



Photo: Dublin Exemplar

## Ecosystem Science for Policy & Practice



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# Takeaway Summary

## Milestone Purpose

This Milestone consists of three parts:

- (1) It reports on current successes and challenges faced by the 12 OPERAs Exemplar case studies, and how the Exemplars are using the ecosystem services concept and collaborating between themselves and across Work Packages in OPERAs.
- (2) It provides an overview over the characteristics of the exemplars and puts them into context with the results on research gap of the meta-analysis as presented in Milestone 2.3.
- (3) It describes the 12 exemplars in PowerPoint presentations, prepared by individual Exemplars, to publicly communicate their design and progress to date, which will be featured on the OPERAs website.

Part (1) and (2) are part of this document, and the presentations of part (3) are accessible through the OPERAs website.

## What is new?

This Milestone synthesizes reports submitted by each Exemplar as they approach the halfway point of the OPERAs project. This is a chance to reflect on how initial plans (submitted in the Exemplar Study Designs (D2.1), February 2014) have been implemented or modified now that work is further underway, and propose new ways of working together for the rest of the project.

## Why is this important?

A goal of OPERAs is to benefit from collaborations and comparisons between Exemplars. This is an important part of the strength of the project design that takes advantage of the consortium research format, rather than conducting smaller individual research projects. To benefit from these synergies, it is important to periodically look for opportunities to learn from each other and make improvements.

## Who benefits from this?

This Milestone is an internal document for OPERAs partners working in the Exemplars to summarize lessons learned to date. However, it could also be shared with other researchers to help promote best practices in ecosystem services research and participatory, co-designed research, and with stakeholders to get their feedback.

## How could this be used in policy or practice?

If there is interest from the Exemplars, we can consider developing this material into a short working paper or publication.

## Who are the Exemplars?

This brief overview of the 12 Exemplars was taken from the materials submitted by each Exemplar for the Milestone. Please see the Exemplar PowerPoints on the OPERAs website for more details.

Swiss Alps	Which policy strategies can balance the supply of and demand for mountain ecosystem services in the future?
French Alps	Aims to analyse future land use trajectories and their effects on biodiversity and ecosystem services for the Grenoble urban area.
Montado Landscape	Reconciling the use of biological resources with conservation through bringing the ecosystem services concept into practice
Wine	Making the business case for ecosystem services
Dublin: Urban-Rural Fringe	Using the Ecosystem Services concept as a public consultation model, assess stakeholders' perceptions of the socio-cultural value of ecosystem services in a peri-urban coastal setting and consider how ES consultation approaches can be used within decision-making in the land use planning arena.
Barcelona	Collaborating with the municipal government to experiment with facilitated regeneration of dune grasses in the heavily utilized touristic beaches around Barcelona to achieve long-term dune stability and coastal services.
Balearic Islands	Assess the co-beneficiary management of seagrass ecosystems for Blue Carbon, assessing magnitude of sinks, socioeconomic values, and management tradeoffs.
Lower Danube	Demonstrate linkages between river ecosystem management and community livelihood benefits.
Scottish Multi-scalar	The Scottish exemplar works on four scales, with different spatial and thematic focus: building a science-policy-practice interface (ESCom), a national assessment of ecosystem services and policy, socio-cultural values of green space in peri-urban Edinburgh, and local benefits of coastal wetlands realignment.
Pan-European Regulatory Directives	Focuses on recent and forthcoming EU policy developments that affect land use decisions, studies the synergies and trade-offs that policy developments (or lack thereof) may have on the supply and value of ES/NC in Europe, and assesses how policy developments interact with existing policies for the protection of ES/NC,
Mediterranean	This study focuses on how changes in the way farmers manage their land in the Mediterranean area, leads to changes in possible human wellbeing, now and in the future.
Global	Aims to identify global land management solutions that support the goals of biodiversity conservation, climate change mitigation, and food production policies using the ecosystem services concept.

