

BayCEER Kolloquium

Lectures in Ecology and
Environmental Research

Winter 2022



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12:15 in H6, GEO



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Preserving ecosystem services and biodiversity on agricultural land

Agricultural land is in high demand. However, by intensifying existing agricultural land-use or expanding the land area under production, we risk deteriorating ecosystems and losing valuable biodiversity. Hence, we need to find ways of optimising the use of agricultural land in a manner that maximises its contribution to biodiversity and the provision of ecosystem services according to the needs of the society. The talk will present projects where trade-offs and synergies among food production, biodiversity and selected ecosystem services in different European case studies are identified and quantified. Examples will be presented where stakeholders developed scenarios about the development of future land use and cover, but also water management strategies under different political and environmental priorities. Subsequently, optimal land and water use strategies (simultaneous fulfillment contrasting demands, mitigation of conflicts) have been identified. It has been analyzed in how far existing policy measures could support these strategies. The procedure consists of the following methodological steps: i) stakeholder integration in all project phases (incl. stakeholder guideline), ii) development of land and water use and policy scenarios, iii) development of optimization methodologies (explorative modelling) and a platform that links biophysical and statistical models using optimization algorithms. Methods will be presented that have been applied to enable stakeholders identifying preferences for optimized scenarios. The pros and cons of the procedures and results as well as further development of methodologies and their enhanced application will be discussed on the example of new research projects preserving ecosystem services and biodiversity on agricultural land.

