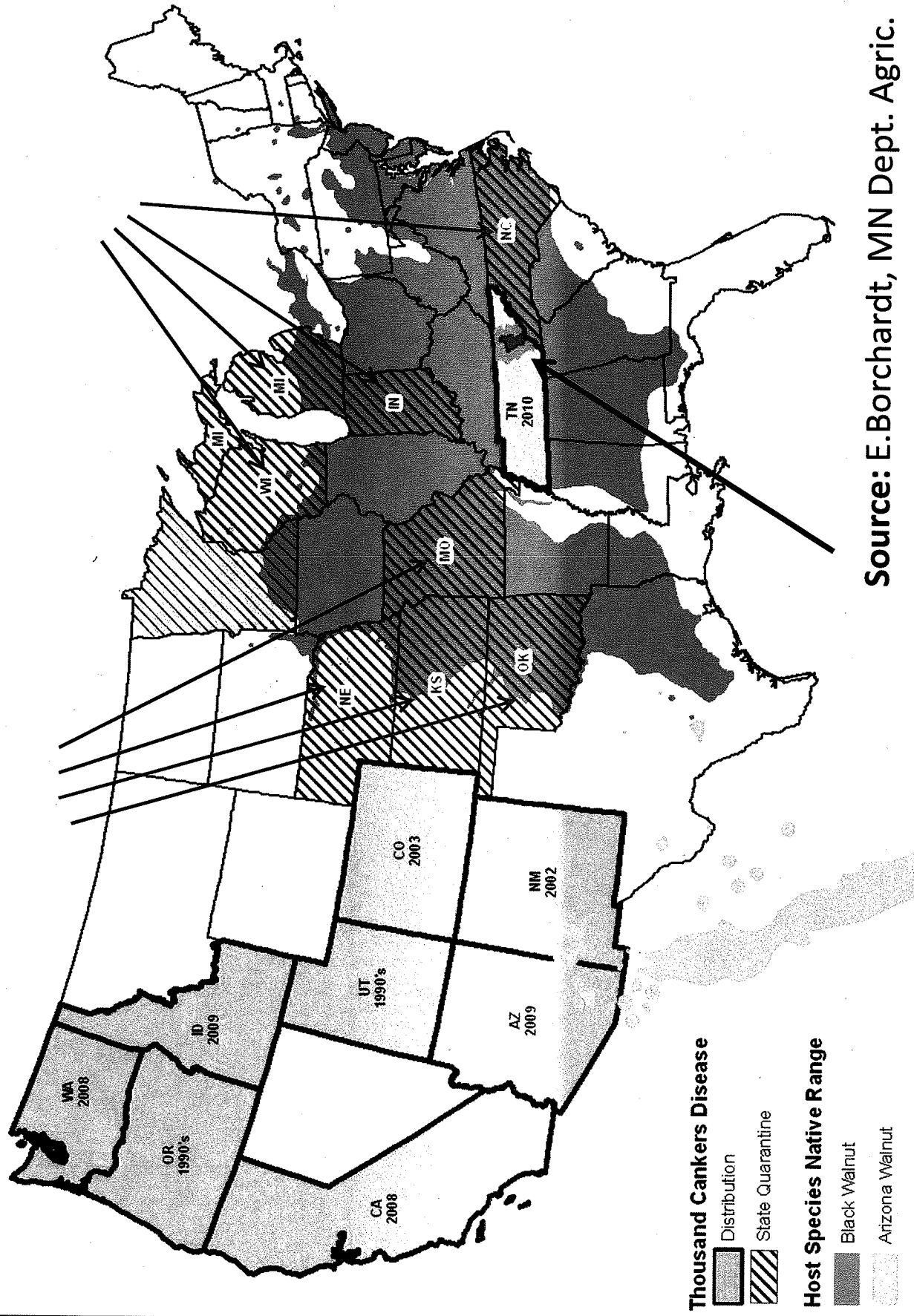


**Testimony of
Brian D. Kuhn
Before the Assembly Committee on Forestry
Clearinghouse Rule 11-001, Relating to Thousand Cankers Disease
May 4, 2011**

Chairman Mursau, and Committee members, thank you for this opportunity to provide testimony to you today on Clearinghouse Rule 11-001. I am Brian Kuhn, Director of the Plant Industry Bureau at the Department of Agriculture, Trade and Consumer Protection. I am here to provide testimony related to restrictions on the import of certain plants and plant products into Wisconsin, to prevent the introduction of thousand cankers disease of walnut trees.

