

Putting nature's services on the map

Summary report on a workshop for local government and delivery partners to identify and share good practice

Oxford, 29th April 2013

Further information, including the presentation slides used by speakers, is available at:

<http://ekn.defra.gov.uk/about/events/mapping-oxford/>

Summary

This event brought together representatives of 26 local authorities to share good practice in the creation and use of maps of what nature does for people. These maps offer significant benefits over and above traditional land use maps because they portray the 'services' that nature provides for people (such as access to natural outdoor spaces that improve people's health and the way in which land regulates floods). These services can be portrayed individually or collectively. Maps can show current and future service provision, as well as show where these services are most needed. Several examples illustrate the benefits that this type of mapping can provide for cost-effective delivery of local government functions, including leveraging new funds. While local authorities and their partners often have good mapping capabilities, the range of technical data required to produce these maps is a challenge. The creation of sets of maps of nature's services is a long-term process (not a 'one-off' set of images), involving communities and local authority decision makers.

The event was run in association with Oxfordshire's Nature Partnership.

Introduction

A drive towards greater understanding and valuation of the ways that the natural environment underpins people's well being lies at the core of an ecosystems approach. Maps are useful in portraying these 'ecosystem services'. The process of producing ecosystem service maps can help people to gain a greater understanding of the values people hold for nature. It provides opportunities for different forms of knowledge about what the natural environment does for people to be recorded and deliberated. Ecosystem service maps are a powerful tool to inform and guide decisions that affect people and nature. This is particularly important in land use planning. They can ensure that the social and economic implications of different options for managing land and the natural environment are communicated effectively.

Local authorities are an important potential user group for maps of nature's services because of the large areas of land that they manage, the responsibilities they hold for people's wellbeing, and the fact that they are in and around local communities. Ecosystem service maps can be a central resource in local government to support joined-up delivery of multiple statutory functions, such as land use planning, flood risk management and the improvement of public health.

The workshop was designed to help local government officers and local authority delivery partners to share experience on how maps of nature's services are already being used, as well as to identify opportunities for increasing their usage. The focus was on exploring potential applications for maps, rather than the technical aspects of producing them.

Morning session: sharing good practice

The workshop was opened by **Poul Christensen CBE**, Chair of Natural England. In his introductory remarks, he highlighted the power of maps as a communication tool. He also stressed the importance of sharing knowledge and experience on the practical delivery of an ecosystems approach, the aim of the Ecosystems Knowledge Network.



*Natural England's Chairman, Poul Christensen CBE, presenting his opening remarks at the workshop.
Photo credit: Hillary Philips.*

Katie Medcalf, Environment Director for the consultancy **Environment Systems Ltd**, provided an overview of ecosystem service mapping. Based on her experience of working with local authorities to produce ecosystem service maps, she outlined the main stages involved (see presentation via the weblink at the top of this report). Maps are useful to portray current 'service provision', as well as to map opportunities for service restoration and enhancement in accordance with local needs. Among the learning points she shared during her presentation were:

- The quality and usefulness of ecosystem service mapping in local authorities depends on the availability of data to represent local habitats and their function. In particular:
 - The spatial resolution of the data needs used in the maps needs to be appropriate to the intended use (contrast, for example, the requirements of strategic planners against individual local landowners).
 - The extent to which the data underlying ecosystem service maps need to be up to date depends on the issue being considered. For example, soil quality data remain valid for a much longer period than agricultural land use data.
- At the start of any mapping process, it is important to consider who the data used to form the maps will be shared with, and how.

Nick Grayson, Climate Change Manager at **Birmingham City Council** outlined the rationale for safeguarding the natural capital and ecosystem services that underpin major settlements. He explained the ecosystem service mapping exercise that has been undertaken for Birmingham, the largest single municipality in Europe. These maps constitute an evidence base to inform strategic and investment decisions. A 'multi-challenge map' has been produced for Birmingham, bringing together the city's social and environmental issues, and the threats that it faces from climate change. This shows how ecosystem services provision is not distributed according to where people live.

As an example of the application of the maps, Nick Grayson gave the example of Natural Health Improvement Zones, which have been declared in areas of relatively low economic and health status and poor air quality. The existence of these Zones is helping to prioritise improvements to green infrastructure. Data on the occurrence of asthma were included in this assessment.

Jon Lane (senior planner) and **Geoff Hobbs** (ecologist) from **Bridgend County Borough Council**, provided an example of how to use maps of nature's services to inform the planning process. According to the presenters, these maps provide a very different perspective to traditional land use maps. They explained how mapping of habitats and the services they provide had informed the production of Supplementary Planning Guidance for landscape and biodiversity. Some specific functions of ecosystem service maps that they identified were:

- Demonstrating the wider consequences of a development on the way the natural environment supports people's lives. It can also help to identify opportunities for increasing ecosystem service provision in the design of new development.
- Highlighting the high biodiversity and ecosystem value of land. This includes brownfield sites and private gardens. Such recognition can safeguard against 'infill' development.

