

<p>Institution: University of Exeter</p>
<p>Unit of Assessment: 21 Politics and International Studies</p>
<p>Title of case study: Shaping Land Policy and Management: Embedding the Ecosystems Approach and Improving Agri-environmental Schemes</p>
<p>1. Summary of the impact</p> <p>Appropriate land policy is vital to ensure sustainable food supplies, economic development and environmental protection. Research by the Centre for Rural Policy Research (CRPR) has developed the policy and management implications of the ecosystems services approach to valuing and protecting the environment, which stresses integrated and equitable management of land, water and living resources. The research has contributed to major shifts in policy and practice by national government bodies and changes in the attitudes and behaviour of farming communities. The main impacts have been:</p> <ul style="list-style-type: none"> • Contributing to the Department for the Environment and Rural Affairs' (Defra) development of national guidelines embedding the ecosystems services approach in policy and helping make the case for the first ever UK National Ecosystems Assessment; • Informing the Commission for Rural Communities' major review of rural uplands policy and changing policy through the review to improve environmental stewardship in upland farming; • Improving Defra and Natural England's agri-environmental policies to better communicate the scientific rationale of policies to farmers through training and advice to bring about more pro-environmental attitudes and farming practices.
<p>2. Underpinning research</p> <p>Key Researchers: Professor Michael Winter OBE (Professor of Rural Policy, Director, 2002-2011; Co-Director, 2011-present), Dr Matt Lobley (Senior Research Fellow, 2003-present; Co-Director, 2011-present) and Dr Robert Fish (Senior Research Fellow, 2006--present).</p> <p>Working in collaboration with environmental scientists, researchers in CRPR have either led (Studies 4, 5 and 6) or co-led (Studies 1, 2, 3) a series of research council and government funded projects developing and applying the ecosystems services approach to address important aspects of environmental policy and natural resource management. The ecosystems services approach is based on integrated management of land, water and living resources to promote conservation and sustainable use in an equitable way. From 2006, the CRPR analysed policy systems by using this approach and the implications for the way rural communities interact with policy. Researchers found that the approach implied a major change in environmental policy and management. They undertook a series of projects to gather the necessary scientific and social scientific knowledge to assist policymakers in making this change. They also found that consideration of ecosystem services in decision making requires the application of novel techniques in public dialogue and stakeholder engagement. In this context, effective communication of scientific knowledge with affected rural communities is essential (Fish et al 2011; Fish 2011). This research was developed further in research for, and co-authorship of, the highly influential first ever National Ecosystem Assessment (Winter and Fish). The work of Fish and Winter was also taken forward with Defra to assess how an ecosystems services approach might be deployed in key policy sectors and their systems for implementation (Fish et al 2011; Fish, Lobley and Winter 2013). Fish has co-authored several papers, most recently in 2011, that have helped formulate Defra's action plan for including an ecosystems services approach in its policymaking and delivery of services (Fish et al 2011; Fish 2011). In addition, Winter deployed his research work on ecosystem services by participating in a national inquiry for the Prime Minister on the future of the English uplands which he vice-chaired.</p> <p>Researchers in CRPR applied the ecosystems services perspective to national sustainable land policy and management by farmers. Between 2006 and 2009, Fish and Winter co-led an ESRC funded Rural Economy and Land Use Programme (RELU) project, <i>Sustainable and Holistic Food Chains for Recycling Livestock Waste to Land</i>, which led to a publication on the rescaling of policy approaches to resource management at the farm level (Winter et al 2010). This approach was further developed between 2006 and 2011 in a project on agri-environmental management, <i>Improving the Success of Agri-Environment Initiatives: The Role of Farmer Learning and Landscape Context</i>. This ESRC (RELU) project analysed agri-environment schemes to encourage</p>

farmers to use pro-environmental management practices to increase wildlife. However, in part due to farmers' poor understanding of the aims of and science behind the schemes, the policies often failed. Lobley and Winter's work (Lobley et al 2013), communicated to policymakers from 2011, demonstrated the participatory forms of communication with the communities affected that are the most effective and identified specialised training as a way of improving farmers' expertise and attitudes towards a wildlife-friendly approach.