- DATCP has broad general authority to adopt regulations to prevent and control plant pest and disease infestations. DATCP has adopted rules regulating a variety of plant pests under ch. ATCP 21, Wis. Adm. Code. **This rule amends ch. ATCP 21 by adding restrictions related to thousand cankers disease (TCD).**
- **This rule establishes a quarantine to prevent the introduction of TCD in Wisconsin.** The rule will restrict the movement of regulated items into Wisconsin from states or countries known to be affected by TCD.
- This disease affects our native black walnut trees. **There are approximately 20 million black walnut trees in Wisconsin**, with the highest concentration in the southwest portion of the state.
- **Wisconsin businesses export over \$4 million** in black walnut products annually.
- **This disease is fatal to black walnut trees** and there are currently no known strategies for managing TCD.
- **The rule provides exemptions for products** such as nuts, nut meats, nut hulls, processed lumber and finished wood products without bark.
- **The rule also provides exemptions for some walnut materials** if a compliance agreement is obtained and treatment methods that destroy the insect and pathogen associated with the disease are followed.
- **Comments received during the public input process on this rule were supportive** of the proposed rule and the state's efforts to prevent the introduction of TCD. There were no comments received opposing the rule.
- **Minnesota recently adopted a similar rule** to prevent the introduction of TCD, as have a number of other states. Other states with TCD quarantines include: MI, MO, NE, KS, OK, IN, TN, and NC.

