

Authors' names and affiliations:

Stefan Schmidt
Helmholtz Centre for Environmental Research - UFZ
Department for Computational Landscape Ecology

Ralf Seppelt (co-author)
Helmholtz Centre for Environmental Research – UFZ
Department for Computational Landscape Ecology

Session number:

F5: Understanding ecosystem services, multi-functional land use, trade-offs and uncertainty

Abstract title:

A quantitative review of ecosystem service studies: approaches, shortcomings and the road ahead of valuation and trade-off analysis

The actual abstract (max. 300 words; graphics may be included):

Values depend on the co-evolution of the three subsystems nature, economy and society. To value goods and services humankind earn from nature scientists have to recognize the factors and interdependences of multidimensional, coupled systems. In order to meet this amounts numerous case studies created since the 1970s.

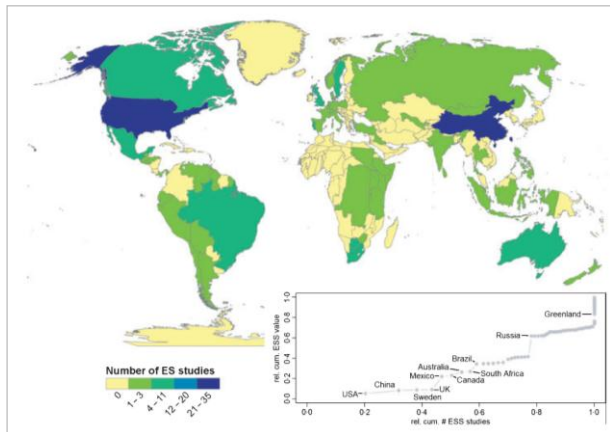


Fig. 1.: Geographical distribution of case studies in the review using colour coding that reflects the number of ecosystem service case studies per country.

However, ecosystem service valuation has focused on certain service categories, ecosystem types, and geographical areas, while substantial knowledge gaps remain concerning several aspects. To analyse the development and current status of ecosystem service valuation on the basis of publications reviews are appropriate tools. Based on a meta-analysis of 674 case studies dealing with ecosystem services we created interactive maps as a public useable and extendable database for further ecosystem service research. With the help of this we can perform path analysis on the ecosystem services across different indicators to objectively confirm how humans value ecological

goods and processes. We also examined additional review studies for comparability of data and correlation of valuation with various location factors. Beside our own database (SEPPELT et al. 2011) we used the data of valued ecosystem services of TEEB and data from VIHervaara et al. 2010. Our goal is to derive which ecosystem services are considered to be important in which regions under which socio-economic conditions. Finally, we give some insights into strengths and weaknesses of above mentioned databases and future steps concerning ecosystem service valuation.

References:

Seppelt, R., Dormann, C.F., Eppink, F., Lautenbach, S., Schmidt, S. (2011): A quantitative review of ecosystem service studies: Approaches, shortcomings and the road ahead. *Journal of Applied Ecology*. 48(3): 630-636.

Vihervaara, P., Kumpula, T., Tanskanen, A., Burkhard, B., et al. (2010): Ecosystem services - A tool for sustainable management of human-environment systems. Case study Finnish Forest Lapland. *Ecological Complexity*. 7(3): 410-420.

Short description of the relevance for the session:

The presentation will highlight findings of the analysis of ecosystem service valuation. We will discuss the comparability of ecosystem service valuation studies and give insights into the question of how humans experience the value of ecological goods and processes.

Our presentation also has relevance for the session..., so that I could possibly imagine to take part in this, if there are too many participants in session F5.

Please note that the maximum file size is 5 MB and that all data have to fit into maximum two pages!