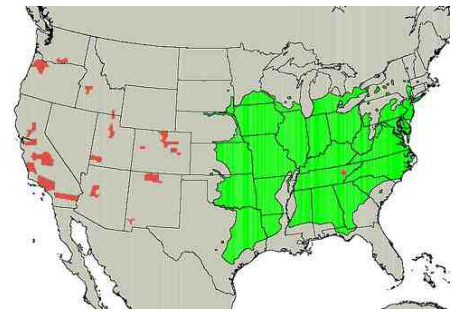


Thousand Cankers Disease: A Red Alert for Walnut

By: Skip Morglia, NRCS and David Boyt, Sawmill & Woodlot Management Magazine

The chestnut tree is gone, we've lost most of our elm, ash, and many of our butternut trees, and now we stand to lose our walnut trees, as well. Just two years ago (2008), researchers discovered that a sudden decline in black walnut (*Juglans nigra*) in Colorado was due to a combination of the Walnut Twig Beetle and previously unknown fungus which infested the trees by hundreds of thousands, causing cankers and cutting off the flow of

nutrients. With a mortality rate near 100%, what is the prognosis if the disease moves into black walnut's native range? According to Whitney Cranshaw, professor of Bioagriculture Science and Pest Management at the University of Colorado, "Based on the patterns seen in the West, such a colonization could very possibly develop into an uncontrollable outbreak. This may ultimately have the potential to destroy black walnut in its native range." He continues, "... it is critically important that fresh cut logs from walnut harvested in the western states never be allowed to move outside the area where thousand cankers currently is present. Movement of a single log with live beetles can be the initial source of an outbreak that could ultimately devastate black walnut in uninfested areas.



Map showing areas of known canker infestation (red) and the native range of black walnut (green). Note the occurrence in eastern Tennessee. This is the only known outbreak in the native range of black walnut, but monitoring is needed throughout its range.



Dead walnut twig showing the exit holes of the mature walnut twig beetle. A single 4" block of walnut was found to contain more than 20,000 beetles.

The beetles are tiny—about 1/16 inch (smaller than a grain of rice), but they make up for their size with numbers. Researchers have found as many as 20,000 beetles in a four-foot section of a small walnut log! By themselves, the beetles cause only minor damage to the walnut trees. The fungus they bring with them infects the tunnels, killing the cambium layer of the tree, and cutting off the food supply. The tree literally starves to death. The dead cambium forms cankers, which gives the disease its name. The fungus is so deadly to black walnut trees, that it has been named *Geosmithia morbida*.

After the first year of infection, some of the foliage in the upper branches turns yellow at the tips and thins out. By the time these symptoms appear, the disease has progressed to the point where the tree cannot be saved. As the disease progresses, larger branches die. The tree dies within three years of the first visible symptoms. Once infected, there is no effective treatment. Mortality rate is nearly 100%.



Walnut tree dying of thousand cankers disease. In the initial observed stages, the branch tips die back. By the time this occurs, there is little to no chance that the tree will survive. If you know if a tree with similar symptoms, contact a forester or agricultural agent..

In July, 2010, the USDA announced confirmation of the Thousand Cankers Disease in Knoxville, TN—the first occurrence in the native range of black walnut. Although other states quickly imposed bans on walnut from Tennessee, researchers estimate that the disease has been in the area for eight years. It is impossible to know how far it has spread in that time, and in which direction.

There are steps you can take to help stop the spread of this disease to black walnut's native range. Do not sell or



Walnut twig beetle. The pencil was added to show scale. Their small size makes diagnosis extremely difficult. The relationship between the beetle and the fungus associated with them is still not understood.

transport walnut logs, slabs, or firewood (any walnut with bark attached) from areas of known or suspected infestation into unaffected areas. Kiln dry walnut lumber, however, poses no threat. If you suspect that you have walnut trees that are affected, call your area forester, or the USDA. Do not send out a sample without specific instructions, as the beetle can chew its way through plastic and cardboard packaging.

Walnut trees and their nuts play a vital role in the ecology of many of our forests. Many livelihoods depend on walnut trees – woodworkers, loggers, log buyers, sawmillers, the edible nut industry, furniture makers, carvers, and makers of many specialty walnut products. Harlan Palm, president of the Missouri Walnut Council, estimates that the loss of walnut trees in Missouri

alone would amount to roughly a half billion dollars, and would wreak financial havoc on thousands of individuals. Serious tree farmers have been tending walnut plantations for decades to provide retirement income or to leave something of value for their grandchildren. It's hard to describe how devastating this would be for them.

Spread the word - not the disease

Photo credits:

Disease and black walnut range maps adapted from US. Dept. of Agriculture maps.

Other photos courtesy of Whitney Cranshaw, Colorado State University

This is an edited version of an article that appeared in the March, 2010 issue of Sawmill & Woodlot Management magazine.



The walnut twig beetles eat through the cambium layer of the stem and branches, blocking the flow of nutrients – in essence, the tree starves to death.