

# Soil diversity and ecosystem services

## how can we value services and identify threats to soil sustainability?

### A multidisciplinary workshop bringing together policy-makers, economists and ecologists

Funded by the EU project **SOILSERVICE**

<http://www.kem.ekol.lu.se/soilservice.html>

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Hotel de Wageningse Berg

Wageningen

The Netherlands

Organizers: Prof. W.H. van der Putten, Netherlands Institute of Ecology, NL  
Dr. W.H.G. Hol, Netherlands Institute of Ecology, NL

#### Summary of the presentations:

**Coordinator of Soil Service, Katarina Hedlund, Lund University, Sweden**, gave an introduction to Soil Service “*Soil Service – conflicting demands of land use: soil biodiversity and the sustainable delivery of ecosystem goods and service in Europe.*” She first gave an informative background to Soilservice and the objectives and tasks of the project by clarifying the different components in the soil ecosystem and possible threats to the system and the services. She also discussed the competing users of the soil ecosystem and the implements for conservation biology.

After the introduction to Soilservice, **Wim van der Putten, Department of Multitrophic Interactions at the Nederlandse Institute of Ecology, and Wageningen Institute**, gave an introduction to the workshop. He gave an overview of ecosystem services especially in the soil, and showed the immense increase in number of publications on the topic during the last five years. Van der Putten also showed a detailed summary over various ecosystem services occurring in the soil. He concluded with presenting the topics of the workshop: Introduction to ecosystem services, national and international policy, scaling and valuation of ecosystem services and scenarios.

**Henrik Smith, from Lund university, Sweden** presented work on ecosystem services in agricultural landscapes. He showed how the spatial scale matters when regarding production of ecosystem services. This also gives implications on how the agricultural landscape is configured in order to enhance ecosystem services.

**Ladislav Miko, EU-commission in Brussels** presented the task of preservation of soil biodiversity from the EU-commissions’ point of view in his talk “*Soil Diversity and Ecosystem Services*”. As proclaimed in the last talk, the commission has now adopted the

issue in its thematic strategy for soil protection. Miko presented the objectives of the program and explained EUs four “pillars” on soil policy: “Awareness raising”, “Research”, “Integration into other policies” and “legislation”. He explained the gaps in knowledge and barriers for implementing knowledge and continued with suggestions for research topics that were asked for in the commission.

**Ben Delbaere, European Centre for Nature Conservation, Tilburg, Netherlands,** presented the organisation and their work, a not-for-profit organisation acting in the interface between science, society and policy. Ecosystem services are a part of their work, but soil has not yet been a subject of its own. Soil is integrated in other parts of their work.

From the French company **Bio Intelligence Service in Ivry-sur-Seine, Anne Turbé** came and talked about what is “*Between Policy and Science*”. The company works as a link between science and policy.

**Ciro Gardi** and **Simon Jeffrey** from **Institute for Environment and Sustainability** at the **European Commission Joint Research Centre in Ispra, Italy** gave a talk entitled “*What are the main threats to soil-related ecosystem services? What are the probabilities of those threats occurring?*” The European commission has recognized the importance of soil protection and has included it in the 6<sup>th</sup> Environment Action Program. They listed the possible threats that soil biodiversity is encountering, such as climate change, industrial contamination and various effects of agricultural use of land. They made a thorough survey of risk factors associated with these threats.

**Frank Wätzold** from **Helmholtz Centre for Environmental Research and Brandenburg Technical University, Cottbus, Germany** gave a presentation about “*Ecological-economic modelling of ecosystem services for biodiversity management: potential, pitfalls and prospects*”. He taught us what both scientists and policy makers dealing with ecosystem services can learn and gain from integrating economic modelling with ecological modelling. The integrated modelling was demonstrated by examples on endangered species conservation and trade-offs between different ecosystem services.

**Lars Hein** from **Wageningen University, Netherlands** gave a practical view of Ecosystem Services Valuation in his talk “*Spatial Scales and the Valuation of Ecosystem Services*”. He demonstrated how to set up a graphic model, what parameters to include and how to handle different scales in a model. In two case studies in the Netherlands, he gave examples on services to value in for example natural parks.

**Mark Brady** from **Swedish Institute for Food and Agricultural Economics in Lund/Uppsala** gave us a thorough lesson in modelling economic value of soil ecosystem services with his talk “*Ecosystem Services: from Farm to Landscape*”. He presented two different approaches to valuation; A Dynamic Production Function Approach and Insurance Value of Soil Biodiversity.

**Barry Salomon, Professor of environmental Policy, Michigan Technological University, USA** talked about “*Alternative Energy & Land Use change Scenarios*”. Salomon gave an introduction to the global production of biofuels, its advantages and consequences. He discussed differences in effects on soil between “Intensive agricultural systems” as cereal crops, sugarcanes, sugar beets, wine, rape seed, and “Extensive agricultural systems” such as

monocultural perennials, and short rotation woody crops. He also pointed at the influence of different systems on global food production.

**Timothy J Killeen** brought us all to a journey to the Amazon wilderness with his talk “*A Perfect Storm in the Amazon Wilderness*”. Killeen talked about the approaching catastrophe in South America due to deforestation following the increase in agricultural activities. Apart from recognizing the main threats to the system, validating ecosystem services may be an effective mean to make people realize the acute situation.

**Marc Metzger** from **Centre for the study of Environmental change and sustainability, School of GeoSciences, University of Edinburgh, UK**, talked about “*Spatially Explicit Projections of Environmental Change in Europe*”. Metzger gave examples on environmental changes in the past and introduced us to the world of Scenarios. What are they, how are they built and told, what use can they be of? He also gave some examples on scenarios for various aspects of environmental change in Europe.

**Stefan Hotes** from **Justus Liebig University, Giessen, Germany**, talked about “*Land Use Scenarios & Valuation of Ecosystem Services* “. He defined scenarios and explained the use of them in conservation biology and Ecosystem Service validations. He gave examples on existing scenarios and models and running projects with scenarios. Stefan also summarized the “Giessen.meeting” that was held in October 2008, about scenario-building within the Soil Service project. Finally he concluded the tasks and framework for scenarios within Soil Service.