

## **John T Harrington Forestry Research Center**

### **College of Agricultural, Consumer and Environmental Sciences New Mexico State University Strategic Plan 2020-2025**

#### **MISSION OF THE UNIVERSITY**

The mission of the New Mexico State University (NMSU) system is to serve the diverse needs of the state through comprehensive programs of education, research, extension and outreach, and public service. As the state's land-grant and space-grant university, and as a Hispanic-Serving Institution, NMSU fosters learning, inquiry, diversity and inclusion, social mobility, and service to the broader community.

#### **MISSION OF THE COLLEGE**

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 research, teaching, and extension.

#### **ABOUT THE JTH FRC**

The John T Harrington Forestry Research Center (JTH FRC) with NMSU in Mora, New Mexico was established in 1972 to address many of the state and regional issues related to forest regeneration after timber harvesting and forest fires. Since the inception of the JTH FRC, forest health in New Mexico and the entire southwestern US region has continued to decline due to a combination of factors that include over a century of fire suppression, increased fuel densities, warmer drought, and a lack of proper forest management. As a result of these factors, forests of the southwestern US have been burning at heavy levels, especially in recent years. The effects of these fires influence downstream water sources (municipal and agricultural), forest-stocking levels, wildlife habitats, the increasing potential of type conversion to non-forest, and many other critical resources. Reforestation of these severely burned forest lands is not commonly practiced in the southwest primarily due to a lack of knowledge and resources. For those areas that have been reforested, there has been little success with an average of only 25% survival of planted seedlings. It is critical to promote applied research that will address these forest health concerns including forest restoration and reforestation.

The JTH FRC research effort has evolved since the start of the program in 1972 that originally focused on tree improvement for commercial tree value to one that now focuses on restoration via tree planting after large catastrophic fires. Over the last 15+ years, the JTH FRC has developed the only research program in the southwestern US that focuses on forest nursery technologies, tree improvement, and ecophysiology of young forest trees to facilitate ecological

restoration and/or commercial reforestation. The JTH FRC has become the largest producer of tree seedlings in the southwestern US with a capacity of 300,000 per year. Many organizations across the southwestern region rely completely on the JTH FRC for expertise in forest restoration research as well as seedlings produced in the nursery. These organizations include the US Forest Service, National Park Service, The Nature Conservancy, Colorado State University, Northern Arizona University, Utah State University, NM State Forestry, Santa Clara Pueblo, Philmont Boy Scout Ranch, and many others. In 2017, the Forest Restoration Triangle (FORT) partnership was formed among 1) the JTH FRC with NMSU, 2) the Department of Forestry with New Mexico Highlands University, and 3) the New Mexico Forest and Watershed Restoration Institute. This partnership is focused on restoring proper ecological function and ecosystem services to the forest landscape in New Mexico and the greater southwestern US.

**STRATEGIC PRIORITIES**

**Note:** Objective numbers correspond to the College of Agricultural, Consumer, and Environmental Sciences (ACES) strategic plan, but some objectives do not apply to this Center and have been omitted.

**GOAL 1: ENHANCE STUDENT SUCCESS AND SOCIAL MOBILITY**

Goal: Create a program that effectively grows and shapes diverse enrollment, supports program demand, student retention, and timely graduation, and produces highly qualified graduates with value-added career outcomes.

**Objective 1.1: Maintain and enhance the existing structure that supports student success.**

*Actions:*

- Pursue extramural grants and fellowships that target research opportunities and professional training for students.
- Utilize the Forest Restoration Triangle (FORT) Advisory Board to improve student recruitment and student engagement in research activities.
- Promote student internship programs at the JTH FRC.

**Objective 1.2: Increase recruitment and retention of graduate students in ACES programs.**

*Actions:*

- Build a formal pipeline from NM Highlands University into M.S. and Ph.D. programs with ACES at NMSU.
- Promote internship and international opportunities to all students.

**Key Performance Indicators (KPIs)**

	<b>Metric</b>		
	<b>Year 1</b>	<b>Year 3</b>	<b>Year 5</b>
Number of graduate students associated with JTH FRC	≥1	≥2	≥3

Research grants funding graduate students	≥1	≥2	≥3
Number of student summer internships	≥2	≥3	≥4

**Leading indicators**

- Enrollment of domestic and international students, as well as students from underrepresented groups, in graduate programs.
- Increase grant funding to support graduate student research.
- Engage high school and undergraduate students in forestry research through internships.

**GOAL 2: ELEVATE RESEARCH AND CREATIVITY**

This strategic priority identifies research and creative strength, engages students, and strategically builds capacity, funding, and a good reputation. In ACES, research and creativity will be in four pillars for economic and community development: 1) food and fiber production and marketing, 2) water use and conservation, 3) family development and health of New Mexicans, and 4) environmental stewardship.

**Objective 2.1: Conduct research, teaching, and Extension programs on emerging issues.**

*Actions:*

- Maintain and expand on the only post-fire reforestation research program in the state and southwestern region.
- Work with forestry partners from all disciplines on the critical topic of reforestation.
- Improve laboratory capabilities (e.g., facilities, equipment, etc.) with NMSU and the collaborative research lab with New Mexico Highlands University.
- Improve nursery facilities for both research and production.
- Build up staffing levels (laborers and researchers) necessary to conduct research.

**Objective 2.2. Address critical water use and conservation issues in New Mexico and beyond (national/international) using a science-based approach.**

*Actions:*

- Integrate current research (i.e., Center for Research Excellence in Science and Technology) to address these issues.
- Seek grants (via proposal writing) to address issues with forest and watershed health.

