



Central States Forest Health Watch



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

February 28, 2011

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/csfhw/>.

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Important Regional Forest Health Issues

In this edition you will find updates on Emerald Ash Borer, Gypsy Moth, Thousand Cankers Disease of black walnut, Sudden Oak Death, and Dutch elm disease.

Emerald Ash Borer (EAB) overview

Thank you to Steve Katovich for writing this section

The map on the following page shows the current known infestations of EAB. We obviously continue to find this insect in new locations. Tree mortality surveys have been completed in the areas where infestations have resided the longest; the data is grim with only a handful of ash trees surviving in many parts of southeast Michigan and northeast Ohio. The level of mortality in the ash species rival what was seen with chestnut blight. As EAB populations outbreak in other parts of the country and neighboring Canada we will get a better perspective of the threat to the existence of ash as a viable genus in North America.

Some progress is being made. Insecticide trials have shown good results. It is quite clear that we do have the ability to protect individual trees from EAB using several insecticide products. Treatments will likely need to be long-term, but the option for protecting trees is viable. For further information on insecticides see:

http://www.emeraldashborer.info/files/Multistate_EAB_Insecticide_Fact_Sheet.pdf

http://www.emeraldashborer.info/files/Potential_Side_Effects_of_EAB_Insecticides_FAQ.pdf

Classical biological control efforts are underway. Three non-native parasitic wasp species have been the major focus of the biological control program targeted at EAB. Field releases in several states have been made and a parasite rearing facility maintained by USDA-APHIS in Brighton, MI, is producing all three species for further releases. It is still early in the biological control effort, but overwintering success has been reported at several sites, a step forward. For further information on the EAB biological control effort see:

http://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/downloads/eab-biocontrol-5yr-plan.pdf

http://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/downloads/eab-biocontrol.pdf

The best way to stay updated on EAB is to regularly visit the emerald ash borer web site at:

<http://www.emeraldashborer.info/>

The Northeastern Area's Strategy for emerald ash borer provides a framework for response to EAB:

http://www.na.fs.fed.us/pubs/eab/eab_strategy.pdf

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| Hemlock Woolly Adelgid, <i>Brad Onken, USDA Forest Service, Morgantown, W. Va.</i> | March 10, 2011 |
| EAB pesticides for professionals, <i>Deb McCullough, Michigan State University; Dan Herms, Ohio State University or Cliff Sadof, Purdue University</i> | March 24, 2011 |
| Ecological impact after EAB | April 7, 2011 |
| Preparing for EAB in Community Urban Forests, <i>Marianne Prue, Urban Forestry Specialist, Cincinnati, OH</i> | April 14, 2011 |
| <i>Viburnum</i> Leaf Beetle, <i>Curtis Young, the Ohio State University</i> | April 21, 2011 |
| “Neighbors Against Bad Bugs” volunteer group, <i>Jodie Ellis, Purdue University</i> | May 12, 2011 |
| Thousand Cankers, <i>Ned Tisserat, Colorado State University</i> | May 19, 2011 |
| Slow Ash Mortality project, <i>Deb McCullough, Brenda Owen, Andrew Storer (Michigan)</i> | June 2, 2011 |

Thousand Cankers Disease of Black Walnut

In past editions we have shared information about the status of Thousand Cankers Disease (TCD) of black walnut, and how to recognize symptoms. For a “quick look” at the disease, we recommend the US Forest Service Pest Alert, which is on the web at <http://www.na.fs.fed.us/pubs/detail.cfm?id=5225>. TCD is caused by the fungus *Geosmithia morbida* and the walnut twig beetle *Pityophthorus juglandis*. Neither the fungus nor the beetle has been identified in the Midwest. Both the fungus and the beetle, however, were confirmed in Tennessee in 2010. Based on the extent of the damage in Knoxville, some experts are suggesting the disease may have been present there for 10 to 20 years.

