

# Thousand Cankers Disease (TCD)

Ned Tisserat









Early detection difficult- initial symptoms subtle and easily confused with other problems

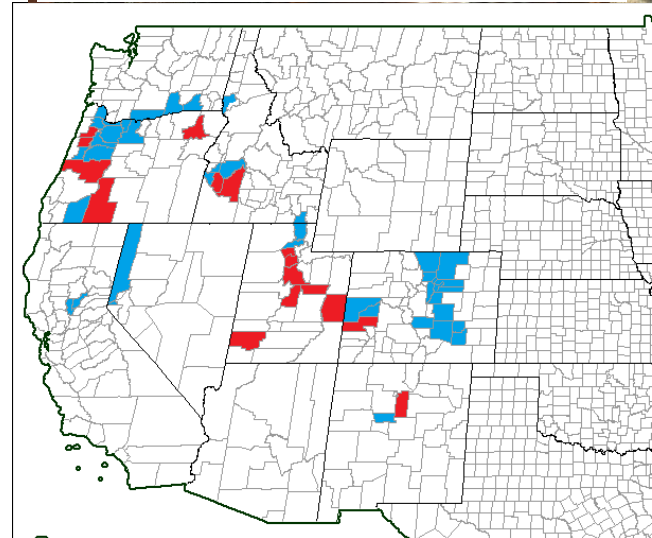


Outer bark  
Phloem  
Wood



# TCD in black walnut (*Juglans nigra*) has been in West for a long time

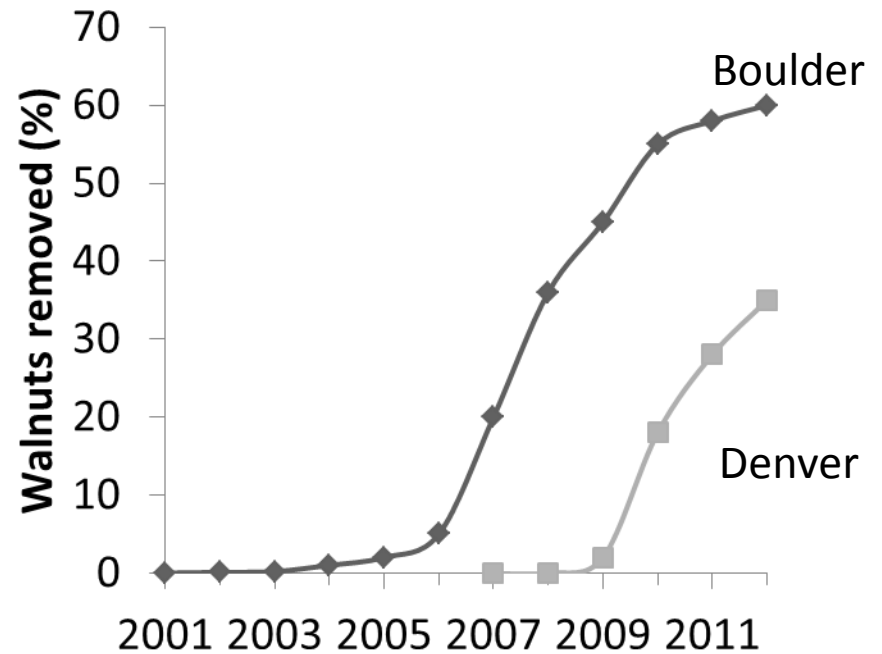
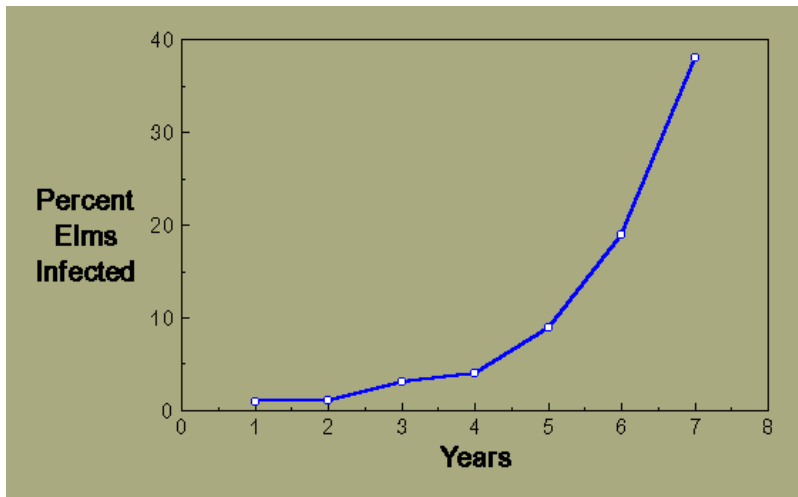
- Disease first formally described in eastern Colorado 2009
- However, epidemic in black walnut probably started in Oregon, Utah, western Colorado in late 1980's



