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Testimony

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Introduction

Chairman Tiffany, Ranking Member Neguse, and Members of the Subcommittee, thank you for the opportunity to present my views on H.R. 5015, “Seedlings for Sustainable Habitat Restoration Act of 2023,” and its potential impacts on New Mexico and New Mexico State University.

I have been a professor in the College of Agricultural, Consumer, and Environmental Sciences at New Mexico State University for more than 20 years. In my current position as Assistant Dean for Economic and Rural Development, I work to fulfill the College’s mission of serving “as an engine for economic and community development in New Mexico.” The State’s forests and woodlands provide an important contribution to the State’s economy and provide economic and community development opportunities for the State.

In my role as Interim Associate Dean and Director of the Agricultural Experiment Station, I have responsibilities for administering the College’s agriculture and natural resources research. New Mexico’s Agricultural Experiment Station has twelve science centers located throughout the State, including the John T. Harrington Forestry Research Center in Mora, New Mexico. The Center is adjacent to the Santa Fe and Carson National Forests. The Center’s mission is to advance the understanding and success of forest restoration activities in New Mexico through multidisciplinary research, education, and stakeholder collaborations. The Center is New Mexico’s only research-based tree nursery. It conducts innovative research to produce seedlings that will survive in harsh, burned area environments today and thrive in the climate of 2100.

The Hermits Peak and Calf Canyon Fire, created when two USDA Forest Service fires escaped prescribed burn areas, burned more than 340,000 acres in 2022. The fire, the largest in New Mexico’s history, came within one-tenth of a mile of the John T. Harrington Forestry Research Center. Agricultural Experiment Station faculty and staff evacuated tree seedlings and the seed bank in advance of the firefront and were able to salvage nearly all of the crop. In the same year, the Black Fire burned more than 325,000 acres in the Gila wilderness. It is from this backdrop that I present my testimony.

The Importance of Forests

There are 766 million acres of forests in the United States, including New Mexico’s nearly 17 million acres (Oswalt et al., 2019). Forests provide numerous benefits, including recreation, wood resources, and, especially important in the arid West, watershed benefits. In New Mexico, forest watersheds supply more than 50% of all water used by municipalities and agriculture. Additionally, forests provide the largest terrestrial carbon sink on the earth, sequestering more than 11% of carbon emissions each year (Oswalt et al., 2019). It is estimated that the forest products industry accounts for approximately four percent of the United States’ total manufacturing gross domestic product (Oswalt et al., 2019).

Forests at Risk

All forests in the United States, especially in the Western United States, face forest damage and destruction caused by wildfires. Over the last ten years, forest fires in the United States burned an

average of more than seven million acres annually, with three years recording more than ten million acres burned (Figure 1). As I previously indicated, New Mexico has faced significant wildfires in recent years with substantial damage. Over the last 20 years, the state has had nearly 300,000 acres burned annually. These fires are often large. Large fires increase the need for reforestation as they reduce the forests' ability to regenerate naturally.

Reforestation Needs

A number of factors contribute to the need for reforestation, including wildfire, insect infestations, disease, and drought. The Forest Service estimates that 80% of reforestation needs are associated with wildfires. The Forest Service has estimated that more than four million acres of forests need reforestation as a result of wildfire, but it has only been able to address six percent of this need (USDA FS, N.D.).

It is estimated that more than five million tree seedlings will need to be produced each year over the next ten years or more to reforest lands that have been lost to wildfire in New Mexico and Arizona alone. Where will these seedlings come from? The case of tree losses from the Hermits Peak and Calf Canyon Fire, where 341,735 acres were burned, can be used to illustrate the significant need to increase reforestation capacity. If only the severely burned acreage were replanted, experts estimate that the reforestation would require more than twelve million seedlings. The Forest Service does not have a nursery in Arizona or New Mexico. The largest nursery in the region is New Mexico State University's John T. Harrington Forestry Research Center, which has the capacity to produce 300,000 seedlings annually. If reforestation were left to the Forest Research Center alone, it would take more than 40 years to have enough seedlings to reforest the Hermits Peak and Calf Canyon Fire.

