**Research Debrief: Analyzing Microbial Composition & Diversity in Soil Ecosystems in Colorado, USA**Kya Sparks, PhD student, Colorado State University   
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**The Purpose of Our Research**

The Adaptive Silviculture for Climate Change (ASCC) Network provides an exciting opportunity to explore strategies to combat climate change effects that have taken a toll on the trees in and around Colorado, USA. We can use Colorado State Forest, Taylor Park, and San Juan National Forest as research proxies to aid in the planned successful assisted migration of tree species in the future. Previous research shows microbial community composition and diversity, symbiotic relationships between trees and microbes, soil chemistry, and plant physiology are important factors to consider when determining forest management strategies and research initiatives. We plan to examine microbial composition and diversity at each site within the ASCC Network and leverage our findings to aid in a successful assisted migration effort.

**Research Questions & Goals**

It is important to consider the desired location when planning for a successful assisted migration process. These three forests are unique from each other as far as soil types, vegetation types, bark beetle outbreak severity, geographical location, etc., and that means vast differences in the microbial communities! **We are most interested in examining the differences in microbial community composition and diversity among the three different forest’s, Colorado State Forest, Taylor Park, and San Juan National Forest**. Our research aims to collaborate with others to provide forest managers with relevant microbial data and findings so they can make informed management decisions for the ASCC initiative.

**Preliminary Results**

**Clear separation between microbial community composition between sites!**

This is a look at microbial trends after an initial field sampling campaign Summer - Fall 2023:

This separation proves there are *significant* differences between the microbial communities, and it’s worth further exploration for a successful research iniative in the future!