Quarantines for Thousand Cankers Disease

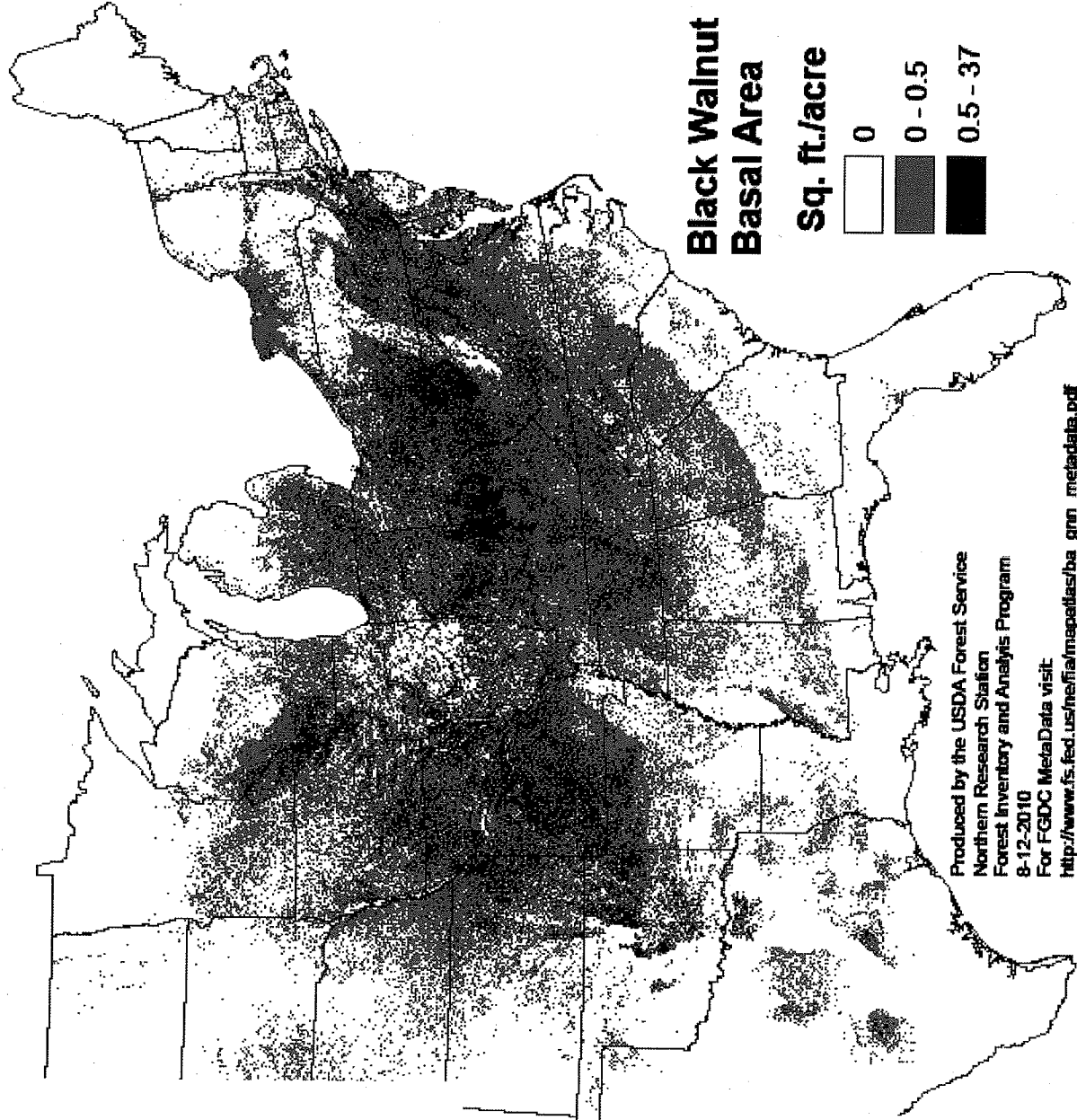


Source: E. Borchardt, MN Dept. Agric.

Thousand Cankers Disease: Why do we care?

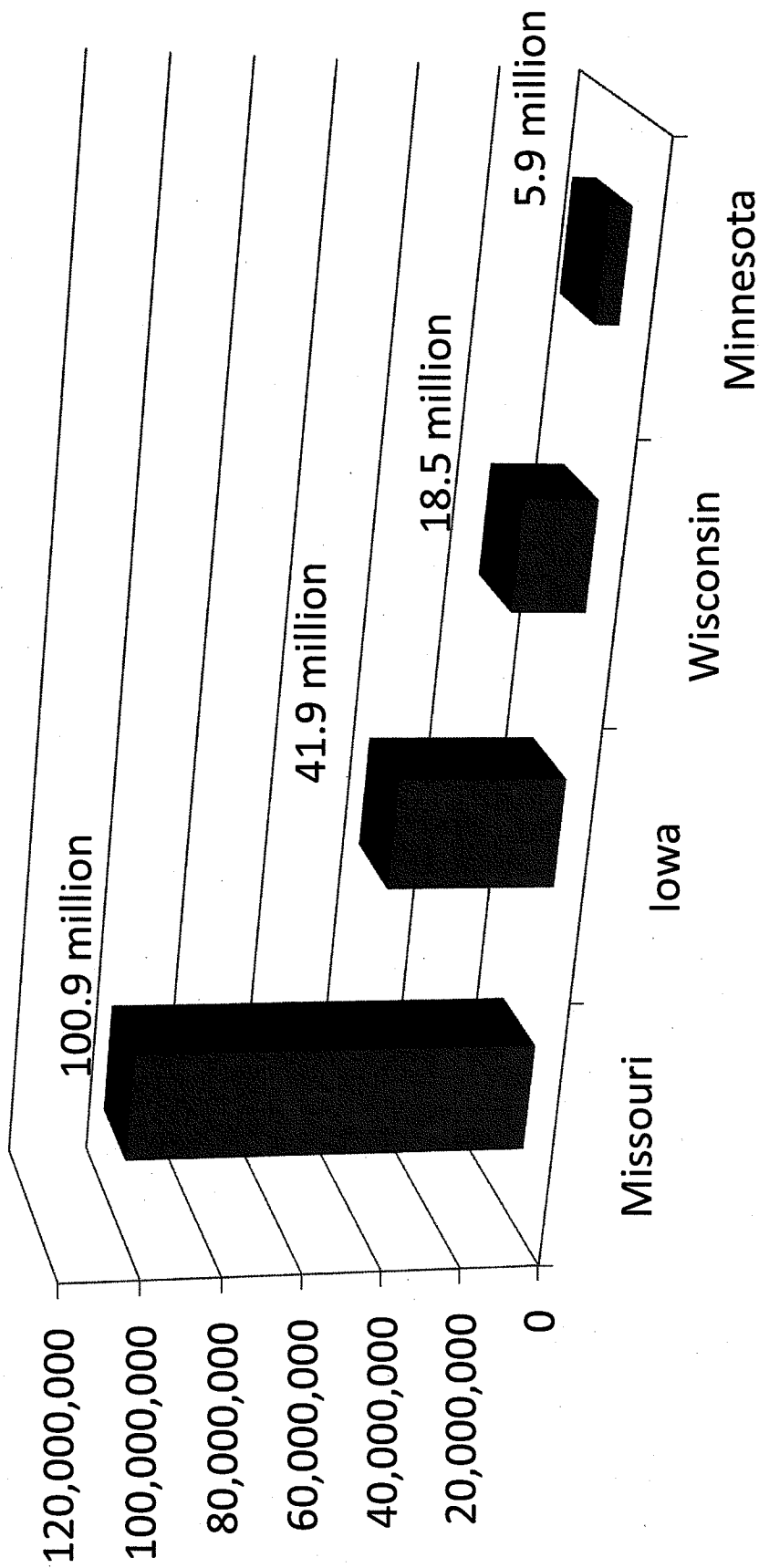
----- because it threatens black walnut in its native range & there is no control

