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EAWG5: UPDATE ON VALUATIONS AND VALUES MEETING REPORT

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BACKGROUND

On the 11th June in Victoria Quay, Edinburgh, the 5th EAWG (Ecosystem Approach Working Group) was held. In total 25 researchers and policy makers attended (see Appendix 1 for attendee list and emails).

The meeting aimed to provide a forum for policy makers and strategic planners to learn about the research conducted at the James Hutton Institute and SRUC on ecosystem services and the most current findings of relevance to policy. The aim was to present an overview of using monetary and non-monetary values for informing decision making as well as the latest research on ecosystem service values in freshwater, green urban space, health, peatland and forest environments.

STRUCTURE OF THE DAY

The session consisted of four speakers who gave short presentations on their research (see Appendix 2 for presentation summaries). These included:

- Alistair McVittie: Valuation in decision making: introduction and overview
- Julia Martin-Ortega: Valuation methods: examples from freshwater studies
- Alistair McVittie: Urban greenspace: values, health and equity
- Maria Nijnik: Valuing multiple ecosystem services from forests
- Klaus Glenk: Peatland restoration: challenges to valuation

The presentations addressed the following questions:

- a) What is the research telling us?
- b) What can it be used for/what cannot it do?
- c) What is known and what is unknown?
- d) What are the gaps, limitations and uncertainties?

DISCUSSION

The main points from the discussion are summarised below:

Monetary assessment is not the only consideration when valuing ecosystem services:

Both monetary and non-monetary valuation of ecosystem services should be considered and used to complement each other. Monetary valuation is in many cases not representative of all values and does not include all the benefits that ecosystems can provide. Other non-monetary methods are used to understand the full range of benefits offered.

Monetary valuation may be particularly valuable for some decision makers and businesses, because it provides a figure that can be compared with the costs of interventions. However, it is important to bear in mind the limitations of these methods.

The methodology used will impact the end value: When ecosystem services are valued, the methodology used will impact the end value. When using public attitudes to evaluate different service provisions of forestry, the information (and images) they are provided with, and if they engage in structured discussion about the ecological system may influence their attitude and the value they place on services, and thus the end value. The end-use of valuation may also be important, some stakeholders find figures within an order of magnitude sufficient to illustrate the benefits of environmental policies; whilst in situations where action may involve difficult trade-offs or incur costs to users of the environment more precision may be needed.

Inequality: How people access ecosystem services is not uniform and often ecosystem service research does not differentiate who benefits. For example, the benefits derived from greenspace may differ between genders and age groups due to different activities and means of engagement with greenspace including issues of personal safety. We must be aware of equity and how ecosystem services are distributed, that is, who is benefitting and how those benefits are shared. In turn this may impact on the types of greenspace provided. Care is needed in using monetary values when issues of inequality and deprivation arise, and alternative measures such as health may be more appropriate.

Context, context, context: The context in which ecosystem services are assessed and valued is of central importance. It is very difficult and sometimes not possible to transfer information on ecosystem service values derived from one ecosystem in one context, to another. For example, all areas of greenspace are different and although an area of greenspace may have higher levels of biodiversity, if people feel unsafe there, and thus do not use it, disbenefits are incurred. People derive

different services from a welcoming area of greenspace, compared to those benefits or disbenefits incurred from a poorly maintained and/or threatening space.

Similarly, the context will define which metric is used in assessing ecosystem services. Different metric measurement can be used to measure benefits of greenspace; one project mentioned calories expended to compare areas of woodland and the levels of wellbeing as a result of using the woodland. This metric may not be useful in all studies however, given that Scotland has an aging population and thus benefit may be better framed around access and quality rather than expended calories. The context of the study will determine the metric used and this will have implications for the transferability of values.

Again, how the ecological system is defined will have implications for transferability of values. For example when valuing peatland, the definition used for upland and lowland peat, (or even if this definition is made) will have implications for the study's transferability.

Thus, in some cases *synergies* between studies on ecosystem service valuation through the transferability of values is possible, yet caution must be given and further research is required to determine when this may be appropriate or not. When transferring benefits from one ecosystem to another, we must make sure that we are comparing *apples with apples; the context, metric used and how the system is defined will determine this.*

CONCLUSIONS AND NEXT STEPS

The presentations covered a range of issues relating to the application of valuation across a variety of ecosystems. The variety of monetary and non-monetary valuation approaches and methods were highlighted using examples from the valuation of water resources in Scotland. Issues of equity were raised with respect to the distribution of the costs and benefits of ecosystem service provision and the role of individual versus collective values. The theme of equity was developed further in the context of urban greenspace where proposed work will consider the links between greenspace and physical and mental health outcomes. The benefits of greenspace can be reflected in the monetary value of property, but this may not be expressed in deprived areas suggesting an opportunity for policy intervention. However, discussion highlighted the complex nature of interactions between ecosystem services, health and equity.

