

Innovations for biodiversity assessments in planning and industry: integrating ecological models and ecosystem services



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Topic

- Resilience
- Lifestyle
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Title of the Paper

Innovations for biodiversity assessments in planning and industry: integrating ecological models and ecosystem services

Form of Presentation

- Poster
- Presentation

Short Description (maximum 2500 characters)

At the University of Giessen, a project team aims at developing a new innovative procedure to make scientific methods and results of ecological research applicable for urban and landscape planning. Assisted by user-friendly software modules the novel procedure will bring together ecological modeling and quantification of ecosystem services to facilitate considerations of sustainable planning.

Healthy ecosystems formed by characteristic species, habitats and ecological processes provide essential ecosystem services that are the basis for human livelihoods, e.g. through the provision of resources and the regulation of environmental conditions. It is widely acknowledged that considering species, habitats and ecosystem functions is crucial for a sustainable regional development. Numerous rules and regulations exist concerning assessments of these issues in urban and landscape planning. Furthermore, an increasing number of companies are recognizing the economic significance of environmentally responsible behaviour both for cost reduction and marketing purposes. However, existing procedures for assessing the impact of economic activities on ecosystems are costly, but they do not efficiently capture the complexity of interactions among humans, organisms and the abiotic environment. Currently, evaluations of species and habitats are mainly based on their conservation status and sectoral planning assesses possible impacts on landscape functioning such hydrological processes or recreational value, but biotic, physiochemical and socio-economic aspects are not sufficiently integrated in a unified evaluation framework. Applying a more standardized approach to such integrated assessments would also improve their transparency and comparability, and it would aid communication among stakeholders and decision-makers.

Our novel procedure will facilitate higher quality results at lower costs by (1) applying spatially explicit models of species and habitat distribution based on collated existing data, (2) supporting discussions among stakeholders by providing easy-to-grasp information on the potential consequences of different land-management options and (3) providing coherent decision support by integrating biotic and abiotic aspects in the

unifying concept of ecosystem services. Thus, we will develop comprehensive solutions for complex problems in a number of fields, e.g. landscape planning, agri-environmental policy or environmental protection in corporate operations.

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