- Natural stands of mixed hardwoods
- Plantations – 1% of total US volume



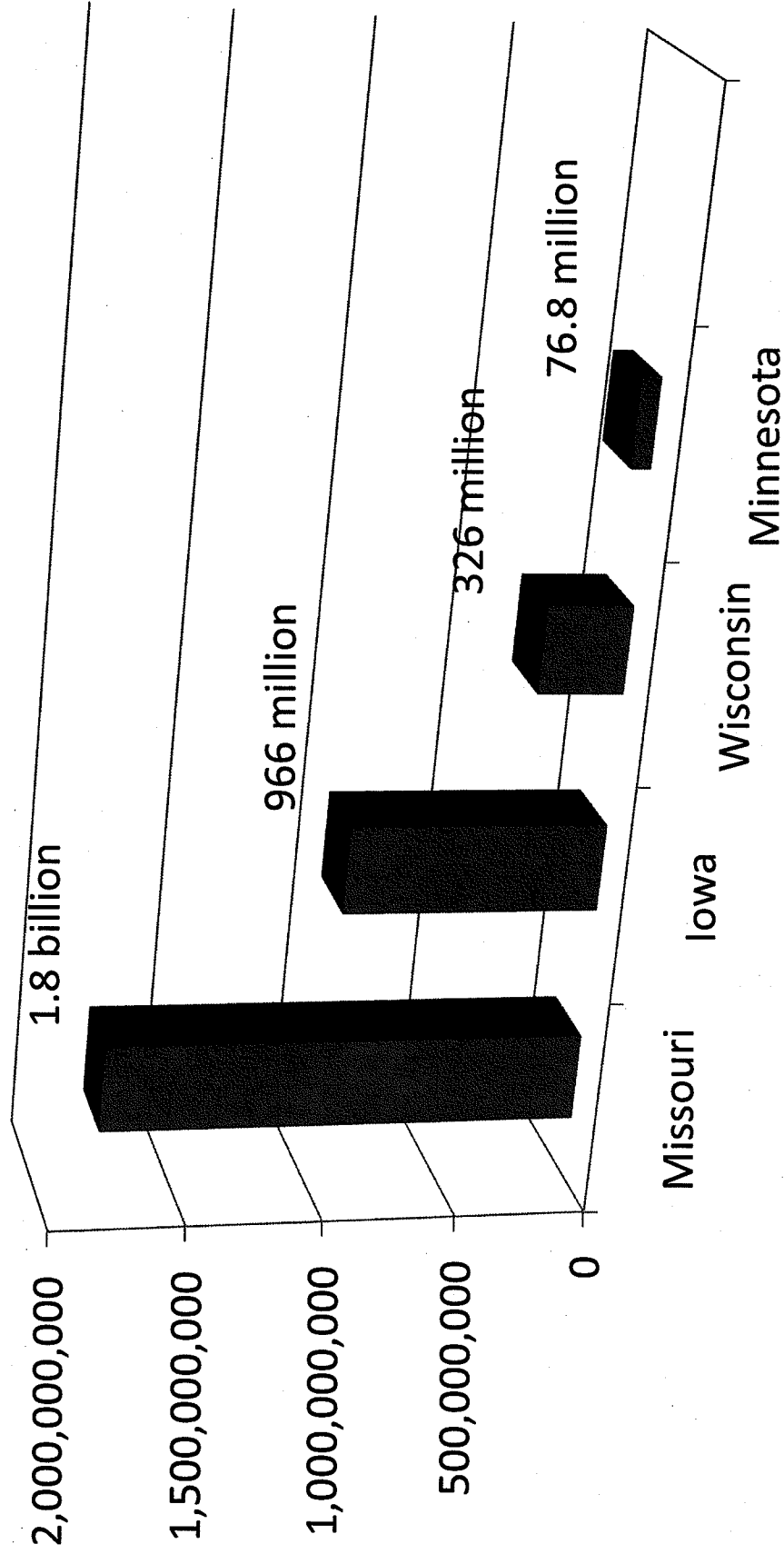
Thousand Cankers Disease: Why do we care?