Mai Nielson, Ecology Advisor for **Buckinghamshire County Council** described a project to produce ecosystem service maps of alternative routes for the High Speed Two rail link through Buckinghamshire. A method of ecosystem service mapping developed by the Mersey Forest was applied to the route. Much of the necessary data were freely available, such as large habitat maps down to 0.25 hectare resolution for rural landscapes. A grid of functions and services was created for each habitat area, such as chalk grassland or woodland. Multi-functionality (i.e. the number of services provided by each land area) was also mapped. The maps have served as a resource for the Council to identify priority areas for mitigation measures, as well as to find ways of offsetting for losses by enhancing ecosystem service provision in areas where this will be of maximum benefit.

The presentations, as well as the question and answer sessions, highlighted the costs involved in obtaining and collating all the data required to produce ecosystem service maps. There are resources to help, such as the evidence base used in the definition of National Character Areas for England (and equivalent initiatives elsewhere in the UK). The presentations also served to demonstrate the long term value of the maps as an evidence base to guide decision making for cost-effective delivery of services in line with sustainable development.

Afternoon seminars on specific challenges and applications

Seminar 1: Mapping opportunities for health improvement through access to nature

Leaders: Rachel Stancliffe (Centre for Sustainable Healthcare) and Paul Nolan (The Mersey Forest)

This session focused on the ways in which the Mersey Forest has worked in partnership with healthcare providers in Liverpool to deliver improvements to green infrastructure that will benefit people's health. An ecosystem service mapping exercise helped to persuade the Primary Care Trust to invest almost £300,000 in local environmental projects that had strong potential to improve people's health. This exercise formed part of a wider mapping of green infrastructure in the city, which had identified its functions and the benefits it provided. Seminar participants learned that

language to communicate with stakeholders was vital in achieving success. The language of green infrastructure had enabled the conversation to be more accessible to those involved. In particular, planners are familiar with consideration of 'infrastructure' and its benefits.

Seminar 2: Getting the data behind maps of nature's services

Facilitator: Nicholas Corker (Centre for Ecology and Hydrology)

In this seminar, Jonathan Winn (Durham Wildlife Trust) and Tom Butlin (The Mersey Forest) outlined the processes by which they had obtained data to produce maps of ecosystem services for use in a local authority context. The session identified the importance of developing common approaches to producing ecosystem service maps, such as in the use of colours to represent service provision, need and demand. The potential for use of remote sensing was identified. Mapping of the aesthetic qualities of land (linked to the way that land provides opportunities for recreation) was identified as a particular challenge. The value of the evidence base underpinning the designation of landscape character areas was highlighted.

Seminar 3: Involving local communities

Leaders: Steve Evison (Resources for Change) and Chris Church (Mapping for Change, social enterprise)

This seminar provided an overview of the rationale for involving local communities in producing and using ecosystem service maps and how to go about it. They pointed out that 'localism' necessitates that people are informed and involved in decision-making. A variety of approaches can be used to start conversations with communities. They gave the example of one project in which a roulette wheel was set up outside a supermarket and people were given pretend money to allocate to issues that were important to them. Citizen science can be very useful in engaging people and gathering information for ecosystem service map creation. This is especially the case where the issue being evaluated depends on people's perceptions, such as when mapping noise.

The seminar raised some important lessons for how to involve people in mapping of ecosystem services:

- Undertake thorough stakeholder analysis to understand who you are talking to.
- Engagement should not be 'one-off', in order to produce a single set of maps. Rather, it is a long-term process.
- Don't assume that everyone involved is literate with modern information technology. For this reason, crayons and paper are often the best medium to enabling people to get their ideas across. Nonetheless, mobile phone cameras are a useful tool to allow people to record what is important to them and to spark discussions about what communities want.
- Don't consult with local authorities unless there is a real opportunity to change something.



*Discussions among participants in Seminar 1.
Photo credit: Hilary Phillips.*

Seminar 4: Resourcing authorities and their partners in producing maps of nature's services

Leader: Katie Medcalf (Environment Systems Ltd.)

This group assessed the barriers, opportunities and drivers for greater use of ecosystem service maps in local authorities. The findings can be summarised as follows:

Barriers	A lack of skills and knowledge to collate the data and produce the maps. Political short-termism and the current economic climate (preventing investment in the production of maps). Free access to data.
Opportunities	The chance to link areas of public policy and local authority functions Scope to engage communities in decision-making. The presence of GIS mapping officers in local authorities. The chance for local authorities to work with higher education institutions in their vicinity.
Drivers	The Localism Act 2011 (applying to England). The requirement for local authorities to plan for climate change, to manage flood risk and promote tourism. The existence of landscape-scale projects and ecosystem restoration. The current economic climate (providing the basis for joined-up delivery of services).

The seminar identified that, in order to encourage investment in the production of ecosystem service maps in local authorities, there is a need to:

- Communicate the power of existing data that represent the ways in which nature underpins people's well being and the economy.
- Use examples of what ecosystem service maps have achieved in the local authority context and case studies to encourage investments.

It is important to identify policy requirements and to make connections between them (in accordance with an ecosystems approach). In England, these include flood risk management and public health duties.

In **Galashiels**, a town on the Scottish borders with a history of flooding, vegetation and habitat maps have been used to identify the best areas for new planting to help slow water through the landscape. This enabled the use of Scottish Rural Development funds for flood-plain management.

It was noted that ecosystem service mapping has not yet been put to the test of a public enquiry, but that this would be a welcome development, adding robustness to the argument.