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Disease Notes
First Report of the Pitch Canker Fungus (*Fusarium circinatum*) in the Sierra Nevada of California

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The pitch canker fungus, *Fusarium circinatum* (teleomorph *Gibberella circinata*), was isolated from a branch originating from rootstock of a Douglas-fir (*Pseudotsuga menziesii*) graft in a breeding orchard at 1,000m elevation in El Dorado County, California. We visited the orchard after the New Zealand Ministry of Agriculture and Forestry reported in November 2003 that a Douglas-fir scion (branch cutting) shipped from there in January—and subsequently grafted and held in a quarantine facility near Christchurch—was infected with the pitch canker fungus. We took samples throughout the orchard of any branches that appeared unhealthy. In addition, asymptomatic branches from the tree alleged to be the source of the New Zealand infestation were collected to assay for propagules of *F. circinatum*. Wash water from these branches was negative for the pathogen. Likewise, *F. circinatum* was not recovered from water washings of 20 branches collected randomly throughout the orchard. Fifteen branch samples collected from symptomatic Douglas-fir grafts were cultured on water agar and only one yielded a colony with an appearance consistent with *F. circinatum*. A single spore subculture of this isolate was confirmed as *F. circinatum* on the basis of colony morphology and the structure of the microconidiophores (1). The virulence of this isolate was evaluated by inoculating susceptible 2-year-old Monterey pine (*Pinus radiata*) seedlings with a toothpick to wound the main stem and insert potato dextrose agar colonized by the fungus. Twenty-four days later, pitching and yellow needles were evident at the site of inoculation, and removal of the bark revealed resin-soaked and discolored tissue. Concurrent with the pathogenicity test described above, a culture of the putative *F. circinatum* isolated in New Zealand was inoculated into Monterey pines with an identical outcome. The fungus was reisolated from lesions from both sets of inoculations and confirmed as *F. circinatum* based on morphological criteria. Isolates GL285 and GL286 are available from T. R. Gordon upon request. Prior to its discovery in the Sierra Nevada, pitch canker in California was known only from counties on or near the coast. Our report indicates the pathogen can survive and infect trees 110 km east of the previous most-inland site of infestation. It remains to be seen how extensively pitch canker will develop in the Sierra Nevada. Douglas-fir is only moderately susceptible to *F. circinatum*, which has not been observed to cause significant damage to this species. On the other hand, low-elevation Sierra Nevada pines including *P. sabiniana*, *P. coulteri*, and *P. ponderosa* are substantially more susceptible than are Douglas-fir in greenhouse tests (2).

References: (1) T. R. Gordon et al. Mycol. Res. 100:850, 1996. (2) T. R. Gordon et al. Plant Dis. 85:1128, 2001.