



ELSEVIER

Mainstreaming ecosystem services into EU policy

Joachim Maes¹, Jennifer Hauck², Maria Luisa Paracchini¹,
Outi Ratamäki^{3,8}, Michael Hutchins⁴, Mette Termansen⁵,
Eeva Furman⁷, Marta Pérez-Soba⁶, Leon Braat⁶ and Giovanni Bidoglio¹

This paper presents a synthesis of the PRESS initiative (PEER⁷ Research on Ecosystem Services). In support of the EU Biodiversity Strategy to 2020, this initiative demonstrated a multi-scale mapping and assessment approach of ecosystem services using three case studies. The water purification case studied the impacts of agricultural and water policy scenarios on the capacity of ecosystems to purify water. The conclusion was that greening the subsidies to farmers in Europe would improve water quality and increase the benefits to society as measured via monetary valuation. Yet, scenario based nitrogen reduction levels differed among the different scales (EU and basin scale) suggesting that the assessment of policy measures is scale-dependent, which, in turn, justifies a multi-scale mapping and assessment approach. The recreation case presented evidence that millions of people visited forests several times per year and they expressed their willingness to pay to continue doing so. The visitor statistics that were used in this study suggested that the Recreation Opportunity Spectrum approach is a useful method to identify areas in terms of their accessibility and potential to provide recreation services. Finally, we demonstrated that the coverage and resolution of current datasets are already sufficient to map the potential of ecosystems to provide pollination services. Further research should contribute to better ecological observations of key pollinator species to include important drivers of pollinator abundance in modelling and mapping approaches.

Addresses

¹ European Commission – Joint Research Centre, Institute for Environment and Sustainability, Via E. Fermi, 2749, I-21027 Ispra (VA), Italy

² Helmholtz Centre for Environmental Research – UFZ, Department of Environmental Politics, Permoserstraße 15, 04318 Leipzig, Germany

³ Finnish Environment Institute, Environmental Policy Centre, Environmental Governance Studies Unit, P.O. Box 111, Yliopistokatu 7, FI-80101 Joensuu, Finland

⁴ Centre for Ecology & Hydrology, Maclean Building, Benson Lane, Crowmarsh Gifford, Wallingford, Oxfordshire OX10 8BB, UK

⁵ Aarhus University, Department of Environmental Science, Frederiksborgvej 399, 4000 Roskilde, Denmark

⁶ Alterra, Droevendaalsesteeg 3, 6708 PB Wageningen, The Netherlands

⁷ Finnish Environment Institute, Environmental Policy Centre, P.O. Box 140, FIN 00251 Helsinki, Finland

⁸ University of Eastern Finland, Philosophical Faculty, School of Humanities, P.O. Box 111, Yliopistokatu 7, FI-80101, Joensuu, Finland

Corresponding author: Maes, Joachim (joachim.maes@jrc.ec.europa.eu)

Current Opinion in Environmental Sustainability 2013, 5:128–134

This review comes from a themed issue on **Terrestrial systems**

Edited by **Bojie Fu, Martin Forsius and Jian Liu**

For a complete overview see the [Issue](#) and the [Editorial](#)

Received 24 July 2012; Accepted 14 January 2013

Available online 4th February 2013

1877-3435/\$ – see front matter, © 2013 Elsevier B.V. All rights reserved.

