Microbial Community Composition Across The Central Great Plains Region of North America: Landscape Versus Regional Variability. (S03-mcculley155338-Oral)

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Abstract:

Rates of nutrient cycling differ across landscape and regional scales. This biogeochemical variability can be attributed to changes in abiotic and edaphic conditions across these different scales; however, it is also possible that concomitant changes in the microbial communities performing these biogeochemical processes occur. To address this issue of microbial community variability across regional and landscape scales, we sampled upland and lowland topographic positions at 3 grassland communities spanning a 500 mm regional precipitation gradient across the Central Great Plains. Soil microbial community composition and biomass were determined using phospholipid fatty acid methodology. Microbial biomass increased across the regional gradient and distinct microbial community types were identified. Fatty acid diversity and richness decreased from shortgrass steppe to tallgrass prairie. Trends in microbial biomass and community composition at the landscape-scale were less pronounced, suggesting variability in microbial community composition is larger regionally across the Great Plains than landscape variability associated with topographical features at any particular site.

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