



# Central States Forest Health Watch



Current forest health information for land managers in Illinois, Indiana, Iowa, and Missouri

**August 9, 2010**

This collaborative effort of the USDA Forest Service Northeastern Area, Missouri Department of Conservation, and Indiana, Iowa and Illinois Departments of Natural Resources provides technical updates twice a year on forest health issues of regional interest. Useful information can also be found in previous editions, which are available on the www at <http://na.fs.fed.us/fhp/fhw/cs/fhw/>.

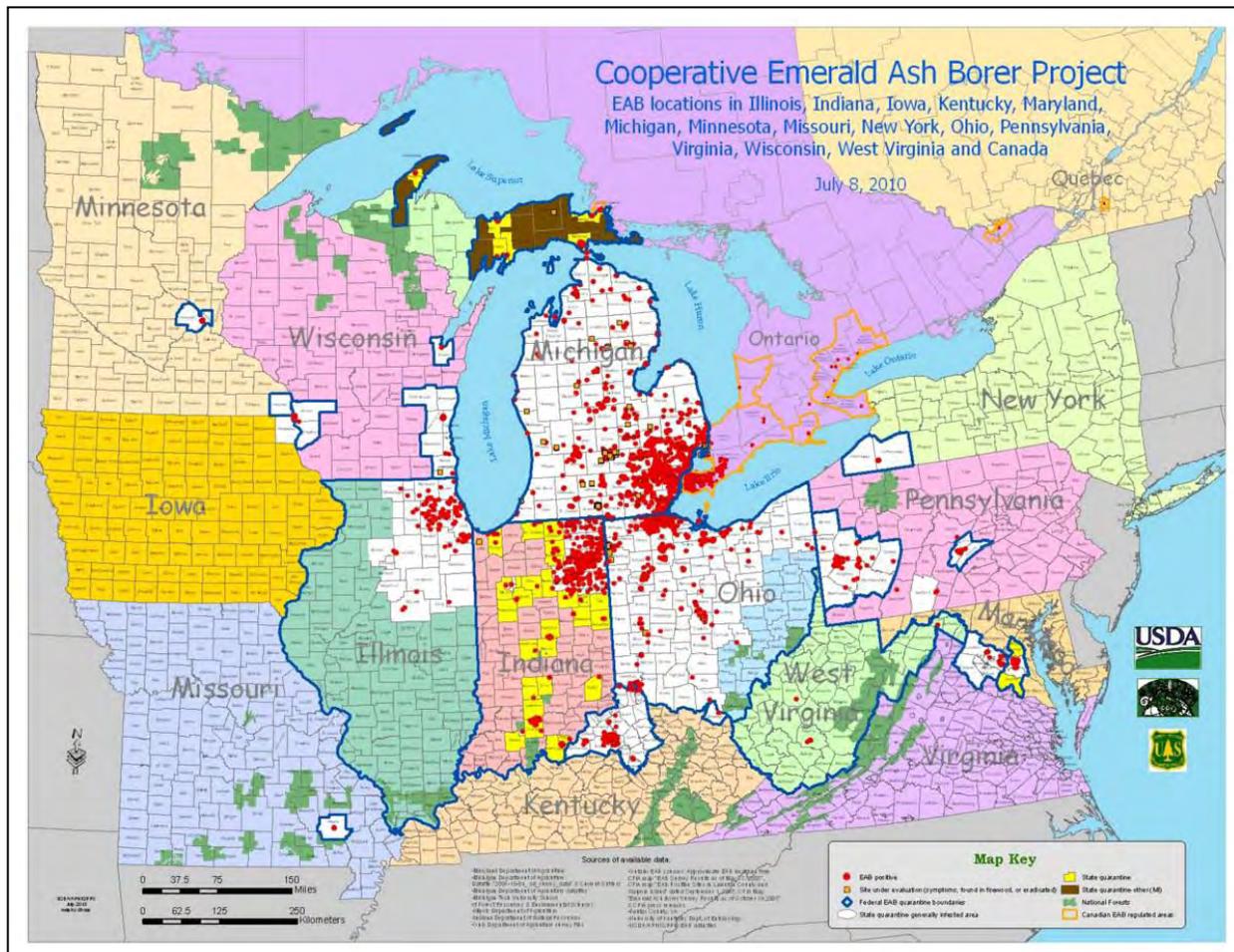
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## Important Regional Forest Health Issues

Nonnative insects and pathogens continue to be highly significant forest health issues in our region. In this edition you will find updates on Emerald Ash Borer and Gypsy Moth.

