Ecosystem Interactions on the Somerset Levels

Project summary circulated to the Somerset Water Management Partnership, January 2012

This document introduces a research project that has recently received outline approval for funding from Defra (subject to contract). The precise scope and method of the project may change following the formation and first meeting of the project steering group.

The project in a nutshell

Research to examine and facilitate debate on the interactions between competing land use priorities on the Somerset Levels, developing innovative analytical tools that identify synergies and trade-offs between the natural services that the area provides, contributing to more effective policy interventions and lessons that can be applied to other areas of lowland farmland in the UK.

Background

Defra's Natural Value Programme[1] has identified a need for projects to examine, in real-world situations, how discrete areas (or ecosystems) provide the wide range of natural benefits (or ecosystem services) that are valued by society; how these benefits can be delivered in ways that complement and add value to one another; and how practical interventions in land use and management can best support these multiple benefits.

Project outline

This project will apply a spatial planning tool (The Polyscape tool previously developed in upland areas in Wales, and overseas) to the Somerset Levels. The tool uses GIS software and environmental data to map the priorities for conserving or enhancing different ecosystem services. Evidence on the value that society gains from each of the services will be used to define the trade-offs between competing services.

The maps produced, which show the landscape-scale patterns of potential ecosystem service delivery, will be used to facilitate debate with farmers, local communities and interested organisations on the synergies and trade-offs between services.

The process of dialogue with the wide range of providers and beneficiaries of the services will be an integral part of this project. These groups will be involved in defining the services covered by the project, shaping judgements on the trade-offs between services and commenting on the role of policy measures to support delivery of services.

Project team and personnel

The research will be led by LUC's Robert Deane in collaboration with Tim Pagella from Bangor University (responsible for the spatial modeling of services), Ben Thorne from FWAG (leading on stakeholder engagement) and Matt Rayment from GHK Consulting Ltd (with expertise on economic valuation).

Relationship with other work

It is intended that this research will work alongside the Somerset WAVE project, the EU-funded programme that is addressing address water management and climate change adaptation on the Levels.

The proposal to Defra was supported by Somerset County Council, Natural England and the National Farmers' Union and the project will liaise closely with these organisations.

The newly formed Ecosystems Knowledge Network will be used to learn lessons from other projects and publicise the results of this work.

