



Central States Forest Health Watch



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

May 1, 2004

About This Newsletter...

This collaborative effort of the USDA Forest Service Northeastern Area, Missouri Department of Conservation, and Indiana, Iowa and Illinois Departments of Natural Resources will provide updates three times per year (Spring, Summer, Autumn) on forest health issues of regional interest.

Important Regional Forest Health Issues

The headline issues that plague our forests continue to be nonnative insects and pathogens. Below you will find updates on Sudden Oak Death, Emerald Ash Borer, Gypsy Moth, Banded Elm Bark Beetle, and Asian Longhorned Beetle.

Sudden Oak Death

In March 2004 it was discovered that plants from nurseries infected with *Phytophthora ramorum*, causal agent of Sudden Oak Death (SOD), had been shipped all across the USA. This incident has set in motion a flurry of activity. Our feature topic in this edition is a summary of what has happened so far, and how we are responding. See page 5 of this newsletter!

Emerald Ash Borer

Since Emerald Ash Borer (EAB) was first discovered in Michigan in 2002, major efforts have been underway to survey forests to determine the extent of its distribution, and to destroy any infested trees in order to contain its spread. The latest bad news is that **EAB has been confirmed for the first time in Indiana**. EAB was discovered on April 19th at the Yogi Berra Jellystone campground on Barton Lake in Steuben County, about 40 miles north of Fort Wayne. A local Purdue Extension educator first notified DNR of a possible infestation. A DNR field entomologist responded and confirmed a pest infestation, and the identity of the pest as EAB was confirmed by USDA's Systematic Entomology laboratory in Washington D.C. on April 21st. At this time it appears likely that the source was infested firewood.

The first step to contain the spread of this pest will be a survey of the infected area. The survey will determine the number of ash trees that could serve as a host for the pest and the extent of the infestation. This step is preliminary to trapping the emerald ash borer and the removal of all ash trees on the site by the end of May. In addition, the DNR is placing a quarantine on Jamestown Township in Steuben County. The quarantine will forbid the transportation out of the township of any ash tree, including nursery stock, any ash logs or untreated lumber with the bark attached, and composted or uncomposted ash chips or bark chips one inch or larger. Lastly, no cut firewood from any species of tree grown in Jamestown Township may be taken out of the township.

The adult emerald ash borer is slender with a bright metallic coppery green color. It is about one-third of an inch long. The larval stage of the insect destroys live ash trees by feeding under the bark and disrupting nutrient supply. Infestations are most easily identified by tiny D-shaped holes that are visible on the tree's bark. The bark may also develop lengthwise cracks or fissures. Photos and more details of the symptoms and lifecycle of EAB can be found in the Pest Alert at http://www.na.fs.fed.us/spfo/pubs/pest_al/eab/eab.htm

To date, millions of ash trees have fallen prey to the emerald ash borer and a number of Michigan counties are under quarantine. The pest also has been found a few miles east of the Indiana border near Hicksville, Ohio and a few miles to the north in Quincy, Mich.

Indiana's State Entomologist Dr. Robert Waltz has suggested steps to help retard the spread of the emerald ash borer to Indiana, "First, do not bring into Indiana firewood from Michigan or Ohio, particularly

if the bark is still attached. In general, it is best to debark all firewood if you're traveling and be sure to burn all the wood you brought with you. Under federal quarantine, it is illegal to transport firewood from infested areas to any site outside the quarantined area." These steps would be wise for all Central States.

Indiana's EAB detection survey plan will focus on recently planted landscape trees, campgrounds, and sawmills in the NE ½ of the state and all nurseries. The complete plan is posted [HERE](#) on the www. Other states in the Central States region are also stepping up detection activities for EAB in 2004. Missouri is concentrating their EAB efforts on educating the green industry (arborists, tree care companies, municipal foresters, consulting foresters), Extension specialists, and MDC foresters as their first line of detection. In Iowa, survey field work will consist of an ISU student visiting ash trees in 10 Iowa cities and the Bureau of Forestry forest health coordinator conducting transect surveys areas near major forest products facilities. The USDA Forest Service will be conducting EAB surveys on all federal lands within the Central States.

