TREE REGENERATION AND MICROSITES

A McIntire-Stennis supported project



WARNER COLLEGE OF NATURAL RESOURCES

FOREST AND RANGELAND STEWARDSHIP

Forest microsites exhibit unique environmental traits that are critical to survival and growth of planted seedlings. These areas can be on the order of square centimeters to meters and vary greatly in temperature, moisture, and sunlight depending on location. Revealing the relationship between microsite condition and seedling performance will help managers design and implement forest restoration treatments that create more resilient forests for the future.

To help guide the next generation of strategies for regenerating and managing forests, this project links tree structure, site conditions and conifer establishment to microsite conditions using specialized environmental sensors developed for this purpose. Planting and monitoring the growth of trees in experimental areas will show how local factors affect regeneration.

This research builds the scientific foundation necessary for designing management actions that promote the successful establishment of desired tree species, especially under a changing climate at both the microand macro-scales.

COLLABORATION

Researchers and students from Colorado State University and The Colorado Forest Restoration Institute are working together to develop and refine new sensor technology.



Local affiliates This project is located

on private land within a restoration treatment performed by Jefferson Conservation District.



About McIntire-Stennis

The McIntire-Stennis program, a unique federalstate partnership, cultivates and delivers forestry and natural resource innovations for a better future. By advancing research and education that increases the understanding of emerging challenges and fosters the development of relevant solutions, the McIntire-Stennis program has ensured healthy resilient forests and communities and an exceptional natural resources workforce since 1962.



IMPACT

Linking forest structure and microsite-scale controls through sensory data and experimental conditions can help inform long-term management and restoration efforts.



4.6 million Individual measurements will be collected from 50 microsites



400 and 3000 The total number of experimental seedlings and seeds respectively planted in microsites



294,000 acres of treated Front Range forests will benefit from knowledge gained in this study