The project area

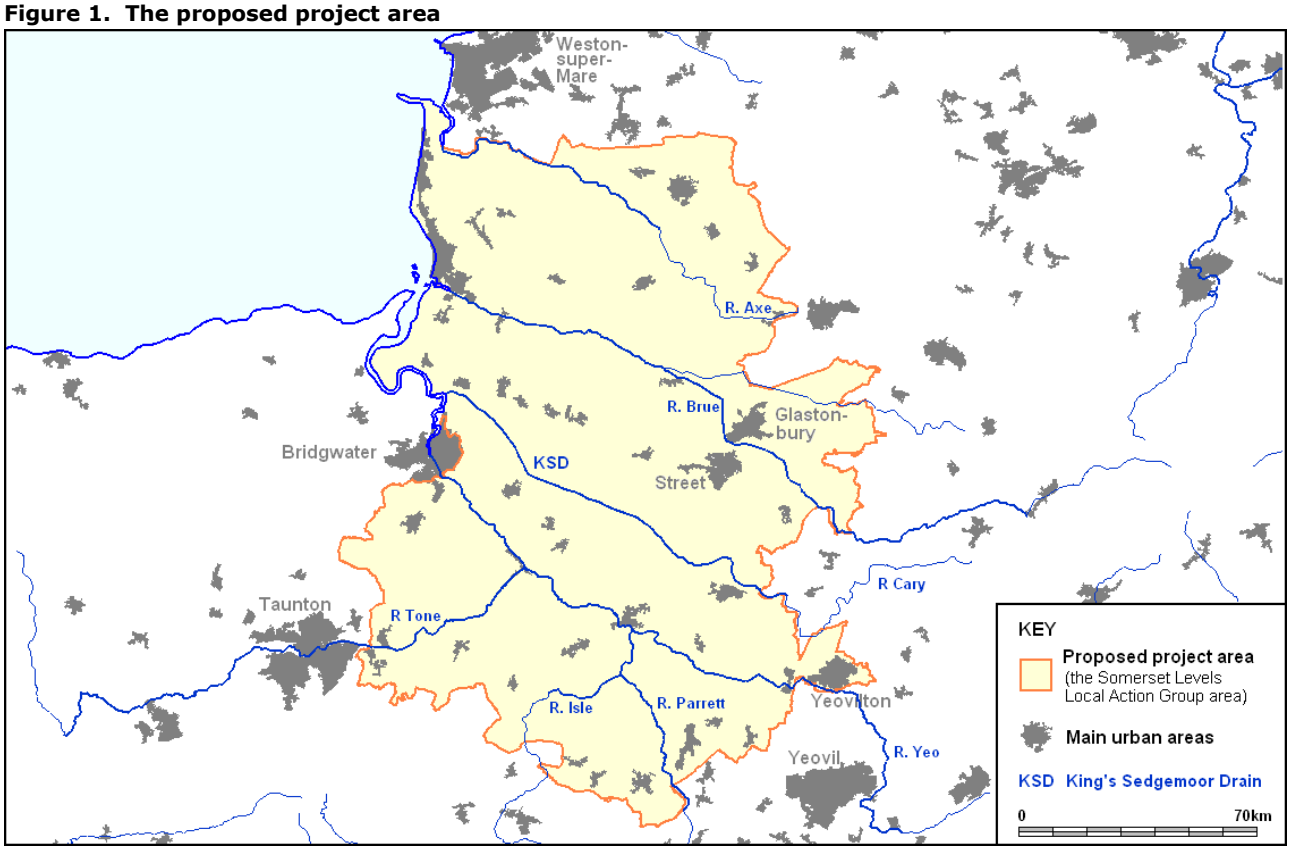
It is proposed that the spatial modeling of ecosystem services in this project will cover the area used by the Somerset Levels Local Action Group (LAG). This consists of the 72 parishes that occupy the lower catchments of the Rivers Axe, Brue, Parrett and Tone (Figure 1).

This area encompasses the majority of the Somerset Levels and Moors Environmentally Sensitive Area (ESA), the areas liable to flooding, the deep peat soils and the wet grassland of highest biodiversity value.

The conclusion of a significant number of land management agreements under the ESA scheme, and the likelihood that many will not be replaced with equivalent (Higher Lever) agreements under the current Environmental Stewardship scheme will provide a particular focus for this project.

[1] Specifically, the brief for this research is defined in specification ERG 1109.

Figure 1. The proposed project area



Proposed methodology

The project will be split into four phases over an 18 month period, as follows.

A. Project scoping and planning

January to March 2012. *Preparation of a scoping report and project plan, including a set of detailed research questions, taking account of existing knowledge and the range of stakeholders and audiences to be involved in the study, and establishing a core group of stakeholders who will act as a local steering group and sounding board.*

B. Data gathering and modelling of spatial interactions

April to November 2012. *Collation of existing evidence describing current and potential ecosystem service delivery (based on an understanding of the functional pathways from environmental assets to benefits realisation), covering the spatial extent of service pathways and interactions, and comparative valuation of benefits, and also the recent trends and expected trajectories of service delivery to 2030. Analysis of these data and preparation of modeling outputs showing current spatial patterns, synergies and trade-offs between the selected ecosystem services.*

C. Testing and refinement of modeling outputs through stakeholder involvement

April 2012 to April 2013. *Work with key stakeholders (as producers, regulators and users of services), to test and refine the functional pathways and spatial models, identifying thematic and spatial priorities for policy interventions to maintain and enhance service delivery that take account of synergies and trade-offs between services and anticipated drivers of change. The matching of these priorities to current and planned policy measures, identifying gaps in interventions.*

D. Reporting

April to June 2013. *Reporting on project outputs as the project progresses, quarterly to the local Project Steering Group and as required to the Defra Project Board, and the preparation of draft and then final project reports describing the process followed, the lessons learned and assessing the transferability of these to other landscapes in England and further afield.*