# Progression of TCD

- Epidemic slowing in Boulder
- Most remaining trees < 25 cm diameter

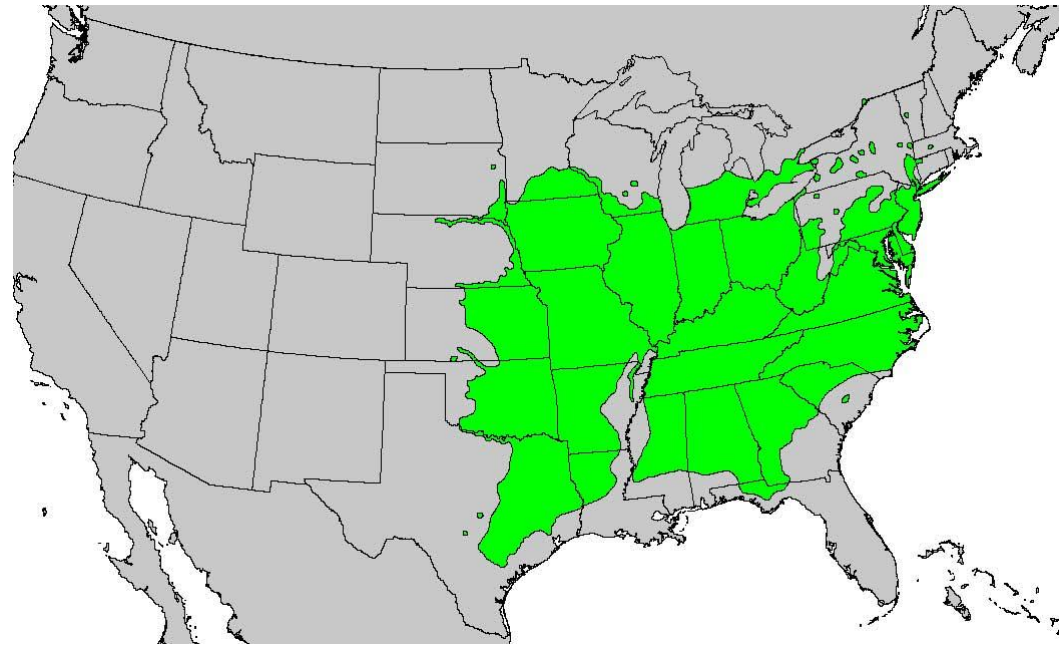
Dutch elm disease





# Will TCD develop similarly in native range of black walnut?

- Tennessee (6 counties) 2011
- Virginia 2011
- Philadelphia 2011
- North Carolina 2012
- Ohio (beetle trapped) 2012



# We can slow down, but not stop spread of walnut twig beetle

- Logs can be infested for up to 20 months!
- Prevent movement of wood with bark attached
  - Firewood
  - Logs for woodworking
- Quarantines?
  - State quarantines
- Log treatments



**23,040  
Beetles/2 logs**

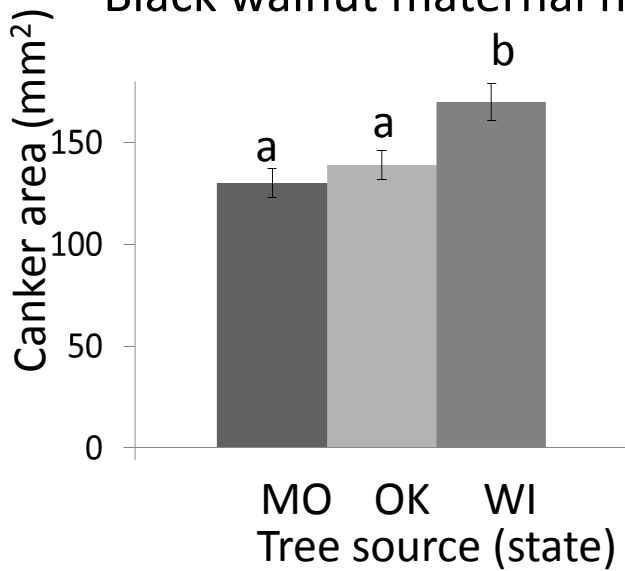
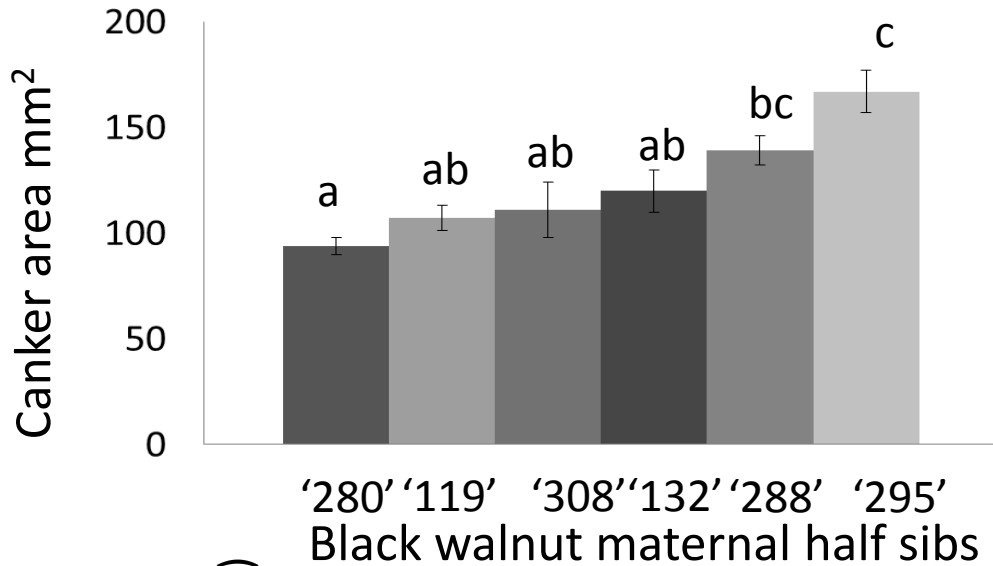
# Surviving Black Walnuts in Colorado

