

**Notes from the
Thousand Cankers of Black Walnut National Conference
November 3-4, 2009 - St. Louis, Missouri
Doubletree Hotel—St. Louis at Westport**

This is based on notes taken by Julia Thompson and David Johnson (both of the Missouri Department of Agriculture) and typed by J. Thompson (CAUTION: This is not a transcript, but notes. Remarks are often paraphrased and may have been accidentally omitted or misunderstood by the note-takers. It has not been compared with the event recording to check for accuracy.)

Tuesday, November 3, 2009

Key to some abbreviations used:

WTB = walnut twig beetle = *Pityophthorus juglandis*

TCD = thousand cankers disease

Gm = *Geosmithia 'morbida'* ('*morbida*' is proposed species name of this newly discovered species)

BW = black walnut = *Juglans nigra*

Ned Tisserat (Colorado State University) -Walnut in the West: Death by a Thousand Cankers.

- Thousand Cankers Disease vs. butternut canker (30 years ago)--the epidemiology of these are quite different
- Butternut was lost in its native environment
- Black walnut is not native in the West
 - It is a tough tree, widely planted but not abundant
- Walnut twig beetle collected in 1988—became known to be associated with mortality in 1996
- Utah: decline and mortality in 90's; LDS President Hinckley had pulpit made from 36 yr old walnut he had planted that suddenly died in 1999
- People do not throw out walnuts they throw them in the back of the pick up
- Jay Pscheidt has been seeing this for years in Oregon but the progression is different
 - Always associated with presence of twig borer but:
 - Colorado—rapid
 - Oregon—progresses more slowly—Hybrids? Lots of walnut hybrids in OR. Size of trees? Weather?
- In CO in 2001 and 2002 there was a drought
- Paper (2002) associates walnut twig beetle with dieback of walnut in Santa Fe area
- 2004 substantial mortality in Colorado Springs and Boulder
- None left in Colorado Springs by 2008
- 2000 trees dead in Denver/Boulder—essentially all; only few left
- Symptoms
 - A little yellowing, crown thinning, dieback—collapse, no resprouting
 - Once see dies quickly
- Believes colonization may occur 3-5 years before symptoms show
- Beetle always found in association with decline
- First recorded on *J. major* where behaves as a twig beetle
- On BW the WTB aggressive—goes after branches >2" and the main trunk
 - Hard to see entrance holes
 - 2 generations / year?
- Necrosis surrounds beetle galleries
 - Cankers initially restricted to the bark (phloem) not cambium so you don't normally see signs

- Open faced cankers not formed
 - May see bark cracking—split or star shaped
- Beetle more active on the west side of branches—heat? And on underside of branches
- *Geosmithia 'morbida'* fungus consistently and easily isolated from cankers—looks like a *Penicillium*
 - No sexual state known
 - Off-white to buff in culture
 - Dry spore—thermal tolerant
 - Also has yeast like phase
 - Always found in association with the beetle, frass, galleries
 - Unique new species *Geosmithia 'morbida'*
- *Geosmithia* species are associated with a number of beetle hosts in Europe—none are reported as plant pathogens
- Inoculations
 - Fusarium* also causes canker, but not all the time
 - Always get a canker with *Geosmithia*
 - ◆ Gets large fast
 - ◆ BARK PATHOGEN, not in vascular system, if you cut too deep won't see
- Unanswered questions
 - Could *P. juglandis* kill a tree without *Geosmithia*?
 - Does the fungus enhance *P. juglandis* to attack bark? Does it alter bark? Fungus beneficial to insect?
- *Fusarium* can be isolated, but not consistently, may be component at the end
 - Reported in 80's in MN, WI, KS/ associated with ambrosia beetles
- TCD has been reported from all western states except NE, WY, and MT
- Where did it come from? Probably native to western US
- No major damage on *J. major* / always when on *J. nigra*—all varieties BW tested so far susceptible
 - Hypothesizes that *J. major* native host of WTB and Gm
- Is the fungus alive after the tree is cut? Don't know answer yet
 - Fungus can only attack with insect vector
 - How long does the insect vector survive? Don't know 2-3 years? Debark help?
- Is *J. regia* at risk? Showed picture of cankers on individual tree
- *J. microcarpa*—not as susceptible but cankers do form – have not found the beetle on this species
- TCD poses grave risk to walnut
 - BW no apparent resistance
 - Efficient vector / aggressive fungus
 - What happens if disease establishes in native range of BW
 - Believes it not now in native range so still have a chance