# What's working well in Exemplars?

## Research and Training (Project Output)

- Exemplars are conducting innovative research, such as new ways of visualizing ecosystem services (Swiss) and participatory mapping (Dublin).
- Exemplar work is being widely presented to the academic community at conferences (e.g., Global, Montado) and in publications (e.g., Swiss).
- Many Exemplars note success in training and mentoring students as part of the OPERAs consortium, especially master's students (e.g., Scotland, Montado, Wine, Global).

## Stakeholders (Engagement and Policy)

- Many of the Exemplars report positive experience in engaging a diverse group of stakeholders, ranging from EU policymakers in Brussels (European, Global) to metropolitan authorities and local schools (Barcelona) to agronomists in Morocco (Mediterranean) to local users and beneficiaries of ecosystem services (e.g., community and environmental groups, recreation and business interest groups) (Dublin), to territorial development and resources managers (France).
- Exemplars are using a wide range of techniques to engage stakeholders in research, including surveys (Wine, Balearic); focus groups (Dublin); interactive workshops (France, Dublin), sometimes professionally facilitated by Prospex, including at side meetings at international environmental policy fora (Global); developing a Community of Practice (Scotland); and creating outreach materials such as briefs and websites.
- Several Exemplars, particularly at the local scale, are able to take advantage of benefits from building on ongoing case studies, where data have been collected over time and good contacts with stakeholders have been strongly established over many years (e.g., France, Montado, Swiss).

## Collaboration (Work Processes)

- Most Exemplars report that research collaborations within OPERAs for their Exemplar work are developing smoothly, including across disciplines (e.g., Swiss Alps) and Work Packages (e.g., Global).
- Many Exemplars are collaborating with each other to share research expertise, tools, and knowledge. For example, the Montado is adapting a survey developed in the Scottish exemplar for their own case; Scotland has built a successful Community of Practice (ESCOM), which Exemplar leads would like to be used as a model in other places.
- Exemplars serve as a connection point for collaboration with other research networks (for example, Future Earth and EcoSERVICES (Mediterranean)).

# What challenges do Exemplars face?

## Research and Training (Project Output)

- Access to high-quality ecosystem service data is a challenge reported by several Exemplars (e.g., Montado, Mediterranean). In particular, there is often a lack of data at the right scale for supporting management decisions, and data that have been collected for different purposes are not necessarily well-suited to OPERAs analysis.
- Data on highly variable ecosystem processes and services (e.g., carbon sequestration) should be taken into account in management options (Balearic).
- Managing and sharing data can be a challenge, and it can be necessary to compile data from many sources, which is time-consuming (Scotland).
- Translating data into meaningful scenarios for stakeholders to illustrate what particular ecosystem services might change in the future is challenging (e.g., Montado, French).
- It can be difficult to go beyond the academic realm to achieve integration of research design and results (European).

## Stakeholders (Engagement and Policy)

- It is important to work with stakeholders who can meaningfully influence or are affected by decisions related to the Exemplar research. However, finding and engaging stakeholders is difficult at larger scales where stakeholders are diffuse or unclear (Global), in national contexts where the ecosystem services concept is not integrated (Dublin), and in newly established Exemplars without previous contacts and long-standing local experience to build on (Wine).
- While there is a desire to engage stakeholders from the beginning, many Exemplars found that it was difficult to get stakeholder interest before concepts and resources had been clarified within the research team first (e.g., Mediterranean, Wine).
- Building stakeholder engagement takes substantial, ongoing time investment to build trust and social capital (Wine).
- Sometimes the drivers of the main problem are outside the scope of the Exemplar or the power to make decisions is outside the scope of the Exemplar, which requires integrated coordination and planning (Swiss).

## Collaboration (Work Processes)

- Clear, regular, but not overwhelming communication is challenging between the large group of Exemplar partners, and in conveying information from the rest of the OPERAs project management and work packages.
- Time and financial constraints prevent pursuing all the interesting collaborations and research questions proposed by OPERAs partners, and not all the questions that stakeholders prioritize can be answered by OPERAs research (Scotland).
- Setting up the Exemplar team within OPERAs took time to clarify (Global).
- Limited project budget means limited staff time (budget has run out for some of the first additional staff hired under OPERAs positions, e.g., Global).
- Staff turnover over a 5-year project makes it hard to maintain continuity and clarity.
- Perceived competition can be a problem with related groups (both research and NGOs) if they see OPERAs as a threat for funding for research and conservation (Scotland).

