

## FOMES ANNOSUS ON WHITE FIR IN COLORADO

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### ABSTRACT

Fomes annosus is reported on white fir in Colorado for the first time. The pathogen is common in many stands in the southern portion of the State where white fir is a major component of the forest type. Infection centers often contain older dead trees which serve as inoculum sources for root infection of younger recently killed trees. Windthrown trees, with extensive root and butt decay, are also common within infection centers. The pathogen is not restricted to cut-over stands.

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Fomes annosus (Fr.) Cke. is an important root pathogen of conifers throughout north temperate forest ecosystems. There are few reports of F. annosus incidence in the Rocky Mountains. Tegethoff (3) outlined the known distribution of the fungus in Nevada, Utah, and southern Idaho. He found the fungus near the western boundary of Colorado in logged ponderosa pine on the Manti-LaSal National Forest (southeastern Utah). Williams (4) described F. annosus in the northern Rocky Mountains (Montana and northern Idaho). Shope (2) reported the pathogen in Engelmann spruce in the Pike National Forest of Colorado.

Numerous white fir (Abies concolor) stands in southern Colorado were surveyed for presence of F. annosus and the current known distribution of the pathogen is presented in Figure 1.

Groups of dying and dead trees were checked for characteristic symptoms and signs of the fungus. Isolations were made from root collar tissue of symptomatic trees and identification of the pathogen was confirmed on wood samples and from colonies developing from basidiospores on water agar by the presence of the asexual stage (Oedocephalum).

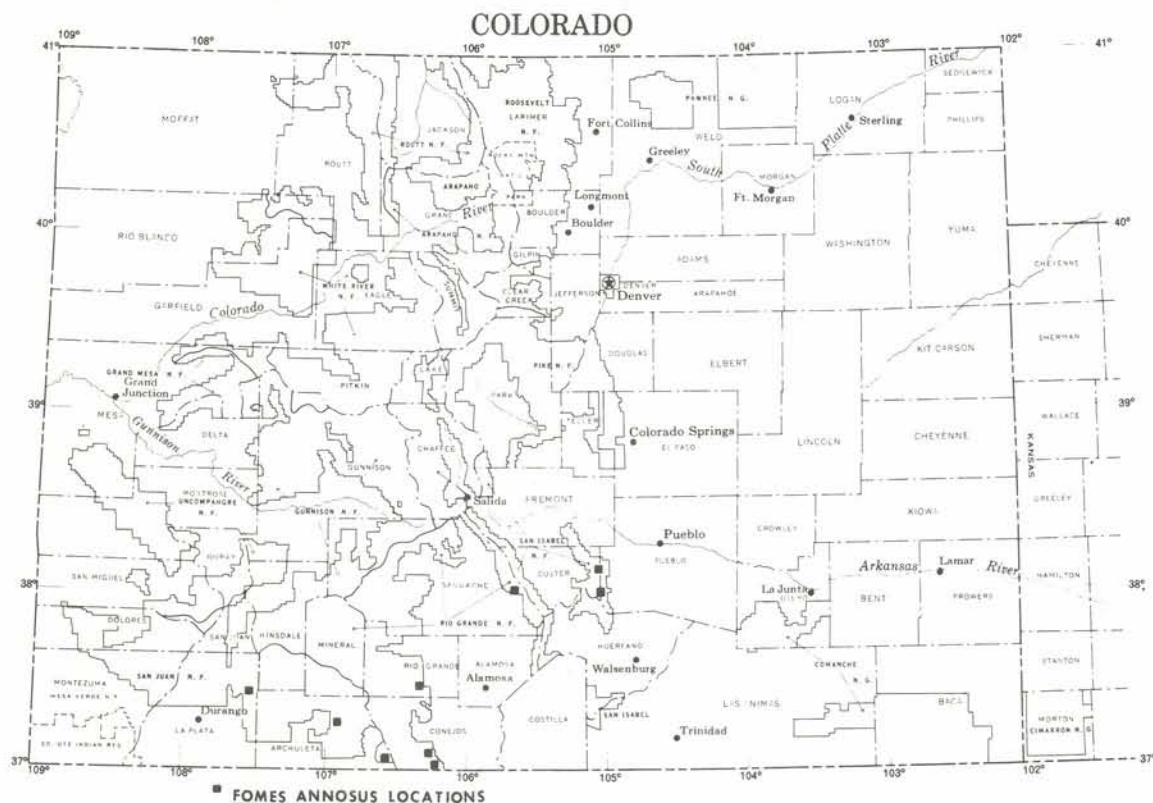


FIGURE 1. Distribution (■) of *Fomes annosus* on white fir in Colorado.

*Fomes annosus* sporophores were common within stumps and remnants of older white fir trees. Sporophores were also found just under the surface litter at the base of some recently killed trees. White to yellow stringy root decay was associated with the disease. Observation of numerous windthrown trees within infection centers indicated that decay usually proceeds up through the root systems to the butt portion of trees.

Not all infection centers were found in cut-over stands. Many were near pockets of old-growth white fir which obviously served as inoculum sources for root infection of younger trees. In some stands, recently cut stumps often displayed extensive heartwood decay. The amount of decay noted probably could not have developed from infection of stump surfaces in the short time since cutting. Most likely the fungus was present in the butt and roots of trees before cutting.

Extensive *F. annosus* activity was reported recently (1) in uncut, young white fir stands in California. Perhaps the fungus is present in white fir trees for a long time causing root system decay but little tree mortality. When trees eventually die or become windthrown, the fungus may build up enough inoculum potential to attack the root systems of surrounding live trees.

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