### Emerald Ash Borer (EAB)



The map included here reflects the addition of Iowa, with the finding of EAB in the northeast corner of the state. However, it does not reflect the find of EAB in an additional county in Ohio (Lawrence) and two in New York (Steuben and Ulster) in July, or the addition of Tennessee. On July 27, Tennessee announced that EAB had been found near the Knox and Loudon County line in east central Tennessee. These are significant expansions of the known distribution. Since EAB trap collection, which detects adults from this season's emergence, is not yet complete, it will not be surprising to have several new finds within the next two months. A state-by-state discussion below summarizes where EAB is in each state, and highlights some of the responses.

**Iowa:** An EAB infestation was confirmed in Allamakee County in May 2010. The infestation is just across the Mississippi River from the Victory, WI, infestation detected in April 2009. A quarantine was implemented for Allamakee County on June 11. EAB surveys (1,800 purple traps and 412 detection trees) were already in place before this detection. Results from the surveys will be used to plan actions for 2011.

**Missouri:** There is still only one known infestation in Missouri, which is the Greenville infestation in the southeast. The 2010 survey consisted of 923 traps around the Greenville infestation to delimit the population and 437 traps in other sites around the state. The traps are now being removed, so results for 2010 are pending. A delimit survey of the Greenville infestation in 2009 found very little expansion outside the core area. An ash survey was completed this spring to provide baseline data. Lethal (insecticide treated) trees and sink trees will be established in spring 2011 in an attempt to reduce ash mortality, following the latest technology from Michigan's pilot **SLAM (SLOW Ash Mortality) project**.

**Indiana:** During the late winter and spring, three counties – Carroll, Hendricks and Tippecanoe – were added to the state quarantine based on visual surveys. More than 14 counties were added in 2009 and 2010. Most counties in Indiana now are positive for EAB or border a positive county. Only a few counties in the southwest corner are more than one county removed from a positive find. Aerial survey of the EAB infestations found obvious mortality increasing in the woodlots of Huntington, Orange, and LaGrange counties. Many of these woodlots have >50% ash mortality with some near 100% ash mortality. In the generally infested northeast counties, dieback and light mortality is increasing within infested woodlots; however it is not as heavy and obvious as the above three counties.

In spring 2010, a 1.5 mile grid-based survey was implemented by APHIS PPQ in the southwestern quarter of the state. An additional survey of high risk sites (campgrounds and sawmills) in uninfested and recently infested counties is being conducted by the DNR. For both surveys approximately 3,500 purple panel traps have been set. Trap removal will begin in late August and September.

A project on the Hoosier National Forest (Hardin Ridge) is continuing to use the protocols from Michigan's SLAM pilot project to evaluate their effectiveness in a central hardwood forest. From the 2009 survey, 21 of the 205 detection trees were positive. All the positive trees were within 1.5 miles of the center point of the infestation. This base line data will be useful in evaluating the treatments. Lethal (insecticide treated) trees and sink trees will be established in spring of 2011.

**Illinois:** Additional sites continue to be added in northeastern Illinois. Currently four sites in different counties where EAB has been recently found are considered "outlier sites." These include a county forest preserve, a state park, a county conservation district, and the Fermi National Accelerator Laboratory (Fermilab). Each of these sites has unique characteristics which could provide a better understanding of how EAB spreads in urban forest settings. In summer 2010, Illinois began using SLAM protocols at Fermilab. This site has an active infestation and their intent is to slow the spread to adjoining residential areas to the east and south which contain high (60-80%) densities of ash. Sink trees have been established at the EAB epicenter, and purple traps have been placed along all of the borders of Fermilab to detect EAB populations. Chemical treatments of buffer trees will follow this fall or early next spring. Sink trees will be removed this fall or early winter, peeled and assessed for EAB. The other three sites will be surveyed this fall for ash resource with plans to explore SLAM activities in 2011.