No. Black Walnut Trees > 1" dbh on Forestland



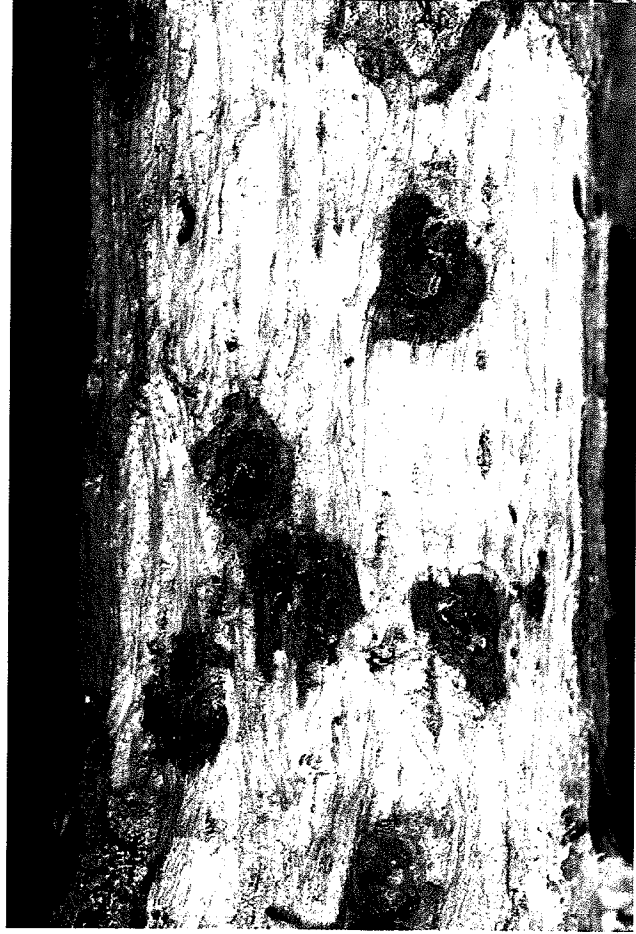
Thousand Cankers Disease: Why do we care?

Volume Black Walnut Sawtimber on Timberland (in boardfeet)



