



Hoosier National Forest Highlights



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Thousand Canker Disease The Latest Threat to Southern Indiana's Forests



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Black walnut trees are a favorite of many people. The fruit yields a tasty nut that is a favorite addition to ice cream sundaes, baked goods, or salads. The dark wood is a valuable timber commodity that is strong yet easy to work with and is used to make furniture, flooring, and gun stocks. Sometimes black walnut trees are planted as a shade tree in the yard – as long as it's not near your garden - black walnut trees release a chemical that is toxic to some plants, in nature this helps eliminate some potential competition.

Historically, the black walnut has escaped major pest or disease outbreaks that have significantly damaged or killed large tree populations, such as the famed chestnut blight and Dutch elm disease that all but wiped out those species. However, about 10 years ago, black walnut trees in western states such as New Mexico and Colorado began to experience symptoms of disease.

Over several years, entire branches of leaves would turn yellow, wilt, and then die. Groups of branches dying on the same tree typically results in tree mortality within three years. Upon closer inspection, the suspect branches had numerous small cankers, or dark colored dead spots on the branch. These discolorations were often centered on a small hole made by the walnut twig beetle – a small beetle native to the western US. By itself this beetle is harmless to black walnut trees; however, some beetles carry a particular fungus known as *Geosmithia morbid*, then the host tree may be in trouble.

The walnut twig beetle, like many other beetles, bores a small hole into the branch of a black walnut tree. It feeds on the wood just under the bark as it

bores its way along, leaving a tunnel or gallery behind. It will also lay its eggs in these galleries leaving behind many small beetle larva that will continue the process. In a healthy setting, the beetle does this on branches that are either injured or over-shaded, thereby assisting the tree to prune itself. The hole produced from a beetle is very small, typically less than 1 millimeter in diameter.

When the above mentioned fungus is carried by the beetle, the spores are introduced into the cambium of the tree obstructing the flow of nutrients and water. An area around the fungal infected beetle gallery will darken under the overlaying bark indicating dead wood – a canker. Either the canker will enlarge or many small cankers will form so that they spread around the entire circumference of the branch causing mortality. Often, within a few years of initial symptoms, the tree dies.

Previously, this beetle-fungus association was observed only in western states; however, that changed last year as infested walnut trees were discovered in Knoxville, TN. The infested trees were traced to a shipment of nursery stock from a western state. This discovery has put many eastern natural resource departments on high alert for black walnut dieback. They are working hard on how to contain any outbreaks of this disease.

The key is to notice the early symptoms of the disease – entire branches of leaves turning yellow followed by mortality. If you can reach the branch, and you notice the presence of many small (<1mm) holes and numerous dark spots just under the bark, you should contact your District Forester as this condition likely indicates Thousand Canker Disease. Walnut trees with thousand canker disease are also likely to have many brushy limbs sprouting from the trunk and main limbs. You can also call the Indiana Department of Natural Resources at 1-866-NOEXOTIC to report a possible infestation.

And last, a good way to prevent the spread of this disease and other pests is to not move firewood outside of your area. Instead, wait until you reach your destination then look into purchasing certified firewood.

For additional information on forest insects and disease, contact Jonathan Porier at 812-547-9248, jporier@fs.fed.us.

Captions to photos:



A walnut twig beetle next to a pencil tip for size comparison. Photo by Kathy Keatley Garvey.



A walnut branch affected by many cankers. Photo courtesy of Colorado State University.