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*The Indiana Department of Natural Resources issued a quarantine order on August 30, 2010, to prevent the introduction of Thousand Cankers Disease (TCD) of walnut trees into Indiana.*

## Walnut Trees in Indiana Landscapes

Walnut trees are among the most productive timber trees in Indiana, and play a valuable ecological role in both urban landscapes and native forests. Indiana ranks third in production of walnut timber in the United States. **As of December 2011, TCD has not been found in Indiana.** The TCD quarantine will help keep this destructive disease out of the state.

## Basic Information About TCD



Thousand cankers disease is the result of an interaction between an insect and a fungal pathogen. The spores of the **fungus** *Geosmithia morbida* are carried on the **walnut twig beetle** (*Pityophthorus juglandis*). As the beetle burrows into a branch of a walnut tree to feed and reproduce, it infects the tree tissue with the pathogen.

The fungus destroys the vascular tissue of the tree, causing small, black lesions called **cankers** to form at beetle entry points. Thousands of beetles at a time may attack a single tree, potentially delivering a lethal dose of the pathogen.



Eventually the edges of the cankers blend into each other, preventing the flow of vital nutrients throughout the tree. Trees infected with TCD exhibit symptoms of **general decline** such as the presence of **yellowing, wilted leaves** and **dieback of branches** in the crown. A tree often succumbs to TCD within 3-5 years after symptoms first appear. Identifying TCD before signs of tree decline appear is difficult.



The **walnut twig beetle**, native to the southwestern United States, is a tiny reddish-brown beetle about the size of a mustard seed (1-2 mm long). All species of walnut trees (*Juglans*) are susceptible to TCD, with black walnut (*J. nigra*) appearing to be the most susceptible.



The walnut twig beetle.

A TCD canker under bark of a black walnut branch (top). Cankers eventually coalesce, girdling the branch (middle). Tiny beetle exit holes through bark (bottom).

## How Does the Indiana TCD Quarantine Work?

Under the TCD quarantine, regulated walnut materials originating in, or moving through, a quarantined state are prohibited from being brought into Indiana.



All walnut logs from quarantined states are regulated.

## Regulated articles include:

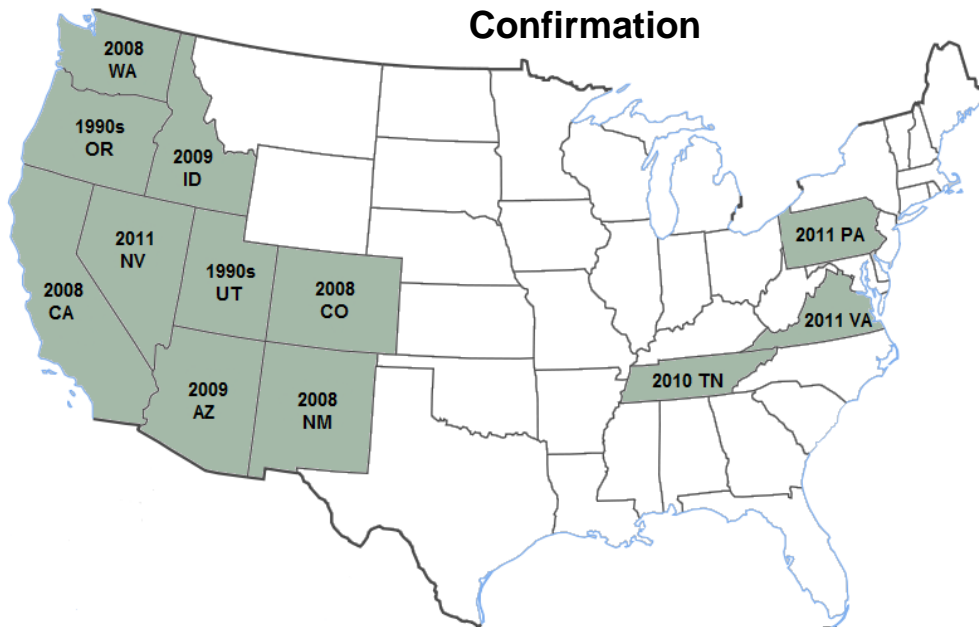
- **All types** of hardwood firewood
- Walnut logs, lumber, chips, and mulch
- Walnut nursery stock, budwood, and scion wood
- The fungus *Geosmithia morbida*
- The walnut twig beetle, *Pityophthorus juglandis*

## Walnut items *exempt* from the quarantine include:

- Nuts, nut meat, and hulls
- Kiln dried lumber that has 100% squared edges and is 100% bark free
- Finished wood products without bark attached, such as furniture, instruments, and gun stocks

Regulated articles may be brought into Indiana if the state of origin provides a **state-issued phytosanitary certificate** indicating the county of origin of the article and that the items are free of TCD. Notification must be given at least 24 hours before the item(s) are transported into Indiana. In addition, the Indiana business or person must have a **compliance agreement issued by the Indiana DNR**. The shipment must also be re-inspected by the IN DNR once it arrives in Indiana.

## States Positive for TCD and Year of Confirmation



## Report a Suspected Find of TCD in Indiana

If you see symptoms of TCD in Indiana, immediately notify the Indiana Department of Natural Resources, Division of Entomology and Plant Pathology, by calling

**1-866-NO EXOTIC  
(1-866-663-9684)**

or by sending an email to **depp@dnr.in.gov**.

Please include your contact information, a description of the symptoms you have observed, and the location of the suspect tree.

## Updates on the Indiana Thousand Cankers Disease Quarantine

To read the entire quarantine document and for updated information on TCD in Indiana, visit:

<http://www.in.gov/dnr/entomolo/6249.htm>



Black walnut trees exhibiting decline and rapid wilting from TCD.

## More Information About Thousand Cankers Disease

- Indiana Department of Natural Resources: <http://www.in.gov/dnr/entomolo/6249.htm>
- Purdue Plant Pathology: <http://www.ppd.l.purdue.edu/ppdl/hot10/8-23.html>
- USDA Forest Service: <http://www.fs.fed.us/foresthealth/fhm/sp/tcd/tcd.shtml>
- Colorado State Extension: <http://www.colostate.edu/Depts/bspm/extension%20and%20outreach/thousand%20cankers.html>
- The Walnut Council: <http://www.walnutcouncil.org/>