Gypsy Moth Activities – Spring 2004

States without established populations:		
	Treatment Activities	Trapping Activities
Iowa	Two sites are scheduled for treatment, one in Woodbury County, and one in Scott County.	A joint effort of USDA APHIS, IDALS, Eastern Iowa City Foresters, and the IA DNR Bureau of Forestry will place approximately 5000 gypsy moth detection traps across the state. New this year is an invitation to County Conservation Boards in six N.E. Iowa counties to begin participation in annual gypsy moth trapping.
Missouri	None	MO Dept. of Agriculture, MO Dept. of Conservation, USDA APHIS, U.S. Dept. of Defense and MO National Guard will cooperate to set out over 11,000 detection traps in Missouri. Delimit trapping will be done at 10 locations where gypsy moths were captured last year, including four sites in the St. Louis area, and one each in Boone, Clay, Jasper, Lawrence, Pulaski, and Taney Counties.
States with established populations:		
	Planned Treatment Activities	Trapping Activities
Illinois	Aerial spray of Btk on 17 sites and pheromone flakes on 10 sites in Northern Illinois. The intent of the treatment of these 73,578 acres on 27 sites is to slow the spread of gypsy moth by eliminating reproducing populations on the treatment sites.	USDA 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. STS monitoring traps will be placed in the northern ¼ of the state.
Indiana	Aerial spray of Btk on approx 3969 acres and pheromone flakes on approx 56,900 acres. The intent of the treatment of these 39 sites in 13 counties is to slow the spread of gypsy moth by eliminating reproducing populations on the treatment sites.	Over 17,000 traps will be placed on 2K and 3K grids over the entire state. Delimit surveys are planned for all positive sites outside and selected sites within the STS Zone.

Banded Elm Bark Beetle-- *Scolytus schevyrewi* (Coleoptera: Scolytidae)

The band elm bark beetle (BEBB) is native to China and other Asian countries, and its native hosts include elms, willows, fruit trees, and Russian olive. BEBB was first found established in the United States in Colorado during April 2003. By the Fall 2003, it had been detected in 12 western states, including locations as far east as Kansas City, Kansas. BEBB was confirmed in Illinois at 2 locations near East St. Louis during February 2004 (from 2003 trap specimens).

BEBB has most likely been introduced through solid wood packing materials from Asia. These introductions have most likely been at a number of locations dating back 5 or more years ago. BEBB is being detected through standard exotic bark beetle surveys conducted by APHIS, state Departments of Agriculture and US Forest Service. More trapping is planned throughout the Midwest during 2004.

Potential impact of this exotic bark beetle is being assessed. It has been observed attacking and killing drought-stressed Siberian elms in CO and UT. In Denver, CO, BEBB is much more abundant in dying elms than the smaller European elm bark beetle (*S. multistriatus*). In the U.S., it has been found breeding in

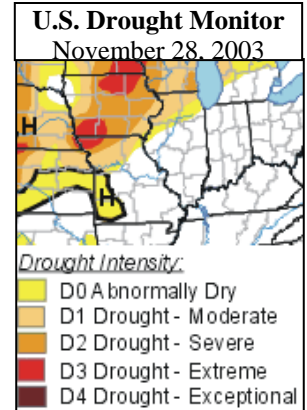
American, English, rock, and Siberian elms only. It is not known if BEBB can vector the pathogen of Dutch elm disease. If it can, BEBB has the potential to expand the range of DED, since it is likely to be more cold hardy than the smaller European elm bark beetle (the principle vector of DED in the U.S.)

Asian Longhorned Beetle

Asian Longhorned Beetle (ALB) was first found infesting trees in New York City in 1996, Chicago in 1998 and Jersey City, New Jersey in 2002. In September 2003 a large ALB infestation was found near Toronto, Canada. Monitoring efforts continue in the Chicago area. The good news here is that since July 1, 2003, only 3 new infested trees have been found in the main Ravenswood infestation. All infested trees are destroyed. The goal is to eradicate ALB from the United States by finding and destroying all infested trees. More detailed information on the status of ALB in the US is available on the USDA FS ALB home page at <http://www.na.fs.fed.us/spfo/alb/index.htm>.

