

Strategic Programme

Ecosystem Services



An isolated landscape near Suilven in NW Scotland
Photograph: Credit Rob Brooker, The James Hutton Institute



A mixed rural landscape in the shadow of Bennachie, Aberdeenshire
Photograph: David Riley, © The James Hutton Institute

Introduction

The Ecosystem Services Theme is concerned with identification, quantification and valuation of Scotland's environmental assets, biodiversity and ecosystem services, and a review of applications of the Ecosystem Approach to inform decision-making. The Ecosystem Approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. This theme seeks to undertake strategic science to identify and develop scientific methods and approaches that understand the essential structure, functions and interactions among organisms and the environment, and how these deliver human benefits at a variety of scales, from local through to national. The work explicitly seeks to assess how an ecosystem approach can fit existing institutional and governance settings; and contribute to sustainable economic growth in Scotland. It is applicable to all of the work being undertaken in the Strategic Research Programme.

Intended benefits from the Theme's research

The ultimate aim of this work is to develop approaches for the implementation of the Ecosystem Approach for land use decision making and to coordinate land management action across a range of sectors in Scotland. It will deliver an overall assessment of Scotland's ecosystem services and will lead to an improved understanding of the role of biodiversity in ecosystem sustainability and resilience. The research will lead to an enhancement of the relevance of the UK National Ecosystem Assessment to decision and policy making at different spatial scales across the UK.

Key policy areas supported

- The research within the Ecosystem Services Theme intends to contribute across a wide range of national, European and International policies. This theme will consider how policy objectives can be evaluated under an Ecosystems Approach to deliver integrated spatial planning and management. In particular, it considers policies which support strategic priorities relevant to protecting and enhancing Ecosystem Services provided by environmental assets (biodiversity, air, soil and water) and managing Ecosystem Services, particularly in terms of trade-offs and monitoring trends, delivering in particular to the Scottish Biodiversity Strategy. It will seek to inform the Land Use Strategy for Scotland (LUSS) which identifies the Ecosystem Approach explicitly as the framework and approach to aid decision making on land use, and how such considerations can inform changes to the Common Agricultural Policy (CAP) post-2013, the Scottish Rural Development Programme (SRDP) and agri-environment policies. It will provide evidence on the sustainable and equitable management of natural capital or sustainable development policies and will also contribute to economic and health policies.

- Mapping of Ecosystem Services has the potential to be a useful tool in decision-making across land use policy priorities (such as a low-carbon economy, sustainable food production and water management) by allowing spatially explicit visioning of the Ecosystem Services trade-offs.
- Due to the over-arching nature of the research within the Ecosystem Services Theme, the work is relevant to a broad spectrum of policy sectors, including climate change, agriculture, biodiversity conservation, and water resource management. It aims to deliver an integrated framework for the whole strategic programme of research by the end of the current funding cycle.

Outcomes and Outputs of the Research

The research in this theme will help deliver the key National Performance Framework indicators; including - increasing to 95% the proportion of protected nature sites in favourable condition, reducing our ecological footprint, improving the state of Scotland's Historic Buildings, monuments and environment, increasing the proportion of adults making one or more visits to the outdoors per week, and improving people's perceptions, attitudes and awareness of Scotland's reputation.

The research in this theme aims to provide a better understanding of how and where the natural environment delivers Ecosystem Services, the value of these services, and the consequences of land management and other environmental changes for service delivery. Ultimately it aims to explore the development of the Ecosystem Services approach as a process for sustainable land use decision making in Scotland.

This work will deliver an understanding of how service delivery is underpinned by biodiversity and biophysical processes, and approaches which might be taken for the assessment of ES (e.g. which indicators might be most appropriate for use).

It will produce maps showing the provision of Ecosystem Services at a range of scales. Reports on mapping across a range of scales have been produced, and there will also be a report produced on water-based payments for ecosystem services currently existing in Scotland.

Using a case study approach, the work will explore how the use of an Ecosystem Approach can influence land use decision making, and how the decision making cycle can act as a focal point for coordinating land management action across sectors.

An Ecosystem Approach Working Group (EAWG), working with a stakeholder group of agencies, NGO's etc., has been established as a forum for implementation of the EA in integrated land use decision making.

Related Research Activity

This work links with the 'Living With Environmental Change' (LWEC) research programme, and in particular feeds into Phase 2 of the UK NEA, of which the Scottish Government is a partner.

The Ecosystem Services Theme is also building on the research that has been conducted via several important initiatives such as, The Economics of Ecosystems and Biodiversity (TEEB), Rationalising Biodiversity Conservation in Dynamic Ecosystems (Rubicode), the Rural Economy and Land Use (RELU) programme. The work of this theme is also contributing to the ongoing Valuing Nature Network (VNN).

Key email contacts

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