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TREE FARM BULLETIN

SOUTHWESTERN WHITE PINE CONSERVATION EFFORTS AT THE JOHN T. HARRINGTON FORESTRY RESEARCH CENTER

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Many readers of this bulletin are likely familiar with the southwestern white pine (*Pinus strobiformis* Engelm.), a five-needle pine native to the southwestern United States and northern Mexico that often occurs alongside ponderosa pine (*Pinus ponderosa* Douglas ex C. Lawson) and in mixed conifer stands. Southwestern white pine has been planted as a street tree and used for windbreaks, Christmas trees, and cabinetry, with the seeds serving as a food source for various wildlife species. Southwestern white pine, like its five-needle relatives eastern white pine (*Pinus strobus* L.) and western white pine (*Pinus monticola* Douglas ex D. Don), is susceptible to infection by a pathogenic fungus known as white pine blister rust (*Cronartium ribicola* J. C. Fisch.).

White pine blister rust is a native of China that was unintentionally introduced to North America around 1900. After introduction, it spread rapidly and became invasive, proving highly damaging and often lethal to five-needle pines throughout the continent. After infection, white pine blister rust causes yellow or orange cankers on the branches and stems of infected trees which eventually girdle the tree, leading to death. The life cycle of white pine blister rust is complex and requires two hosts for

the fungus to complete its life cycle. In addition to five-needle pines, white pine blister rust requires a species of currant or gooseberry (*Ribes spp*.) to serve as an alternate host in which it completes a portion of its life cycle. Some efforts to control white pine blister rust in the United States have therefore focused on the elimination of gooseberry and currant species from areas of white pine blister rust occurrence, but this has proven inefficient and largely ineffective. This, in turn, has led researchers and managers to focus on gene conservation approaches to managing white pine populations under threat from white pine blister rust.

Researchers at New Mexico State University's John T. Harrington Forestry Research Center in Mora, New Mexico have developed an experimental southwestern white pine gene conservation program in collaboration with the U.S. Forest Service and New Mexico State Forestry. Working with these partners, stands of southwestern white pine have been identified in New Mexico containing trees which show no symptoms of white pine blister rust and may be genetically resistant to the fungus. Young branches were collected from these trees and taken to the Research Center where they were grafted onto southwestern white pine rootstock which was grown in greenhouses at the Research Center under the supervision of Ms. Tammy Parsons, the Nursery Manager. This grafting approach ensures that the aboveground portion of these grafted seedlings is genetically identical to the seemingly resistant trees in the wild from which the branches were collected and therefore exhibit the same level of resistance as the donor trees (Figure 1). After grafting, the young grafted seedlings were transplanted into a field at the Research Center where their blister rust resistance will be assessed and non-resistant trees will be culled (Figure 2). The remaining trees will be used to establish the first seed orchard for the production of southwestern white pine seeds with improved resistance to white pine blister rust. Those seeds, in turn, will be used to grow seedlings for use in southwestern white pine restoration and conservation plantings throughout New Mexico to help ensure its continued presence on the New Mexican landscape.

Figure 1: Grafted southwest white pine seedling at the John T. Harrington Forestry Research Center in Mora, NM.

About the authors:
Dr. Joshua L. Sloan (Ph.D.) is a member of the Forestry faculty at New Mexico Highlands University in Las Vegas, NM where he also serves as the Chair of the Department of Natural Resources Management. His research focuses on developing knowledge and techniques to improve regeneration and forest management on harsh sites under changing climates. For many years, he has collaborated closely with Dr. Owen Burney (Ph.D.) of New Mexico State University who is an Associate Professor of Forestry and the Superintendent of the John T. Harrington Forestry Research Center in Mora, NM. In addition to its research functions, the Forestry Research Center houses the largest forest tree seedling nursery in New Mexico and supplies seedlings for reforestation and research operations throughout the region.

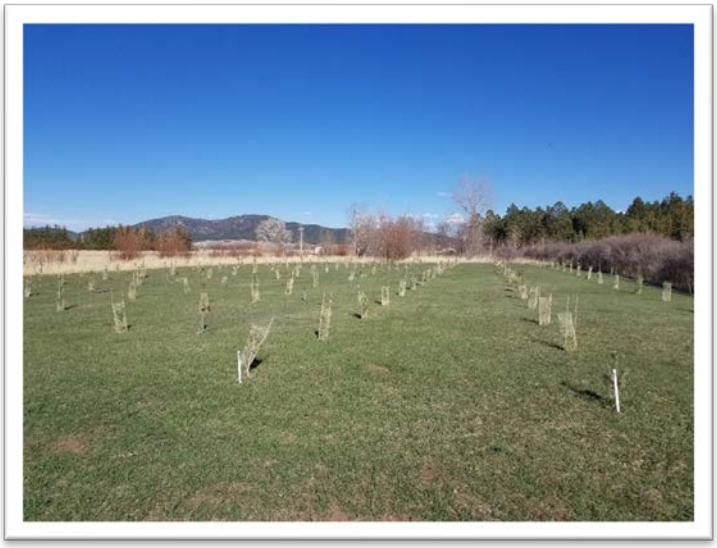


Figure 2: Plantation of grafted southwestern white pine seedlings at the John T. Harrington Forestry Research Center in Mora, NM meant to serve as a future seed orchard.