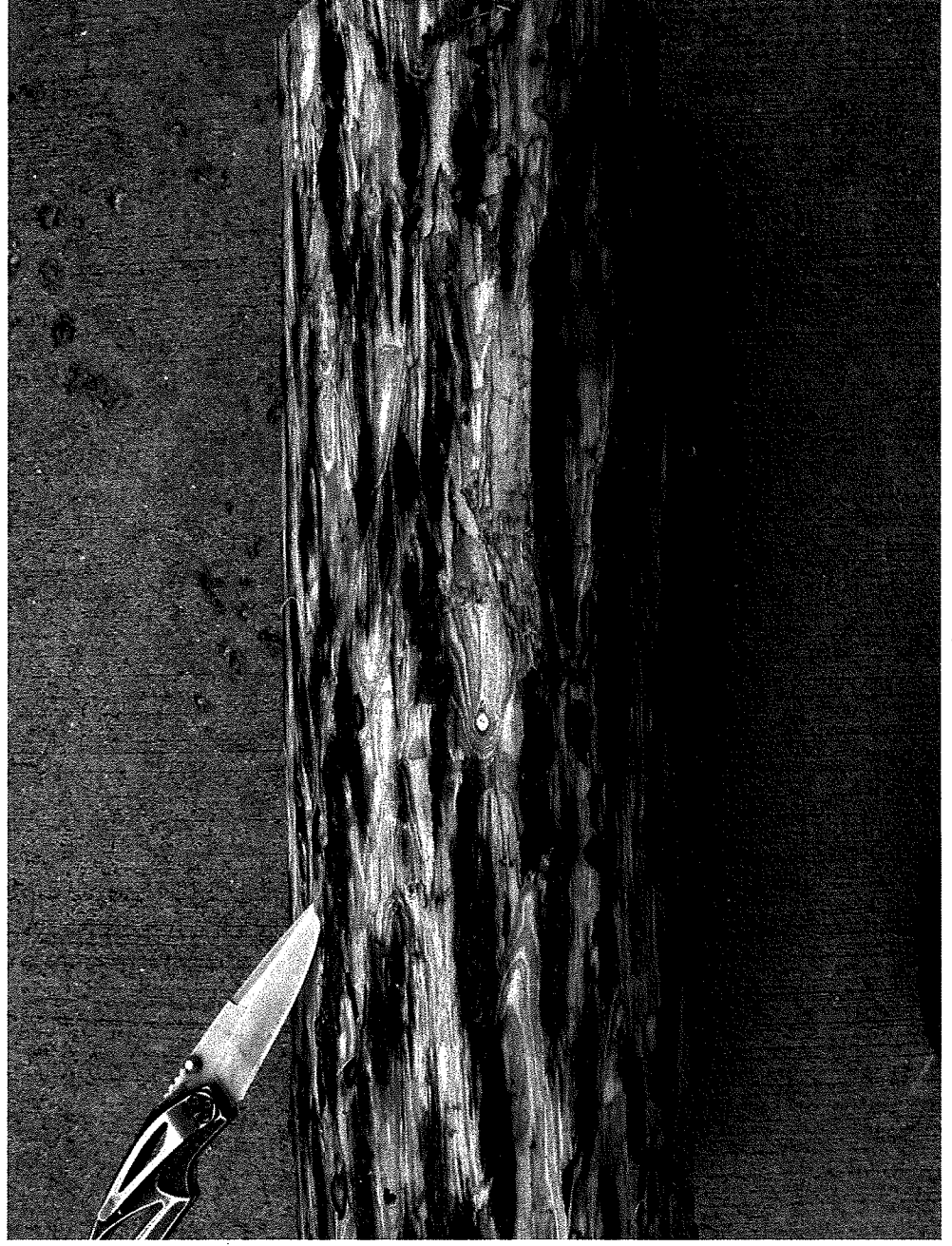
**Overwhelming numbers of
individual infections – not a
single inoculation**

