

BioFrontiers - Biology Seminar

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Life Sciences Building A-117



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The Restoration Remains an Acid Test: How Variation in Plants, Soil, Management and Climate Influence the Structure and Function of Reconstructed Grasslands

Reinstating biodiversity and ecosystem functioning in lands degraded by human activity are common goals of ecological restoration that theory should robustly inform. Temperate grassland is one of the most disturbed biomes throughout the world due to large-scale conversion to agriculture. Experimental restorations, field-scale management comparisons, and reconstructing prairie over time in former cropland present opportunities to test predictions of species coexistence, local adaptation, and biodiversity-ecosystem function theory. Manipulating ecological filters in the community assembly process coupled with long-term study of community dynamics reveal the importance of dominant species, propagule supply, and environmental heterogeneity in structuring communities. Comparison of contrasting management strategies in reconstructed grasslands shows biodiversity-ecosystem function theory is applicable at scales relevant to conservation. To understand the role of interannual variability in climate on community development requires restoring grassland under a wide range of climate conditions. Decadal results from sequentially reconstructed grasslands over time suggest persistent effects of drought on development of community states. Multiple decades of study will elucidate whether stochastic events have deterministic outcomes for restored ecosystems.