# How are Exemplars using the Ecosystem Services concept?

## Research

- OPERAs researchers see ES as a valuable research framework to provide analysis metrics, and to link with current research and policy.
- However, there is no one view of ES within OPERAs. The ES concept is seen and used in a variety of ways by OPERAs researchers (an analysis of the views of 33 OPERAs researchers identified five main perspectives, ranging from seeing ES as a pragmatic conservation tool to an economic approach to decision-making to a values-based paradigm (master's thesis [here](#), manuscript under review).
- One conceptual limitation of the ES concept is its time scale. Because by CICES definition, the value of ecosystem services is defined by stakeholders, this value may change over time in unknown ways as social demands evolve. This makes it difficult to meet exemplar goals of matching the supply and demand of ES (e.g., Swiss).

## Policy and Practice

- There are several benefits of using the ES concept with stakeholders, including the potential to raise awareness and increase social learning about local ES benefits, and connect people and nature (Dublin), to demonstrate the economic value of cultural ecosystem services (Montado), to use a framework that allows the assessment of tradeoffs and synergies and encourage more comprehensive management (French, Swiss, European, Mediterranean, Global), and to provide a framework to include cultural services, which are valued by stakeholders (Swiss).
- Across Exemplars, we see that the ES concept is better known and understood by researchers within the academic community, and at higher policy levels, e.g., EU (European) and national (Scotland). Many of the regional and local stakeholders had never heard of the concept (Wine, Swiss, Dublin). Many local stakeholders had difficulty linking the ES concept with the decisions they needed to make and their management options (Dublin) until it was translated into practical examples (Scotland).
- A major hurdle in operationalizing the ES concept is in making it concrete and visible to stakeholders, to clarify its intended meaning, to understand and demonstrate how it can be useful in decisionmaking. OPERAs has a strong focus on developing innovative methods to make ES more tangible and visible, including using participatory mapping and photo elicitation (Dublin), online interactive visualizations (Swiss), Q-method (Wine), and mapping tools such as Google Maps (Balearic) and OurEcosystem (Global, Montado, and others). There is great interest in mapping and modelling ES from policy (European, Global), and maps are seen as a valuable way to demonstrate ES (Montado).
- Some exemplars have found that the ES concept can be politically controversial and manipulated by green vs. economic development agendas, requiring more dialogue between researchers, politicians, local communities, and developers (Barcelona).

# How do the exemplars meet recent research gaps?

For this summary of characteristics, the inputs to the Exemplar reporting through the Blueprint Protocol have been analysed and then – where appropriate – compared to the results of Milestone 2.3 on research gaps. Inputs from 10 of the 12 Exemplars were available at the time of analysis.

- Each exemplar investigates a multitude of ES, which are relatively well distributed between provisioning, regulating and also cultural ES. Only some very rarely investigated ES are not addressed in the exemplars, such Ornamental Species and Genetic Resources.
- Policy instruments are investigated by 50% of the Exemplars. This is four times the proportion derived from earlier studies through the systematic review (13%).
- The same tools, instruments and methods (TESSA, Our Ecosystem, EIA-ToSIA) are used in several Exemplars, which allows testing them for strength and weaknesses in several case study contexts.
- Trade-offs and synergies between Ecosystem Services are investigated in 60% of the Exemplars.
- All Exemplars integrate stakeholders, compared to 38% in earlier studies investigated in the systematic review.
- Scenario analysis to investigate alternative management options is conducted in 70% of the Exemplars, compared to 31 % in the systematic review.
- Uncertainties are intended to be quantified in 60 % of the Exemplars, with 10% planning to indicate them at least qualitatively. These rates compare to 30% for quantitative and 20% for qualitative documentation of uncertainty in the systematic review.