3. References to the research

Key outputs:

- [1] Winter, M. Oliver, DM. Heathwaite, L. Fish, R. Chadwick, D. and Hodgson, CJ. (2010) 'Catchments, sub-catchments and private spaces' *Environmental Science and Policy*, 14: 315-326.
- [2] Fish, R. (2011) 'Environmental decision making and an ecosystems approach: Some challenges from the perspective of social science', *Progress in Physical Geography*, 35 (5): 671-680.
- [3] Fish, R., Burgess, J., Chilvers, J. Footitt, A., Haines-Young, R. Russel, D., Turner, K. & Winter, M. (2011) *Participatory and Deliberative Techniques for Embedding an Ecosystems Approach into Decision Making. An Introductory Guide*. Defra (Project NR0124).
- [4] Lobley, M. Saratsi, E. Winter, M. and Bullock, J.M. (2013) 'Training farmers in agri-environmental management: the case of Environmental Stewardship in lowland England', *International Journal of Agricultural Management*, 3 (1): 12-20.
- [5] Winter, M. (2013) 'Environmental issues in agriculture: farming systems and ecosystem services', pp. 192-208 in Murcott, A. Belasco, W. and Jackson, P, Eds, *The Handbook of Food Research*, London: Bloomsbury.
- [6] Fish, R. Lobley, M. and Winter, M. (2013) 'Sustainable intensification and ecosystem services: new directions in agricultural governance', *Policy Sciences* 46(3) DOI 10.1007/s11077-013-9183-0.

Key grants:

Study 1. England's Terrestrial Ecosystem Services and the Rationale for an Ecosystem-Based Approach, Defra, 2006-07, £159,545 (with Centre for Environmental Management, University of Nottingham, and ADAS)

Study 2. Scoping the Potential Benefits of Undertaking an Ecosystem Assessment for England, Defra, 2007-2008, £50,564 (with the Centre for Environmental Management, University of Nottingham, and University of Oxford/WMEC)

Study 3. Development of a UK knowledge exchange network between ecosystems demonstrator projects and their interest groups Defra, 2011-13, £300,000 (with Centre for Ecology and Hydrology and Centre for Environmental Management, University of Nottingham)

Study 4. Participatory and Deliberative Techniques for Embedding an Ecosystems Approach to Decision-Making, Defra, 2009-10, £121,867.

Study 5. Sustainable and Holistic Food Chains for Recycling Livestock Waste to Land, ESRC (RELU), RES-224-25-0086 – 2005-07, £522,641 (with North Wyke Research and University of Lancaster) (End of Award Grade: Good)

Study 6. Improving the Success of Agri-Environment Initiatives: The Role of Farmer Learning and Landscape Context, ESRC (RELU), RES-227-25-0010, 2006-11, £725,714 (with the Centre for Ecology and Hydrology and University of Reading) (End of Award Grade: Good)

Quality of underpinning research: All articles are in respected peer reviewed journals, examples of 2012 five year impact factors are: *Progress in Physical Geography* 3.7, *Policy Sciences* 1.8. Grants

Impact case study (REF3b)

were awarded through competitive bidding processes including separate ESRC peer review processes for Studies 5 and 6. Output [1] is from Study 5, [2] from Studies 1, 2 and 4, [3] from Study 4, [4] from Study 6 and [5] and [6] from Studies 3, 5 and 6. All outputs available on request.

4. Details of the impact**Applying an ecosystem service approach to improve government policy for valuing and protecting the environment including the first ever National Ecosystems Assessment**

The Centre's research informed a step-change in national and regional policy frameworks for natural resource management by contributing to Defra's theoretical rationale for adopting an ecosystems services approach (Study 1) and collaborating in examining the case for undertaking a National Ecosystem Assessment (NEA) (Study 2). The former has since been taken forward in the context of Defra's Action Plan for the Environment, while the latter directly resulted in the first analysis of the UK's natural environment in terms of its benefits to society and economic prosperity. This £2 million initiative reported in 2011 and was recognized by government as a vital step forward in developing integrated approaches to environmental management. Its recommendations were taken forward in the 2011 Natural Environment White Paper including the setting up of a research and practice network led by CRPR (Study 3). CRPR research contributed directly to the National Assessment; Defra's Head of Science, Land and Farming Directorate said the research made a 'recognised contribution to the development and implementation of ecosystems policy in Defra', including because it 'gave us the evidence to commit to conducting the world's first National-level Ecosystem Assessment', hailed as a 'gold standard' by Europe. He said UK Government received many requests for advice from other Governments replicating NEA.¹

The Centre's research has led to the practical implementation of the ecosystems services approach for decision-making across a set of rural policy issues. The research led to the production of national guidelines on the use participatory and deliberative techniques for embedding the approach across government (Studies 1 and 2). This research resulted in Defra's (2007) Ecosystem Action Plan incorporating the principle of stakeholder engagement and dialogue into its revised approach (Defra 2010). Defra's Head of Science, Land and Farming Directorate commented that this part of CRPR's research 'provided a clear framework for how decision makers at a range of spatial scales could incorporate the non-monetary value of ecosystem services into their decisions through participatory and deliberative processes.' He also noted that 'the Ecosystems Policy team in Defra passed on this guide to numerous policy contacts within and outside the Department for them to consider how these various techniques might be able to enhance their decisions.'¹ This work was part of Defra's evidence base that has since informed developments in HM Treasury Green Book guidance on the non-market valuation of environmental impacts. The original consultation document regarding these guidelines was downloaded by more than 300 stakeholders and became the focus of a major seminar on enabling citizens' choices about land use and the natural environment as part of a Department for Business, Innovation and Skills sponsored science dialogue project by the Natural Capital Initiative.