Additional current information on EAB can also be obtained at the APHIS website at: [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/emerald\\_ash\\_b/index.shtml](http://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/index.shtml)

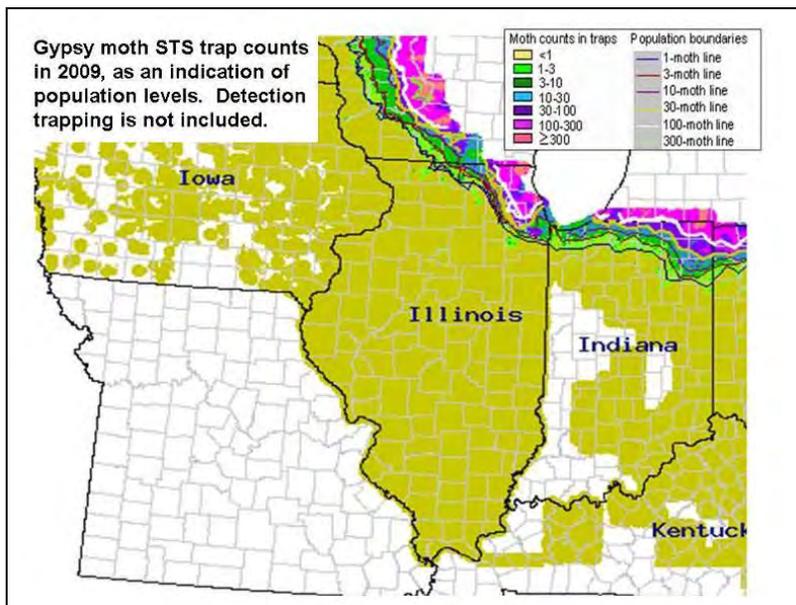


Emerald Ash Borer University is gearing up for its second year of delivering current, relevant information about the pest to stakeholders in the U.S. and Canada. The program, a collaboration of educators from Michigan State, Ohio State, and Purdue Universities supported by the Forest Service, offers free live webinars (registration required) and recorded versions of all its classes to be viewed at any time at [http://www.emeraldashborer.info/eab\\_university.cfm](http://www.emeraldashborer.info/eab_university.cfm). EAB U serves as an excellent resource for state and federal agencies, municipalities, businesses, Master Gardeners,

homeowners, and others about EAB, and is especially convenient since the webinars are accessed from one's own computer. This year the program will expand to include other invasive forest pests and diseases such as Asian longhorned beetle, Thousand Cankers Disease, *Phytophthora ramorum*, hemlock woolly adelgid and others. Contact Jodie Ellis with any questions or suggestions for EAB U at [ellisj@purdue.edu](mailto:ellisj@purdue.edu).

### Gypsy Moth (GM) Activities – Spring 2010

In areas near the leading edge of GM, treatment activities were undertaken to reduce populations to “slow the spread” (STS) of the advancing front. In areas that are uninfested, eradication treatments are taken to eliminate any outlying, pioneer populations. In areas where GM is established, suppression treatment activities may be undertaken to limit damage. GM continues to slowly expand westward, with populations now established in eastern and central Wisconsin, northern Indiana and northeastern Illinois. The map below shows the results of GM STS trapping in 2009, reflecting where male moth catches are high. Male moth catches are used to define the boundaries of STS action areas. The map does not include detection traps. Iowa and Missouri have had some catches of GM in pheromone traps, but are still considered to be without established populations. Due to the early 2010 spring, GM development and moth flight was recorded 1-2 weeks early across much of the area. The high levels of rain in some locations (especially northern Illinois) in May and June promoted extensive outbreaks of the GM fungal pathogen *Entomophaga maimaiga*. This pathogen kills late stage caterpillars and can significantly limit GM reproduction. In Indiana, GM caterpillars killed by nucleopolyhedrosis virus (NPV) and *Entomophaga* were observed on the same tree. This and other observations of caterpillar mortality, coupled with a lack of significant defoliation in Indiana, is a promising indication that natural control of gypsy moth is occurring sooner rather than later. Perhaps by “slowing the spread,” we are enabling the natural enemies to become established closer to the advancing front.



