Institution: Birmingham City University

Unit of Assessment: 16 Architecture, Built Environment and Planning

Title of case study: Paying for Nature's Services: Developing the UK Peatland Code

1. Summary of the impact (indicative maximum 100 words)

This case study shows how research on ecosystem service governance is directly supporting the Government's promotion of Payment for Ecosystem Services (PES) schemes. These aim to pay for nature's services through the involvement of business and the wider public. Specifically, research has informed the development of a pilot UK Peatland Code to stimulate private investment in peatland restoration. The pilot Code, which was published for public feedback in June (and launched in September 2013 by the Environment Minister), sets out guidance and quality standards for sustainable business investment in peatlands. It has implications for chartered surveyors, planners and others advising clients on future land use and income generating opportunities. According to Defra's Deputy Director of Sustainable Land and Rural Evidence and Analysis, lessons from this research have "*made a significant contribution*" towards Defra's PES agenda, "*provid[ing] us with valuable lessons for the development of PES schemes in the UK"* (Testimonial 1).

2. Underpinning research (indicative maximum 500 words)

Since August 2012, research into Payments for Ecosystem Services schemes (PES) in peatlands has been conducted by Professor Mark **Reed** in the Centre for Environment & Society Research (CESR) at Birmingham City University (BCU) and is ongoing. UK peatlands are an important place to explore the potential to pay for multiple benefits from nature, or "ecosystem services", given the range of services they provide to UK society and the high proportion of peatlands that are degraded.

Reed joined BCU in 2012 as a recognised expert in the field of peatland restoration as a result of leading the flagship RCUK Rural Economy and Land Use programme (RELU) Sustainable Uplands project. On joining BCU, he was invited to join the Roster of Experts for the second phase of Defra's Ecosystem Markets Taskforce, and secured funding to: develop a PES scheme for peatland restoration with South West Water (funded by NERC and South West Water); scope a place-based PES scheme for the South Pennines (funded by Natural England and Defra); and lead two Defra PES pilot research projects to develop a UK Peatland Code and explore the potential for Visitor Giving schemes to elicit payments for peatland ecosystem services from members of the public.

The underpinning research used case study research in the South Pennines and elsewhere to explore how Payments for Ecosystem Service schemes may be designed to deliver a range of complementary ecosystem services in the same location (e.g. climate, water, biodiversity and recreational benefits from peatland restoration), whilst avoiding trade-offs between ecosystem services where possible (for example, sequestering carbon via exotic conifer plantations at the expense of native biodiversity). The research explored the potential to elicit payments for carbon, biodiversity, water quality and recreational benefits associated with peatland restoration, including a scenario-based assessment of possible trade-offs (up to 2030) and an assessment of market and governance needs.

This research clearly demonstrated that over appropriate timeframes (e.g. 30-100 year contracts) good practice peatland restoration can deliver significant climate change mitigation benefits, with typical costs of restoration between £53,300-£70,600 for a 100 hectare site. With typical Greenhouse Gas emission reduction benefits of between 3.9-4.2 tonnes CO_2 equivalent per hectare per year, this would equate to 11,700-12,600 tonnes CO_2 equivalent over a 30 year contract (equivalent to a year's emissions of over 7,000 average family cars). If this investment were turned into an asset, the investment would break even by the end of a 30 year contract if the carbon was worth £7.50 per tonne. If carbon prices were higher than £7.50 per tonne, then this would represent a return on investment. At the same time, this work would deliver improvements in water quality (primarily reductions in brown colouration caused by Dissolved Organic Carbon), biodiversity (in particular blanket bog specialists) and recreational access (primarily due to

restoration of deep gullies). The research has demonstrated that there is a strong interest in sponsoring peatland restoration from the private sector (notably from food and drink, hospitality and horticulture) and corporations are willing to pay a premium for UK-based projects that deliver climate change mitigation alongside biodiversity and water benefits. However, the research investors need appropriate Government-backed guidance to give them confidence that their investments will deliver these benefits, and guidance is needed to ensure landowners follow good practice restoration. **Reed** has therefore led the development of a UK Peatland Code, funded by Defra and supported by the Environment Minister, with the support of Environment Ministers from Scotland, Wales and Northern Ireland.