New Mexico State University's John T. Harrington Forestry Research Center

The John T. Harrington Forestry Research Center not only grows seedlings for reforestation but also conducts vital, related research. It hosts one of the few research programs in the United States with a reforestation focus. Along with other higher education, state, and federal partners, the Center conducts research to address the unique reforestation needs of Western states. For example, the Center's research includes refining methods to ensure newly planted seedlings survive. Researchers, collaborating with partners, have refined a method for drought-conditioning seedlings during nursery growth that improves their survival when planted in the harsh environment of a wildfire burn scar. The Center and its partners have pioneered "nucleation" planting strategies in reforestation, which are designed to mimic natural regeneration. These strategies nurture a core area of planted trees to reproductive age, rather than the traditional method of grid planting, where many seedlings will die. The Center and its partners also conduct research to examine the impacts of microclimates on tree establishment in post-wildfire areas and are modeling how future climate change may impact reforestation. This research translates to improved reforestation efficiency for public and private lands.

The research conducted at the Forestry Research Center has had impressive results. Current efforts to reforest often use non-native seedlings grown outside the Southwest. These seedlings planted using traditional methods have a survival rate of 25 percent or less. The Center's use of local tree seeds,

seedling drought-conditioning, and nucleation planting strategies has significantly increased survival rates. It is estimated that our seedling survival rates, using this combination of strategies, can approach 80 percent. These strategies can also reduce the cost of reforestation.

Faculty, staff, and students at the Agricultural Experiment Station's John T. Harrington Forestry Research Center regularly collaborate with the Forest Service, State Forestry Division, faculty and staff at Highlands University, the University of New Mexico, and other universities on reforestation efforts. Staff from these institutions are leaders in reforestation science and have the expertise and experience that positions New Mexico to be a model for successful reforestation practices across the nation.

More Needs to be Done

In recognition that the scale of the need for reforestation is accelerating, New Mexico State University, Highlands University, the University of New Mexico, and New Mexico's Forestry Division recently entered into agreements that created the New Mexico Reforestation Center. With significant state and federal support that can be made available through the USDA Forest Service as facilitated through this bill, the Reforestation Center, when fully operational, will be able to provide up to five million seedlings annually. These seedlings will be acclimated to harsh Southwestern growing conditions and, with appropriate planting strategies, can have much higher survival rates.

H.R. 5015 "Seedlings for Sustainable Habitat Restoration Act of 2023"

H.R. 5015 "Seedlings for Sustainable Habitat Restoration Act of 2023" would amend the Infrastructure Investment and Jobs Act (IIJA) to authorize the Secretary of Agriculture, acting through the Chief of the Forest Service, to enter into contracts, grants, and agreements with various institutions, including institutions of higher education, for the purposes of collecting and maintaining native seeds and for producing seedlings for the purposes of revegetation. The bill is needed because funds currently made available in the IIJA for reforestation and revegetation include funding for the Department of the Interior and Department of Agriculture to purchase seedlings but not for needed capacity development.

H.R. 5015 clarifies that the Forest Service can use the funding in the IIJA that is intended for revegetation or reforestation after a wildfire not only to purchase seedlings but also for the creation of the capacity to make those seedlings available, namely, the collection and maintenance of the native seeds needed to grow the seedlings and the production of the seedlings themselves. The allowances made in the bill would support the work of the Agricultural Experiment Station's John T. Harrington Forestry Research Center and the New Mexico Reforestation Center. Such support would enable the Centers to continue to conduct research that would improve the country's ability to meet its significant reforestation needs, particularly in the West and Southwest.

Section 40804, subsection (9) of the IIJA currently provides funding to the Forest Service that can be used for the development of seedling production capacity. However, the funding available in this subsection is not sufficient to provide the infrastructure necessary to produce the five million seedlings per year needed to reforest the Southwest. Additional proposals have been made to amend this bill that would free other subsections pertaining to revegetation and reforestation of federal lands to include the

capacity building necessary to produce the seedlings needed. I strongly recommend that these proposals be considered.

Lastly, the workforce needed to do this vital work needs to be educated and trained. The concluding section of this bill further clarifies that institutions of higher education are eligible for funding under the Collaborative Forest Landscape Restoration Program to provide employment or training in the collection, maintenance, and production of native seeds for the purpose of revegetation or reforestation. This is in recognition that not only the facilities but also a workforce is needed to conduct reforestation activities.

Conclusion

Forests play an important economic and ecosystem role for our country, especially in the West and in New Mexico. Persistent droughts and changing climates are increasing existing wildfire, disease, and pest risks and exacerbating forest damage and loss. These losses have significantly increased the need for reforestation. New Mexico State University and its partners understand the importance of forests and reforestation needs and are making significant investments to ensure that they are prepared to meet current and future challenges. H.R. 5015 would make resources available that are desperately needed if we are to succeed.

References

Gleason, Megan. "Reforestation Center Aims to Replant Trees in Northern NM Burn Scar." July 18, 2022. Source NM. <https://sourcenum.com/2022/07/18/reforestation-center-aims-to-replant-trees-in-northern-nm-burn-scar/#:~:text=The%20goal%20for%20the%20New,Peak%2DCalf%20Canyon%20footprint%2C%20Burney>. Accessed 17 March 2024.