In the January 2011 edition of the Walnut Council Bulletin, J. Grant and others from the University of Tennessee provided “A Current Appraisal of the Outbreak in Eastern Tennessee.” Some interesting points of their appraisal include:

- TCD has been confirmed in four counties in eastern Tennessee, and those four counties have been quarantined. The number of diseased trees in the counties is not yet known.
- So far TCD sampling has only been conducted in urban areas and along roadsides. There are plans in place to sample black walnuts in forest stands in 2011.
- Many black walnut trees in eastern Tennessee have appeared unhealthy for many years, but much of this was attributed to stress from a freeze event and drought. It is not yet clear what the relationship is between these stress events and TCD.
- In some instances in Tennessee, only walnut twig beetle or *Geosmithia morbida* were found in some trees. Additional sampling will be conducted in 2011 to try to determine whether this is due to sampling error, or due to a difference in the epidemiology of the disease complex.

TCD poses a very high risk to the black walnut resource of the Central States. Plans are currently under development for various survey efforts in 2011. Dr. Steve Seybold of the Forest Service Pacific Southwest Research Station has been working to develop pheromone baiting systems for the beetle that could be used in survey efforts. The Forest Service Washington Office has recently developed a national strategic framework for response to this disease. More information on these topics should be available by the summer edition.

An upcoming TCD workshop co-sponsored by the Walnut Council, the Northeastern Area, and the Northern Research Station will be held on March 31, 2011, at the Wright Center, Martell Experimental Forest, West Lafayette, IN. The objectives of the workshop are to provide attendees the latest scientific information on TCD; relate experiences, lessons learned and immediate plans regarding the Tennessee infestation; provide training in survey protocols for planned early detection surveys this year; and hands-on evaluation of samples to help identify TCD in the field. Each State has been invited to send representatives, particularly people who may be involved in 2011 surveys. Contact your State Forest Health Specialist for more information.

Within each State, there is a source of local information and guidance:

Missouri: www.mdc.mo.gov/thousand-cankers

Indiana <http://www.ppd.l.purdue.edu/PPDL/hot10/8-23.html>

Iowa: Contact ISU's extension plant clinic for processing of samples, contact the Iowa DNR for information on survey efforts.

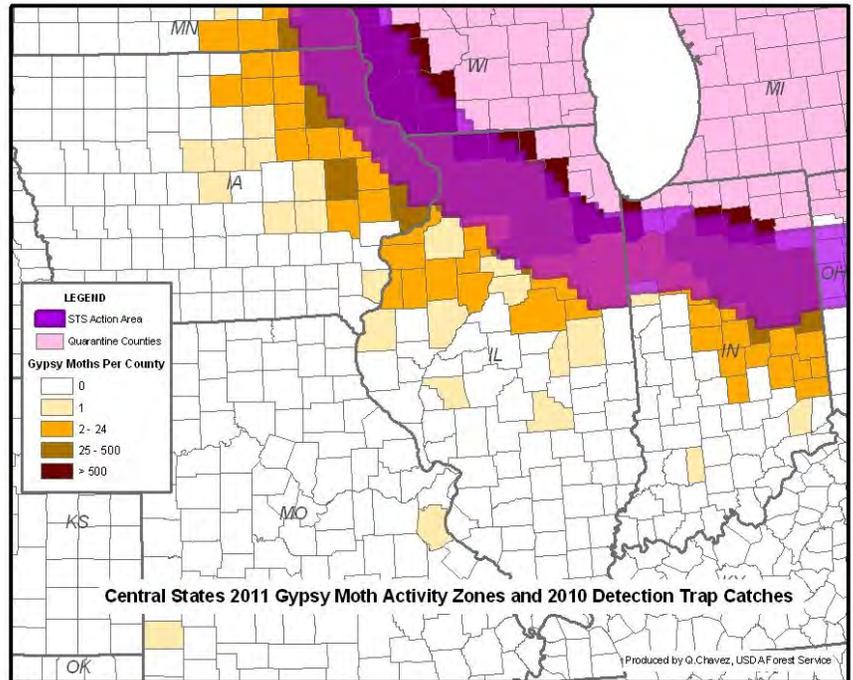
Illinois: Contact Stephanie Adams at the Morton Arboretum. sadams@mortonarb.org or 630-719-7946.