3. References to the research (indicative maximum of six references)

BCU affiliated publications (indicating BCU staff in bold):

1. **Reed MS**, Hubacek K, Bonn A, Burt TP, Holden J, Stringer LC, Beharry-Borg N, Buckmaster S, Chapman D, Chapman P, Clay GD, Cornell S, Dougill AJ, Evely A, Fraser EDG, Jin N, Irvine B, Kirkby M, Kunin W, Prell C, Quinn CH, Slee W, Stagl S, Termansen M, Thorp S, Worrall F (2013) Anticipating and managing future trade-offs and complementarities between ecosystem services. *Ecology & Society* 18(1): 5 http://dx.doi.org/10.5751/ES-04924-180105
2. **Reed MS**, Bonn A, Broad K, Burgess P, Fazey IR, Fraser EDG, Hubacek K, Nainggolan D, Roberts P, Quinn CH, Stringer LC, Thorpe S, Walton DD, Ravera F, Redpath S (2013) Participatory scenario development for environmental management: a methodological framework. *Journal of Environmental Management* 128: 345-362
3. Quick T, **Reed MS**, Smyth M, Birnie D, Bain C, Rowcroft P (2013) *Developing place-based approaches for Payments for Ecosystem Services*, Defra Final Report. http://publications.naturalengland.org.uk/publication/6620042472980480
4. **Reed MS,** Bonn A, Evans C, Joosten H, Bain C, Farmer J, Emmer I, Couwenberg J, Moxey A, Artz R, Tanneberger F, von Unger M, Smyth M, Birnie R, Inman I, Smith S, Quick T, Cowap C, Prior S, Lindsay R (2013) *Peatland Code Research Project Final Report*, Defra, London. http://randd.defra.gov.uk/Document.aspx?Document=11566_DefraPESPilotPeatCodeFinalReport.pdf
5. **Reed MS,** Rowcroft P, Cade S, Savege S, Scott A, Black J, Brace A, Evely AC, White C (2013) *Visitor Giving Payment for Ecosystem Service Pilot Final Report*, Defra, London. http://ekn.defra.gov.uk/resources/programmes/pes-pilots/
6. **Reed MS**, Cowap C, Hirst V, Smith SM (2012) Case study: developing a place-based Payment for Ecosystem Service scheme for South West peatlands, ESKTN/NERC. https://t.co/Zf6kSzvrq1

Publication 1 is available in REF2, and all other papers are available upon request.

BCU funding (showing role of Mark Reed):

DEFRA (2012-2013) PES Pilot: UK Peatland Code (PI, £25,000)
DEFRA (2012-2013) PES Pilot: Visitor Giving (PI, £25,000)
NERC (2012-2013): Peatland restoration PES scheme with South West Water (Project Manager, £25,000)
DEFRA/Natural England (2012-2013) Developing a Place-Based Payment for Ecosystem Services Scheme for the South Pennines (Co-I, £40,000)
NERC Valuing Nature Network (2011-12): Assessing and valuing peatland ecosystem services for sustainable management (University of Aberdeen PI; completed project at BCU, £50K)

4. Details of the impact (indicative maximum 750 words)

It is vital to find ways to protect and pay for ecosystem services at a time when Governments around the world are operating under tighter economic constraints, and there is growing interest in Payment for Ecosystem Service schemes internationally. **Reed** led the development of a UK Peatland Code that could facilitate private investment in peatland restoration, providing guidance

and quality standards for potential investors and for the landowners and managers who are paid to restore peatlands. The Code gives corporations the opportunity to sponsor UK-based projects linked to their brands as part of their Corporate Social Responsibility portfolio, with the potential to turn these investments into future assets if the Code becomes part of the Government's GHG Accounting Guidelines (as the Woodland Carbon Code did), making it possible to include GHG emission savings in corporate carbon accounting, or if it becomes financially viable to trade the carbon on the international voluntary carbon market. The Code also provides an opportunity for landowners and managers to generate financial rewards from restoration.

The Government's 2011 Natural Environment White Paper emphasised the creation of new markets to pay for nature's services. It announced the formation of Defra's Ecosystem Markets Taskforce, which was tasked with identifying business opportunities for nature. The Taskforce ranked a UK Peatland Code as their joint top opportunity out of 44 submitted opportunities (*http://www.valuing-nature.net/taskforce*). In October 2012, **Reed** was invited to join the Roster of Experts for the second phase of the Taskforce's work. In its final report in May 2013, the Taskforce recommended the development of a robust code for peatland restoration (*http://www.defra.gov.uk/ecosystem-markets/files/Ecosystem-Markets-Task-Force-Final-Report-.pdf*).

