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ECOLOGY – MEETING THE SCIENTIFIC CHALLENGES OF A COMPLEX WORLD

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SESSION 1-P2

Measuring biodiversity driven ecosystem services at the landscape scale – impacts of landscape heterogeneity, biotope elements and land use

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Landscape heterogeneity, biotope elements and land use intensity are some of the key impacts on biodiversity. With the present approach, we try to quantify the impact of these factors not only on biodiversity but on their ecosystem function supply. Methods of the Rapid Ecosystem Function Assessment (REFA) (Meyer et al. 2015) are used to quantify the supply of selected ecosystem functions empirically. Using REFA methods allows to measure the ecosystem functions directly. Field investigations have been carried out in the AgroScapeLab Quillow, an entire watershed located in the northeastern German lowlands from 2015 till 2017. The region is a typical agricultural area of 250 km^2 size. Within this area, single arable fields have been selected for the investigations based on a preliminary landscape GIS analysis regarding landscape heterogeneity gradients, the occurrence of two typical regional biotope elements (kettle holes and hedges) and information on the land management practices. The first results draw a puzzled picture for the singular ESF and the investigated factors. The applied methods served well and are feasible for quantifying ESF supply empirically. Measuring ESF directly may improve ESF assessments by avoiding over/under estimation of impacts. The results are integrating numerous interactions as typical for the landscape scale and agrarian land use impacts and thus provide more realistic insights.