Repeated, sustained attacks



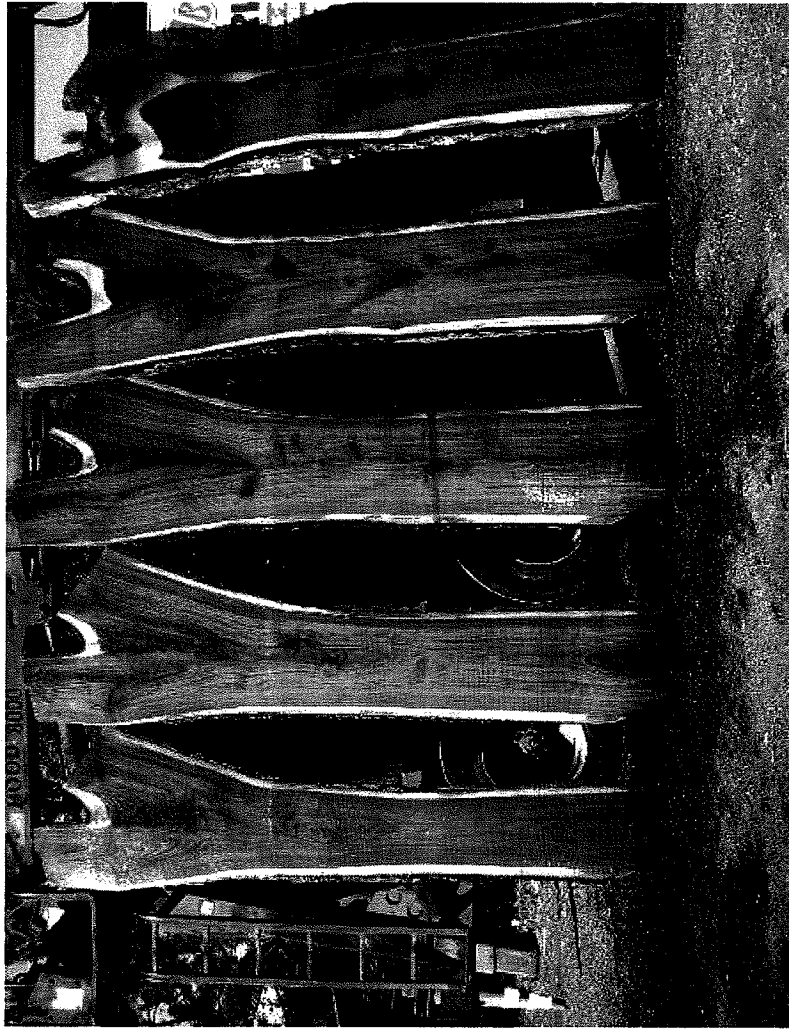
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WTB + G. morbida =
“Death by a Thousand Cankers”



Pathways

- Woodworkers/Hobbyist Wood Movement
- Timber
- Firewood
- Nursery Stock
- Propagative Wood
- Natural Spread



Pest Alert

United States
Department of Agriculture
Forest Service
Northeastern Area
State and Private Forestry
NA-PR-02-10
Revised August 2010

Thousand Cankers Disease

Dieback and mortality of eastern black walnut (*Juglans nigra*) in several Western States have become more common and severe during the last decade. A tiny bark beetle is creating numerous galleries beneath the bark of affected branches, resulting in fungal infection and canker formation. The large numbers of cankers associated with dead branches suggest the disease's name—*thousand cankers disease*.

The principal agents involved in this disease are a newly identified fungus (*Geosmithia* sp. with a proposed name of *Geosmithia morbida*) and the walnut twig beetle (*Pityophthorus juglandis*). Both the fungus and the beetle only occur on walnut species. An infested tree usually dies within 3 years of initial symptoms.

Thousand cankers disease has been found in many Western States (figure 1). The first confirmation of the beetle and fungus within the native range of black walnut was in Tennessee (July 2010). The potential damage of this disease to eastern forests could be great because of the widespread distribution of eastern black walnut, the susceptibility of this tree species to the disease, and the capacity of the fungus and beetle to invade new areas and survive under a wide range of climatic conditions in the west.

Disease Symptoms

The three major symptoms of this disease are branch mortality, numerous small cankers on branches and the bole, and evidence of tiny bark beetles. The earliest symptom is yellowing foliage that progresses rapidly to brown wilted foliage, then finally branch mortality (figure 2). The fungus causes distinctive circular to oblong cankers in the phloem under the bark, which eventually kill the cambium (figure 3). The bark surface may have no symptoms, or a dark amber stain or cracking of the bark may occur directly above a canker. Numerous tiny bark beetle entrance and exit holes are visible on dead and dying branches (figure 4), and bark beetle galleries are often found within the cankers. In the final stages of disease, even the main stem has beetle attacks and cankers.

Geosmithia sp.

