

New Observations on *Pityophthorus juglandis* and Thousand Cankers Disease

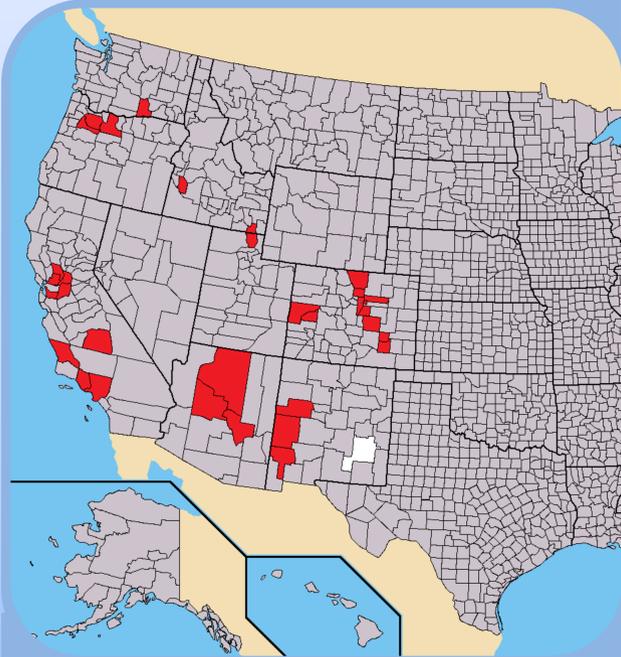
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Thousand cankers disease (TCD) is a devastating and terminal disease of black walnut (*Juglans nigra*). The disease results from the combined activity of the walnut twig beetle, (*Pityophthorus juglandis*) and a canker producing fungus in the genus *Geosmithia*. At present the disease is thought to be restricted to the western United States. Some of the on going studies and observations on the management of this important new disease are presented here.

Geosmithia was regularly recovered with walnut twig beetle in collections throughout the western United States

Since 2007 collections of walnut wood have been received from most western states to determine presence of *Geosmithia* (fungal pathogen associated with thousand cankers) and walnut twig beetles. In addition, dedicated collections were made of Arizona walnut (*Juglans major*) in New Mexico and Arizona to establish if *Geosmithia* was present in native stands.

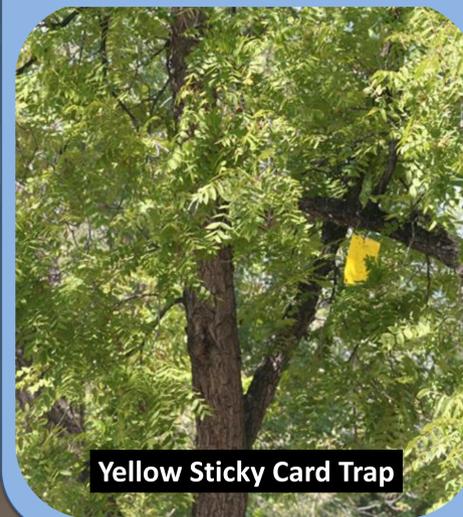
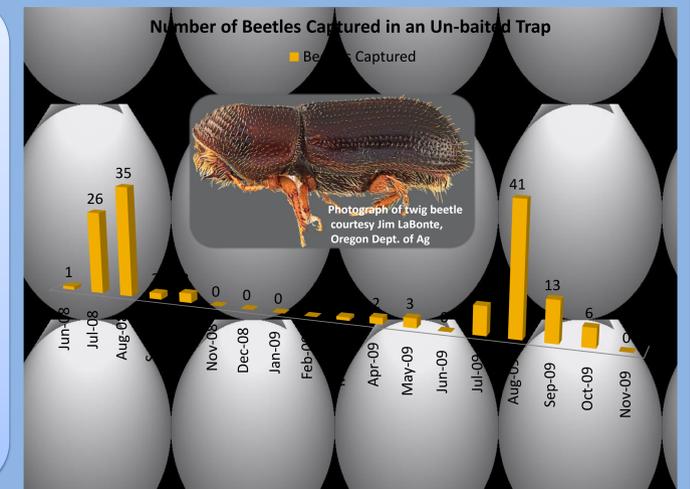
Geosmithia was regularly found in collections in association with walnut twig beetle and has been found throughout the western US.



Peak flights of walnut twig beetle occur in mid-late summer

Trapping studies were conducted in 2008-2009 to determine flight activity of walnut twig beetle. Pherocon AM No-Bait traps were used in 2008; a Lindgren funnel (unbaited) in 2009. In both years peak captures occurred in late July-August.

Trapping Study



Yellow Sticky Card Trap



Trap Tree 2008



Trap Tree 2009

Walnut Bark Removal As a Possible Disinfestation Technique

Debarked black walnut remains attractive to adult beetles and may allow continued development of larvae

Logs cut from thousand cankers-infested trees were debarked either by: 1) skinning bark with a draw knife which removed all bark; or 2) removal of bark with a chain saw, a treatment that allowed some small pieces of bark to remain.

On the skinned logs, *P. juglandis* adults were attracted to the bark-less logs and began tunneling into the wood. After 6 weeks live beetles were residing in the wood. On chain saw debarked logs, adult beetles were present and larval development continued within the remaining slivers of bark. These observations suggest that debarking alone can not sufficiently disinfest freshly cut wood of walnut twig beetles.

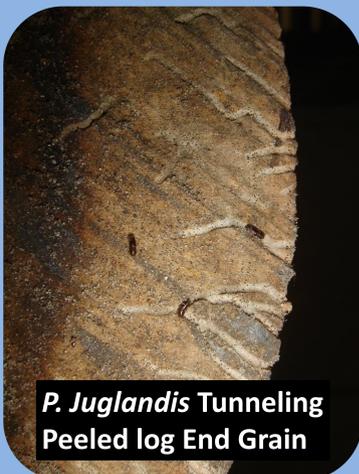


Fresh Peeled Logs

A second experiment to determine if *P. juglandis* beetles are present in walnut wood after all of the bark is removed was completed by peeling infested logs and placing them in bag cages



Caged Log



P. Juglandis Tunneling Peeled log End Grain



Beetles Found on Log 8 Weeks After Caging

Chipping Infested Walnut Wood Does Not Kill *P. juglandis*

Walnut twig beetles survive chipping

Walnut wood debris from a tree dying of thousand cankers was run through a chipper. Larger wood chips were recovered after chipping and held in Gladware® containers to check for continued beetle activity.

Tunneling activities (indicated by sawdust) were noted within weeks after chipping and larval development was successfully completed in chipped wood pieces. This indicates that wood chipped from TCD-killed trees must be handled carefully to prevent spread of infective walnut twig beetles.



Frass Accumulating in the Container

Wood Chip Subsample



Exit Holes