

Southern Region Forest Health Update

Wisconsin DNR, Forest Health Protection Unit

August 5, 2014 Vol. 11 No. 34

Topics in this update

Emerald Ash Borer
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Articles in this newsletter were written by Mark Guthmiller, Regional Forest Health Specialist, unless otherwise noted.

Emerald Ash Borer– Bill McNee

New EAB Detections

Since the last Southern District Pest Update in May there have been numerous new EAB detections, including five counties with first detections of EAB. Counties with first detections are: Columbia, Door, Grant, Monroe and Sheboygan.

Recent finds of note are:

- Columbia Co.: Town of Lodi
- Dane Co.: Middleton
- Door Co.: Sturgeon Bay and Town of Gibraltar
- Grant Co.: Nelson Dewey State Park in the Town of Cassville
- Kenosha Co.: Paddock Lake, Silver Lake
- Monroe Co.: Oakdale
- Racine Co.: Town of Yorkville
- Sheboygan Co.: Random Lake and Town of Holland
- Vernon Co.: Town of Viroqua and Town of Jefferson
- Walworth Co.: Town of Sharon, Town of Darien, Town of Richmond, Town of Geneva, Kettle Moraine State Forest – Southern Unit in the Town of Whitewater
- Washington Co.: Slinger, Hartford and Kettle Moraine State Forest - Pike Lake Unit in the Town of Hartford
- Waukesha Co.: Muskego and Kettle Moraine State Forest – Southern Unit in the Town of Ottawa



Woodpeckers, which were going after larvae of native ash bark beetles, triggered the investigation for EAB at Nelson Dewey State Park in Grant County. Note the native ash bark beetle galleries on the left and the EAB winding gallery on top of the log. Photo by Mark Guthmiller



Due to the apparent low population of EAB at Nelson Dewey State Park, extensive peeling for two days was required to find a life stage needed for official confirmation for a new county find. Thanks to the park staff and WI DATCP for their assistance. Photo by Mark Guthmiller

You may be interested to know that the Muskego detection was due to an adult beetle being found in a swimming pool. A complete list of confirmed community detections can be found online at: <http://datcpservices.wisconsin.gov/eab/articleassets/ConfirmedEABFindsinWisconsin.pdf>.

WI DATCP EAB Quarantine Map Update

Twenty nine Wisconsin counties are now quarantined for EAB. The pest was also found in New Jersey and Arkansas for the first time, becoming the 23rd and 24th states to find EAB. Half of the Lower 48 now have known EAB infestations. Due to the rapid changing map with new detections refer to the on-line map for the most up to date information:

http://datcpservices.wisconsin.gov/eab/articleassets/WI_EAB_Quarantine.pdf

To get the fastest updates on new EAB alerts sign up for email notifications:

http://datcp.wi.gov/Gov_Delivery/EAB/index.aspx

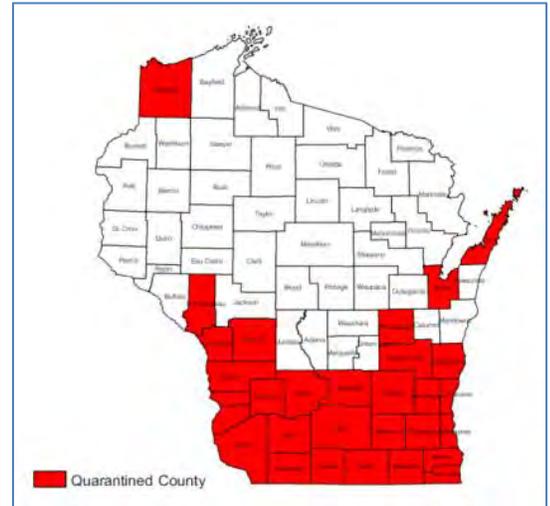
Firewood Movement Map

Using firewood locally and not transporting it a long distance is the safest recommendation. However, an easy-to-use map of allowed firewood movement can be found here (note that this map is changing rapidly):

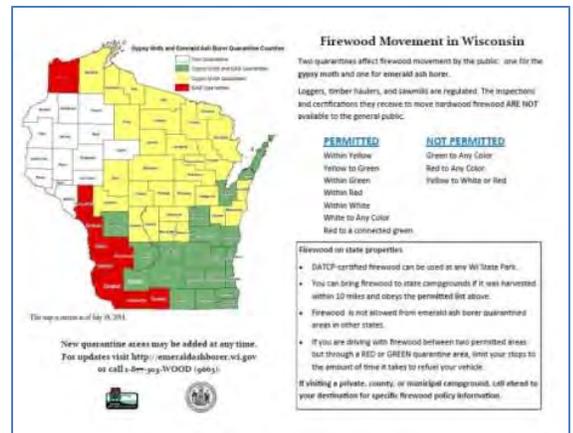
<http://datcpservices.wisconsin.gov/eab/articleassets/Firewood%20Movement%20in%20Wisconsin.pdf>

EAB Adult Emergence

As of July 30, a large portion of southern Wisconsin was finished with the summer EAB adult emergence period. June and July are usually the peak flight months in the southern counties, although adults may be present into the fall months. On the map, the light green color indicates the areas where EAB is (or would be) in its peak flight period as of July 30. EAB emergence would be complete for the year in the darkest green areas found in at the bottom of the map.