Sudden Oak Death: Still a concern

It seems that the immediate threat of *Phytophthora ramorum* to northeastern forests (including our Central States) has subsided, but there is still reason for awareness and caution. In October 2010, the threat of *P. ramorum* to East Coast forests was discussed as part of the Continental Dialogue of Non-native Insects and Diseases. A summary [handout](#) from that meeting is available. The SOD pathogen has been detected in eight rivers near infected nurseries in Mississippi, Alabama, Georgia, Florida, and North Carolina. However, the pathogen has not yet been detected in the natural environment in any of the Eastern states farther north. Research indicates that there are several Eastern native plant species that could be affected by *P. ramorum* if it were to become established in our woodlands, and climate models indicate that moderately suitable environmental conditions extend into southern Missouri and Illinois.

Gypsy Moth (GM) Activities

The map and tables below summarize the summer 2010 activities in the Central States. Color coding in the tables matches up with the colors on the map that represent the various "zones" for gypsy moth management. In states with established populations, the state is generally divided into three zones. The "quarantine area" (pink on map) is the portion where gypsy moth is considered established, and suppression activities may take place. The "STS Action zone" (purple band overlaid on map) is the portion where treatment activities are undertaken to limit moth population, and thus "slow the spread" of gypsy moth. The remainder of the area is considered uninfested (white or some shade of gold/tan on map, depending on 2010 moth catches), and actions may be taken to eradicate any infestations that are found in those areas.



States without established populations:

| | # traps set | Total moths captured | Comments |
|----------|-------------|--|--|
| Iowa | 5163 | 2,230 (was 82 in 2009, 626 in 2008 and 175 in 2007) | Traps were placed by coordinated effort of State and Federal agencies and city and county foresters across Iowa. Most moths were caught in the STS action area in northeastern Iowa. Treatments in 3 counties are planned for 2011. Mating disruption (pheromone flakes or droplets) is the preferred treatment to be applied in 4 blocks, totaling 158,569 acres. |
| Missouri | 9276 | 2 (was 7 in 2007, 10 in 2008, and 22 in 2009) | Traps were placed by coordinated effort of State and Federal agencies in 71 of 114 counties. Trapping density is based on risk of introduction, with the highest density of traps being set in the lakes regions and St. Louis, because of their elevated risk of introduction by out-of-state visitors. One moth was captured in Jasper County in southwestern Missouri and the other in Jefferson County in eastern Missouri. It is unusual that no moths were captured in St. Louis County in 2010. |

| States with established populations: | | | | | |
|---|---|---|--|--|---|
| | Quarantine Area | Slow-The-Spread (STS) Actions | Counties with STS treatments | STS trapping results | Trends in the uninfested area (outside the quarantine and STS area) |
| Illinois | Four counties in northeastern Illinois (Lake, Cook, DuPage, and McHenry) are under quarantine. No new counties were added in 2010. | Mating disruption was applied to 3595 acres (down from 10751 in 2009), Btk was applied to 3752 (up from 948 acres in 2009). | Cook, Grundy, Jo Davies, Kendall, LaSalle, Lee, Ogle, Stephenson, Will, and Winnebago. | 25,855 moths were captured in the 7,301 traps set in the 25 county STS trapping area (northern IL). Slightly down (from 47,485 in 2009). | 4,883 traps were set by APHIS in the remainder of the state. 45 moths were caught in 19 counties, with no moth hot spots found. Limited defoliation occurred in the Chicago and Rockford areas; some privately hired aerial application occurred in the Chicago area. The fungal pathogen <i>Entomophaga maimaiga</i> hit some populations hard in 2010, but population growth is expected in some areas in 2011. |
| Indiana | Nine counties: Steuben, DeKalb, Allen, LaGrange, Noble, Elkhart, St. Joseph, LaPorte, and Porter. No defoliation was detected in 2010 | In 2010, 2 sites (5,111 acres) were treated with Btk. Mating disruption treatments were applied to 3 sites (13,093 acres) | In 2010, treatments were in Allen, Huntington, Kosciusko, Lake, Marshall, & Wabash | In 2010, 11,534 moths were captured in the STS action zone. This was an increase from 5,734 moths in 2009 and 9,321 moths in 2008. | Traps set by APHIS & IDNR in the remainder of the state below the STS zone captured 179 moths, compared to 146 moths in 2009, 82 moths in 2008 and 162 moths in 2007. |

Additional information on the current status of gypsy moth and treatment areas can be obtained from the webpage for the “Decision Support System for the Gypsy Moth Slow-the-Spread Program” at <http://da.ento.vt.edu/>

Dutch elm disease-tolerant American elms: What’s new?