1) NMTFC 2020 RAFFLE

NEW MEXICO TREE FARM COMMITTEE 2020 RAFFLE

Drawing to be held at the August 2020 NMTFC Meeting

First Prize: Un-guided Private Ranch Cow Elk Hunt Landowner Tag

Second Prize: Large Custom-made Metal Art Piece

Donated by Carl and Lisa Bartley

Third Prize: $100 Cabela's Gift Card

Cow Elk Landowner tag donated by the Bartley Ranch

Unit 45, Hunt dates, any five days between 11/7 and 12/10/2020

Winner will be responsible for NMDGF license and tag

$10.00 Each

To purchase your 2020 Raffle ticket(s) send a letter and check (payable to NMTFC) to:

Doug Boykin
1118 Hope Farms Road
Socorro, NM 87801

Doug will in turn send you your numbered 2020 Raffle ticket stub(s).

2) SAVE THE DATE (CANCELED)

Due to the COVID-19 Pandemic, the New Mexico Tree Farm Committee has canceled this year's Spring Field Day scheduled for May 16th, 2020. We look forward to seeing you all later in the year.

3) COMMITTEE MEETING

New Option "Call-In Service"

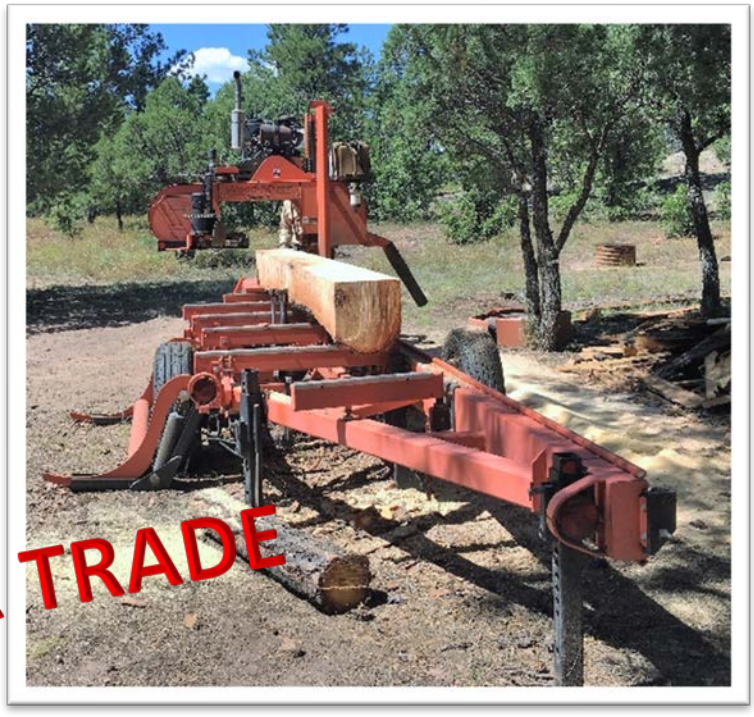
All Tree Farmers are invited and encouraged to attend our 2nd New Mexico Tree Farm Committee Meeting of the year (three held annually). Please join us at 1:30 pm on Wednesday, August 12th, 2020 at the New Mexico Department of Game and Fish office located at 7816 Alamo Road. NW, Albuquerque, NM 87120. Come out and hear what other tree farmers have been up to and share your tree farm accomplishments with the group. **If you are unable to attend the committee meeting in person, we have set up a new option "Call-In Service" for your convenience. Call 1-515-606-5169 & use password 305180#.** We look forward to visiting with you. If you have any questions, please contact Arnie Friedt at arnie.friedt@state.nm.us

4) BUY, SELL OR TRADE

The Roland Tree Farm is selling a 2003 Woodmizer LT40HDD33 Sawmill located in the McGaffey Area of the Zuni Mountains. Diesel engine, fully hydraulic with debarker, lube system and extra blades. Excellent condition with approximately 460 hours.

$22,000 or will consider trading for good working Skid Steer/Bobcat with tracks.

Call or text Dave Roland at 512-983-5500 or email: dr@daveroland.net for more information.



5) E-MAIL INSTEAD OF SNAIL MAIL

Would you prefer to receive your Tree Farm Bulletin by e-mail instead of snail mail? If so, contact Arnie Friedt at arnie.friedt@state.nm.us and provide him with your contact information. By receiving your Tree Farm Bulletin by e-mail our operating costs are reduced. Thank you for considering this option.