Members of the genus *Geosmithia* have not been considered to be important plant pathogens, but

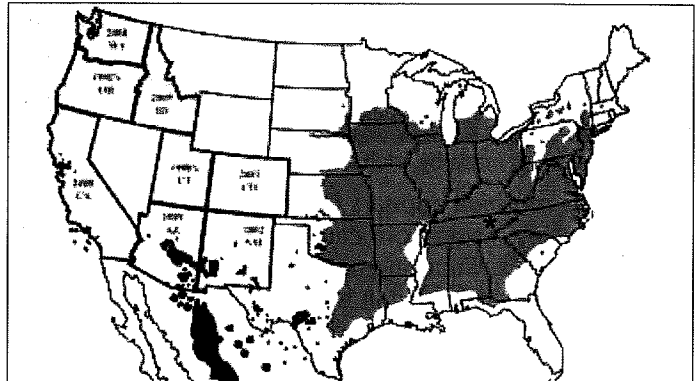


Figure 1. Thousand cankers disease occurs in eight western states (outlined in red) and in the east was first confirmed in Knoxville, TN in July 2010 (see *). In the west the year when symptoms were first noted is given. Native distributions of four species of western walnuts (blue) and eastern black walnut (green) are also shown. Eastern black walnut is widely planted in the West, but not depicted on this map.



Figure 2. Wilting black walnut in the last stages of thousand cankers disease.



Figure 3. Small branch cankers caused by *Geosmithia morbida*.



Figure 4. Exit holes made by adult walnut twig beetles.

Geosmithia morbida appears to be more virulent than related species. Aside from causing cankers, the fungus is inconspicuous. Culturing on agar media is required to confirm its identity. Adult bark beetles carry fungal spores that are then introduced into the phloem when they construct galleries. Small cankers develop around the galleries; these cankers may enlarge and coalesce to completely girdle the branch. Trees die as a result of these canker infections at each of the thousands of beetle attack sites.

Walnut Twig Beetle

The walnut twig beetle is native to Arizona, California, and New Mexico. It has invaded Colorado, Idaho, Oregon, Utah, and Washington where walnuts have been widely planted. The beetle has not caused significant branch mortality by itself. Through its association with this newly identified fungus, it appears to have greatly increased in abundance. Adult beetles are very small (1.5 to 2.0 mm long or about 1/16 in) and are reddish brown in color (figure 5). This species is a typical-looking bark beetle that is characterized by its very small size and four to six concentric ridges on the upper surface of the pronotum (the shield-like cover behind and over the head) (figure 5A). Like most bark beetles, the larvae are white, C shaped, and found in the phloem. For this species, the egg galleries created by the adults are horizontal (across the grain) and the larval galleries tend to be vertical (along the grain) (figure 6).

Survey and Samples

Visually inspecting walnut trees for dieback is currently the best survey tool for the Eastern United States. Look for declining trees with the symptoms described above. If you suspect that your walnut trees have thousand cankers disease, collect a branch 2 to 4 inches

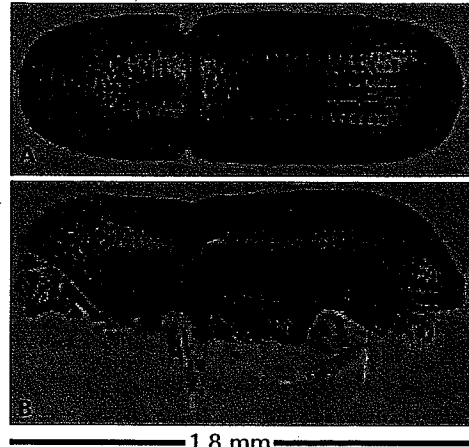


Figure 5. Walnut twig beetle: top view (A) and side view (B).



Figure 6. Walnut twig beetle galleries under the bark of a large branch.

in diameter and 6 to 12 inches long that has visible symptoms. Please submit branch samples to your State's plant diagnostic clinic. Each State has a clinic that is part of the National Plant Diagnostic Network (NPDN). They can be found at the NPDN Web site (www.npdn.org). You may also contact your State Department of Agriculture, State Forester, or Cooperative Extension Office for assistance.

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Photographs:


Figure 1: Andrew Graves

Figure 2: Manfred Mielke, U.S. Forest Service

Figures 3, 4, 6: Whitney Cranshaw, Colorado State University, www.forestryimages.org

Figure 5: Steve Valley, Oregon Department of Agriculture

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USDA Forest Service
Northeastern Area
State and Private Forestry
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Newtown Square, PA 19073
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