

How to link ecosystem services knowledge, tools and practice?



Summary

Ecosystems provide humankind with a wide range of benefits.

Yet the rate at which we consume and exploit these is increasing so rapidly that many of the major ecosystems are threatened with loss of function, which is required to support the existence of humanity. The ecosystem services and natural capital concepts have been adopted in high-level policy frameworks in order to provide guidance to better manage and preserve our ecosystems. However, there is some disparity between the wealth of ecosystem science and the practical application of this knowledge in policy and decision-making practice. The aim of the OPERAs project was to explore whether, how and under what conditions these concepts can move beyond the academic domain towards practical implementation in support of sustainable ecosystem management.

Key messages

- ▶ A meta-analysis of ecosystem-service research was carried out in order to identify gaps, needs and obstacles
- ▶ Twelve case studies were developed based on this meta-analysis
- ▶ These exemplars were designed to fill gaps in knowledge and encourage collaboration between different stakeholder groups
- ▶ The knowledge and practical experience gained from these exemplars was used to develop tools, instruments and guidance to help overcome obstacles to the ecosystem services framework
- ▶ The exemplars were also used as an arena to test the tools and instruments that were developed, before they were shared with the wider community
- ▶ The Blueprint protocol provides a structure for OPERAs projects, and others, to report and share the lessons they've learned

Knowledge

Despite their being a wealth of research on the subject of ecosystem services, the principles of the concept don't always make it into practice.

There are a number of reasons for this. Particular gaps in knowledge as well as practical obstacles can create bottlenecks. A lack of standardisation in terms of the methods used in the research itself, or the reporting of findings can make it difficult to compare projects, identify trends and make recommendations. These issues in turn can make it difficult for policy-makers to know where to focus funding, which behaviours to encourage, and how to give guidance on best practice.

The OPERAs project aimed to address these issues through an iterative process combining knowledge, instruments and practice. Practical and theoretical knowledge from reviews and case studies was used to develop tools and instruments which were tested in the field. Information from field-testing was fed back into project and tool development. A protocol was developed to enable standardised project reporting. This has encouraged collaboration and allowed some interesting conclusions to be drawn from the research.

Practice

The twelve OPERAs exemplars are where research was put into practice. Here the potential for the operational use of the ecosystem services concept was investigated across a variety of settings.

OPERAs exemplars were selected to represent a range of socio-ecological systems across scales. These were the testing grounds where project partners collaborated closely with stakeholders, where instruments were developed and applied, and where empirical research was carried out leading to both methodological and theoretical developments.

The exemplars were designed to generate knowledge, instruments and guidance to help answer questions about:

- The interaction between policy and ES provision
- The demand for ES using different valuation techniques
- Ideal governance structures for sustainable ES provision
- How best to engage stakeholders to produce effective solutions to natural resource management problems

Instruments

Consultation with stakeholders in the exemplars, and the results of the meta-analysis indicated a need for certain instruments.

These were developed and tested in the field, and included information support tools and decision support tools.

Although many tools and guidance documents do already exist, they are often dispersed across many sources and can be difficult to access when needed. **Oppla** provides a platform to collate the research, tools and expertise in one place, where it is easy to access, search for things and make contacts.

The Pentlands exemplar: linking knowledge, tools and practice

OPERAs worked with nine Scottish organizations to establish an Ecosystem Services Community Scotland (ESCom) for individuals with an interest in ecosystem services.

With over 500 members, and regular events to bring together researchers, decision makers and practitioners, ESCom illustrates how an ecosystem services Community of Practice can create space, align motivations and build trust. ESCom stakeholders helped identify the knowledge needs of the Pentland Hills Regional Park, and provided a platform for sharing results and lessons learned in this project with other interested practitioners.

OPERAs identified nine main ecosystem services, and employed a range of social-cultural valuation methods to understand how visitors and managers value the park. This knowledge will be used to inform the Pentlands management plan. Services such as the physical and experiential use of nature, as well as habitat and biodiversity, were found to be particularly important. This study led to a series of stakeholder workshops to support the regional park managers as they tried to identify and agree upon land use and management opportunities in the coming years.