#### States without established populations:

	Treatment Activities	Trapping Activities
<b>Iowa</b>	None	In 2009, Iowa began to participate in the STS program. In 2010, more than 2,000 traps were placed in the northeastern nine counties as part of the STS grid. More than 1,000 additional gypsy moth detection traps were placed across the remainder of the state in a joint effort of IA DNR Bureau of Forestry, USDA APHIS, IDALS, and City Foresters.
<b>Missouri</b>	None	Missouri Departments of Agriculture and Conservation, APHIS, US Dept. of Defense and MO National Guard cooperated to set out an estimated 8,000 detection traps in Missouri. Delimit trapping is being conducted in six counties where gypsy moths were captured last year (Clay, Jackson, Polk, St. Charles, St. Louis, & Stone).

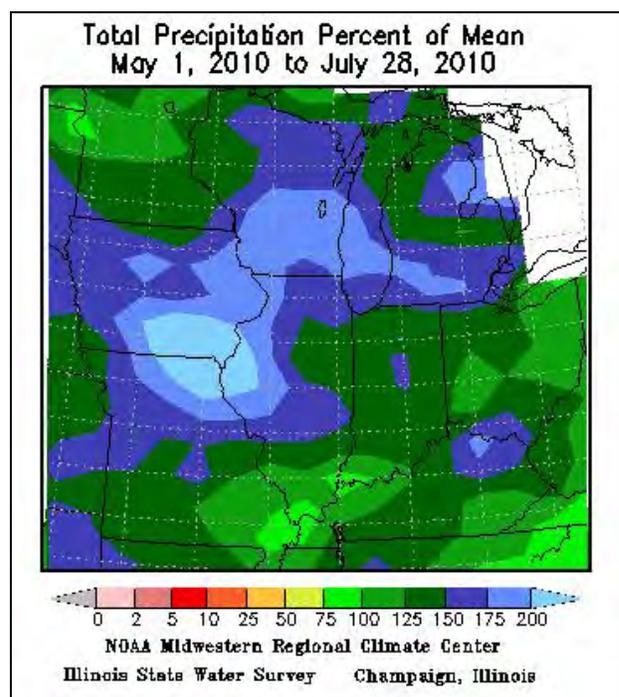
**States with established populations:**

	<b>Treatment Activities</b>	<b>Trapping Activities</b>
<b>Illinois</b>	Aerial application of Btk on 23 sites (approx. 3,700 acres) and mating disruption on 5 sites (approx. 3,600 acres) in 8 counties northern Illinois. The intent of the treatment of these sites is to slow the spread of gypsy moth by eliminating reproducing populations in the treatment sites. Some private GM suppression occurs in infested areas (the greater Chicago area), but this is not reported to or monitored by the Forest Service.	Approximately 7,000 STS monitoring traps will be placed in the northern 1/3 of the state. APHIS traditionally places detection traps in the portion of the state not covered by the STS program and delimit traps in areas where moths were caught the previous year. They planned to place approximately 4,900 traps in 2010.
<b>Indiana</b>	Aerial spray of Btk on approx. 5,100 acres in Allen and Kosciusko Counties and pheromone flakes on approx 13,000 acres in Lake, Marshall, Huntington, and Wabash counties. The intent of these treatments is to slow the spread of gypsy moth in northern Indiana. Male moth flight was observed on June 21, which is the earliest reported moth flight in Indiana survey history.	Approximately 8,800 STS monitoring traps were placed on 2K, 3K & 5K grids in northern IN. An additional 3,200 traps were set on a 3K grid over the portion of the state not covered by STS.

**Weather Overview**

The good news is that we don't have any drought effects to report across the Central States. The map of precipitation during May through July confirms what you already knew to be true: it has been very wet, especially in southern Iowa, northern Missouri, and western Illinois. Much of this rain has come during torrential downpours, resulting in damaging flooding. The immediate effects of high rainfall, such as erosion, are obvious. Some other effects that we see develop as excess moisture continues include damage to root systems in low-lying areas, increased leaf diseases, and even subtle effects like chlorosis from effects on nutrient uptake.

In addition to rainfall events, this season's weather has also been punctuated by severe storms. To get a clearer picture of this how this year's damage compares to last year, Illinois conducted a survey. However, the response to their inquiry on 2010 extreme storm damage across Northern Illinois was mixed, with localized areas receiving micro-bursts, wind shears, and even tornado warnings, while others remained unscathed. Because this severe damage was so localized, most municipalities in Northern Illinois reported only "average" storm damage for this spring summer season.



