

**Poster Session + Reception - Board 39 / 38**

## **The Value of Willamette Valley Oregon White Oaks for Establishing Climate Growth Interactions**

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Oregon white oak (*Quercus garryana*) is an integral part of the ecosystem in the Willamette Valley, Oregon. Human activities including fire suppression and land use change have resulted in the dominance of Douglas fir, making native oak habitat in the region rare. Understanding the relative importance of human vs. climate impacts on *Quercus garryana* growth will inform conservation techniques for land managers. This study is an extension of previous research which suggests that the growth of *Quercus garryana* at Zena Forest, Willamette Valley can be correlated with the Palmer Drought Severity Index. Although climate signals often appear more clearly in populations at the edges of their range, the Zena Forest population suggests that *Quercus garryana* in the Willamette Valley may be responding to climatic stresses. Therefore, this *Quercus garryana* tree ring record may be useful for separating growth trends into climate and other disturbance signals.

### **Fire Ecology II / 80**

## **Fire-induced wounding elicits changes in the wood anatomy of North American conifers**

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Fire is a major disturbance agent in North American forests. Fires injure trees when heat transfer through the bark partially kills the cambium and the compartmentalization process results in a fire scar. Dendrochronologists use these scars in the xylem to reconstruct fire regimes. However, little information exists on the wood anatomy of fire scars. Consequently, this study quantifies changes in xylem (tracheid and ray traits) caused by fire-induced wounding in 2 individuals each of *Larix occidentalis*, *Pseudotsuga menziesii* and *Pinus ponderosa*. Transverse and tangential microsections were cut from samples for light microscopy. Using image analysis, anatomical measurements of cells are being performed three-dimensionally: at 4 heights along the tree axis, within 4 cm from the wound margin and in 5 different rings; 1 control ring and 4 rings after the injury. These results will contribute to understanding the effects of fire on wood formation and improve fire histories in conifers.