RESEARCH LABORATORY TECHNICAL REPORT

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Pitch Pine Canker

Drew Zwart, PhD, Plant Physiology

Pine pitch canker (PPC) is a disease caused by the fungus *Fusarium circinatum*. It occurs most frequently in the southern US and coastal areas of California. The disease affects many species of pine, but Monterey pine, slash pine, shortleaf pine, and Virginia pine are most susceptible to infections.

Symptoms

PPC is relatively easy to diagnose in the field on highly susceptible pines due to copious resin that exudes from cankers on stems and branches. The pathogen often infects small branches or the terminal leader causing resin-soaked lesions to form (Figure 1). These lesions encircle the stem or branch as the disease progresses and moves to larger branches or the main trunk where perennial cankers form. Diseased sapwood turns reddish brown as it becomes soaked with resin (Figure 2). Girdling cankers cause dieback in the canopy that reduces the aesthetic value of the tree and ultimately may be lethal. Fusarium-killed branches hold the reddish brown needles for a few months before defoliating.

Figure 2: Resinous canker produced by *F. circinatum*. Note discolored resin-soaked sapwood beneath bark layer. Courtesy UC Davis

Figure 1: Dieback in the canopy

Disease Cycle

The fungus infects susceptible hosts via wounds produced by insects and other factors. Infection can occur at any time of the year, but most new infections occur in late summer and early autumn in the southeastern US and during the rainy autumn, winter and early spring months in coastal California. Sawyer beetles, Pissodes weevil, and various bark beetles have been associated with pathogen dispersal but are not required for transmission. In addition, wounds created by these insects serve as infection sites for the pathogen as can wounds from hail, wind, and animal activity.

Management

Currently, there are systemic fungicides registered for stem injection or bark treatment in pine for prevention and therapy of PPC. However, the efficacy of these treatments has not been thoroughly documented and in some cases claims of control are dubious. The disease is not always lethal on susceptible pines despite dieback of stems and branches. Pruning has not been shown to significantly slow pathogen spread within an infected tree, but is effective at increasing the aesthetic value by removing dead, dying and diseased branches. Unlike many canker diseases, PPC is not a secondary invader affecting only stressed trees and healthy pines are as susceptible as stressed pines. Trees weakened by PPC are more susceptible to several species of bark beetles and other borer insects. Preventative treatments for these pests are recommended on diseased pines and healthy ones growing in close proximity to trees with PPC.

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