**What else is being reported across the Region**

**'Sudden Oak Death'**

With this edition, Sudden Oak Death (SOD) moves from the "Important Regional Forest Health Issues" section to "What else is being reported." We are delighted that SOD has NOT emerged as an important issue for our Central States, especially after it was inadvertently shipped to many locations on infected nursery stock in 2001-2003. In the Midwest, states have been involved in **nursery surveys** to detect introductions and surveys of **natural areas** to detect established disease. These surveys have different purposes and different interpretation of results, so they will be described separately.

Early surveys of natural areas in the East, based on testing foliage of symptomatic plants, did not find any established populations of *P. ramorum*. A more efficient survey method used in 2007 and 2008, based on "baiting" streams with rhododendron leaves to detect the presence of the pathogen in the watershed, did not detect *P. ramorum* in the 16 and 12 (2007 and 2008, respectively) Central States watersheds tested. Since the risk of *P. ramorum* establishment in the North is considered low, survey priorities have shifted to the Southern

and Western states, and no stream baiting was done in the Central States in 2009-10. Using the stream-baiting methodology, *P. ramorum* has been found outside nurseries in four Eastern states: Mississippi, Alabama, Georgia, and Florida.

Central States continue to conduct nursery surveys to detect introductions. For instance, in Indiana the Division of Entomology and Plant Pathology conducts leaf surveys of nursery stock in 20 nurseries for SOD each year. This year they are also sampling the water sources of ten of these nurseries in the spring and late summer using rhododendron leaf baits. Samples submitted and processed to date from water sources and the normal leaf survey are all negative for *Phytophthora ramorum* by Elisa and PCR.

One significant development in SOD is that, effective July 19; all nurseries in quarantined or regulated areas must provide advance notification of outgoing shipments of host nursery stock to the State Plant Regulatory Official (SPRO) in the receiving state. This new policy enables the receiving state to prioritize their resources to be able to inspect incoming materials that they believe are high risk.

The latest information on Sudden Oak Death (SOD) is available on the “California Oak Mortality Task Force” web page <http://www.suddenoakdeath.org/>. New information is generally available in their “current newsletter.”

### **Bur Oak Blight**

Bur oak blight (BOB) is caused by an undescribed species of Tubakia. Thus far, the disease is known from eastern Nebraska to southern Minnesota and southwestern Wisconsin, and it appears to be spread across all of Iowa. It is not clear if the fungus is new to this region or if a shift in climate (more early-season rain events) have made this disease more noticeable over the last two decades.

By early July, BOB symptoms were starting to appear in central Iowa, and 2010 may be a good (bad) year for the disease. This is substantially earlier than in years past, when symptoms appeared in late July or August. Heavy early-season rains in Iowa may be favoring the disease.

Tom Harrington at Iowa State University is looking for leaf samples of bur oak blight from across Iowa and in neighboring states. Late season appearance of necrosis (browning) of the main veins of leaves is the best symptom. Anthracnose may also result in veinal necrosis of bur oak leaves, but anthracnose begins much earlier in the season. Substantial leaf mortality is evident with BOB, and symptoms are usually more severe on the bottom half of the affected tree crowns. No other oak species are affected.

If you have potential BOB material, please contact Tom Harrington at [tcharrin@iastate.edu](mailto:tcharrin@iastate.edu) or 515-294-0582 for instructions or questions. A photograph may help diagnosis. A permit for shipping samples across state lines can be sent to you.

The link below will take you to an 18 minute video on the symptoms and other characteristics of BOB. <http://fms.extension.iastate.edu/vod/video/2010BobPresentCIC.html?>

### **Defoliators, leaf diseases...**

An extensive outbreak of the **jumping oak gall** (*Neuroterus* sp.) on white oak occurred across more than half of **Missouri** this spring. Damage was particularly heavy in southwest and south central Missouri and became apparent as early as late May. Jumping oak gall information is available on MDC web site:

<http://mdc.mo.gov/newsroom/oak-galls-wont-cause-much-permanent-damage>

[http://mdc.mo.gov/sites/default/files/resources/2010/06/8177\\_6033.pdf](http://mdc.mo.gov/sites/default/files/resources/2010/06/8177_6033.pdf)

An outbreak of **shingle oak skeletonizers** has returned to **western Missouri** between Kansas City and Springfield. Every few years we see outbreak populations of these small moth larvae in that same region of the state. They feed on the lower surfaces of leaves leaving a lacy skeletonized upper leaf layer. Leaf damage is severe enough to cause entire tree crowns to lose their green color. They specialize almost exclusively on shingle oaks, although a few other oaks also may be used as hosts. A complex of a few unidentified moth species is involved, rather than a single species. The oak skeletonizer (*Bucculatrix ainshiella*) that is common in eastern states may not be involved in these outbreaks on shingle oaks in Missouri.

