



**PERSISTENCE OF *PHYTOPHTHORA LATERALIS* AFTER WILDFIRE:
PRELIMINARY MONITORING RESULTS FROM THE 2002 BISCUIT FIRE**

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Port-Orford-cedar (*Chamaecyparis lawsoniana*) is an economically and ecologically valuable tree species that occurs on approximately 272,000 acres in southwest Oregon and northwest California. Roughly 90,000 acres are infested with *Phytophthora lateralis*, the pathogen that causes Port-Orford-cedar root disease. Pathogen-caused mortality has been shown to kill more than 90% of the Port-Orford-cedar stocking on an infested site. Biologically valuable overstory Port-Orford-cedar are especially prone to infection and mortality. Loss of large Port-Orford-cedar can reduce the ecological function of the species and limit economic availability.

Phytophthora lateralis is sensitive to heat. Hansen and Hamm (1996) showed that survival of the pathogen is minimal in soil exposed to temperatures of 104^o F or greater, especially if conditions are dry. The Biscuit fire burned approximately 500,000 acres in southwest Oregon and northwest California in 2002 including over 3,000 acres infested with *Phytophthora lateralis*.

In the spring of 2004, twenty-five monitoring plots were established inside the Biscuit fire perimeter on sites known to be infested with *Phytophthora lateralis* pre-fire. Twenty-three of these plots remain in 2007. Each plot was planted with sixty susceptible Port-Orford-cedar that were removed in the summer of 2004 and analysed to establish a baseline for *Phytophthora lateralis* presence. Twenty-two of twenty-three plots had mortality from *Phytophthora lateralis*. In the fall of 2004, the sites were replanted with a fifty-fifty mix of resistant Port-Orford-cedar and susceptible stock from the initial planting. *Phytophthora lateralis* mortality declined to thirteen and nine plots respectively in 2005 and 2006.

Preliminary indications are that the soil heat pulse and soil surface darkening from the Biscuit fire, Port-Orford-cedar fire mortality, and overall loss of canopy resulting in higher temperatures and lower relative humidities may be combining to create an unfavorable environment for persistence of *Phytophthora lateralis*. Results from the Biscuit fire monitoring may lead to the design and implementation of silvicultural and prescribed fire treatments that potentially could reduce or eliminate *Phytophthora lateralis* from currently infested sites.

Hansen, E.M.; Hamm, P.B. 1996. Survival of *Phytophthora lateralis* in infected roots of Port-Orford-cedar. Plant Disease 80:1075-1078.