

BayCEER Kolloquium

Lectures in Ecology and
Environmental Research

Summer 2018



UNIVERSITÄT
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Thursday

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12:00 in H6, GEO

Dr. Yann Hautier

Institute of Biology, Ecology and
Biodiversity Group, Utrecht University / NL

A new experiment to unravel the impact of biodiversity and climate variability on the functioning of grasslands

In recent decades, we have witnessed global climate changes including not only changes in seasonality, but also in weather extremes. Extreme heavy precipitation events and intense droughts continue to increase worldwide. Biological diversity could provide us with natural insurance against extreme weather events, as different plant species may compensate each other's performance under different environmental conditions. In contrast, biodiversity loss may make ecosystems more vulnerable to climatic extremes. However, to what extent biodiversity buffers ecosystems against climate variability remains unclear. In this project, we manipulate plant diversity and precipitation patterns in experimental mesocosms of constructed grassland communities to fully represent forecasted interactive effects of species loss and climate change. We will measure the impact of changes in precipitation and plant diversity on a suite of essential ecosystem services provided by our natural grassland ecosystems including food for livestock, carbon storage, and the regulation of biogeochemical and water cycles. Our new experimental approach will provide the first direct experimental demonstration of how plant diversity buffers the provision of the multiple functions provided by grassland ecosystems against realistic changes in precipitation. This integrated approach will deliver much-needed predictive insights into the mechanisms and processes that may buffer grassland ecosystems against the functional impacts of climate change, thereby providing the necessary knowledge base for future management strategies.