Oswalt, Sonja. "The State of the Forest." USDA Forest Service. April 22, 2019. <https://www.fs.usda.gov/features/state-forest>. Accessed 14 March 2024.

Oswalt, Sonja N., W. Brad Smith, Patrick D. Miles, and Scott A. Pugh. "Forest Resources of the United States, 2017." USDA Forest Service General Technical Report. 2019. <https://www.fs.usda.gov/research/treesearch/57903#>. Accessed 14 March 2024.

Southwest Coordination Center. N.D. "SW Historical Fire and Resource Data." No Date. https://gacc.nifc.gov/swcc/predictive/intelligence/Historical/Fire_and_Resource_Data/Historical_Fires_Acres.htm. Accessed 15 March 2024.

United States Department of Agriculture Forest Service. "Reforestation." No date. <https://www.fs.usda.gov/managing-land/forest-management/vegetation-management/reforestation/#:~:text=Uncharacteristic%20wildfire%2C%20insect%20infestations%2C%20diseases,on%20National%20Forest%20System%20lands>. Accessed 16 March 2024.

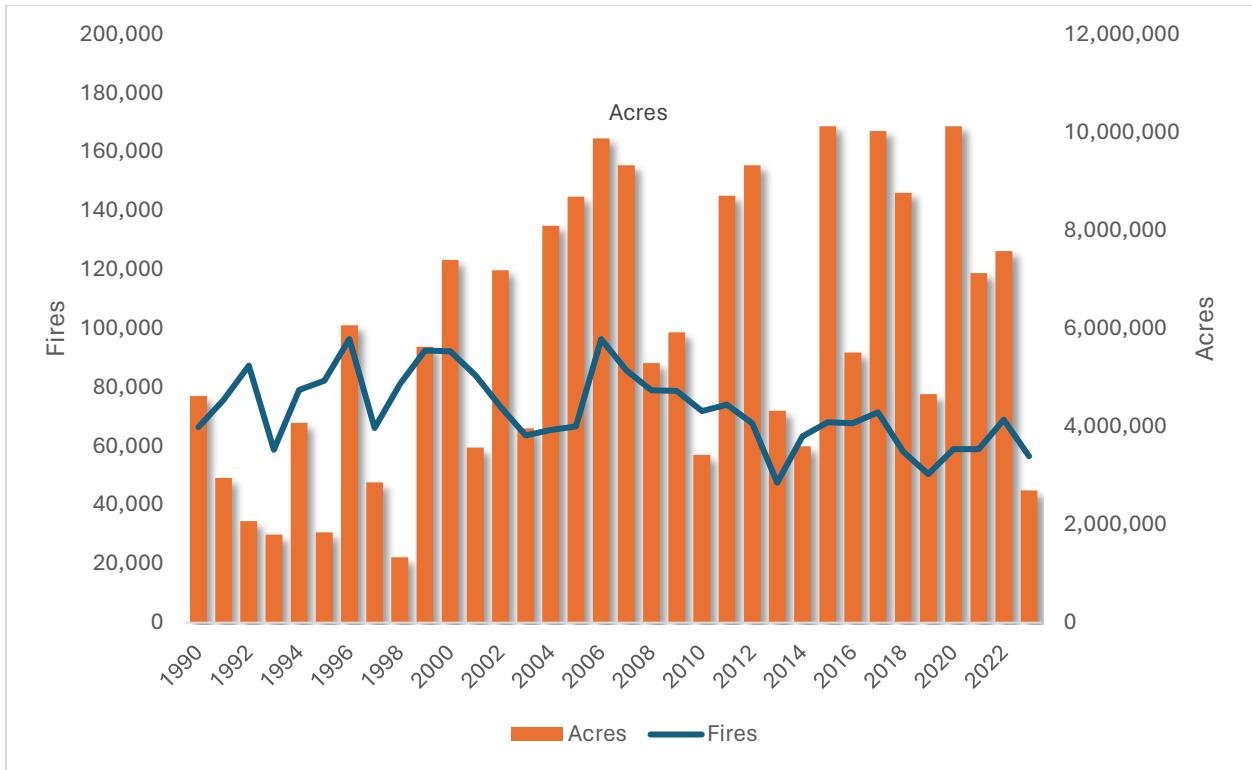


Figure 1. U.S. Wildfires and affected acreage, 1993-2023. Source: National Interagency Fire Center, N.D.