Pricing nature for biodiversity conservation: opportunities, challenges and limitations

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The Meeting Rooms, The Zoological Society of London, Regent’s Park, London NW1 4RY
Chair: Nathalie Pettorelli, Institute of Zoology

Payments for Ecosystem Services (PES): opportunities and challenges for biodiversity
Steve Smith, Technical Director, Policy and Appraisal, URS Infrastructure & Environment UK Limited

Payments for Ecosystem Services (PES) schemes involve payments to the managers of land or other natural resources in exchange for the provision of specified ecosystem services (or actions anticipated to deliver these services) over-and-above what would otherwise be provided in the absence of payment. Payments are made by the beneficiaries of the services in question, for example, communities, businesses or governments acting on their behalf. PES provides an opportunity to put a price on previously un-priced ecosystem services such as climate regulation, water quality regulation and the provision of habitat for wildlife and, in doing so, brings them into the wider economy. The majority of PES programmes globally focus on four broad types of ecosystem service: watershed protection (including erosion management); carbon sequestration; biodiversity conservation; and landscape aesthetics. This presentation will focus on some of the key opportunities and challenges associated with developing PES for biodiversity conservation in particular.

The challenges of valuing multiple farmland ecosystem services
Darren M. Evans, Senior Lecturer in Conservation Biology, University of Hull

Biodiversity plays a wide range of functional roles in ecosystems and, therefore, in the processes that underpin ecosystem services. However, relating changes in plant and animal population trends to changes in ecosystem services can be problematic due to a lack of data on associated values and benefits. Moreover, we know little about the complex ways in which entire communities interact and how environmental change will affect the multiple ecosystem services they provide.

Here, I propose that reconciling biodiversity and ecosystems services in a single conceptual framework is best achieved through application of an ecological network (or food-web) approach. I present results from ‘The Norwood Farm Project’, where myself and colleagues created one of the largest terrestrial species-interaction networks to date. We determined the interactions between farmland plants and a range of animals groups that provide ecosystem services, such as pollination and natural pest control. We then examined the ‘robustness’ of the network of ecological networks to simulated species extinction and habitat loss. This novel approach enabled us to
determine which species and farmland habitats were disproportionately important to the integrity of
the farm-scale network, which could potentially be targeted for conservation and restoration.

I discuss the advantages and limitations of the ecological network approach for valuing ecosystem
services, consider some of the biodiversity provision trade-offs in farmed landscapes and show
how advances in molecular ecology are revealing the complex and fascinating ways in which
plants and animals interact.

**How valuable is soil?**

*David Robinson, Centre for Ecology & Hydrology*

Economic valuing of nature is highly controversial, should we put a monetary value on nature? The
ecosystem services framework endeavours to do this by incorporating an economic value of
ecosystems into decision making. We all value nature, but should economic, moral or other value
frameworks play the key role in decision making? In this presentation we examine why soils are
valuable and where they fit into ecosystem service frameworks. We consider how Countryside
Survey measures soil ‘state and change’, and how terrestrial ecosystem services can be assessed.
We then briefly examine accounting and indicators with some of the recent proposals for soil
accounting in the UN's System of Environmental and Economic Accounts (SEEA).

**Applying economics in nature conservation: values and offsets**

*Ian Dickie, Business Development Director, eftec*

Nature conservation is in competition for resources with other human activities. However, it starts
this competition at a disadvantage because much of its value lies outside the market mechanisms
that are used to allocate resources in society. This is true of the moral and philosophical values that
motivate conservation. It is also true of many of the goods and services that a healthy (well
conserved and biodiverse) natural environment provide to people. Economics is concerned with
the latter. Multidisciplinary work in this area has developed over the last decade through
ecosystem services (ES) analysis, connecting science and economics. Communicating ES
evidence to business and decision-makers has led to re-deployment of natural capital frameworks.

From an economic point of view capturing the value of changes in biodiversity to people, albeit
imperfectly, is better than assigning it zero value. Two major examples of this are current attempts
to develop natural capital accounts, and biodiversity offsets. Natural capital accounts are trying to
fit available environmental-economics evidence into national accounting approaches. This has
specific data requirements, but has the advantage of being directly comparable to other national
economic data. Biodiversity offsets are a controversial policy tool, but an essential one to achieve
objectives for no net loss of biodiversity. The current debate in the UK can be informed by
economics to make an accurate appraisal of offsets’ likely effects. Firstly, these must be judged
against ongoing trends of biodiversity loss driven by the economics of land development.
Secondly, the cost of offsets provides an economic incentive to avoid damage to biodiversity,
which is currently lacking outside protected areas.