

MEASURING THE IMPACTS OF WILDFIRE ON SAPLING AND TREE SURVIVAL

A McIntire-Stennis supported project



University of Idaho

College of Natural Resources

When wildland fires occur in recently planted or naturally regenerated forests, the impacts of those fires on the survival and future productivity of fire-damaged saplings of different species is not well understood. Given the projected increase in fire activity in the western United States, there is an increasing likelihood that younger cohorts of tree species will experience fire. Land managers need tools informed by the best available science to help forecast how those saplings will react to fire.

Using the University of Idaho's state-of-the-art fire combustion lab, Dr. Alistair Smith and colleagues exposed saplings of different commercial forest species (Ponderosa pine, lodgepole pine, western larch) to known quantities of fire intensity. Results show that not all saplings die following fire, although their growth and net photosynthesis is reduced for up to a year following fire. Furthermore, declines in sapling growth are proportional to the fire intensity level which they are exposed.

Our research is helping change the way managers think about "severity" and fire-effects on saplings and trees. Ultimately, our goal is to provide managers with fire-intensity estimates so they can estimate the potential loss of saplings and trees in their managed forests.



About McIntire-Stennis

The McIntire-Stennis program, a unique federal-state partnership, cultivates and delivers forestry and natural resource innovations for a better future. By advancing research and education that increases the understanding of emerging challenges and fosters the development of relevant solutions, the McIntire-Stennis program has ensured healthy resilient forests and communities and an exceptional natural resources workforce since 1962.



COLLABORATION

This research is a collaborative effort of faculty from the University of Idaho, College of Natural Resources, including the University of Idaho's Experimental Forest and Pitkin Forest Nursery.



Undergraduate and Graduate Students

have been integral to completing this research

IMPACT

As wildfires are increasing across the western U.S., there is growing concern about the impacts of wildfires on the survival and productivity of forests.



8.8 million acres of forest and rangelands burned in the U.S. in 2018



Repeated Wildfires increase the costs associated with reforestation efforts



Increasing Survival of seedlings and saplings during future wildfires is critical to increasing reforestation success