

Black Walnut Twig Beetle & Disease

The walnut twig beetle, *Pityophthorus juglandis*, is a tiny native bark beetle that feeds in the cambium of black walnuts in North America. The beetle transmits a fungus to the walnut trees it feeds on that ultimately kills the tree. The fungus transmitted by this beetle is a species of *Geosmithia* and it causes thousand cankers disease of walnuts. The disease gets its name from the dark cankers it forms on branches and trunks (see below). The disease has been recognized throughout the western U.S. and as far east as Tennessee.

The disease-causing fungus moves through the infected tree's phloem. Over time the it kills branches by effectively girdling them. Few symptoms show externally other than yellowing foliage, tiny exit or entrance holes, and staining and thinning of the foliage in the upper part of the tree. As the beetles infest more of the tree the disease progresses to larger and larger twigs and branches. The fungus blocks the vascular system eventually killing the affected twigs and branches. The adult beetles overwinter lower on the tree, eventually infecting the main trunk, killing the tree. Trees may die in as few as three years after initial infection, or it may take a decade.



Walnut twig borer. Photos by K.E. Garvey.

The disease appears to affect all black walnuts, young vigorous trees as well as centuries old ones. There is as yet no cure and the fungus may lead to the extinction of black walnuts in North America.

To date the disease is primarily affecting native black walnuts. Other *Juglans* (walnut) species seem to be more or less resistant. However, commercial (English) walnuts in California are now starting to show signs of the disease.

Homeowners gathering firewood maybe surprised by finding large numbers of these tiny beetles emerging from their walnut firewood. However, walnut twig beetles cannot become structural pests and will not attack any other trees except walnuts. Unfortunately, they are devastating to walnut trees because of their fungal associate.



Thousand cankers lesions and staining on a branch. Photo by J.K. Hasey, UC IPM.