

Walnut Twig Beetle and Thousand Cankers Disease: Field Identification Guide

The walnut twig beetle, *Pityophthorus juglandis* Blackman (WTB), is native to California, the southwestern U.S., and Mexico, where its original hosts were western black walnut trees. Widespread ornamental plantings of eastern black walnut and English walnut in the western U.S. have provided new hosts for the WTB, and have permitted a range expansion of the beetle into additional western states. WTB may expand its range further into the eastern U.S., where it is not known to occur. Historically, this tiny beetle was not considered a pest of walnut trees, and was often overlooked due to its size (A) and its behavior of colonizing branches. WTB is associated with a newly described fungus, *Geosmithia* sp., which colonizes and kills the phloem of walnut branches and stems, and causes the formation of oozing bark cankers. This so-called “thousand cankers disease” only occurs on walnut.



What to Look For: From a distance, initial symptoms of thousand cankers disease can include flagging and branch dieback (B). Closer examination of the bark surface of tree branches reveals pinhole-sized WTB entrance or emergence holes and sap staining, which are frequently near cankers in the underlying phloem (C,D). Populations of WTB attempt numerous feeding and reproductive galleries, around which fungal cankers form, coalesce, and girdle branches and stems (E).





Successful WTB galleries are about 1-2 inches long and are etched against the grain on the surface of the wood (F). Often there is dark brown to black-colored boring dust in these galleries. When cankers accumulate, the crown of the tree dies and the tree attempts to resprout branches from the stem (G). WTB may also colonize and inoculate the fungus in the main stem of declining trees (H-K). At mill sites in the eastern U.S., when examining large logs for symptoms of thousand cankers disease, first look for evidence of old sap staining on the bark surface. This is illustrated (H,I) where the staining in black walnut may appear only as a slight discoloration in the bark furrows. In smooth-barked English walnut (J,K), sap staining of the stem is very apparent from a distance. At mill sites, bark should be removed from sawlogs to verify the presence of the WTB galleries (F).

If you suspect thousand cankers infection of your walnut trees, contact your state department of agriculture or county extension office. Diseased trees should be removed and the stem and branches should be burned as quickly as possible.

Andrew D. Graves, Department of Plant Pathology, University of California, Davis, CA
 Tom W. Coleman, USDA Forest Service, Forest Health Protection, San Bernardino, CA
 Mary Louise Flint, Department of Entomology, University of California, Davis, CA
 Steven J. Seybold, USDA Forest Service, Pacific Southwest Research Station, Davis, CA

Please cite this document as: *Graves, A.D., Coleman, T.W., Flint, M.L., and Seybold, S.J. 2009. Walnut twig beetle and thousand cankers disease: Field identification guide, UC-IPM Website Publication, 2 pp., Nov. 21, 2009, http://www.ipm.ucdavis.edu/PDF/MISC/thousand_cankers_field_guide.pdf*