In **Indiana**, forest mortality is still obvious in the forest tent caterpillar epidemic area, even though no FTC defoliation occurred this year; however, stand recovery is occurring and stands are looking better during aerial surveys. Mortality due the previous outbreak of Looper Complex (Linden Looper and Half Wing geometer) stopped 2-3 years ago, and no new defoliation was noted.

**Bagworms** are still a problem in **northern Indiana** because the warmer winters in recent years have allowed them to move farther north. Most of the problems occur on individual arborvitae, Norway spruce, white pine and Scotch pine.

**Eastern tent caterpillar** was at higher numbers in **southern Indiana** producing noticeable defoliation to individual forest black cherry trees besides the normal feeding on fence row black cherry. With the early spring, they completed their caterpillar stage, pupated and adults laid eggs by the end of May.

In **Indiana**, **sycamore anthracnose** was not common and considered light defoliation where it occurred across the state, primarily in northern Indiana which had more evidence than southern Indiana.

### **... and other forest health problems**

**Illinois** conducted a survey of **cottony maple scale** (CMS) populations across northern Illinois, in terms of what percentage of the municipalities or “areas” had been affected by CMS. Results indicated that the scale has a strong presence across the northern half of the Greater Chicago Area, while the I-80 corridor and surrounding suburbs have far fewer occurrences and pressure. Overall, cottony maple scale seems most prevalent along the coast of Lake Michigan, north of the Chicago region. This flat brown scale is most noticeable in June and July when they are puffed up in a white waxy egg mass. The scale sucks sap from box elders, silver maples, and many other tree species. Obvious symptoms include branch dieback along with yellowing leaves, and sometimes visible drops of “honeydew” that have fallen onto plants underneath the tree.

In the **Missouri** Department of Conservation forest health lab, many recent **urban tree health problems** have been related to **excessively wet soil conditions** that have been present this year. High temperatures recently seem to have increased stress on the trees, making foliar damage more apparent. Symptoms range from chlorosis and leaf scorch to dieback and rapid tree death. Sugar maple seems especially affected and reports have been concentrated in northern and central Missouri with some reports from southwest Missouri as well.

In south central and southeast **Indiana**, **white oak tatters** was reported heavy on white oak in Bartholomew, Decatur, Jefferson, Jennings, Ripley, and Scott counties. No reports were received from northern Indiana. With the early spring and good planting weather, it is likely that the application of herbicides to the crop fields occurred when the white oaks were budding out, resulting in the damage. There was no significant spring frost at that time that could have contributed to the tatters symptoms.

In **Iowa**, **oak tatters** levels were variable, with some areas of historically high damage continuing to experience high damage, while damage was lower in other areas. Studies at University of Illinois and Iowa State University have demonstrated that tatters symptoms on oak can be caused by quite low levels of chloroacetamide herbicides. The onset of common tatters symptoms in Iowa coincides with the common use of these herbicides in the mid-1990's. The fact that symptoms vary from year to year is most likely explained by variation in whether herbicide application coincides with susceptible bud stage. District foresters in Iowa continue to observe declining white oak and frequent occurrence of oak tatters.

### **Thousand Cankers Disease of Black Walnut: Update**

Thousand Cankers Disease (TCD) of Black Walnut was our feature topic in the January edition of this update. TCD has not yet been confirmed in any of the Central States, but we are looking and we do have some new resources to share. The Forest Service published a new Pest Alert in June 2010. It is available in both high and low resolution versions online at: [www.na.fs.fed.us/pubs/detail.cfm?id=5225](http://www.na.fs.fed.us/pubs/detail.cfm?id=5225). Updated versions of the Pest Alert will be placed at this site as they become available.

