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Plant Pathology at the Biological Crossroads

APS Abstracts of Presentations

Wood blocks as Armillaria traps in burned ponderosa pine stands

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Fires undoubtedly influence the abundance and distribution of forest diseases, but surprisingly few studies have examined these relationships. Armillaria root disease, caused by *Armillaria ostoyae*, is arguably the most common forest disease in the Black Hills, South Dakota. We designed a field study to examine the effects of fire on the potential spread of this pathogen in ponderosa pine *Pinus ponderosa* stands, and to test methods of quantifying and detecting Armillaria. Five plots were established in an area of the Black Hills National Forest that burned 3 years previous to this study. Each plot consisted of four subplots that varied in fire intensity (i.e., low, medium, and high fire intensity, and unburned). Buried ponderosa pine and aspen wood blocks were compared as Armillaria traps in each of the subplots (1,200 total blocks). The proportion of colonized blocks increased with increasing fire intensity for each trap species ($P < 0.001$), and ponderosa pine blocks attracted more Armillaria than aspen blocks (e.g., 77% vs. 63% colonization in high fire intensity plots). This Armillaria trap method offers a simple and relatively inexpensive means of detecting and quantifying this important pathogen.