American elm historically served an important role in our cities as a favored street tree and in our forests as a valuable ecosystem component. When Dutch elm disease took most of our mature elms and research did not provide comprehensive solutions, most foresters “gave up” on managing American elm. Concerns over loss of green ash have stimulated renewed interest in American elm. In the May 2007 edition of the Central States Forest Health Watch, I summarized the current projects on DED-tolerant elms and the characteristics of available cultivars. That information is still [available](#) and basically unchanged.

However, there has been progress on American elm in the past 3 years. The FS Northern Research Station (NRS) project out of Delaware, OH, has continued to work to identify additional cultivars of DED tolerant elm. Dr. Jim Slavicek has worked with Dale Lessor to collect scion wood from promising survivor elms in Indiana, Illinois, Ohio, and southern Michigan and establish these trees in a clonal orchard. When the trees become large enough, they intend to test these trees for DED tolerance by inoculating them with the DED fungus. Unfortunately it takes about 8 years for trees to get large enough to test, and the current elm selections do not represent the entire geographic range of American elm. Meanwhile Dr. Slavicek is preparing a web-based tool for people to submit locations of other survivor elms to consider collecting as funding becomes available.

NRS has also been collaborating with The Nature Conservancy in New England to establish elm restoration demonstration sites that utilize American elm cultivars with known DED tolerance. They are also initiating an effort to cross large survivor elms from New England with known DED-tolerant elms in order to capture enhanced DED tolerance as well as local site adaptation into the pool of available elm cultivars. A [similar effort](#) was initiated with the Chippewa National Forest in Minnesota in 2007.

Dr. Kathleen Knight, a restoration ecologist with the NRS, is investigating aspects of restoration of bottomland sites impacted by emerald ash borer (EAB) and other invasive species through plantings of DED-tolerant American elm and other native tree species. Some riparian and swamp forests that are now dominated by ash were formerly dominated by American elm, so the death of the ash trees from EAB may be a good opportunity to introduce DED-tolerant elm.

On the open market, a few companies offer DED tolerant elms for sale. A quick perusal of the internet indicates that Princeton and Valley Forge are readily available, and Jefferson and New Harmony can also be acquired. The price varies depending on source, cultivar and size, but 5' whips of Princeton can be purchased for under \$15 each. Larger trees in pots or trees of less available cultivars tend to cost around \$40 or more per tree. These trees on the open market are valuable for urban plantings, but they are too costly and of too limited genetic background to be useful in extensive operational forestry plantings.

The NRS has a seed-producing collection of DED tolerant American elms in Ohio. This type of seed has been demonstrated to carry an enhanced level of DED tolerance. We would like to collect this seed for propagation of seedlings to plant on public lands (e.g. not available for sale to the general public) as an opportunity to explore its usefulness in landscape level restoration. It appears that a poor 2011 seed crop may delay these efforts, but hopefully in 2012 we will be able to collect open pollinated seed from these trees for distribution to public land management partners in the Midwest.