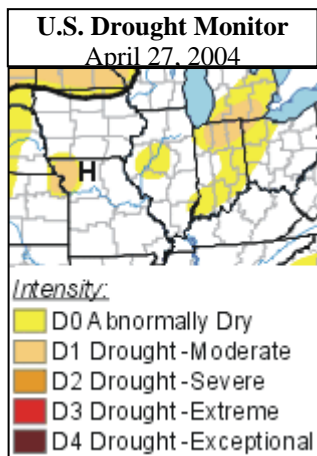
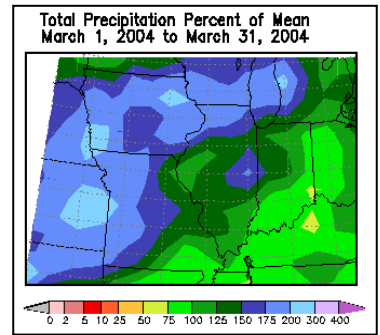
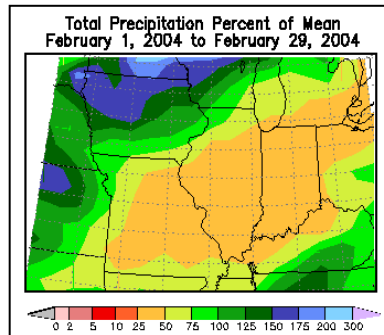
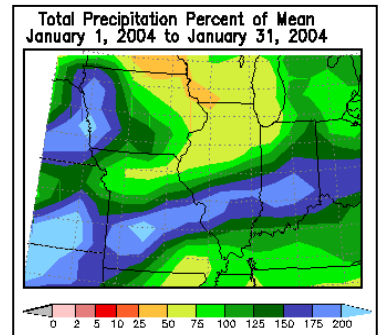
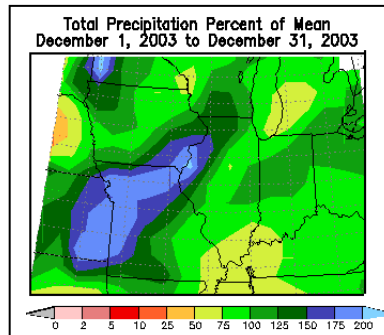
Weather Overview

Where we left off... In the November 2003 edition, we reported that a band across the southeast portion of the Central States was very wet (especially Indiana and Illinois), whereas the northwest portion of the region continued to be very dry (especially NW Missouri, Iowa, and northern Illinois). The results of this weather pattern were reflected in the U.S. Drought Monitor map, captured to the right.



In **November 2003**, much of the Central States region received very high rainfall; however heavy precipitation missed the extremely dry areas in NW Missouri.

December through March were not marked by abnormal high or low winter temperatures, or extreme weather events. The precipitation varied across the region, as you can note from the maps to the right, with some parts receiving above normal precipitation, and some below. Although the band extending across southern Missouri through southern Indiana received above normal precipitation in January, this area was very dry through February and to some degree into March. This drier pattern continued, and by April 20th an extensive band across this area was abnormally dry.



Note that winter precipitation did not eliminate the drought conditions from northwest Missouri and the upper portion of Iowa. Pat Guinan, University of Missouri Climatologist, reports in his Monthly Weather Summary “Hydrologic drought conditions slightly improved over northwestern Missouri by the end of [March] due to near normal precipitation from December through February and above normal rainfall in March. Subjective reports, however, indicate subsoil moisture levels are still below normal despite some recharge.”

Severe spring storms arrived in the region on April 20, bringing 15 tornados to Illinois and 5 tornados to Indiana. Heavy rain across southern Missouri, Illinois, and Indiana on April 22-23 provided some relief from the developing band of abnormal dryness, but most of Indiana and the central part of Illinois remained dry.

The Drought Monitor maps used here are taken from the National Drought Mitigation Center's website at <http://www.drought.unl.edu/dm/monitor.html>. The precipitation maps are from the Midwest Regional Climate Center's "Midwest Climate Watch" at <http://mrcc.sws.uiuc.edu/Watch/watch.htm>.

A Look into the Crystal Ball...

It's impossible to accurately predict the activity level of **spring defoliators**, however historic patterns can yield some insight. Winter conditions were mild enough that the insects may have overwintered quite successfully. Some of the most common and obvious spring defoliators include Eastern tent caterpillar on cherry, apple, and other hardwoods, European pine sawfly on hard pines, and spring looper complexes on hardwoods. In 2003, **linden looper and half-wing geometer** populations were on the rise in Southern Indiana, and that trend is continuing in 2004. Heavy defoliation is expected in South Central Indiana from Martinsville south to the Ohio River. **Forest tent caterpillar** has also been active in southeast Indiana, particularly on the east side of Jefferson and into Switzerland Counties. Defoliator populations were at very low levels in Missouri during the last two years, so it would not be too surprising to see them rebound nearer to normal activity this year.