<http://dx.doi.org/10.1016/j.cosust.2013.01.002>

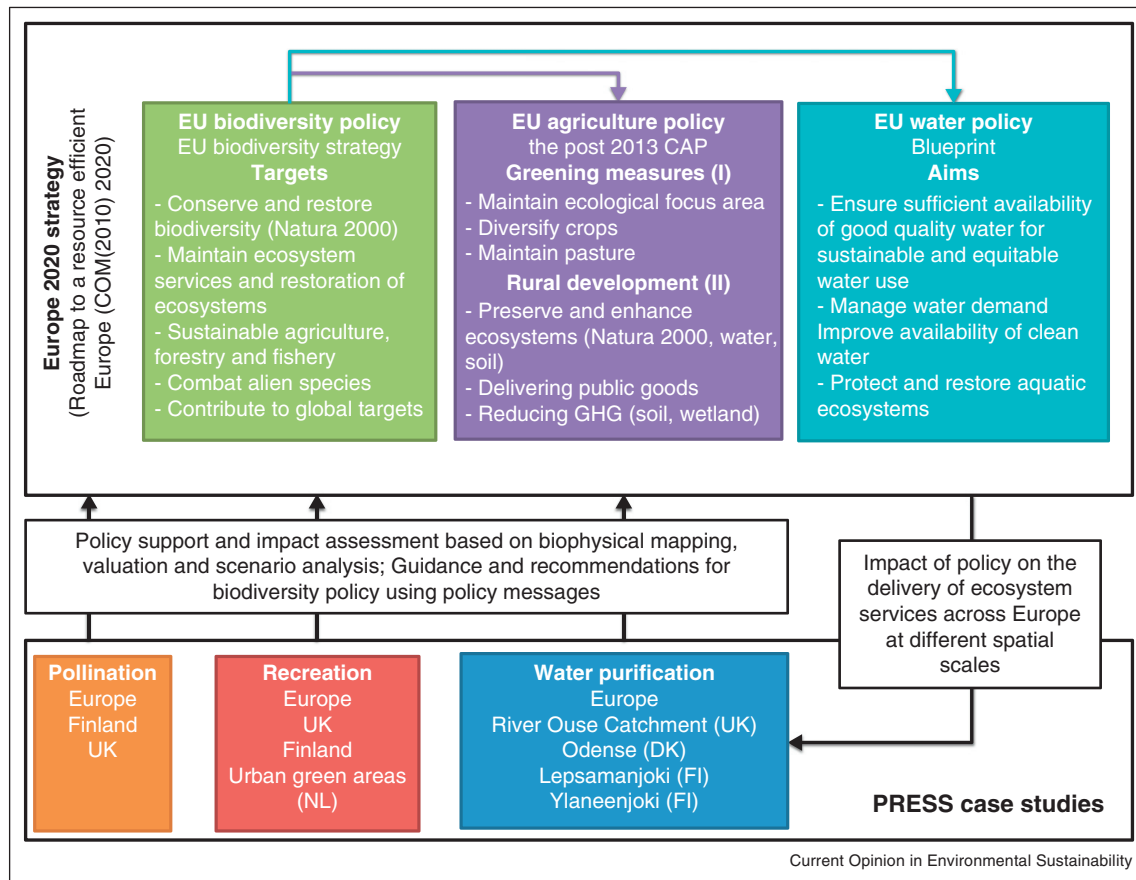
Introduction

The concept of ecosystem services (ES) is integrated in current biodiversity policies at global and European level [1,2^{*}]. In particular, the global strategic plan for biodiversity for the period 2011–2020 of the Convention of Biological Diversity complements previous conservation based biodiversity targets with the addition of ecosystem services. Following the global agreement, the EU Biodiversity Strategy to 2020 [2^{*}] integrates the sustainable use of ES as underpinning element of human economies to complement the non-utilitarian conservation approach to biodiversity, thus contributing to the Europe 2020 target, in particular through the resource efficiency flagship. The Europe 2020 strategy [3] aims at building smart, sustainable and inclusive growth for the European Union. It establishes resource efficiency as the guiding principle for other EU policies. As a result, the EU water policy and the EU common agricultural policy (CAP) are now aligning their objectives with the target of the Europe 2020 strategy (Figure 1). Importantly, also the EU's regional and cohesion policy now recognizes the importance of investing in natural ecosystems, in particular urban green areas, floodplains and nature for recreation, as a source of economic development [4]. Both agriculture and regional development contribute to over 80% the annual EU budget, so the inclusion of ecosystem services in these policies is considered an important step towards a more sustainable economy.

Mainstreaming of ES into policies means ensuring that the positive or negative impacts of policies on ecosystems and their services are considered during both the policy design and the policy implementation phase [5,6]. In particular, mainstreaming ES addresses those sectors that

⁷ PEER is the Partnership for European Environmental Research; www.peec.eu.

Figure 1



Outline of the PRESS initiative. Assessment of the impact of selected measures proposed by three EU policies on three ecosystem services with case studies for Europe, Finland (FI), United Kingdom (UK), Denmark (DK) and the Netherlands (NL).

are authorised to make decisions about the use of natural resources. Bringing ES to the mainstream requires spatially explicit data and models [7^{**},8,9]. Therefore, the European Commission is setting up a common process towards the mapping and assessment of the state of ecosystems and their services in Europe, taking stock of on-going developments at global and European levels and within the Member States, also known as Action 5 of the EU Biodiversity Strategy to 2020 [2^{*}]. This common implementation requires a multi-scale mapping approach where ES are produced and the benefits are appreciated [10,11]. Furthermore, a better understanding is needed of the ecological production functions, which define how ecosystem structure and function affect the flows of ES, and their specific relationships with biodiversity, which is at the basis of ES [12–14].

The PRESS initiative (PEER Research on EcoSystem Services; PEER: Partnership for European Environmental Research, www.peer.eu) contributed to the knowledge base developed under Action 5 by advancing methods to map, assess and value ES at multiple spatial scales. In so

doing PRESS focused on first, the impact of EU water, agricultural and biodiversity policies on the delivery of ES across Europe at different spatial scales; second, policy impact assessment based on qualitative literature reviews, as well as quantitative, biophysical mapping, valuation and scenario analysis, and third, guidance and recommendations for biodiversity policy development and implementation at the scale of EU and its Member States (Figure 1).

This paper presents a synthesis of the main results of the PRESS initiative [15] and translates the findings into conclusions for mainstreaming ES into EU policies.

Mapping of ecosystem services for policy impact assessment

Figure 1 links the case study-based ES assessments to the policies that were addressed in the project. EU policies are currently in the process of aligning their objectives with the overarching, long-term Europe 2020 strategy [3]. The CAP [16] and the EU Water Policy [17] are thus under revision. Both policies directly impact the use of

Download English Version:

<https://daneshyari.com/en/article/10503814>

Download Persian Version:

<https://daneshyari.com/article/10503814>

[Daneshyari.com](https://daneshyari.com)