The research on valuation with respect to forests has highlighted the potential to combine both market and non-market values to reflect the multiple benefits that forests provide. This work considered the range of spatial and temporal scales over which benefits arise. It also recognised the ethical and political dimensions of our choices and suggests that our approaches to decision making should reflect a plurality of values. Issues of scale are also inherent in the proposed valuation of peatland restoration; spatially in terms of the transferability of estimated values between peatland sites and temporally given the timescales over which different ecosystem service benefits might arise.

The discussions helped to highlight the links between valuation research within the Strategic Research programme and the activities of the individuals and organisations who attended the meetings. It was apparent that valuation may be useful in informing decision making across a range of scales from precise estimates for cost-benefits decisions to broad estimates that can illustrate the relative importance of ecosystem service values.

It was clear from the discussion that there are opportunities to further develop links with CAMERAS organisations in relation to the specific research activities and that these are two-way in terms of both informing and being informed. More frequent contact between economists working in both the MRPs and CAMERAS organisations could provide a useful forum to discuss a variety of issues. The work on peatland valuation specifically will work together with the Peatland Action team (SNH) on the design of the valuation survey, and discuss opportunities for using the gathered information in relation to the National Peatland Plan.

The research discussed during the meeting will continue over the remainder of the Strategic Research Programme, planned outputs are summarised below:

	Published	Autumn/winter 2014-15	Spring/summer 2015	Autumn/winter 2015-16
Water ecosystem services	S, B			S, B
Urban greenspace		B		S, B
Forest ecosystem services	S	S		
Peatland restoration	S			S,B

S: technical or scientific outputs, e.g. journal and conference papers

B: non-technical briefing aimed at stakeholder or policy audiences

MORE INFORMATION

Should you wish to know more about EAWG, please contact Antonia Eastwood (Antonia.Eastwood@hutton.ac.uk) for further information.

Appendix 1

Attendees' names and contact details:

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Appendix 2

Presentation summaries:

1. Valuation in decision making: introduction and overview

Alistair McVittie (SRUC)

Decisions affecting the environment and ecosystem services can be dominated by those aspects that are reflected in the market. For example, provisioning services such as food production and raw materials are produced at the expense of important regulating, cultural and supporting services. Environmental valuation can contribute to the addressing this unbalance and provide important information for policymakers on public preferences. Valuation can also provide a key link in our understanding of how ecosystem services contribute to human well-being.

Environmental valuation techniques have been developed over the past 50 years and in the past 25 years valuation have increasingly been used to inform policy and decision making at national, regional and global levels. However, the use of monetary valuation is not without controversy and may not be appropriate in all situations. Consequently a plurality of values including shared social values and health values are also recognised. These diverse values can be used at different stages in policy and decision making processes.

2. Valuation methods: examples from freshwater studies

Julia Martin-Ortega, Kirsty. L Holstead and Wendy Kenyon (all of the James Hutton Institute)

Julia's presentation is summarised in the following document: The Value of Scotland's Water Resources, which can be found here:

http://www.crew.ac.uk/sites/www.crew.ac.uk/files/publications/water_resources_bill_leaflet_20feb_opt.pdf

3. Urban greenspace: values, health and equity

Alistair McVittie (SRUC)

Greenspace can be defined as ‘*any vegetated land or water within or adjoining an urban area*’¹ and includes both public and private land². There is a growing evidence that greenspace contributes to positive well-being outcomes including improved physical and mental health. This is both through active engagement in recreation and the passive enjoyment of greenspace.

There has also been growing interest in the role of ecosystem services in contributing to human well-being as measured in terms of monetary, health and social values (e.g. UK NEA). However, the nature of these links is not explicitly made, to the extent that we do not know what the functional relationships are between ecosystem services provision and multiple well-being outcomes.

This ongoing research aims to explore how greenspace can be linked to ecosystem services provision and how in turn these are reflected in well-being measured both in economic and health terms. Initial research has found that there are links between greenspace and property values in Edinburgh. The ability of people with sufficient resources to purchase access to greenspace through the property market and thus capture other well-being benefits means that there are potential issues of equity in provision and access to greenspace and ecosystem services.

This equity issue applies not just to private supply and demand for greenspace and ecosystem services, there may also be important issues with regard to public provision (i.e. public parks, local amenity greenspace, exclusive access) arising from lack of political influence. Low income, or otherwise deprived, communities might be unable to either privately purchase ecosystem service benefits (e.g. private gardens) or locate in proximity to environmental amenity. Consequently they may suffer from lack of associated well-being outcomes (health and social benefits) which may incur costs to wider society (e.g. treatment for ill health). There may be a policy justification for the public provision of greenspace as a cost-effective well-being intervention. For example, those benefits could be explicitly included in the appraisal of green infrastructure projects that provide regulating services (e.g. reducing flood risks, improving water quality, or local air quality and climate regulation).

¹ <http://www.greenspacescotland.org.uk/greenspace.aspx>

² The related concept of open space considers only larger areas of greenspace (>500m²) that are publicly accessible (i.e. private gardens are excluded) and also includes civic space.