The Natural Environment White Paper committed to producing a Payment for Ecosystem Service Best Practice Guide, which Defra published in May 2013 co-authored by **Reed**, featuring the Peatland Code as a case study, based directly on **Reed**'s research at BCU (*https://www.gov.uk/government/publications/ payments-for-ecosystem-services-pes-best-practice-guide*). The White Paper committed to producing a Payment for Ecosystem Service Action Plan, which Defra also published in May 2013, and which drew specifically on **Reed**'s research to highlight peatland restoration via the Peatland Code as one of five opportunity areas (reference 1, section 5). This committed Defra to a number of actions, including the launch of a pilot Peatland Code (reference 2, section 5), and publication of metrics to underpin the research developed in collaboration with **Reed** (reference 3, section 3). In July 2013, the Committee on Climate Change (an independent, statutory body established under the Climate Change Act 2008) highlighted the development of a Peatland Code as a "key priority", drawing on evidence from Defra's PES Action Plan (*http://www.theccc.org.uk/wp-content/uploads/2013/07/ASC-2013-Chap4_singles_2.pdf*).

Since joining BCU in July 2012, **Reed** has been Research Manager for IUCN's UK Peatland Programme. The government's commitment to the Peatland Code is further illustrated by a letter to the IUCN UK Peatland Programme (5th February 2013), from the four country Ministers, which sets out a framework for action, including co-operation and co-ordinated action to support the development of the Peatland Code (*http://www.iucn-uk-peatlandprogramme.org/sites/all/files/20130205 Joint DA letter to IUCN.pdf*). This intention was re-iterated in the UK Government's National Adaptation Plan in July 2013 (*https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/ 209866/pb13942-nap-20130701.pdf*). **Reed** is now supporting Welsh Government to co-ordinate peatland restoration under the Peatland Code across the country and integrate payments with their Rural Development Programme.

Defra funded **Reed** to carry out the necessary underpinning research and develop the Peatland Code, and **Reed** is now on Defra's commissioning team to fund continued research to support the next phase of Code development. The Code was published online for public consultation in June 2013 (for responses see appendix 2, publication 4, section 3), and was launched by the Environment Minister, Richard Benyon, at an International Union for the Conservation of Nature (IUCN) conference on 10th September 2013 (*http://iucn-uk-peatlandprogramme.org/news/230*). The Code has the potential to become a template for similar initiatives internationally, and with this in mind in June 2013, **Reed** was invited to present progress on developing the Code to a conference organized by the German Federal Agency for Nature Conservation (BfN) in co-operation with the European Network of Heads of Nature Conservation Agencies (ENCA) (*http://www.bfn.de/0103_conferenzce-biodiversity0.html*).

Since then, Defra asked **Reed** to design and organize a conference to bring together all their PES Pilot projects to help them evaluate the research programme, and identify cross-cutting lessons and implications for policy (*http://ekn.defra.gov.uk/2013/10/04/ecosystems-knowledge-network-event-practical-experiences-with-pes/*; the event attracted over 70 participants and was over-subscribed). The Living with Environmental Change partnership commissioned **Reed** to write

two Policy & Practice Notes integrating his team's research with findings from across the partnership: one on Payments for Ecosystem Services generally, and another translating this work for the professions, titled "Natural capital for land management professionals" (*http://www.lwec.org.uk/resources/policy-and-practice-notes*).

Defra's Deputy Director of Sustainable Land and Rural Evidence and Analysis stated (Testimonial 1, section 5): *"Professor Reed's work since joining BCU has made a significant contribution to the Payment for Ecosystem Services agenda within Defra, with work he led on the UK Peatland Code featuring prominently in the Defra PES Action Plan. Moreover, the success of the research has been helped considerably by Professor Reed promoting a collaborative and a multi-disciplinary approach. Overall this research has made a considerable contribution and provided us with valuable lessons for the development of Payment for Ecosystem Service schemes in the UK."*

5. Sources to corroborate the impact (indicative maximum of 10 references)

References:

1. Defra PES Action Plan: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/200889/pb13918-pes-actionplan-20130522.pdf
2. Pilot UK Peatland Code: http://iucn-uk-peatlandprogramme.org/peatland-code
3. Government response to Ecosystem Markets Taskforce Final Report, citing underpinning research by BCU: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/236879/pb13963-government-response-emtf-report.pdf

Testimonial letters are available from:

4. Defra's Deputy Director of Sustainable Land and Rural Evidence and Analysis, responsible for commissioning CESR research on PES, and for the PES policy area within Defra
5. Head of Profession for the Ecosystem Approach, Natural England, who commissioned the Natural England work to develop a place-based PES scheme for the South Pennines
6. The former Government Rural Advocate and head of the Commission for Rural Communities, who can corroborate our influence on Government policy around peatlands and PES.
7. The Director of IUCN's UK Peatland Programme, who can also corroborate our influence on Government policy around peatlands and PES.