Improving policy on environmental stewardship in upland farming through participation in a review of the English Uplands

The CRPR findings about the farming community's pivotal role in environmental protection as part of the ecosystems services approach were taken forward by an inquiry undertaken by the Commission for Rural Communities into the English Uplands.² This Inquiry provided the major stimulus to the Government's review of uplands policy and the launch of a new suite of policy initiatives and related funding in March 2011. The package included £6million a year available to hill farmers for environmental stewardship schemes in recognition of the contribution they make to ecosystems across a range of services including carbon storage, and the maintenance of recreational land and landscape. The then Chairman of Commission for Rural Communities commented 'The Inquiry research has become a seminal report which is gradually being rolled out by HM Government. This is due in large part to the huge impact of Professor Winter's influence on the whole of the research and inquiry process'.³

Improving environmental farmland policy including better training for farmers about agri-environmental schemes

Lobley and Winter's findings from the ESRC RELU Project (Study 6) that more specific and

specialised training and advice improves farmers' expertise in and attitudes towards an ecosystems-oriented, wildlife-friendly approach, were communicated to Defra and other stakeholders from 2011. The independent ESRC/NERC/BBSRC reviewer of the grant funding Study 6 noted in 2011 that 'the highlight of this research has been its impact on the design and implementation of agri-environmental schemes. This has already been reflected in changes to the delivery of Entry Level Stewardship (ELS) and will inform the design of a modified agri-environment scheme that will operate from 2014 to 2020.' The reviewer identified the research contributions as 'extremely valuable evidence of the positive impact of training on farmer attitudes and, crucially, on the quality of the environmental management that they undertake.'

The findings were presented in a set of briefing meetings with senior Defra and Natural England representatives, which resulted in the introduction of fundamental environmental training as a component of the ELS⁴. The head of Defra's Agri-Environment Theme Group described the Centre's work as having clear links with and implications for policy development and delivery.⁵ Lobley is referenced in Natural England's *Agri-environment Schemes in England 2009 A Review of Results and Effectiveness* report that states 'There is increasing evidence (Lobley et al, 2009) that supporting agri-environment scheme agreement holders through training and advice can have a significant impact on the delivery of environmental outcomes'.⁶ Changes in attitudes and farming practice have been evident. A set of interviews with farmers who participated in the training found that 75 per cent claimed the training had either a significant or very significant effect in the way they participated in ELS. Changes were evident in farmers' use of different seed mixes and better management of habitats for wildlife (Lobley 2013). Under the expanded ELS training and information programme, up to the summer of 2012, 8,733 farmers have been in receipt of face to face training and advice through farm visits and events. To supplement and build on the visits, there have been a number of farm walks and workshops.⁷ With nearly 60% of England's agricultural land now under Entry Level Stewardship and agri-environmental spending estimated at £1m a day, the significance of this shift over the longer term is considerable.

5. Sources to corroborate the impact (numbers below refer to superscript notes in Section 4)

1. Head of Science, Sustainable Land Management and Livestock Farming Directorate, Department for Environment, Food and Rural Affairs. Letter to University of Exeter, 4th November 2013. (Corroboration of impacts on national guidelines about ecosystems and the UK National Ecosystems Assessment).

2. Commission for Rural Communities (2010) *High Ground, High Potential: A Future for England's Upland Communities* Commission for Rural Communities, Cheltenham.
http://webarchive.nationalarchives.gov.uk/20110303145243/http://ruralcommunities.gov.uk/wp-content/uploads/2010/06/CRC114_uplandsreport.pdf

3. Chairman of Commission for Rural Communities and Government's Rural Advocate 2004-2010. Letter to University of Exeter, 6th November 2013. (Corroboration of impacts on uplands review and policy on upland farmers' environmental stewardship)

4. Head of Profession for Land Management, Natural England. (Available to corroborate impacts on agri-environment policy).

5. Head of Agri-Environment Theme Group, Farming & Food Group, Defra. (Available to corroborate impacts on agri-environment policy).

6. Natural England (2009) *Agri-environment schemes in England 2009: A review of results and effectiveness*. <http://publications.naturalengland.org.uk/publication/46002?category=35001>

7. Project Manager, Catchment Sensitive Farming National Team - Land Management, Natural England. (Corroboration of impacts on agri-environment policy and farmers' attitudes and behaviour).