

**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*

Whitney Cranshaw (Colorado State University) - Issues Surrounding Management of Thousand Cankers Disease.

- TCD insect-fungal complex (WTB with Gm)
- Background: Decline of BW in CO since 2001; WTB in affected trees;
 - Genus *Pityophthorus* collectively called twig beetles because usually restricted to twigs
- WTB originally described in *Juglans major* in AZ
- *J. major* everywhere along rivers in AZ
- WTB behaves as typical twig beetle in *J. major*
- First published association of WTB with BW decline in northern NM in 2002
- 2008 Hort Expo in Idaho—hot topic was walnut die off
- 2004 Idaho record of WTB
- Utah-widespread die off in 1990's 1st state record of WTB in 1996
- Then found in Oregon, WA
- How can minute beetle kill trees—vectors fungus to susceptible host
- Beetle jumped hosts taking fungus with it (Co potato beetle, apple maggot, boll weevil) OR people may have moved it on infested wood products OR event may have caused dispersal
- If “big bang” then could have occurred 20-30 years ago. Wind?
- WTB functions as a twig beetle (pruner) in AZ walnut, *Geosmithia* probably native there; question of “nativeness” is a regulatory question
- Gm found in tunnels and pupal chambers; if you find WTB you find Gm
 - Powders beetle
- WTB galleries in corky part of bark in beginning but later down deeper in bark
- Symptoms occur only if many, many beetles attack—not a point origin disease like Dutch elm disease
- Does not think other insects are implicated in TCD
- WTB life cycle
 - Colonization in late April and early May
 - Larvae develop in 6-8 weeks; exit through tiny holes
 - Second cycle; third? (partial third generation)
 - Decreasing numbers seen though rest of summer

- Most overwinter as adults and hibernate in bark of trunk (way of introducing fungus and possible reason for trunk infection)
 - Readily breeds in logs; 2 logs 18" long and 5 ½" dia. had 23,040 beetles—works out to 35+ beetles per in²
- Debarking not a successful strategy
 - Partial debarking useless; beetles still live in remaining bark
 - Fully debark wood still attracts beetles so WTB could be shipped in them
 - Chipping does not kill them, survive at least until bark dries out
- Current known extent of beetle range is disjunct from BW range
- 2009 CO *Juglans* survey
 - Locate all BW in CO east of continental divide
 - Define the edge of infestation
 - Locate communities with no TCD
 - Follow up on suspect trees
 - Master Gardeners were not particularly useful; just give it to “kids” and have them spiral out from the center of town—after June, but not too late in season as late there are too many other causes of yellowing. Best symptoms show in July and August
- How fast can it spread on its own? We don't know.
- TCD Management considerations:
- Thinks all BW in west will be gone
- Arizona walnut (the species) is not threatened
- Normally WTB moves slowly –unless wind?
- Some species are not as susceptible. Pecan apparently resistant in CO
- Good—Slow disease to develop—maybe 10 years for original colonization
 - Not like Dutch elm disease which can infect entire tree from a single inoculation
 - Does not move through root grafts
- Good—Death of BW results from overwhelming numbers of individual infection not one massive infection
- Bad—Visual symptoms do not show up until the last year or two which means that by then all the BW in the area are infested.
- Good—Theoretically it could be controlled if there was “effective chemical control” of WTB but this actually is unlikely
 - Need total coverage over a long period of time—difficult
 - A lot of insecticides work great in the lab, but in practice don't work
 - Imidacloprid may assist in **slowing spread** if applied prophylactically
 - ◆ Legal? Street tree vs. food crop
 - Registered for shade trees and nut crops
 - ◆ Use rates are very high compared to agricultural usage
 - ◆ Doesn't really work if already showing symptoms
 - ◆ Fungus grows ahead of beetle and systemic pesticides don't move in the dead area
 - Dinotefuran—no food crop tolerances
- Bad—Prospects for control of WTB poor and even if they worked it would be for individual trees
- Bad—No effective trap for WTB (yet)
- Bad—Long distance movement of BW wood a problem because of value of wood
- Bad—WTB readily breeds in logs and can be found in wood chips
- **NEED TO:**
 - Educate the public, lumber mills, woodworkers, tree removal operations, firewood distributors
 - ◆ Helps get problem into the news
 - Initiate a quarantine of all *Juglans* wood of western origin
 - ◆ Would affect logs with intact wood,

- ◆ Would not need to effect milled wood with no bark, sufficiently dried wood (3? years), nuts
- ◆ Quarantine would help in education effort and empower officials to act

Jay Pscheidt's comment—some beetles are found in outer xylem

Question: can beetles overwinter in logs after 3 years? Answer: we don't know. Have not observed WTB overwintering in trees of other species.

Question: can we get rid of BW in the West to help stop problem? Yes, but very difficult.

Question: Do Gm and WTB occur together even at front edge? Thinks so, but not sure.

Question: If no fungus would WTB still be causing serious damage? Thinks so, but Geosmithia enables beetle to do TCD damage.

Some information is omitted here as neither note taker got down all that was said in this question-and-answer period in a complete enough form to be useful.