Weather Overview

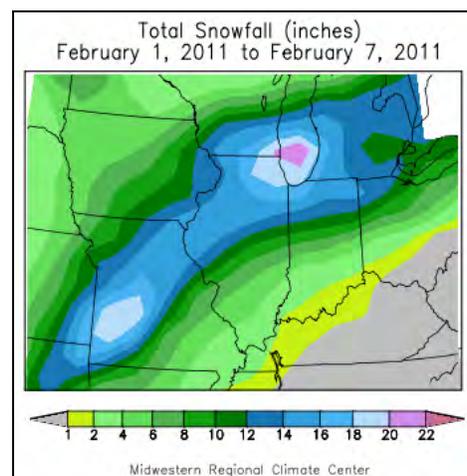
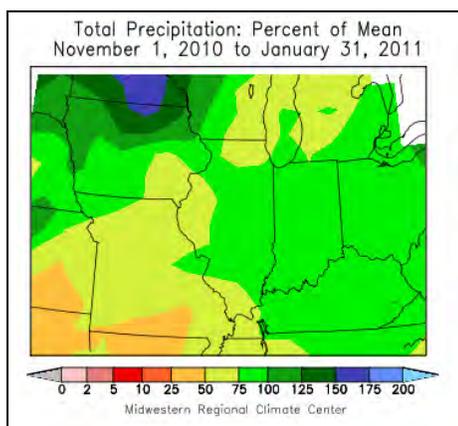
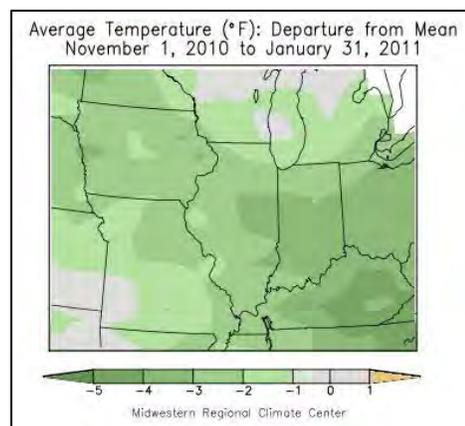
Thank you to Rob Lawrence for input on this section

Extreme weather events continue to impact our forests. Missouri and Illinois experienced this first-hand with an outbreak of tornados on December 31. The weather records report four fatalities and severe structural damage. The full extent of damage to trees has not yet been reported.

It has been a cold winter. The average daily temperature for November through January was 2 to 4 degrees below normal for most of our region. Sustained cold is a problem for our trees, but perhaps more important is extreme cold events, particularly those that follow warm events. We have had several periods of sustained extreme cold, including the bitter cold events that pushed subzero temperature down across all of Iowa and northern Illinois in mid to late January, and another blast of cold in early February that pushed subzero cold down as far as southern Missouri and central Illinois. Meanwhile, Missouri reports that midwinter warm-ups were noticeably absent this year.

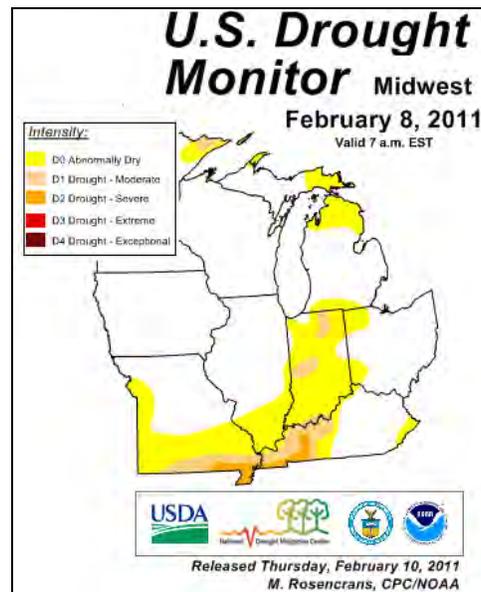
If cold events occur when the trees are fully dormant, or protected under the cover of snow, the impact will be less. Thus the weather events preceding the cold (such as a period of warm temperatures or a heavy blanket of snow) have a great effect on whether the cold will result in damage. Since these other events usually don't exactly overlay the same areas, we end up with a mosaic of impacts that often only affect localized areas, even though the events that led up to the impacts may have covered broader areas. Our current concern is not the cold we have already experienced, but the fact that we are currently enjoying an extreme warm-up. If the current (mid February) record high temperatures are followed by extreme cold, we may have damage to plants as they transition out of dormancy.

Overall, snowfall has been variable across the region. Precipitation throughout most of the Central States was actually below normal from November through January. However, the February blizzard changed the totals significantly in many places. On January 31 through February 3 a massive system dropped record-breaking



precipitation across a wide swath of the Central States. Although this snow crippled transportation for days and boosted snowfall totals, it had little impact on trees except where the precipitation came as damaging ice. This system did not provide much needed precipitation to southeast Missouri. Note the presence of abnormally dry to severe drought conditions in southern Missouri and Illinois, and most of Indiana. We will be hoping for adequate spring precipitation in these areas.