**Objective 2.3: Encourage and reward interdisciplinary and integrated relationships with other research efforts across the university and external partners, emphasizing both applied and fundamental methods for developing comprehensive solutions to relevant issues.**

*Actions:*

- Develop a plan to relocate the JTH Forestry Research Center to improve visibility and access with external partners and students involved in forest restoration research.
- Maintain and expand the Forest Restoration Triangle efforts to promote forest health using science-based approaches.

- Explore opportunities to expand forest restoration research to other states, universities, tribes, and federal programs.

**Objective 2.4: Address critical environmental issues in New Mexico and beyond.**

**Actions:**

- Implement CREST research projects addressing post-fire reforestation.
- Explore opportunities to expand forest restoration research to other states, universities, tribes, and federal programs.

**Key Performance Indicators (KPIs)**

	Metric		
	Year 1	Year 3	Year 5
Adequate staffing levels	≥1	≥2	≥3
Upgrade lab facilities and equipment	≥1	≥2	≥3
Improve nursery facilities	≥5%	≥15%	≥25%
Publications from current research	≥2	≥3	≥4
New research projects	≥1	≥3	≥5

**Leading indicators**

- Develop a plan to possibly relocate the JTH Forestry Research Center to address the need for continued research, education (undergraduate and graduate), and outreach in forest restoration in New Mexico and the greater southwestern region.
- Hire appropriate staff and researchers for the JTH FRC.
- Publish current/active research projects in reputable peer-reviewed journals.
- Connect current and new forest restoration research to water and conservation issues in New Mexico, the greater southwestern US, and around the world.

**GOAL 3. AMPLIFY EXTENSION, OUTREACH, AND ECONOMIC DEVELOPMENT**

Deliberate programmatic activities for transferring university scientific knowledge and advancements to relevant external audiences through open-access information resources, presentations, events training programs, and individual consultations.

**Objective 3.1: Develop innovative, multidisciplinary educational programming addressing issues relevant to New Mexico and expand the clientele base.**

**Actions:**

- Establish a nursery production training opportunity for tribal members.
- Assist with the development of new forest nurseries in tribal communities or under a partnership with State Forestry.

**Objective 3.2: Connect research results to the broader forestry community**

**Actions:**

- Work with State Forester and the New Mexico State Forestry Division to develop forest restoration guidelines to be used by land managers.

- Produce materials that can be delivered through mass media outlets—presentations, news items, social media, and different languages.
- Use the FORT advisory board to disseminate research results.
- Hold field days and workshops to promote research activities and educate all interested individuals.

**Key Performance Indicators (KPIs)**

	Metric		
	Year 1	Year 3	Year 5
Number of materials or presentations provided to the public	≥3	≥6	≥9
Number of field days and workshops	≥2	≥4	≥5
Number of tribal members trained for nursery operations	≥1	≥2	≥3

**Leading indicators**

- Disseminate research results in both scientific and public forums.
- Hold field days and workshops to address forest health concerns and restoration efforts/research to ameliorate these issues.
- Train tribal members to be capable of running their own nursery programs.

**GOAL 4. BUILD A ROBUST UNIVERSITY BY IMPLEMENTING COLLEGE-WIDE, MISSION-SUPPORTING STRATEGIC INITIATIVES**

ACES unique elements promote learning, inquiry, diversity and inclusion, social mobility, and extension by integrating across and between disciplines throughout NMSU extended to K-12 both locally and internationally. These ACES initiatives provide a diverse academic environment that is reflective of a global society.

**Objective 4.1: Recruit undergraduate and graduate students and faculty globally and increase the recruitment from underrepresented groups.**

***Actions:***

- Work with tribal communities to identify candidates for training programs as well as undergraduate and graduate education.
- Build relationships with international forestry schools to identify potential graduate students.

**Objective 4.2: Expand a K-20 outreach program, inclusive of 4-H, focused on increasing participation and underrepresented groups to increase student awareness and participation in ACES programs and associated careers.**

***Actions:***

- Reinstigate the forestry summer camps in coordination with New Mexico Highland University for middle school and high school students from underrepresented groups.

**Objective 4.4: Elevate and promote the impacts and visibility of the AES and ASCs.**

*Actions:*

- Communicate the uniqueness of the JTH FRC, ACES, and NMSU within the region and nation regarding post-fire forest restoration research.
- Use the FORT advisory board to help increase the visibility of our college and forestry research program across the state and region.

**Objective 4.5: Continue a targeted involvement in multistate, regional, and international programs.**

*Actions:*

- Continue engagement with other southwestern state forestry programs (e.g., university, state, federal, and tribal) to promote reforestation research and activities.

**Objective 4.6: Increase the level of support for ACES from the citizens of New Mexico; local, state, and federal governments and agencies; private corporations; foundations; and alumni.**

*Actions:*

- Use the FORT advisory board to increase visibility and communication with alumni, foundations, New Mexican citizens, forest industry, and local, state, and federal governments.

**Objective 4.7: Encourage and cultivate staff excellence, and support staff training, development, and recognition.**

*Actions:*

- Strengthen initiatives in leadership development.
- Provide researchers and staff with training opportunities that will empower them to identify and implement processes that enhance system efficiency.
- Recognize researchers and staff excellence in service and research support.

**Key Performance Indicators (KPIs)**

	Metric		
	Year 1	Year 3	Year 5
Number of tribal graduate students	≥1	≥2	≥3
Completion of the forestry camp plan	≥20%	≥50%	≥100%
Number of media materials highlighting NMSU and forestry	≥3	≥6	≥10

**Leading indicators**

- Identify tribal members from training or undergraduate programs for admission into graduate-level programs.
- Work with NM Highlands University to develop a formal forestry camp plan.
- Highlight all positive images of the JTH FRC in connection with the College and University.