In South Central Indiana, the **17-year-cicada** is beginning to emerge. By the end of May and into early June flagging will begin to appear on hardwood twigs that have been wounded by cicada oviposition.

Anthracnose leaf and twig diseases can be very prevalent on several hardwood species in early spring, especially if we have wet weather. The most common symptom is dead areas or blotches on the leaves. On white oaks, the lower leaves often get large blotches. On ash, blotches are less visible but leaf drop is very common. On sycamore, irregular blotches form, blighted leaves fall off, and cankered twigs die. Conditions that favor development of sycamore anthracnose include average weekly rainfall one inch or greater and average weekly maximum temperature in the 50's.

In areas where drought has occurred, expect to see a high incidence of **stress-related disorders, such as cankers, declines, root disease and boring insects**. These other problems may be common in northwest Missouri and northern Iowa, based on the repeated and extended dry conditions that those areas have been experiencing.

What else is being reported across the Region

Decline of white oak in woodlands continues to be a concern in Iowa. In 2004, white oak decline field investigations have commenced on 3 sites in Eastern Iowa. These investigations are under a USDA Forest Service grant and involve weekly site visits and electronic devices to monitor temperature, leaf condition, and area cropping activities. Occurrence of "oak tatters" is of particular interest. Crown and basal samples will be cultured for oak wilt disease and Ganoderma root and butt rot.

Spring conditions and drying winds have contributed to a number of diagnostic contacts regarding **winter desiccation** in Missouri on conifers and hollies. Most of the desiccation problems are now subsiding and normal color is returning to reddened pines as the ground temperatures have caught up with ambient.

In addition, one sample collected from white pine in Missouri yielded positive results for **pine wilt nematode (PWN)**. The PWN overwinters in wood of dead trees, which also contain larvae of cerambycid beetles. Early in the spring as adult beetles prepare to emerge, large numbers of the PWN enter the beetle's respiratory system then are vectored via the beetle to new infection sites. While usually not prevalent on white pine, there have been some positives in Missouri in recent years. Some experts suggest that Sawyer

beetles may be seeking new pine sources (such as white pine) as the disease kills more Scotch pines. For now, white pine is still recommended for most landscape plantings in Missouri, but PWN could be yet one more problem added to a tree that is not native to this state. Management for PWN is limited to insecticide treatments to control the beetle, and early removal and burning of dead and dying pine trees to eliminate the breeding ground of the nematode. Monitor and check adjacent trees and fertilize and water to maintain proper tree vigor. For more details on identification of PWN and this pest in MO, click [HERE](#).

Feature Topic: Sudden Oak Death Update

By Manfred E. Mielke, Plant Pathologist, St. Paul Field Office, Forest Health Protection

Sudden oak death (SOD) is caused by an exotic fungus-like organism of unknown origin. Outside western Europe it is limited in nature to the central California coast and Curry County in southwest Oregon. It causes cankers on red oaks and leaf spots and twig blights on dozens of herbaceous plants. It has been reported on plants and soil in nurseries from B.C Canada, Washington, Oregon and California. A pest Alert on SOD is available at: http://na.fs.fed.us/spfo/pubs/pest_al/sodeast/sodeast.htm

On March 8, 2004 it was reported that *Phytophthora ramorum*, the causal agent in sudden oak death, was confirmed in Monrovia Nursery (LA County, CA), outside the previous quarantine area. Since then two additional nurseries have had confirmed positives for SOD. Plants from these three nurseries have been shipped to all 50 states and Puerto Rico. The plants in question are principally varieties of Camellia, although Viburnum, another host genus, also has been distributed. Since then a quarantine has been placed on all host plants originating from California.

USDA APHIS and State Departments of Agriculture have primary responsibility in tracking down these plants, called “trace-forwards”. The results of the immediate trace forwards indicate about 95% of the plants had been further distributed or sold. At the time of this writing, at least twelve states have had Camellias test positive for SOD. No states in our region have had confirmed positives.