The Midwest Climate Watch webpage is a great help to identify broad scale regional weather events. This site is readily available to the public, and it includes statewide weather summaries for every state in the region. Check it out at <http://mcc.sws.uiuc.edu/cliwatch>. The NOAA National Weather Service Climate Prediction Center also provides detailed climatic information on their websites.



Other Resources and Upcoming Opportunities

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://plantclinic.missouri.edu/> (Note that Missouri has a new clinic director, Adam Leonberger.)
Purdue University Plant and Pest Diagnostic Lab: <http://www.ppd.l.purdue.edu/PPDL/index.html>
University of Illinois Plant Clinic: <http://plantclinic.cropsci.uiuc.edu/index.html>

In addition, The Morton Arboretum will be offering **diagnostic services for commercial entities only (not homeowners) in Illinois** in 2011. For information on this service, contact either Stephanie Adams, Plant Health Technician, (sadams@mortonarb.org ; 630-719-7946) or Fredric Miller (fmiller@jjc.edu [year round]; 630-719-2427 [mid May-mid August])

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>

Each State annually develops **Forest Health Highlights** to describe the status of forest health conditions. The Forest Health Highlights for 2010 are now available on the internet at: <http://fhh.fs.fed.us/fhh/ncregion.shtml>

Bottomland Ecosystem Restoration Conference—March 8-10th, 2011, in Collinsville, Illinois.

This three-day conference will examine the status of, threats, and management options related to the bottomland forest ecosystem. Participants include natural resource managers, scientists, decision-makers, non-governmental organizations, and additional stakeholders from the Upper Mississippi River System (UMRS) and the Lower Mississippi Alluvial Valley (LMAV) . For more information go to the conference website at: <http://www.ngrrec.org/berc2011>

Feature Topic: **Community Approaches and Responses to EAB**

Thank you to Jodie Ellis for information included in this section

A big problem like EAB brings about a need for community and stakeholder response. The first section below represents an example of a coordinated approach being taken in Indiana. The second provides information on a coordinated position statement by multiple stakeholders on urban ash management.

NABB: an example of EAB preparedness at a neighborhood and municipal level

The Emerald Ash Borer (EAB) Outreach and Education Team at Purdue University has developed a new program for Master Gardeners and like-minded service organizations called Neighbors Against Bad Bugs (NABB). The program delivers information about management options for EAB in neighborhoods in the path of severe damage from the pest, makes the ash tree resource visible to the general public, and creates a readily mobilized chain of volunteers who can respond quickly to EAB and any future pests that threaten neighborhood trees. The NABB program encourages communities and individuals to make good choices about their ash trees *before* EAB arrives, which not only saves money but allows conservation of the tree canopy in their yards and neighborhoods.

Master Gardeners working with County Extension Educators are trained to organize and assist volunteers from their communities' established neighborhood associations in identifying and tagging ash trees on city rights-of-way with distinctive bright green tags. The tags contain contact information and the web address of the Purdue EAB web site (www.eabindiana.info), which explains management options in urban settings, and offers advice on working with local tree care professionals to negotiate reduced rates for treatment or removal of ash trees on peoples' property. The program involves a face-to-face 2-hour training session for Master Gardener Volunteers, who then assist volunteers from neighborhood associations in ash tree tagging events.

After its initial launch in the greater Lafayette area, the NABB program will be available to County Extension Educators and Master Gardeners throughout Indiana. It can be easily modified for use in other states and programs.

For more information on NABB please contact Melissa Shepson (mshepson@purdue.edu, 765-494-0997) or Jodie Ellis (ellisj@purdue.edu, 765-494-0822).

The Coalition for Urban Ash Tree Conservation

In response to the unique situation that EAB has created in urban settings, the Coalition for Urban Ash Tree Conservation, a group composed of university scientists with expertise in EAB management, commercial arborists, municipal foresters, public works officials, and non-governmental organizations (NGOs), has issued an Emerald Ash Borer Management Statement. This statement endorses ash tree conservation using insecticide treatments as part of an integrated approach to managing EAB in urban areas. The statement can be found at: http://www.emeraldashborer.info/files/conserve_ash.pdf

This newsletter is also available on the WWW at:

<http://na.fs.fed.us/fhp/fhw/csfhw/>

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