- Escapes?
  - Most surviving trees < 25 cm diameter
- Sanitation?
  - Boulder has an aggressive program
- Biological control?
  - Predators identified
- Induced resistance?



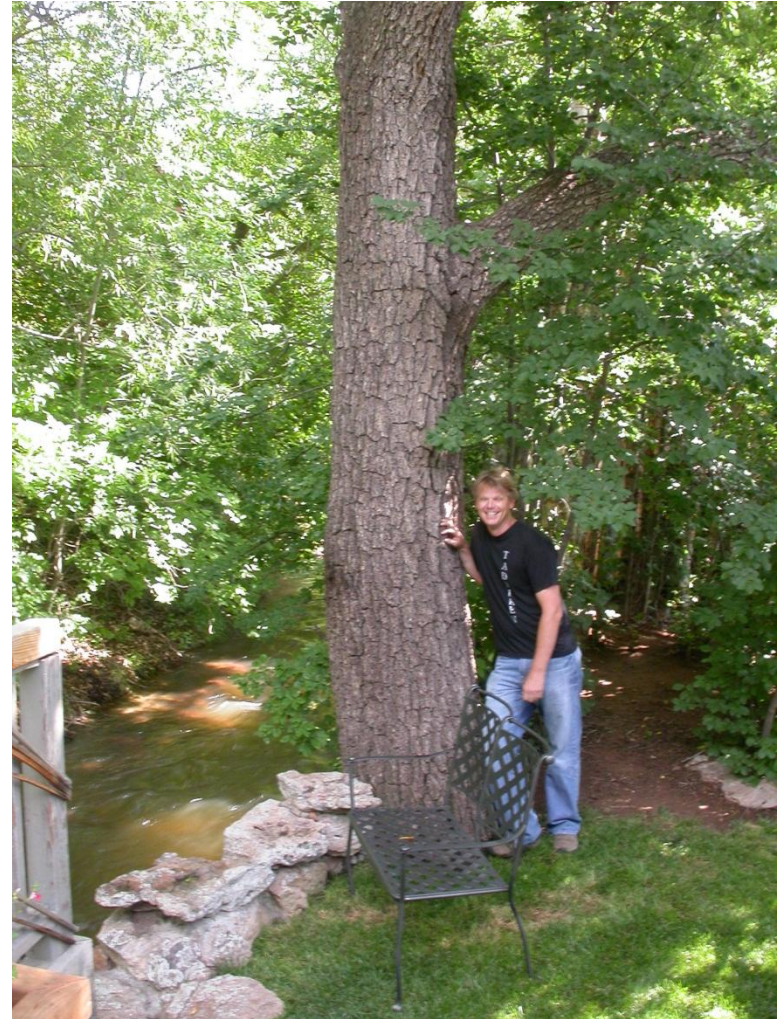


# Variation in susceptibility to *G. morbida* in black walnut genotypes



# Use of insecticides on high value trees

- No experimental evidence to support use yet
  - Experiments underway in Colorado and Tennessee
    - Imidacloprid (Merit)
    - clothianidin (Arena)
    - emamectin
- Anecdotal evidence from arborists
- Black walnut considered 'nut' tree, limiting the types of insecticides that can be used



Walnut treated with Merit insecticide



# Summary

- Surveillance and detection
  - Surveillance for WTB
  - Development of new detection tools
- Wood utilization
  - Education efforts need to continue on firewood movement
  - Disinfestation methods
- Epidemiological studies
- Genetics
  - Resistance in black walnut and related species
    - Arizona walnut
  - Germplasm preservation?
- Insecticide use

# Support for Outreach and Research on TCD



- USDA –NPDRS
- USDA – NIFA Critical Issues
- USDA Western IPM Emerging Pests
- USDA- Forest Service
- National Plant Diagnostic Network



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