

THOUSAND CANKERS PATHWAY ASSESSMENT: MOVEMENT OF *GEOSMITHIA* SP. AND *PITYOPHTHORUS JUGLANDIS* BLACKMAN FROM THE WESTERN INTO THE EASTERN UNITED STATES

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ABSTRACT

A newly recognized fungal canker disease of walnut, identified by state cooperators, may threaten the native range of eastern black walnut, *Juglans nigra*. The causal agent is a *Geosmithia* fungus (proposed name *Geosmithia morbida*) and the only known vector is the walnut twig beetle, *Pityophthorus juglandis* (WTB). The common name for the disease is “thousand cankers” due to the coalescing cankers surrounding multiple beetle entry points. The WTB and thousand cankers disease (TCD) has caused walnut mortality in Washington, Oregon, California, Idaho, Utah, Colorado, and New Mexico. The eastern edge of the disease is the Front Range of Colorado. Our objectives were to identify potential pathways for the movement of the *Geosmithia* sp. and its vector from the western states to the east; to identify potential alternate vectors; and to characterize the risk to the east. We identified pathways through consultation with experts, interception data, and review of the literature. We evaluated the potential movement of TCD east via these pathways using a geographic (GIS) approach.

Potential pathways include timber, firewood, wood packaging material (WPM), nursery stock, scion wood for grafting, nuts, and natural spread. The most critical pathway is raw wood, which moves in a variety of forms, including raw logs, burls, stumps, and firewood. There is very little commercial movement of walnut from the western states into the east, but it does occur. Walnut logs, burls, are stumps often used by individuals for woodworking, but quantities and frequencies of movement are unknown. Low grade walnut may be used for WPM and is frequently used for firewood. There have been no reports of infested nursery stock, but if nurseries become infested with TCD, this could become another critical pathway. Nuts are not likely to move the disease or its vector. Infected scion wood could move the disease, particularly by individuals. Natural spread may be facilitated by walnuts growing along riparian areas from Colorado’s Front Range through the Great Plains States.

The complete pathway assessment may be accessed online at: http://mda.mo.gov/plants/pdf/tc_pathwayanalysis.pdf.