

# BayCEER Kolloquium

Lectures in Ecology and  
Environmental Research

Summer 2019



UNIVERSITÄT  
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Thursday

**04.07.2019**

**12:00 in H6, GEO**

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## **Biotic controls of ecosystem functioning in global drylands**

Substantial research efforts are being devoted in the last decades to understand how biotic attributes such as species richness, composition and diversity affect ecosystem functioning and the provision of ecosystem services. However, most of this research has been carried out in ecosystems other than drylands, which cover ~45% and host over 40% of the global population. In these ecosystems, biotic attributes such as the cover, type and spatial pattern of vegetation and biocrust (surface soil communities dominated by lichens, mosses and cyanobacteria) patches largely affect ecosystem functioning yet most studies showing their importance have been carried out at local scales.

In this talk I will summarize the results of recent and ongoing studies evaluating how biotic attributes (species richness, evenness and composition, cover and spatial pattern) modulate multiple ecosystem functions (multifunctionality) across environmental gradients. These studies use multiple experimental approaches (manipulative and natural experiments), biotic communities (vascular plants, microbial communities and biocrusts dominated by mosses, lichens and cyanobacteria), spatial scales (from local to global) and ecosystem processes linked to hydrology, plant productivity and nutrient cycling. Overall, our results indicate that biotic attributes are key drivers of multifunctionality in drylands worldwide, and may partially buffer the negative effects of ongoing climate change on ecosystem functioning in these water-limited ecosystems.