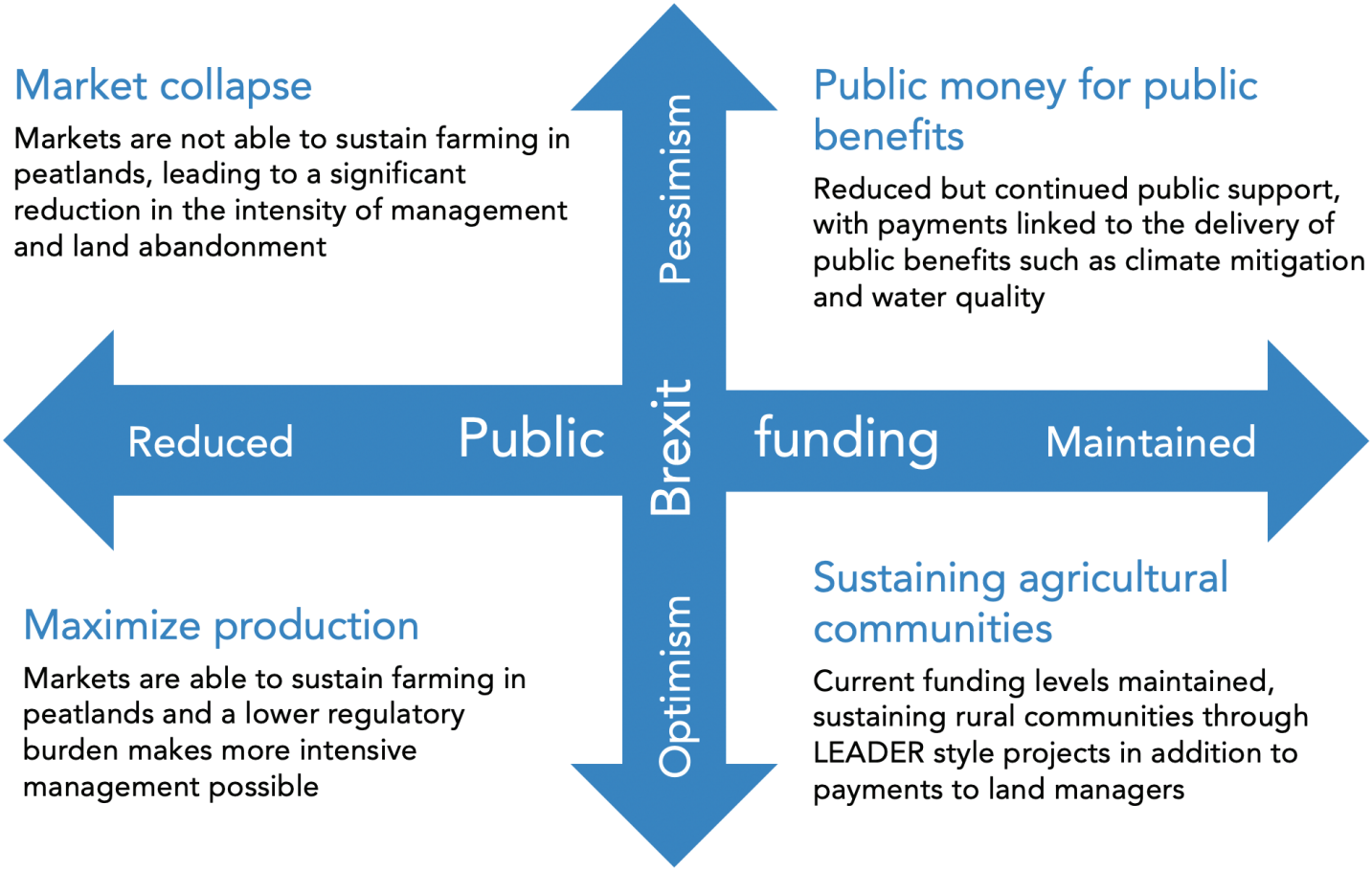
Newsletter Summer 2019

In a nutshell

The project is investigating how changes in climate and land use might lead to tipping points in peatlands or in the benefits that they provide to UK society. Our aim is to identify the conditions that lead to tipping and provide evidence about their likely economic and social impacts. We will develop options for policy and practice that incorporate tipping points (which may have both positive and negative effects) and facilitate restoration and sustainable management of peatlands across the UK.

