

# Walnut Twig Beetle & Thousand Canker Disease



By Bill Gorham



On a pleasant day near the end of September 2021, I parked my car near the Historic House at Green Spring Gardens. Visible through my windshield, directly in front of me, was an odd contraption hanging from a branch of the big, old Black Walnut tree (*Junglans nigra*) behind the house. My curiosity was aroused, and I took several pictures of what appeared to be a trap for insects.

As luck would have it, and showing perfect timing, Patrick from the Fairfax County Urban Forest Management Division (UFMD) parked his truck and fished a long pole out of the back of it. He was there to empty the trap (if it had any victims) and to re-bait the scent jar at its base.

I learned from him that the trap was to monitor for the presence of the Walnut Twig Beetle (aka Walnut Twig Borer, *Pityophthorus juglandis*, in the Family Curculionidae, aka weevils). He told me that the "bait" was an aggregation pheromone (air-borne hormone) secreted by male beetles when they have found a good place to live. The pheromone attracts more male and female twig beetles to the tree (or, in this case, into the trap).

The beetles gnaw through the bark of trees and then tunnel under the bark creating "galleries" in which they live, mate, and raise their young. This damage becomes a problem when many beetles take up residence under the bark of twigs – causing them to die back. Worse than this damage is that the beetle carries the spores of a fungus (*Geosmithia morbida*, an Ascomycete in the Family Bionectriaceae) on its wing covers. The fungus is spread from tree to tree by the





beetle. Once introduced to a new host tree, the fungus invades the phloem tissue and multiplies, cutting off nutrient supply to the tissues and causing "Thousand Canker Disease." The disease kills twigs and eventually girdles branches, which can effectively kill a Walnut tree in three to four years.

All of this damage is caused by an insect about the size of a grain of rice (only 1/16 of an inch long – 2 mm.).

The disease was first identified in 1928 in Arizona and involved the native Arizona Black Walnut tree *Juglans major* (Family Juglandaceae). It gradually spread to Southern California where it attacked native California Black Walnut trees (*Juglans californica*) and imported Eastern Black Walnut trees (*Juglans nigra*). The beetle can also attack



English Walnut trees (*Junglans regia*). English Walnuts are a major cash crop in California's central valley (close to \$1 billion annually).

The beetle and its partner fungus have gradually migrated eastward over time and now threaten our native Black Walnut trees. The insect was identified in a Black Walnut tree in Tennessee in 2010 and was reported in Virginia and Pennsylvania in 2011. The insect and its fungal partner were reported in Italy in 2014.

The Fairfax County Urban Forest Management Division is monitoring several Black Walnut trees in the county, including the one at Green Spring Gardens. Black Walnuts are not only magnificent local trees, but their nuts also provide food for squirrels and other small mammals (and humans). According to Douglas Tallamy in his book *Bringing Nature Home*, the leaves of Black Walnut trees provide food for the caterpillars of more than 100 species of moths and butterflies, including Luna Moths and Banded Hairstreaks. Losing this tree from our forests and yards would be tragic.

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