



## JTH FORESTRY RESEARCH CENTER AT MORA

The JTH Forestry Research Center (JTH FRC) is the only research program in the U.S. Southwest that focuses on forest nursery technologies, tree improvement, and eco-physiology of young forest trees to facilitate ecological restoration and/or commercial reforestation. These research interests are critical for establishing future forests in the region.

### Current and future research directions include:

- Defining seed transfer guidelines for *Pinus ponderosa* in a changing climate.
- Evaluation of drought-conditioned *Populus tremuloides* and *Pinus ponderosa* seedlings after the nursery growth phase.
- Southwestern white pine blister rust resistance gene conservation.
- Nucleation strategies for forest restoration planting in post-fire environments.

### IMPACTS FOR 2018

- **Seed transfer guidelines for *Pinus ponderosa*** in the U.S. Southwest have been, until recently, based solely on geographic regions. This creates a serious risk for outplanted seedlings to be maladapted to the planting environment. The JTH FRC, in collaboration with the U.S. Forest Service, has developed new seed transfer guidelines that incorporate genetics, morphology, physiology, and climate to accurately define placement of seedlings to maximize survival and growth while limiting issues with insects and diseases. These new seed zones will be used by both public and private organizations involved in reforestation and restoration programs.
- **Research examining drought conditioning of *Populus tremuloides* and *Pinus ponderosa*** during the nursery growth phase has shown significant success. In the JTH FRC nursery, seedlings responded to irrigation limitations with improved plant hydraulics and photosynthetic rates. These conditioned seedlings were then outplanted into dry, harsh field sites and monitored for performance. Preliminary results show that drought-conditioned seedlings had both higher growth and survival rates compared to operational standards. These results have already started discussions with nursery and forest managers on using this new approach.
- **The JTH Forestry Research Center produced over 57,000 seedlings** for forest restoration efforts in 2018. This equates to the restoration of approximately 290 acres of post-fire forestlands in New Mexico.



### ACES Pillars for Economic and Community Development



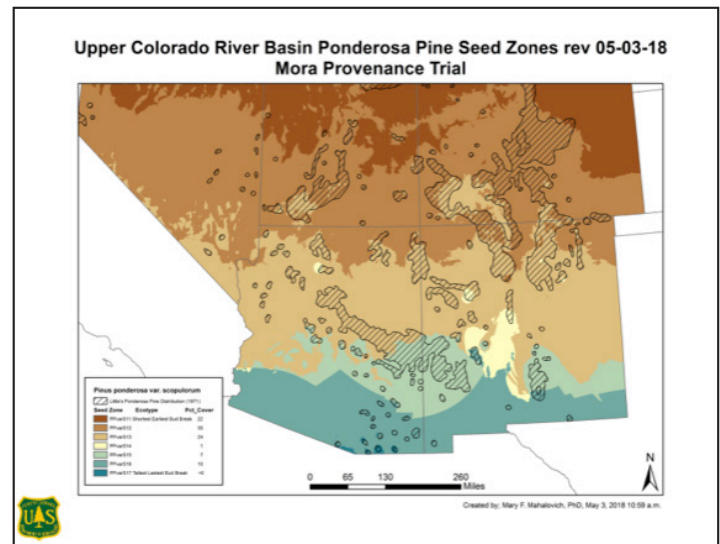
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The College of Agricultural, Consumer and Environmental Sciences is an engine for economic and community development in New Mexico, improving the lives of New Mexicans through academic, research, and Extension programs. New Mexico State University is an affirmative action/equal opportunity employer and educator. NMSU and the U.S. Department of Agriculture cooperating.



## OUR PARTNERS INCLUDE:

- New Mexico Energy, Minerals, and Natural Resources Department–Forestry Division
- USDA–Forest Service
- National Park Service
- New Mexico Highlands University, University of New Mexico, and other universities around the U.S.
- Private industries in New Mexico (e.g., Imerys and Chevron mining companies)
- Tribal communities and private landowners in New Mexico
- Soil and water conservation districts throughout the state



### JTH Forestry Research Center

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