

Interpreting variation in prairie restoration outcomes

Prof. Dr. Lars A. Brudvig

Michigan State University, East Lansing, Michigan, USA

The outcomes of ecosystem restoration can vary widely, even when restoration projects are conducted using similar methods across seemingly similar sites. Unfortunately, we typically lack understanding about why this variability develops and this challenges the capacity for restoration practitioners to achieve specific goals and limits the development of predictive abilities in restoration.

I will present on a series of studies conducted by our research group to resolve drivers of plant community variation across prairie grasslands being restored by seed sowing onto abandoned agricultural lands in the Midwestern United States. Our approach has been to couple concepts from community assembly theory with field surveys of restoration sites, and experimental tests of hypothesized drivers, to resolve and contextualize drivers of variation. These studies have shown how variation in plant communities across sites is structured by seed arrival (through seed sowing) and environmental conditions influenced both by management (e.g., prescribed fire) and outside of management control (e.g., planting year weather and edaphic conditions). These community assembly drivers have led to restored plant communities tracking different trajectories over time, evident both through the identities of species and their traits.

Our findings illustrate how variation among restoration outcomes is a consequence of how, when, and where restoration is practiced and demonstrate the merits of applying community assembly theory to interpret restoration outcomes.

Dept Life Science Systems

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Prof. J. Kollmann (Tel. 08161-714144, johannes.kollmann@tum.de)