In late July 2010, the insect (*Pityophthorus juglandis*) and pathogen (*Geosmithia morbida* [proposed name]) involved in TCD were reported from black walnut in Tennessee. This is very significant, as this is the first report of these organisms from within the native range of black walnut. The walnut trees in which they were observed were demonstrating decline and dieback, but the full implications of this discovery have not yet been determined.

External quarantines are being implemented by a number of states. Missouri was first, with an effective date of April 12. Nebraska and Michigan have followed with their quarantines. A number of other Midwest states are in the process of considering and/or drafting regulations to prevent the movement of potential TCD-infested products from the western states into their state.

Limited surveys for TCD are underway in the states east of the known front. Awareness is increasing, and samples from suspect trees should be sent to a state Plant Diagnostic Lab. The National Plant Diagnostic Network is aware of the issue, and some base funding is being passed on to the North Central network to gear up for increased samples. By the end of 2010, the distribution of TCD should be better delineated due to all of these efforts. Data from the surveys will be reported through the NAPIS website – <http://pest.ceris.purdue.edu/searchpest.php?selectName=FDAAGFL>. For more background on TCD and for the latest information, go to: <http://mda.mo.gov/plants/pests/thousandcankers.php>.

As part of survey efforts for TCD, scientists from the Forest Service Northern Research Station have visited known TCD sites in Colorado to observe symptoms. Dr. Jennifer Juzwik and Dr. Mike Ostry offer the following additional tips for identification of trees that should be high priority for sampling:

1. Peak symptom expression for TCD should occur from now through August. As summer progresses, there will also be leaf diseases (anthracnose and others) that commonly defoliate black walnut. Black walnut leaves tend to naturally senesce early, which may also confound detection. One diagnostic characteristic of TCD is the tendency of wilted and brown leaves to cling to the dying branches. With anthracnose and other leaf diseases, diseased leaves tend to abscise.
2. See the additional notes and photos on this and the following page to help with identifying suspect trees.

**Early symptoms** (late June to late August) – may appear anywhere in the tree crown (upper, middle or lower) –

- A portion of the crown may look thin.
- Look for yellowing and/or wilting leaves (“flagging”) in the crown.
- Attached, wilted and brown leaves may be observed in the older portion of the affected crown.
- Leaves may appear smaller than normal.



**Actively declining crown symptoms**

- Over several weeks, there is rapid wilting and “collapse” of foliage on affected limbs.
- Cankers may be observed on branch below wilting foliage.
- Dead limbs are relatively recent, usually died within the same season but not more than one year.
- In Colorado, trees affected the previous growing season have little live crown the next growing season.



### Late symptoms

- In Colorado, affected black walnut trees die in less than three years after the very first flagging symptoms are observed.
- Branches > 1 ½ inches have numerous tiny holes (smaller than pin hole borer type holes)
- When outer bark is carefully scrapped to reveal inner bark tissue, small cankers are observed on branches. Once coalescing of cankers occurs, large, dead (cankered) areas can be found on branches and main stem.
- Numerous, meandering tunnels and galleries of the walnut twig beetle may be observed in the bark.
- Both the fungal cankers and the walnut twig beetle are found in the bark down to the cambial region (not into the wood).



3. There is another exotic insect, an ambrosia beetle (*Xyleborinus saxeseni*), which looks much like *P. juglandis* that has been reported on walnut in Missouri. Examination of suspect beetles under a dissecting microscope is necessary to distinguish *X. saxeseni* from *P. juglandis*.
4. If you have suspect trees to report or if you know of an area with concentrations of black walnut that can be examined/surveyed, please contact either your state Plant Diagnostic Lab or the researchers at Northern Research Station [jjuzwik@fs.fed.us](mailto:jjuzwik@fs.fed.us), or [mostry@fs.fed.us](mailto:mostry@fs.fed.us).

## Other Resources and Sources of Information

### Meet your Forest Health Specialists:

Missouri Department of Conservation: Simeon Wright began as Forest Pathologist in March. Previously Simeon was the Coordinator of the Plant Diagnostic Clinic at the University of Missouri, Columbia, where he coordinated the activities of the plant diagnostic clinic including diagnosis of plant problems, insects, and weeds. Simeon holds a Master's degree in Plant Pathology from Ohio State University and a Bachelor's degree in Entomology from Iowa State University. Welcome, Simeon! Rob Lawrence continues as Forest Entomologist. They are both located in Columbia.

