NM STATE

John T. Harrington Forestry Research Center

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Mission Statement

The center aims to advance the understanding of the efforts of restoration activities on forested areas in New Mexico through multidisciplinary research, education, and stakeholder collaborations. It also provides science-based solutions for private, tribal, state, and federal forest managers, who face the threat of catastrophic fires due to overgrown forests and the inability of postfire plant communities and ecosystems to naturally regenerate after such fires.



Research has translated to higher survival and growth rates in the field.



The only research program in the southwestern U.S. that focuses on forest nursery technologies, tree improvement, and eco-physiology of young forest trees to facilitate reforestation.

MEETING THE NEEDS OF NEW MEXICO

New Mexico's forests supply many valuable resources to its citizens, including 50% to 75% of all water used by municipalities and agriculture. However, forest health in New Mexico and the greater southwestern region is in decline due to a combination of factors that include historic fire suppression, increased fuel densities, increased drought, and a lack of proper forest management. Current reforestation needs in New Mexico are approximately 1 to 2.6 million acres, which would require 150 to 390 million seedlings. The JTH Forestry Research Center is using sciencebased approaches to improve the reforestation efforts throughout N.M. and the greater southwestern region.





First research related to aspen nursery production and planting in the southwestern region.



OUTREACH ACTIVITIES

Media contributions include:

- Reforestation is a powerful weapon against climate change.
 Albuquerque Journal (November 29, 2020)
- Growing pains: the race to plant billions of trees. American Forests (September 1, 2020).
- Preparing trees for a changing world. Earth Island Journal (August 24, 2020).

Food and Fiber Production and Marketing Mater Use and Conservatio Family Development and Health of New Mexicans Environmental Stewardshi

The College of Agricultural, Consumer, and Environmental Sciences is an engine for economic and community development in New Mexico, improving the lives of New Mexicans through academic, research and Extension programs.

Recent Impacts

- Understating nursery cultural practices and outplanting techniques to improve aspen restoration is the first research related to aspen nursery production and planting in the southwestern region.
- Defining seed transfer guidelines for Pinus ponderosa in the southwestern U.S. allows for the creation of the first known empirical based seed transfer guidelines for New Mexico, Arizona, southern Utah, and southern Colorado.
- Reforestation efforts have very low survival rates (average 25%). Research projects conducted by the science center as part of the solution include: Drought-conditioning during nursery production influences physiology and resource allocation of populus tremuloides and *pinus ponderosa* seedlings, Genetic variation in aridity adaptation among *pinus ponderosa* populations, and Assisted migration - defining seed transfer guidelines for *pinus ponderosa* in a changing climate.







Ongoing Research

In February of 2020, the JTH FRC officially began work on a \$5 million grant with the National Science Foundation - Center for Research Excellence in Science and Technology (CREST). This work is in collaboration with New Mexico Highlands University and the New Mexico Forest and Watershed Restoration Institute. The role of the JTH FRC in this grant is to examine the use of a nucleation planting strategy matched with improved seedling stock types as a viable and cost-effective method to successfully establish vegetation on damaged forest sites. This will be accomplished with three separate experiments over the next five years.

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