4. Valuing multiple ecosystem services from forests

Maria Nijnik (James Hutton Institute)

Taking inspiration from the ideas developed in the TEEB, MEA, UKNEA, Defra, JNCC and Scotland's policy documents, in this research, we seek to contribute to conceptualising the value of terrestrial ES by analysing methods and scales for primary valuation. The objectives are as follows: (i) to develop a better understanding of the rationale of valuing multiple ES from forests; (ii) analyse the concept of value and key types of value estimates; (iii) assess conventional and wider social science valuation methods; (iv) suggest ways to integrate valuation approaches; (v) assess the impacts of valuation on decision-making processes; (vi) and contribute to answering the questions: how can we value multiple ES from forests and what can the values be used for: showing the opportunities, challenges, uncertainties and complexities of ES valuation.

Valuation helps to inform resource management and use decisions for the benefit of society and the environment. It provides estimates of how ES contribute to the wellbeing. It guides the prevention of damages that inflict costs on society and can help to resolve potentially conflicting decisions, e.g. whether or not to replant woodlands or restore peatlands. Valuation employs a range of techniques; and a variety of methods developed by social scientists are the main focus.

We show that when markets are explicit, direct economic valuation (based on prices e.g. for provisioning ES) is largely applicable. Even for some public goods the user values can still be 'marketed', e.g. using Contingent Valuation (CVM) or Travel Cost (TC) methods. Economic valuation is particularly difficult in the field of biodiversity or landscapes, both as a result of their uniqueness and distinctiveness, and due to a shortage of robust primary valuations. The complexity of ES and their spatial arrangements and dynamics pose further problems. Insufficient understanding of ecological processes, human-environmental relationships and various uncertainties hampers robust economic valuations further, leading to the need to develop our knowledge in order to consider manifold factors necessary to take into account in ES valuation.

The general conclusion is that while markets can provide tools in many cases, they do not work everywhere. Therefore, wider social science approaches and their proper combination and integration can assist in valuation. Valuation should be more widely incorporated into decision-making processes; but when public good and intrinsic values issues are concerned, ethical and political choices must be made carefully and deliberately agreed. Much then depends upon government involvement and proper incentives (both non-economic and economic, e.g. PES) towards the changing of our behaviours for a more sustainable use of forests.

5. Peatland restoration: challenges to valuation

Klaus Glenk (SRUC), Julia Martin-Ortega, Anja Byg, Rebekka Artz (all The James Hutton Institute)

Context: Peatland restoration can, under certain conditions, act as a greenhouse gas (GHG) sink, thus generating benefits in terms of GHG emission reductions. Restoration has also been found to enhance the delivery of other ecosystem services (ES) such as erosion control, and ES related to water quality, recreation and biodiversity. Recently, peatlands have received much policy attention for their contribution to climate change mitigation and the potential of peatland restoration to achieve national emission reduction targets cost-effectively. Peatland restoration has been globally recognised for its potential role in contributing to international climate change mitigation (Kyoto Protocol) and biodiversity conservation (Ramsar Convention on Wetlands; Nagoya Protocol of the UN Convention on Biological Diversity) commitments.

Aims and ‘uses’: The main aims of this research are

- to derive values that justifiably represent a wide range of (non-)market benefits of peatland restoration beyond GHG emission reductions, ideally related to an ecosystem services approach;
- to derive values for peatland restoration that take into account spatial preferences;
- to derive benefit estimates that are transferrable across peatland sites.

Choice experiments will be used to directly derive values for peatland restoration from a survey administered to sample of the Scottish population. Respondents will evaluate changes in peatland status relative to a situation with no additional restoration efforts. Understanding whether respondents have preferences for restoration in specific locations (because of use and non-use motives) is an important factor in deriving transferrable benefit estimates that accurately reflect how value changes with location of the restored peatland. Ultimately, the findings can be used in cost-benefit assessments of peatland restoration.

Since not much is known about the provision of cultural ecosystem services (CES; including but beyond recreation) specifically in relation to peatlands and their ecological status, and many CES cannot be expressed in monetary terms, we will use qualitative research and a series of questions in the valuation survey to explore, amongst others, which CES are linked to particular ecosystems such as peatlands and to the state of that ecosystem, and which CES are important to whom and how this is related to the kinds of CES which are recognised in policy and decision making.

Challenges: There is no precedence of similar primary valuation studies of peatland restoration. This presents a challenge in itself, but also an opportunity to explore new territory. For example, we aim to develop a relatively simple classification for peatland status which may be useful beyond this valuation study. Another question is how to best provide supporting information to enable informed decisions by survey respondents.

The ambition of deriving benefit estimates that can be used for peatlands across Scotland requires assumptions and simplification for example with respect to peatland status classification cannot fully capture variability across all peatland sites, and how to consider scientific uncertainty on ecosystem service provision, current status and future change in status is still an open question.

Finally, there is no guarantee that theoretical concepts e.g. related to spatial preferences actually apply in the context of peatland restoration.