APHIS and State Departments of Agriculture are conducting surveys of nurseries, greenhouses, and retail outlets, and testing using ELISA, PCR and culture. The only accepted protocol for confirming SOD in new hosts is to isolate *P. ramorum* in culture. ELISA and PCR can detect both viable and non-viable DNA. Positive ELISA tests are indicative of the presence of *Phytophthora spp.* DNA, but not *P. ramorum* specific DNA. Molecular screening using nested PCR can detect *P. ramorum*, but sometimes results in false positives. Since Camellias are known hosts, verified PCR results are being viewed as definitive. The positives currently reported are based on PCR results.

The Forest Service in cooperation with States began a forest survey in 2003 based on the SOD risk map. Risk is based on the several variables including the presence of nurseries receiving plants from California, abundance of host plants, in particular *Rhododendron* and *Kalmia* (Mountain laurel), and climate. Regions that have mean winter temperatures below freezing are considered low risk areas. This was based on the requirements for growth of *P. ramorum* in culture, and may or may not be valid in nature. These surveys were conducted in the mid Atlantic states and Southern Appalachians, and no SOD was found.

The survey was to be expanded to moderate risk areas in 2004, but given what has happened, a significant expansion is planned. Surveys will now be conducted in all of our states, including 30 plots each in MI, WI, MN, and MO, 30 plots in IL and IA, and 30 plots in OH, IN (KT).

A plot consists of two 100 m transects. Observations are being made on understory plants and oaks. Suspect bleeding cankers on oak and leaf spots on understory plants will be collected and shipped to approved laboratories for testing using PCR. These plots will be located according to a hierarchy of priorities. The highest priority will be oak forests, with known host genera in the understory, surrounding nurseries that

received plants from the California nurseries. Next is any forest with known host genera in the understory, and finally, any forest with oak.

In the unfortunate event there is a positive PCR result, the plot will be revisited and more samples collected and cultured. Before there is any confirmation of SOD, a positive PCR must be verified, and if it is from potentially a new host, *P. ramorum* must be successfully isolated in culture. In the event that SOD is confirmed options are few. In Oregon, unsuccessful attempts have been made to eradicate SOD in an isolated forest setting. The area was clearcut and burned, however SOD was subsequently found on sprouts. Herbicides are now being considered, which complicates eradication efforts.

The host list seemingly grows weekly, and the number of states reporting positive finds from this shipment is also likely to grow. Much is unknown about the capability of *P. ramorum* to become established in eastern hardwood forests, although northern and southern red oaks have been found to be susceptible. While this appears to be akin to closing the barn door once the horses have escaped, continued vigilance and immediate response is the only hope we have to possibly eradicate an introduction. There are many websites to keep abreast of the latest developments, one with many links is: <http://ceris.purdue.edu/napis/pests/sod/index.html> The Forest Service SOD Pest Alert is available at: http://www.na.fs.fed.us/spfo/pubs/pest_al/sodeast/sodeast.htm

Upcoming Opportunities

The 2004 North Central Forest Pest Workshop will be June 8-11, 2004 in Niagara Falls, Ontario, Canada. This **FIRST EVER joint meeting** of the Northeast Forest Pathology Workshop and the North Central Forest Pest Workshop will offer a wonderful opportunity to catch-up on pest related issues. For more information, see the NCFPW webpage at <http://www.na.fs.fed.us/spfo/ncfpw/index.htm>

Forest Insect and Disease Training in Illinois: Tuesday May 18 at Starve Rock State Park (near LaSalle), and Wednesday May 19 in Benton, IL. Contact Jim Appleby at (217) 244-3431 for more information.

Forest Health Tour in Iowa: Scheduled for July 13 and 14, 2004, across South Central Iowa. Contact: steve.pennington@dnr.state.ia.us.

Other Resources and Sources of Information

North Central Pest Management Center, includes a listing of all the websites for State pest management newsletters, by state, for the entire north central portion of the USA: <http://www.ncpmc.org/NewsAlerts/index.html>

Forest Health Highlights webpage (with yearly forest health report for each state): www.na.fs.fed.us/spfo/fhm/fhh/fhmusamap.htm

This newsletter is also available on the WWW at:
www.na.fs.fed.us/spfo/pubs/newsletters/csfhw

 	 	 Indiana 6		<p>For More Information:</p> <p>Forest Health Protection USDA Forest Service 1992 Folwell Avenue St. Paul, MN 55108 (651) 649-5029 lhaugen@fs.fed.us</p>
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