

BLACK WALNUT (*Juglans nigra*)
Thousand Cankers Disease; *Geosmithia morbida*

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Disease Progress of Thousand Cankers Disease in Oregon, 2010.

A group of 60 trees from 11 locations in the Willamette Valley have been monitored for disease development since 2007. A group of 51 trees, from 5 locations were originally evaluated in 2007 while an additional 9 trees in 6 other locations were added to the set in 2008. The walnut twig beetle (*Pityophthorus juglandis*) was confirmed in each location, however, the pathogen (*Geosmithia morbida*) was only evaluated and confirmed in half the locations. The amount of canopy with dieback symptoms was recorded in Sep 07, Sep 08, Aug 09 and late Jul 10.

The original group of trees had 46 with dieback symptoms and 5 that appeared healthy in 2007. Canopy dieback in 07 ranged from less than 1% to 95%. Some active dieback was observed during the 2008 growing season but only a few small branches on a few trees. There was no significant progression of symptoms during the 2008 growing season.

During the 2009 season 16 trees had higher canopy dieback ratings, 32 (29 if previously dead trees are removed from the data set) had similar ratings and 11 trees had lower dieback ratings when compared to 2008 ratings. Of the trees that had higher ratings the average increase in dieback was 12.5%, with a range from 5 to 40%. Of the trees with lower ratings the average decrease was 9% ranging from 2 to 15%. For those trees that could be compared back to 2007, 19 trees had higher canopy dieback ratings, 19 had similar ratings and 8 trees had lower dieback ratings. Of the trees that had higher ratings the average increase in dieback was 17.7%, with a range from 5 to 50%. Of the trees with lower ratings the average decrease was 7.5% ranging from 5 to 10%.

During the 2010 season 15 trees had higher canopy dieback ratings, 36 had similar ratings (33 if previously dead trees are removed from the data set) and 8 trees had lower dieback ratings when compared to 2009 ratings. Of the trees that had higher ratings the average increase in dieback was 6.4%, with a range from 5 to 20%. Of the trees with lower ratings the average decrease was 6.2% ranging from 5 to 10%. For those trees that could be compared back to 2007, 17 trees had higher canopy dieback ratings, 26 had similar ratings and 8 trees had lower dieback ratings. Of the trees that had higher ratings the average increase in dieback was 17.2%, with a range from 5 to 70%. Of the trees with lower ratings the average decrease was 6.3% ranging from 5 to 15%.

Higher canopy dieback ratings are assumed to be attributed to thousand cankers disease progression. Lower canopy dieback ratings are attributed to growth of living portions of trees and the inherent error rate in rating from year to year. Some trees seem to die quickly but the vast majority dies back very slowly if at all. We speculate, based on work from Colorado, that pure *Juglans nigra* trees will die back quickly while hybrid trees will express a range of reactions. Based on these observations, disease progression in trees with thousand cankers disease is a slow process in Oregon.

Note: The world's largest black walnut (located on Sauvie Island, OR) was examined Sep 10 and found to be in good health. The tree has about 5% dieback which is not unusual for large black walnut trees in Oregon. Interested parties indicate the tree "looks" even better this year than in years past. Damage consistent with the twig beetle was observed on many branches but considered "aborted attempts". A second tree next to this one was in equally good health while much smaller black walnuts in the general area had extensive dieback from 30 to 50% of the crown.

Also of note, the insect and fungus have been confirmed in the Medford/Rouge River area of Jackson County on declining hedgerow black walnuts (*Juglans sp.*). It was not found on native *J. hinsii* growing in riparian areas.

Acknowledgements

I wish to thank George Mead (Goby Walnut and Western Hardwoods), Brian French (Ascending the Giants), Max Bennett (OSU), and Richard Hilton (OSU) for helping to locate symptomatic trees.