The project will achieve these outcomes using computer models, experimental ecology, and methods from qualitative social sciences and ecological economics. We are working closely with stakeholders to identify scenarios for policy and practice that can cost-effectively protect the natural environment and rural communities in these areas after the UK leaves the European Union. Four scenarios emerged from workshops with peatland stakeholders:



Market collapse

Markets are not able to sustain farming in peatlands, leading to a significant reduction in the intensity of management and land abandonment

Public money for public benefits

Reduced but continued public support, with payments linked to the delivery of public benefits such as climate mitigation and water quality

Maximize production

Markets are able to sustain farming in peatlands and a lower regulatory burden makes more intensive management possible

Sustaining agricultural communities

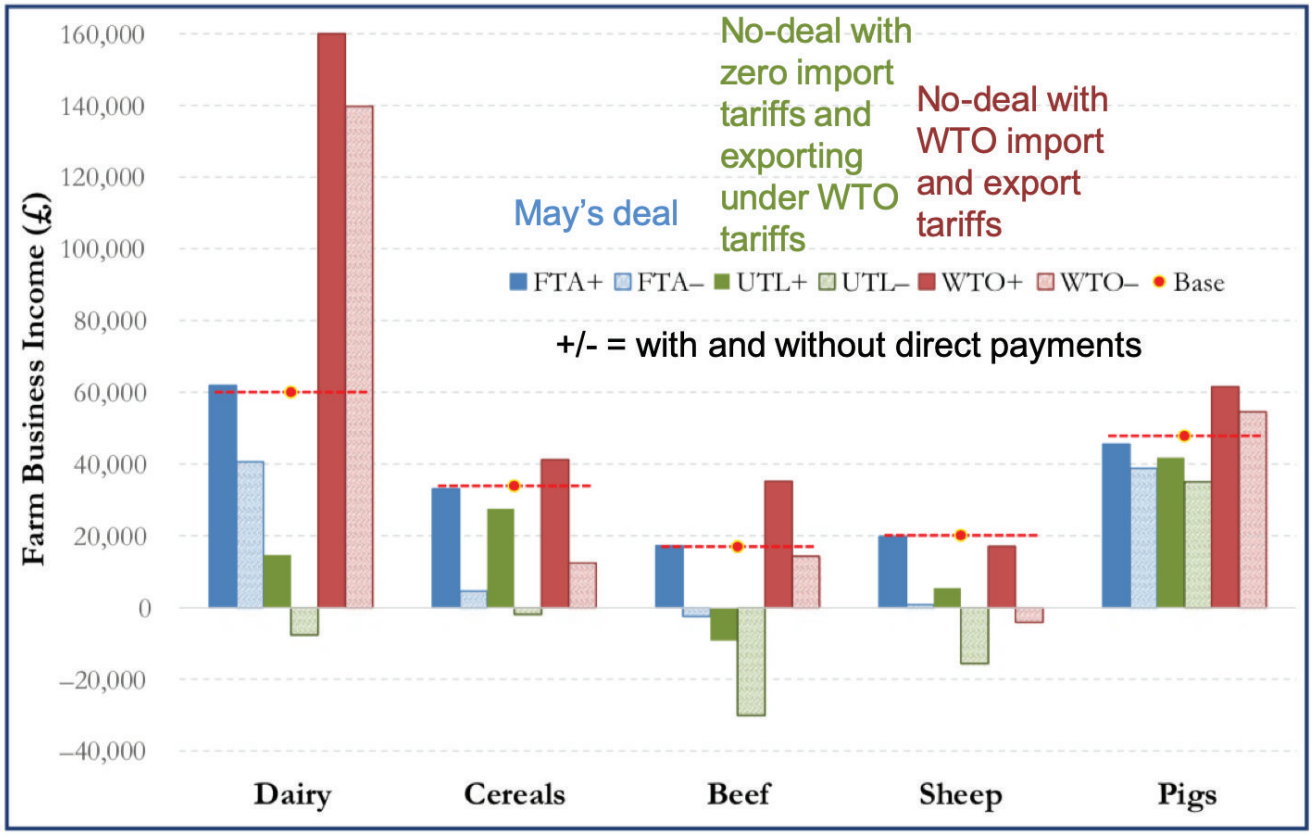
Current funding levels maintained, sustaining rural communities through LEADER style projects in addition to payments to land managers

What might a no-deal Brexit mean for upland agriculture?

