Review Article

Glossary of ecosystem services mapping and assessment terminology

Marion B. Potschin-Young[‡], Benjamin Burkhard[§,|], Bálint Czúcz[¶,#], Fernando Santos-Martín[¤]

‡ Fabis Consulting Ltd., Barton In Fabis, United Kingdom
§ Leibniz Universität Hannover, Hannover, Germany
| Leibniz Centre for Agricultural Landscape Research ZALF, Müncheberg, Germany
¶ MTA Centre for Ecological Research, Vácrátót, Hungary
# Muséum national d'Histoire naturelle, Paris, France
¤ Autonomous University of Madrid, Madrid, Spain

Corresponding author: Marion B. Potschin-Young (marion.potschin@fabisconsulting.com), Benjamin Burkhard (burkhard@phygeo.uni-hannover.de)

Abstract

Mapping and assessment of ecosystems and their services (MAES) is a key EU initiative to synthesise vital environmental information and facilitate balanced policy decisions. As MAES integrates across many scientific and policy domains, the development of a common language and shared concepts is essential. Here we present a comprehensive MAES Glossary that was compiled in the ESMERALDA project; it is based on the integration of several previous glossaries and a wide-ranging consultation process. While there are several ecosystem services glossaries available from EU supported work such as Oppla, OpenNESS and ecosystem services related handbooks, the new material presented here focuses on mapping and assessment of ecosystem services and therefore more directly supports the MAES process.

Keywords

Introduction

Mapping and the assessment of ecosystems and their services (MAES) are core to the EU Biodiversity (BD) Strategy 2020. Specifically, Action 5 of the Strategy's Target 2 sets the requirement for an EU-wide knowledge base developed by Member States designed to facilitate balanced policy decisions that take into consideration indirect or non-monetary benefits from Nature that are often overshadowed by economic analysis. MAES outcomes are also intended to provide primary data for EU Biodiversity policy: for developing Europe's green infrastructure; to identify areas for ecosystem restoration; and to provide a baseline against which the goal of 'no net loss of biodiversity and ecosystem services' can be evaluated.

In response to these requirements, the EU Horizon 2020 funded project ESMERALDA (Enhancing ecosystem services mapping for policy and decision-making, www.esmeralda-project.eu) developed a glossary of terms related to mapping and assessing ecosystem services (ES). This Glossary aimed to collect all terms that are relevant for MAES implementation and related applications at local, regional, national and continental scales. The definitions provided for each term both guide appropriate usage and help to avoid misunderstandings in the complex field of mapping and assessment ecosystem services (see Potschin et al. 2016a for wider discussion).

Development of the Glossary

At an early stage in the ESMERALDA Project which ran between February 2015 – July 2018, a preliminary draft Glossary with 225 working definitions was circulated to the consortium members. These definitions were mainly based on an existing Glossary produced by the OpenNESS project (http://www.openness-project.eu), which listed over 200 ecosystem service related terms and their definitions. While this was extremely helpful because it was available at the beginning of the ESMERALDA project, these terms needed to be tested in relation to the specific focus of ESMERALDA, namely working towards the MAES initiative (Mapping and Assessment of Ecosystems and their Services). The consultation on terms and their usage in ESMERALDA was open until the end of the third year of the project and the outcome of this consortium-internal consultation is now presented here as the 'ESMERALDA Glossary' (Potschin et al. 2016b).

The consultation process

The draft ESMERALDA Glossary (Version 1) was open for on-line consultation and testing for three years. The following changes were made for the final version that is presented here:

- Through the consultation, seven existing working defintions have been changed and adopted for ESMERALDA as part of the working process (e.g. Contingent Valuation, Cost-Benefit Analysis, Cost-Effectiveness Analysis, Integrated Ecosystem Assessment, Multi-Criteria Decision Analysis, Opportunity Costs, Travel Cost).
- Altogether 43 method definitions (categories) developed in ESMERALDA (see ESMERALDA methods compendium, Santos-Martín et al. 2018) have been added.
- A total of 35 terms and definitions from the 5th MAES report (Maes et al. 2018) have been added. If terms already existed in the Glossary, the MAES definition 'overrode' existing working definitions and the fact is noted in the comment column.
- The 'Mapping Ecosystem Services' book (Burkhard and Maes 2017) includes a Glossary of 105 ES mapping relevant terms and their definition. The majority is based on the 'original' OpenNESS Glossary. Entries (25) from 'the Mapping Book terms' have also been added or have overridden the original material from OpenNESS. Many of these terms specifically refer to ES mapping.
- The 'European Topic Centre on Biological Diversity Glossary' for ecosystem condition (Czúcz and Condé 2017) contains harmonised definitions for 60 MAES terms with a special focus on terms related to ecosystem condition. A total of 24 of its terms/definitions have already been added to this Glossary through the 5th MAES report and 11 further terms were added directly.

As a result of the consultation, the Glossary now contains 301 terms. It should be noted, however, that the terms included do not only reflect ES literature but also the particular subjects that were focused on in ESMERALDA. However, there are no clear boundaries. The original list was constructed through a dialogue in the consortium.

For more details on the process and selection of terms, see Potschin-Young et al. (2018).

Structure of the Glossary

The entries in the Glossary are arranged in a tabular format so that users can see the background to the terms covered. The columns are as follows:

- '**Term**': The 301 final terms. If there is a commonly used **abbreviation** of the term, this has been added into this column as well.
- '**Definition**': which reflects the agreed definition for the ESMERALDA consortium. If a further term from the Glossary is used in the definition column, the term is written in quotation marks. For example: *Natural asses - A component of 'Natural capital*'

- '**Source**': that is from where we took the definition. It should be noted that this does not mean the *origin*, i.e. where it was first used or suggested.
- '**Comment**': here we make reference to the ESMERALDA products (e.g. deliverables) where more information and discussion on the specific term can be found.

Conclusions

This 'ESMERALDA Glossary' with 301 terms and definitions, as well as references and comments, is the most current and comprehensive Glossary for ecosystem service related terms that is available. Furthermore and as a general experience, it can be said that producing a Glossary with working definitions early in the project was valuable because the consultation process within the consortium proved essential to obtain the 'engagement and approval' of partners.

In preparing this Glossary, we do not suggest that all the terms were originally developed by the ecosystem services researcher and practitioners community, but that they are often used in ES literature and most likely within the ESMERALDA and similar topic related projects. Although some terms may have been used by other people in other disciplines, the main concern has been not to trace their origins but to identify their relevance and applicability for ecosystem assessments. The purpose of the exercise was not to reinvent anything, but through review and refinement, to provide a set of working definitions for the consortium and ultimately for the implementation of MAES/Action 5 in EU member states and other related initiatives and projects.

The ESMERALDA Glossary can be found in the Suppl. material 1.

Acknowledgements

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Supplementary material

Suppl. material 1: Glossary of ecosystem services mapping and assessment terminology – supplementary material doi

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