



Species Brief 5.6

What Is in Your Firewood? Thousand Cankers Disease



Pest and Target Species

Thousand cankers disease (TCD) is caused by the interaction between the walnut twig beetle, *Pityophthorus juglandis* (Coleoptera: Curculionidae: Scolytinae), and a fungus, *Geosmithia morbida*. The twig beetle is the only known vector of this fungus, which can attack the eastern species of the black walnut. The black walnut has little to no resistance to the disease.

Range

The walnut twig beetle is native to the western United States and Mexico. *Geosmithia morbida* is also believed to be native to southwestern North America. This insect and fungus complex was first identified east of the Mississippi River in Tennessee in 2010. By the end of 2011 it had been found in Virginia and Pennsylvania. Outside of its original range, TCD is considered exotic and invasive.

Identification and Symptoms

The walnut twig beetle is approximately one-sixteenth of an inch long, and yellowish brown to dark brown in color (*Figure 1*). A black walnut tree can be infected with TCD for many years before showing symptoms. Not easily detected, this insect bores into the host tree, creating galleries (tunnel-like paths) underneath the bark (*Figure 2*). The beetle carries a harmful fungus on its body that spreads, causing cankers to form in these galleries (*Figure 3*). The cankers expand and combine to girdle infected branches, disrupting the flow of water and nutrients. The leaves will yellow, wilt rapidly, and turn brown. Stem dieback or branch mortality occurs in the crown. Numerous tiny entrance and exit holes created by adult beetles are noticeable on dead and dying branches. Tree mortality typically occurs approximately three years following the first symptoms of decline (*Figure 4*).



Photo by: Steven Valley, ODA, Bugwood.org

Figure 1: An adult walnut twig beetle.



Photo by: Whitney Canshaw, CSU, Bugwood.org

Figure 2: Extensive galleries in the bark of a large branch.

Written by Dana McReynolds Stone, Alabama Forestry Commission

Photo by: Ned Tisserat, CSU, Bugwood.org



Figure 3: Canker development around a walnut twig beetle gallery in English walnut.



Photo by: Curtis Utley, CSU, Bugwood.org

Figure 4: A black walnut tree killed by thousand cankers disease.

Control Options

Currently, there is no reliable method for controlling the disease. The best method of controlling TCD is to prevent introduction of the beetle and fungus. Since the walnut twig beetle can live in cut wood, infested wood debris and firewood should not be moved long distances into other areas. If traveling for recreational activities, it is recommended that firewood be left at home and instead be bought locally at the destination.

Infested trees should be cut down and burned at the original location. If burning is not possible, trees should be cut down and left on site. State quarantines are in place to limit the spread of the pest through human activities. Quarantines may prohibit the transport of firewood out of quarantined areas into unaffected areas.

Suggested Resources

Geosmithia morbid sp. nov., a New Phytopathogenic Species Living in Symbiosis with the Walnut Twig Beetle (*Pityophthorus juglandis*) on *Juglans* in USA. www.mycologia.org/content/103/2/325.full

Plant Health: Thousand Cankers Disease. www.aphis.usda.gov/plant_health/plant_pest_info/tcd/index.shtml

Thousand Cankers Disease—Pest Alert.
http://na.fs.fed.us/pubs/palerts/cankers_disease/thousand_cankers_disease_screen_res.pdf



http://ncforestservice.gov/forest_health/monitoring_invasives.htm