Those with interests in upland agriculture are eyeing the implications of a no-deal Brexit nervously. New ESRC funded research led by Dr Carmen Hubbard from Newcastle University has provided some insights into the likely effects of leaving the European Union without a deal on 31st October 2019. In Figure 3, adapted from the original report, two versions of a no-deal Brexit can be seen, with (red) or without (green) import tariffs (some politicians have suggested that imports could be brought in tariff free to keep food prices low), and the withdrawal agreement negotiated by May can be seen in blue. In all cases there is a high and low version which makes more optimistic or pessimistic assumptions (indicated by the dark or light colours).

- Unilateral trade liberalization is likely to undermine many sectors leading to reduced farm gate prices, production and income (unless variable tariffs can be imposed to protect key UK commodities)
- Exports to EU subject to WTO tariffs with sheep (50% tariff) and beef (some cuts >80%) worst affected (compounded by loss of direct payments they depend on). >90% lamb & beef exports are to EU
- Dairy least affected
- Retaining WTO tariffs for imports reduces impacts
- Shortages of veterinary medicines & vaccines
- Inflationary pressure from devalued pound could impact lending and capital investments
- Compounded by wastage from border delays for some fresh foods

Figure 3: Estimated average farm income by scenario and farm type, UK (2026)



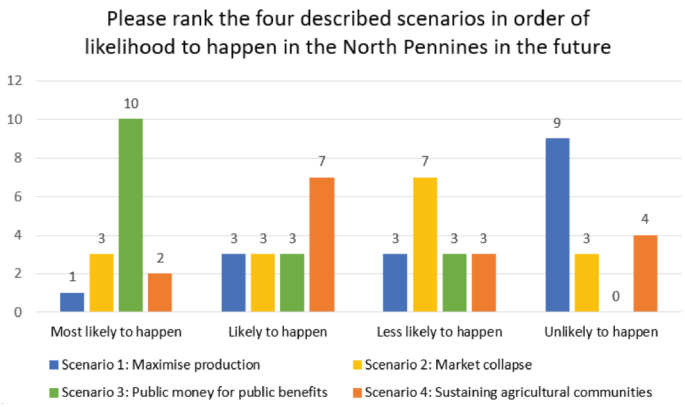
For more information, see: Hubbard, C., Davis, J., Feng, S., Harvey, D., Liddon, A., Moxey, A., Ojo, M., Patton, M., Philippidis, G., Scott, C., Shrestha, S., and Wallace, M. Brexit: How Will UK Agriculture Fare? EuroChoices

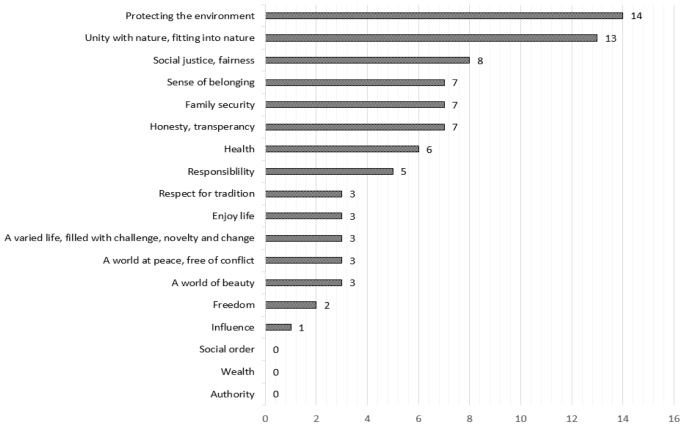
What do people value most about peatlands?