Rob can be reached at [Robert.lawrence@mdc.mo.gov](mailto:Robert.lawrence@mdc.mo.gov), or (573) 882-9909 (ext. 3303).

Simeon can be reached at [Simeon.Wright@mdc.mo.gov](mailto:Simeon.Wright@mdc.mo.gov), or (573) 882-9909 (ext. 3311).

Iowa DNR: Iowa's Forest Health Specialist is Tivon Feeley. Tivon's office is in Des Moines, and he can be reached at [Tivon.Feeley@dnr.iowa.gov](mailto:Tivon.Feeley@dnr.iowa.gov) or (515) 281-4915.

Illinois Department of Natural Resources: Tom Wilson is the primary Forest Health Program contact. However, a contract agreement between the IL DNR and the Morton Arboretum allows Frederic Miller to provide some forest health assistance within Illinois. If a forest health question arises in Illinois contact Tom Wilson at [tom.wilson@illinois.gov](mailto:tom.wilson@illinois.gov) or (618)498-1627.

Indiana Department of Natural Resources: Phil Marshall continues to be the Forest Health Specialist in addition to his role as State Entomologist. Phil can be contacted at [pmarshall@dnr.in.gov](mailto:pmarshall@dnr.in.gov), or (317) 232-4189. Indiana's Forest Entomologist position in the Division of Forestry is currently vacant.

**Extension Plant Clinics** are also a diagnostic resource in your state. Websites for the respective clinics are:

Iowa State University Plant and Insect Diagnostic Clinic: <http://www.plantpath.iastate.edu/pdc/>

University of Missouri Plant Diagnostic Clinic: <http://soilplantlab.missouri.edu/plant/> (Note that the Missouri clinic is currently closed until a new clinic director is in place, which may occur this fall.)

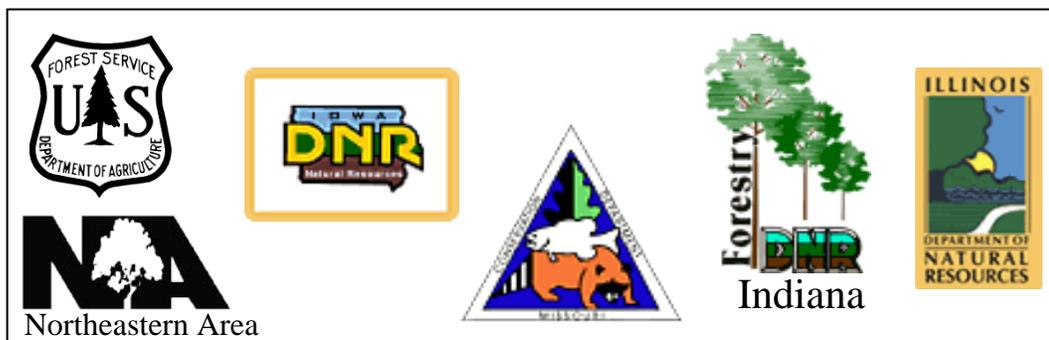
University of Illinois Plant Clinic: <http://plantclinic.cropsci.uiuc.edu/index.html>

Purdue University Plant and Pest Diagnostic Lab: <http://www.btny.purdue.edu/Extension/PPDL.html>

The Northeastern Area of the Forest Service hosts a website with **Forest Service publications** on many important insect and disease problems: <http://na.fs.fed.us/pubs/index.shtm>

From October 4-7, 2010, Wisconsin will host the **North Central Forest Pest Workshop** (NCFPW) in Elkhart Lake, Wisconsin. The NCFPW is an annual gathering of persons interested in forest health in the North Central portion of North America. It is usually attended by entomologists, plant pathologists, foresters, and other scientists and students. Each year it is held in a different location. The theme this year will focus on "Slow Moving Disasters and Fast Moving Innovations." Additional information will be posted on the NCFPW website [www.forestpathology.org/hosted/ncfpw/](http://www.forestpathology.org/hosted/ncfpw/) as it becomes available.

**This newsletter is also available on the web at: <http://na.fs.fed.us/fhp/fhw/csfnw/>**



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