Forest Health Notes

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Thousand cankers disease on our doorstep

Introduction

The Tennessee Department of Agriculture recently confirmed the presence of thousand cankers disease (TCD) in Knox County, Tennessee. This find in Tennessee marks the first time this disease has been confirmed east of the Mississippi River. This find also marks the first time TCD has been identified in the native range of black walnut, which is considered to be a preferred host for the walnut twig beetle. The walnut twig beetle vectors the pathogen that causes TCD. The discovery of TCD in Tennessee was made by a Tennessee Department of Agriculture Forester in July, 2010.

The walnut twig beetle (*Pityophthorus juglandis*) and its fungal associate (*Geosmithia morbida* - proposed) are not known to exist in North Carolina at this time.

Walnut Twig Beetle

The walnut twig beetle (*Pityophthorus juglandis*) is native to the southwestern United States and northern Mexico, but has recently been documented in walnut trees outside of its natural range. Prior to the recent find in Knox County, Tennessee, the beetle had previously been identified in association with walnut mortality in several western states including Arizona*, New Mexico*, California*, Utah, Colorado, Idaho, Oregon, and Washington. By itself, the beetle does not cause significant mortality, however, the beetle in combination with its associated fungus (*Geosmithia morbida* - proposed), causes the highly destructive TCD. The walnut twig beetle is in the same family as the southern pine beetle and *ips* engraver beetles, and like these beetles, it is very small; adults are roughly 1/20 of an inch long.

Thousand Cankers Disease

Thousand cankers disease is caused by a pathogen vectored by the walnut twig beetle and is caused by the fungus *Geosmithia morbida* (proposed). The pathogen generally kills the host tree within 2-3 years. When a beetle bores into the

* denotes walnut twig beetle's native range

twig, the *Geosmithia* fungus causes a small brownish-black canker to develop under the bark and around the beetle's entry hole. Branches and stems may be attacked by many beetles, resulting in a multitude of these small cankers which eventually overlap and girdle the tree. The large number of beetle attacks and cankers formed is why this is called thousand cankers disease.

Host

The walnut twig beetle can feed on multiple walnut species, but black walnut (*Juglans nigra*) is highly susceptible. Though native to the eastern United States, black walnut has been planted extensively throughout the western United States. Much of the mortality caused by walnut twig beetle in the western states has been in black walnut.

Signs and Symptoms

The most obvious symptoms are dieback and mortality. Like many species of bark beetles, small, round entry/exit holes may be present along infested branches or stems and adult beetles may be present at certain times of the year. Additionally, some weeping may be seen around beetle entry holes. If you suspect that a tree may have TCD, the walnut twig beetle galleries and associated cankers can be found under the bark.

How does it spread?

The walnut twig beetle and TCD can easily be transported to new locations with human assistance. Walnut twig beetles can be present in many types of living and/or dead walnut material including nursery stock, wood chips, green lumber, and perhaps most importantly, firewood. Though natural spread is occurring around infested areas, the infestation in Tennessee is at least 1,000 miles from the next closest known infestation. We can help keep TCD out of North Carolina by promoting the use of local firewood at our parks and campgrounds.

What should I do if I think I've found Thousand Cankers Disease?

Because state and federal agricultural and forestry agencies are tracking the spread and potential impacts of thousand cankers disease, confirmation of any new records of the disease must be made according to strict guidelines. Any walnut trees suspected of being infected with TCD should be immediately reported to the N.C. Department of Agriculture Plant Industry Division in Raleigh (919)733-3933, or to one of the two North Carolina Forest Service Pest Control Branch offices in Goldsboro (919) 731-7988 or Morganton (828) 438-3793 for confirmation.

Signs and Symptoms of TCD

Declining Walnut
C. Utley, CSUE
www.forestryimages.org

Severely cankered stem
N. Tisserat, Colorado State University
www.forestryimages.org

Weeping entry holes
N. Tisserat, Colorado State University
www.forestryimages.org

Additional Information

For additional information, please visit these links:

USFS Pest Alert: Thousand Cankers Disease

Colorado State University Extension: Thousand Cankers Disease

Green Horizons: Thousand Cankers Disease: A Red Alert for Walnut

Firewood movement - www.dontmovefirewood.org/

For other non-native forest pests of concern to North Carolinians please visit www.dfr.state.nc.us/forest_health/fh_firewood.htm

This publication was published in Portable Document Format (PDF) to inform and educate NCDFR personnel and other forestry interests about health issues affecting North Carolina forest resources.