monetary Valuation and discussion of fair prices

The final session of the workshop focused on discussing the desirability of different agri-environmental policy options. The discussion was based on the current Higher Level Stewardship options and payments rated for moorland and upland grazing. Participants were discussing if those payments should be changed. Should the payments be increased/decreased? By how much? Are any options missing that should be added? Should any options be removed? The key considerations that were suggested were whether payments reflected the social value of the management to the local community within the NPAONB and to the taxpayer, as well as considerations such as the broader values of and in relation to biodiversity and the environment, including the ecological, economic and cultural values elicited through the project, and opportunity costs and effectiveness of the measures.

3 Results

3.1 Storytelling

Participants expressed feelings and experiences based on when they were out in the moorland in their stories, which centred around working, living and exercising (walking, running, dog walking, rock climbing, grouse shooting) in this landscape.

Part of most of the stories was experiencing nature and wildlife with all the senses, for example, the stunning views from the top of the hills, being able to see many stars on a clear night, or hearing the birds sing in the morning. People were enjoying the mosaic of different habitats.

Seasonality was a major topic, noting changes throughout the year as well as the changes from one day to another. Some participants have mentioned a sort of love-hate relationship with the moorland depending on the weather.

People showed the appreciation of being able to live in this kind of landscape and feeling lucky while other people in the world don't have that opportunity. But it has also been mentioned that locals might take this landscape for granted and after living here for most of their life, not seeing the beauty of it as clearly anymore.

Past changes have been part of the stories as well as fear and concerns about the future of the moorland and it´s management. Also, opinions about the current peatland management (heather burning, grip blocking etc.) have been integrated into the stories.

Negative aspects associated with living and working in a moorland area were also mentioned, for example, getting stuck in boggy areas. On the other hand, those kinds of events, when experienced in a group, were described as bonding experiences.

Workshop participants appreciated the history and the age of the North Pennines moorland. But besides of the ecological value for bird species and carbon storage of the peatland, the cultural value was also mentioned in some of the stories.

While the stories expressed the diverse perspectives and backgrounds of the participinats, there were some common words/phrases describing the feelings of workshop participants when they were in the landscape, including peace, freedom, tranquillity, being on my own, complete isolation and a grounding environment.

3.2 Post-Brexit scenario discussion

3.2.1 Aims of a post-Brexit management

- Participants talked about aims with regard to different kind of public goods and ecosystem services. Topics included conserving peat, carbon, biodiversity, landscape, cultural identity and heritage, water quality, food, timber, flood regulation and recreation. Participants recognized that there can be conflict between these services and that they would like to see balance between them.
- Regarding flood regulation, participants discussed the possibility to pay people by the cubic meter for how much water they're holding upstream.
- The group saw the benefits of revegetating the area but realised that it might not always be affordable.
- Avoiding rural depopulation, sustaining communities, sustaining local knowledge and skills and protecting traditions were emphasised. Participants would like to see local co-decision knowledge integrated into future landscape management. Any new scheme should be locally co-designed and should be adaptive. This way mistakes made in the past can be avoided. For example, can forestry in the right part of a landscape like this provide opportunities now without making the same mistakes that were made in Scotland and other places where trees were planted on deep peat?

- Part of the discussion suggested that, post-Brexit, we might have to create more value for less, and we have to be able to communicate that value to the public to justify continued Government support.
- Participants agreed on the need to avoid land abandonment in the future.
- Participants emphasised the need for an extended toolkit for peatland management to work with in the future. This included methods like restoration burning but also other options like heather cutting. The more tools landowners and farmers have in their toolkit, the more adaptable and effective they can be under changing conditions.
- Thus, the discussion indicated that peatland management should be about keeping as many different options on the table as possible and giving land managers evidence-based options that are known to work. Overall, participants wanted to see more flexibility and freedom in options for peatland management.

3.2.2 Questions that came up during the discussion

- Discussions led to the topic of climate change and future adaptation. Will the grouse move north? Will people move north?
- Scale came up as a topic. Is it possible to consider microhabitats in future management of the peatlands?
- Questions about recipients of payment for implementing agri-environment options arose. Often talked about was who benefits in the end, landowners, farmers, tenants? And where is the balance? Is there too much emphasis for example on capital schemes that ultimately don't bring in any more for the farmer? Should we have more emphasis on recurrent payment?

