

October 13 @ 7: Rangeland plant responses to arbuscular mycorrhizal fungi, options for ecological restoration.

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Arbuscular mycorrhizal fungi (AMF) are an important component of plant communities as they provide multiple benefits to mycorrhizal plants. Some of those benefits include stress relief, moisture absorption, nutrient acquisition, and pathogen protection. All those benefits may be critical for new plant establishment, especially in rangelands. However, remains unclear how those mechanisms work in multiple plant species, and recent work has provided ambiguous results. Here, we developed an experimental framework to better understand how several rangeland plant species respond to arbuscular mycorrhizal fungi. We wanted to understand 1) how *Artemisia* species respond to commercial inoculum and early seral native AMF, 2) do *Artemisia* species become more competitive against invasive species when colonized by AMF, and 3) does a late seral AMF source benefit more a late seral plant while an early seral AMF source benefits more an early seral plant? Results from our first research question indicate that colonized *Artemisia* species grown on early seral soils showed a negative mycorrhizal growth response when compared to autoclaved controls. Preliminary results to our second research question indicate that competitive ability of *Artemisia* species may not be increased immediately after seedling emergence, thus may be a long-term response. Results are important for ecological restoration because in many cases, AMF is applied without complete understanding of its effect on individual plant species.