

MEMORANDUM FOR FILES.

Re: Fungus Killed Tree. Black's Mountain Experimental Forest.

A peculiar dark brown staining fungus was found infecting the sapwood of the lower bole of a single thrifty, immature ponderosa pine tree on the Black's Mountain Experimental Forest during the season of 1938. From all that can be learned, this type of injury is of rare occurrence. Following is a brief account of conditions associated with this fungus condition.

The basal examination of this dead tree during a periodic insect loss cruise revealed an absence of insect attacks and the presence of a brown streaked sapwood stain. Samples of this stain were sent to Dr. W. W. Wagener, Senior Pathologist, accompanied by notes covering this condition in an attempt to secure a determination of the causative organism. In reply, Dr. Wagener stated that "examination under the microscope shows the presence of very large brownish hyphae in the tracheids or apparently in some cases in intercellular spaces. Scattered brownish intracellular deposits also occur." Dr. K. N. Hansen, Associate Professor in the division of plant pathology, University of California, thought the fungus condition was due either to an excess of moisture or root rot. Later the tree was felled and the roots excavated for examination.

In the bole, the fungus stain was found only in the sapwood, extending to approximately 10 feet above the ground, diminishing in intensity as it reached this point. The roots, growing in well drained lava soil among many rocks, were stained and dead, but were sound. The stain was found to be much heavier in the roots than in the sapwood of the lower bole.

Samples of the root condition were again sent to Dr. Wagener for examination, who in reply states "the roots are literally filled with large brown hyphae . . . the resin infiltration is a good indication that a pathogen affecting the roots or root collar was involved in the death of the tree". To date, a specific determination of the causative organism has not been secured.

An analysis of the entire bole of the tree showed incipient attacks of flathead borer broods. These attacks are thought to be the Melanophila gentilis Lec. that entered the bole of the tree as a result of the weakening effects of the fungus. No other insects were found in the bole or limbs. The adults of Hylurgops subcostulatus Mann. were found feeding under the bark of the roots, in some cases new attacks taking place as much as 18 inches below the surface of the ground. This insect is believed to have entered the phloem of the roots by working down from the root crown after the tree had died.

Respectfully submitted,

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Young vigorous immature trees killed by heavy fungus infection in roots and sapwood of lower 10 feet of bole (Photo #10166A, K. A. Salman, 1938)



Dark brown sapwood stain responsible for the death of this tree. (Photo #10166B, K. A. Salman, 1938)