A survey of 360 recreationists (walkers, birdwatchers, cyclists, and anglers) in the North Pennines Area of Outstanding Natural Beauty showed that most people placed more value on facilities such as parking, toilets and paths, than they did on the condition of the natural environment (different types of vegetation, abundance of wading birds and water quality). With the exception of cyclists, all other recreationalists valued the landscape less under future scenarios that led to re-vegetation and re-wetting (e.g. the public money for public goods and sustaining agricultural communities scenarios on page 1 of this newsletter).

Further research, based on the analysis of 30 interviews in the North Pennines and the Flow Country with land managers, community councillors, tourists and conservationists showed that this broader group placed value on these places as working landscapes from which people could make a living, and they valued their sense of place in the landscape, which contributed to their sense of identity. However, the majority of respondents expressed concerns about the future of these landscapes, especially in terms of the future of farming and conservation.

Finally, a deliberative workshop was held





with 21 people in the North Pennines AONB from farming, estate management, conservation, contractors, local businesses, local artists and research. Participants considered the public money for public goods scenario to be most likely and the maximise production scenario, where public funding for agriculture on peatlands is significantly reduced but reduced regulation enables more intensive production.

Linked to these scenarios, participants discussed fair prices for current peatland conservation options, taking into account the full range of benefits for society arising from such work. This discussion was informed by a survey taken by participants showing values they identified with as guiding their life choices, which showed a strong convergence around protecting the environment despite the diversity of people present. A wide range of additional agri-environmental policy options were discussed that participants felt would be helpful to include, such as: shepherding payments, educational access, training support, collaboration support, native breeds payments, and extension of consideration of biodiversity beyond wading birds, e.g. raptors.

New initiative to combine data across studies and sites to better inform peatland policy and practice

Researchers, practitioners and policy-makers from across Europe, whose goal is to understand better how peatlands respond to climate change, land use and restoration took part in a workshop in Newcastle in March. Their aim was to begin the process of finding a way to standardise the collection of environmental data so it can be combined from multiple studies and sites to better inform policy and practice. Starting with UK peatlands, the group is now replicating the process across other peatlands as part of the United Nations Global Peatland Initiative.

As post-Brexit agricultural policy moves towards paying for public goods there is growing interest in peatlands as the UK's largest terrestrial carbon store. Disagreements over policies and practices to sustain healthy peatlands have often led to calls for more research. However, much of the existing research cannot be used to guide policy and practice because of variation in the approaches taken to collect data. As a result, research often leads to confusing and conflicting recommendations with no way for decision makers to assess apparently contradictory findings.

To tackle this problem, the workshop began the development of a set of core (essential) variables or "outcomes" that can be measured and reported in standardised ways for UK peatlands. The group was inspired by the medical community who developed this approach and now routinely collects data based on a set of agreed core outcomes. These data are then combined with all studies in a discipline and used to inform policy and practice. Whilst there is growing recognition that sets of essential variables are required in peatland science, the workshop in Newcastle was one of the first occasions that the approach had been applied to the natural sciences.

Consensus on core outcomes enables researchers and practitioners to choose to collect their data so that it can be integrated with other datasets. Should core outcomes become widely used, researchers and practitioners will still be able to use alternative outcomes or methods.

The workshop was organised and facilitated by Newcastle University and IUCN UK Peatland Programme, funded by the Economic and Social Research Council as part of the NERC Valuing Nature Programme Peatland Tipping Points project, and co-designed with Defra, the Food and Agriculture Organisation of the United Nations and UN Environment.

Working with policy

The project has been working with Government to provide evidence that could inform post-Brexit agricultural and environmental policy. The project's first policy brief (based on existing evidence) was debated with NFU in an invitation-only event held within Defra, and summarised on BBC Breakfast (to 2 million viewers).