An interactive tool to assess land use preferences (LANDPREF) of visitors to the park was developed for the Pentland Hills, which enables participants to create their own desired landscape on a tablet computer. It enforces trade-offs between competing land uses and provides instant visual feedback of the implications on the landscape. The tool was initially developed for the Pentland Hills Regional Park, and has been adapted and tested further in the Scottish Highlands and in Brandenburg, Germany.

Ecosystem services hotspots in the Pentland Hills

Density of ecosystem service provision as mapped by workshop participants in the Pentlands (courtesy of Phillips et al (2017))

Cultural services

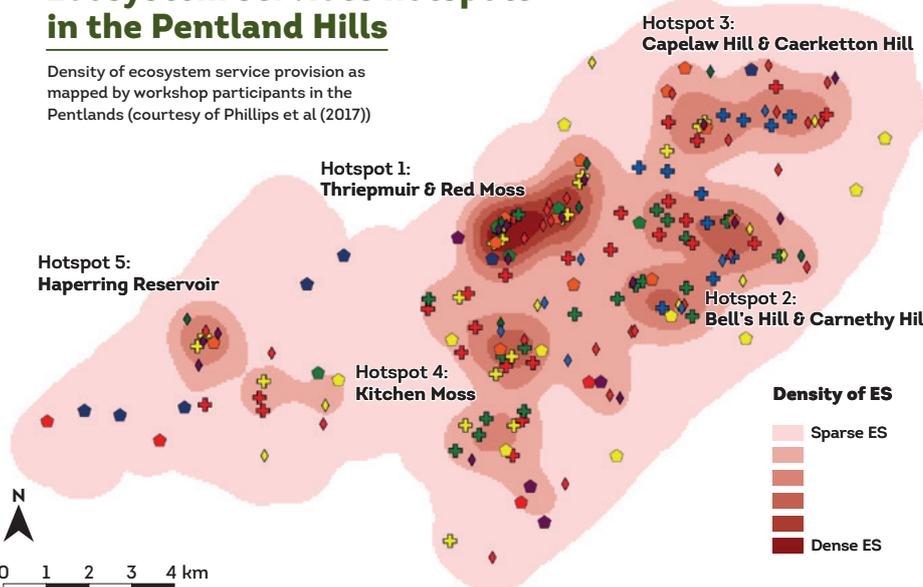
- ◆ Aesthetic values and inspiration
- ◆ Educational values
- ◆ Experience nature
- ◆ Recreational/physically using nature
- ◆ Spiritual and religious values

Provisioning services

- ◆ Energy - biomass
- ◆ Energy - wind
- ◆ Food - farmed
- ◆ Food - game and wild collected food
- ◆ Freshwater
- ◆ Timber and other wood products

Regulating services

- ◆ Climate regulation
- ◆ Erosion control
- ◆ Flood regulation
- ◆ Water purification



The Future

OPERAs advocates an iterative process of learning through engaging with stakeholders, combining this with research to create plans and solutions, and then sharing the outcomes, expertise and tools with the wider community.

These principles of co-creation and co-design have been applied in many different contexts across the twelve OPERAs exemplars. Demonstrating the success of this approach, and producing guidance and tools to help others to replicate it, has given decision-makers confidence that ES framework is an effective way of solving natural resource management problems. In this way, OPERAs produces research that is useful, useable and used.



Interviews with Pentland park visitors

“This study shone a spotlight on the Pentland Hills Regional Park and revealed an opportunity to utilise and build on this research to help inform a refresh of the Park’s Management Plan. In collaboration with OPERAs, we co-designed an innovative participatory land use planning project, applying the principles of the ecosystem approach, mapping ecosystem services and eliciting socio-cultural values. All of this work is successfully being used to inform the next iteration of the Park Plan and to support external funding bids to deliver positive land use management on the ground.”

Neville Makan, Scottish Natural Heritage

“Really good questionnaire, particularly the image of the ‘ideal’ landscape. Thought provoking stuff.”

Pentlands visitor

“Great promotion of practical delivery for ecosystem services through the seminars and conferences. Collaboration on developing the agenda for liaison between research community and others/end-users is very positive.”

**Policy officer,
Scottish Environment Protection Agency**



Find further details about this theme on Oppla:
oppla.eu/operas/linking

www.operas-project.eu
info@operas-project.eu

 **OPERAsProject**

This project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration under grant agreement number 308393.

