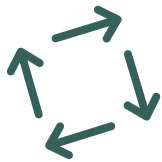


BUILDING BRIDGES IN BIODIVERSITY RESEARCH

GUNNAR LISCHIED



Aerial view of one of the studied kettle holes in the AgroScapeLab Quillow. Picture taken by an unmanned aerial vehicle (UAV).



Various working packages focus on linkages between aquatic and terrestrial systems, urban and rural systems, above- and below-ground systems, as well as near-natural and novel ecosystems. ZALF contributes to three work packages of BIBS. In the first work package, ZALF has established and begun operating a sensor network in the AgroScapeLab Quillow in the Uckermark region, for which ZALF provides additional infrastructure, monitoring data, and basic information.

The second work package focuses on interactions between land use, biodiversity, and the ecosystem properties of kettle holes in a region of intense agricultural use. The effects of the surrounding terrestrial system on kettle holes are studied along a gradient of land use intensity. A mathematical model of biogeochemical processes in kettle holes will be applied and refined. In addition, machine learning approaches will be used to describe the interactions between external triggers and the biological and biogeochemical processes within kettle holes. The analysis will draw on existing data of the comprehensive landscape and kettle hole monitoring program of ZALF. Initial results indicate that biological, biogeochemical, and hydrological processes in kettle holes feature complex interactions. The input of nutrients, contaminants, and organic matter from adjacent arable fields into kettle holes can therefore yield diverse reactions, depending on the respective local conditions.

In work package 5, ZALF will contribute to an analysis of the costs and ecosystem services in a massively anthropogenically influenced environment. Here, especially in urban

Various aspects of biodiversity and mutual interferences with human activities are studied in diverse biological systems, at different spatial scales, and by different disciplines. The BIBS project aims at bridging these different aspects. The compiled results will be made available to decision-makers and the general public. Special attention is paid to rapid man-made transitions of ecological systems.

environments, new ecosystems develop continuously with novel biological communities of species that did not previously share a common development. These novel ecosystems are subject to new stress factors. This work package aims at a better understanding of the processes that result in rapid transitions from natural to novel communities and ecosystems. To that end, existing novel grassland ecosystems in an urban setting are monitored and supplemented by additional experiments. Biodiversity effects of native and invasive species on ecosystem services like control of the microclimate, carbon sequestration, and soil fertility can thus be assessed.

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