Subsequently, the project contributed towards three further policy briefs:

What is the evidence that public money leads to public goods delivery from agri-environment schemes? (with Resilient Dairy Landscapes and iCASP projects)

What role for public-private partnerships to deliver public goods? (with Resilient Dairy Landscapes project)

Key challenges for AgriFood Supply Chains Post-Brexit: private actors, longevity and food waste (with N8 AgriFood)

Ecological research on crane fly abundance

Not all fieldwork goes according to plan, and sadly, our Tipulid (crane fly) sampling experiment produced disappointing results. Only 4 plots yielded tipulid larvae (all close to blocked ditches) and the remaining 300+ sampling points yielded no data on Tipulids. The idea was to use crane flies as an early warning sign of biodiversity changes, given the reliance on them as prey for many ground nesting birds.

The project is now using existing RSPB and other data sets to explore the

potential role of climate change on Tipulids and key upland wading birds (notably Golden Plover for which we have the most data).

Economic benefits from early restoration

An online survey administered to almost two thousand Scottish residents forming a representative sample of the overall population was carried out in 2016. This survey includes monetary estimates of the values that people assign to peatland restoration. Monetary estimates of peatland values can inform (public and private) investment decisions on peatland restoration (for example, for comparing the costs of restorations with its monetized benefits) as well as informing decisions on where to prioritize restoration.

The results of this study offer an optimistic view for the development of a peatland restoration agenda in Scotland in terms of public support. However, this study did
not consider important medium to long term implications of restoration, which may affect
preferences and thus values associated with peatland restoration to be used in cost-benefit
assessments of peatland restoration programmes.

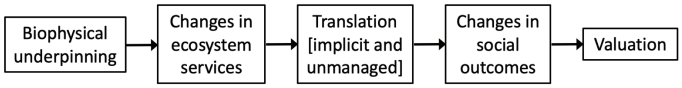
The Peatland Tipping Points project followed up this survey in 2017. The new survey paid specific attention to medium and long-term considerations of peatland restoration in the context of climate change. More than three quarters of respondents were supportive of peatland restoration, placing significant value on the ecosystem services that peatland restoration

provides. The majority of respondents had a strong preference for early implementation of restoration action, although some expressed concerns about doing so at any significant scale until uncertainties regarding future climate change are resolved.

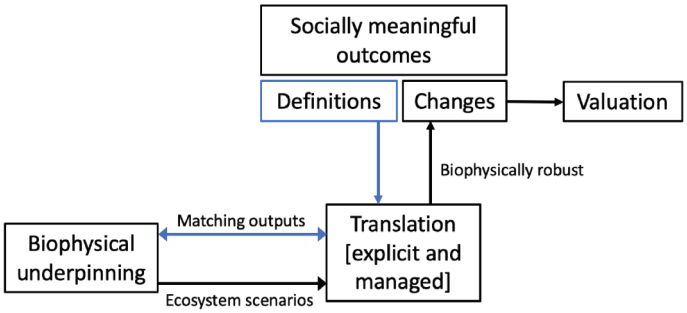
The findings suggest that peatland restoration is likely to be welfare enhancing. Benefits also exceed cost in appraisals of previous and future public investments into peatland restoration. The results thus strengthen the economic rationale for climate change mitigation through improved peatland management.