3.3 Fair Price discussion

3.3.1 Desired changes of the current scheme

- Discussions about the original HLS list showed that cutting should be split out from burning into a sperate option and that it´s not viable at a payment of £7 per hectare. An increase to £25 per hectare was mentioned here.
- Part of the discussion was the idea of tapering the current agri-environment payments.
- Participants claimed that lower size limits for farms for payment claims should be reconsidered, to support smaller farms over larger estates.
- The group reached a general point that overall payment levels should be at least similar to now in order to ensure rural communities could be sustained.
- Participants agreed that whoever is delivering the agri-environment scheme option should receive the payment. In some cases, it will be the landowners, in other cases it will be the land occupier and manager. The payment shouldn't just be linked to the land itself.
- Participants divided maintenance and restoration of moorland into two categories; blanket bog versus dry heath. The highest rates should be for the maintenance and/or restoration of blanket bog. Payments for the maintenance and restoration of dry heath should be lower. Fair price for blanket bog payments were identified around £100 a hectare, but with significant reservations, emphasising that more analysis and piloting was necessary. As one participant commented: "*I'm really struggling with the concept of putting a payment on this because if we get it wrong (…) and it doesn't provide that economic sustainability, it's a disaster."* . It was also emphasised that more analysis was needed to have a clearer picture of what the public value was of different benefits, and for each of the benefits to more clearly linked to the options.

- Payments could be regionally varied or temporarily increased over a certain length of time in particular regions to encourage particular activities and outcomes.
- The focus shouldn't be on single but multiple benefits. Including not only bird protection and maintenance restoration of moorland but also for example flood risk alleviation and carbon benefits.
- Participants agreed that ultimately policy-makers should determine the ends but let the farmers determine the means.
- The discussion reached some consensus on the definition of a good condition for a bog, which can be associated with a high-water table, good cover of mosses, low areas of bare peat and the occurrence of indicator plants. This should simply be seen as the norm and it should be left to the farmers how they reach that norm.
- Ultimately, an agri-environment scheme should be about paying for outcomes and the suggestion here was that payments were split in a base payment for managing towards a particular goal, and supplements for achieving outcomes. The additional payments should depend on how well those outcomes were achieved.
- Essentially the group came up with a kind of hybrid design of input and output-based elements. For example, having a spatial targeting of payments based on the capability of land to provide public benefits e.g. climate mitigation from peatland restoration in areas of deep peat, with tree planting in valleys where there is shallow peat. By retaining a system where payments are conditional on inputs, it may be possible to protect landowners and managers from the kinds of risks associated with output based "payment by results" schemes where outside factors (e.g. pests, disease or flooding) can prevent outputs and hence payments. By including a premium for ecosystem service delivery the value to the taxpayer can be increased.

3.3.2 Elaboration of new payment options

Option	**Description based on discussion with stakeholders**
Avoiding, or clearing seedlings from adjacent conifer plantations	Conifer seeds are coming over the fence of the Forestry Commission's ground onto the peatland. Massive costs are connected to clearing the bogs of conifer saplings.
Water management on mineral soils around peat bogs	Slowing down the water flow by putting in features on mineral soils to hold and retain water. Flood management is part of the same system as peatlands and should be included in the consideration of peat-and moorland management.
Shepherding payments	Moving sheep around is time consuming. A payment should cover the cover the shepherd´s expenses and time.
Educational access to land	Payments, which enable land managers to provide access to their land and to offer educational talks/ tours to the public. This might help the taxpayer to understand where their money goes to.
Training and monitoring	Payments for training and monitoring elements involved in changing management to deliver scheme related outcomes.
Collaboration	Collaboration between farmers/ landmanagers should be supported past the facilitation fund. Working together is not only valuable for skills and knowledge transfer but also for getting things to happen on a landscape scale. It´s a call out for a more joined up approach.
Woodland support	Replanting natural shrub and woodland habitat (e.g. Juniper) to create moorland fringe.

Native breeds support	Supplements for targeted use of the right type of grazing animal including native cattle.
Support of other species (e.g. raptors)	Adding other species to the scheme to not singly focus on wading birds. This could be a new option for landowners and farmers to pick from the agri-environment scheme menu.
Option to not proactively manage the land	Giving room for rewilding in the scheme.
Targeted predator control	Payment for predator control to protect bird life. E.g. mole and rabbit control payments.

4 Next steps

Findings from the workshop have already been reported to Defra and the team are working with Defra and Northumberland National Park to run a test and trial project for the Environmental Land Management Scheme (ELMS) later in 2019, where ideas from this workshop can be explored in greater depth. This in turn will feed into a peatland pilot scheme being designed by Natural England and Defra to look at synergies and trade-offs between public goods. This will report in in early 2020 and inform the English Peat Strategy and other related policy areas that are prioritising public goods post-Brexit. The findings will also be incorporated into an academic journal article.