Modelling tipping points

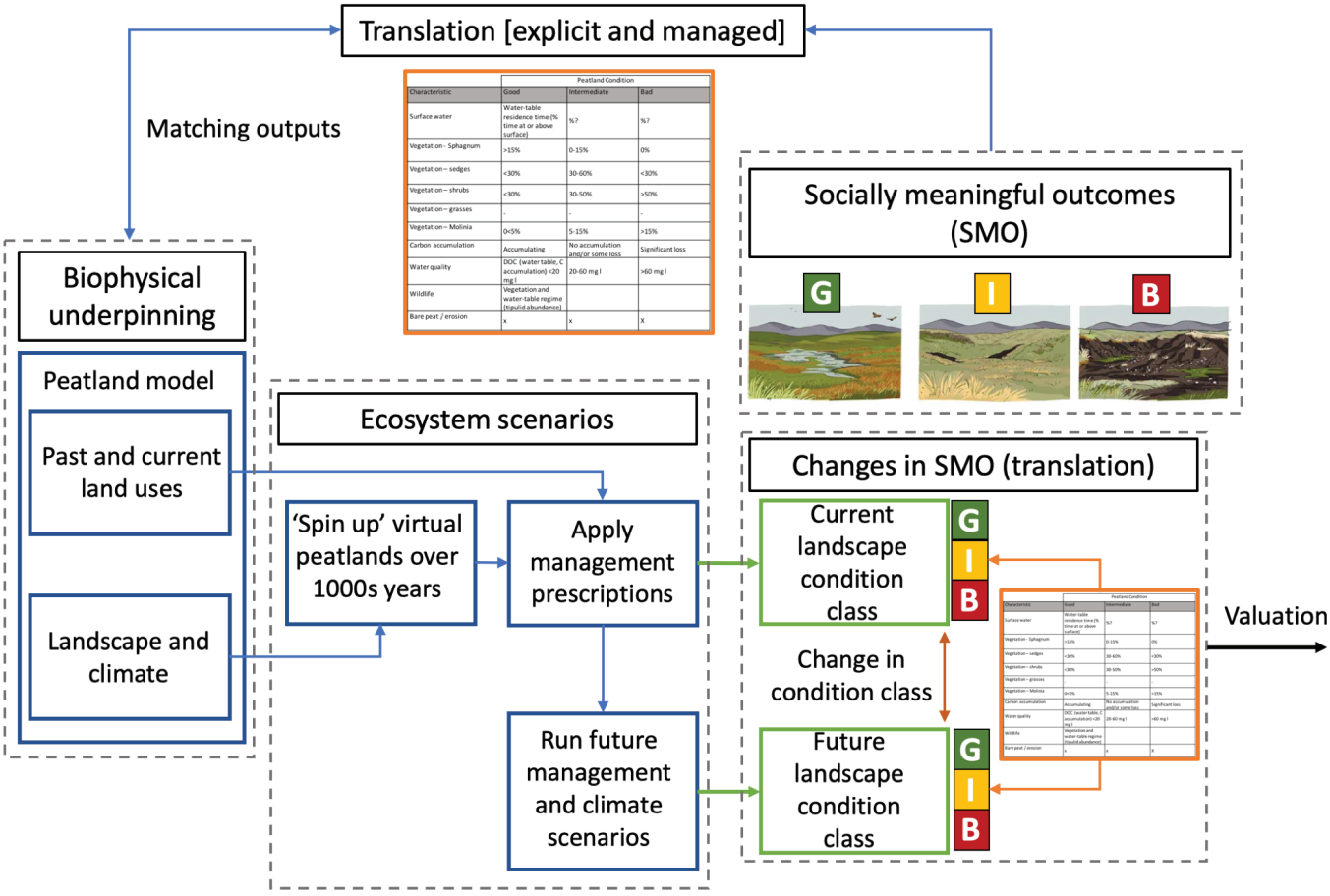
Coupled biophysical and socio-economic models have been developed to assess how changes in land use and climate impact the value of ecosystem services. The simulations provide insights into the ways that changes in policy and land management affect long-term ecosystem outputs. Usually attempts value changes in the natural environment are driven by models of biophysical processes (see graphic below).



Instead, we seek to understand the environmental outcomes that are meaningful to the public and to policy makers and then model the processes that underpin those changes (see graphic to right).



The full modeling framework is shown below. It includes valuations of good (G), intermediate (I) and bad (B) outcomes of peatland condition: our models have been adapted to produce ecohydrological outputs based on how these conditions have been defined. Land use and climate-based scenarios are being simulated to understand how they might unfold, including non-linearities and tipping points. The results will be translated back into the socially meaningful outcomes so that they may be more relevant to people and policy.



Find out more

Find out more about the project and download policy briefs and reports at: https://www.peatlandtippingpoints.com/

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Newcastle University

N8 AgriFood

UNIVERSITY OF LEEDS

SRUC

SCOTTISH ASSOCIATION for MARINE SCIENCE

BTO Looking out for birds

CEH Centre for Ecology & Hydrology NATURAL ENVIRONMENT RESEARCH COUNCIL

IUCN National Committee United Kingdom Peatland Programme

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