Counties quarantined for EAB are shown in red. Map by DATCP.



Map of allowed firewood movement in Wisconsin.



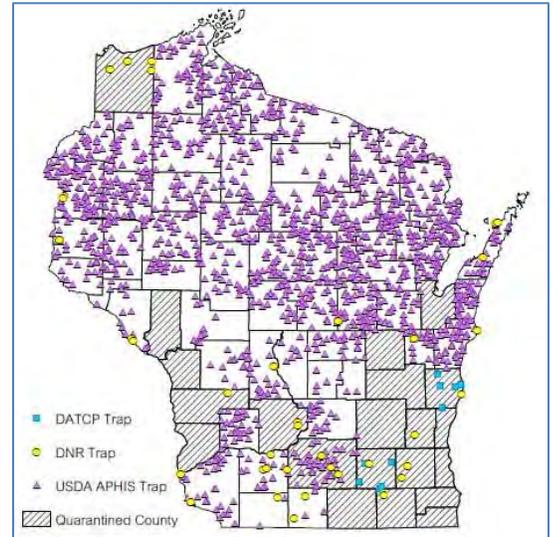
Map of predicted EAB adult emergence. Light green areas are predicted to be in the peak EAB emergence period and dark green areas are finished with adult emergence as of July 30. Map by USDA APHIS.

EAB Trapping in Wisconsin

Wisconsin has a large number of purple EAB detection traps placed around the state (see attached map). About 1,400 of them (purple triangles on the map) were placed by a federal government contractor in counties that are not quarantined for EAB. A small number were placed by DATCP or DNR staff at selected high-risk locations.

Cold Impacts to EAB

Most infested areas in the U.S. are finding that last winter's temperatures did not get cold enough to cause heavy mortality of overwintering EAB larvae. A recent news article can be read at: http://www.nytimes.com/2014/07/01/science/earth/ash-forests-after-emerald-ash-borers-destroy-them.html?_r=1. DNR staff have been seeing plenty of new EAB exit holes in southern Wisconsin this summer, indicating that winter survival was high.



EAB detection trap locations in 2014. Map by DATCP.

EAB Document Updates

Two important EAB management documents have been recently revised by their authors. With all of the recent first EAB detections, forest managers should review the DNR silviculture guidelines to determine if timber harvesting timelines should be adjusted. The guidelines recommend that ash in a quarantined county, plus 15 miles around a known infestation, be considered 'high-risk' for silvicultural purpose. Salvaged or pre-salvage of high-risk ash is recommended.

- DNR silviculture guidelines: http://datcpservices.wisconsin.gov/eab/articleassets/Management_Guidelines_for_Wisconsin_Forests.pdf
- Multistate EAB insecticide options booklet: http://www.emeraldashborer.info/files/multistate_EAB_Insecticide_Fact_Sheet.pdf

Natural Enemy EAB Control Efforts

This summer we have continued to do introductions of the natural enemy wasps, *Tetrastichus planipennis* and *Oobius agrili*, in southeast Wisconsin. The *Tetrastichus* wasps attack EAB larvae beneath the bark, and the *Oobius* wasps attack EAB eggs on the bark surface. These introductions are being done to help slow the spread and buildup of EAB populations, and to help delay tree mortality. The tiny wasps do not sting or bite, and the public is unlikely to know they are present. The wasps have now been introduced at seven sites in southeast Wisconsin and at one site in western Wisconsin.



Tetrastichus wasp released to help fight EAB. Photo by Bill McNee.

Logs to Lumber in West Bend - Information shared by Mike Jentsch, City of West Bend Park and Forestry Dept.

We are very excited to announce that the Habitat for Humanity “Logs to Lumber” program is in full swing. Today was their first day of milling and they invited staff over for a quick visit. So far everything is working as planned. Our staff is identifying saw logs as we continue the EAB removals. These logs are hauled to the Habitat storage facility. Habitat for Humanity staff and volunteers conduct the milling. The milled boards will be dried and processed at a later date. This program is a great partnership that will support our community.



Milling of ash logs for utilization as lumber. Photo shared by Mike Jentsch

Gypsy Moth –Bill McNee

Adult Male Moth Flight and Defoliation Reports

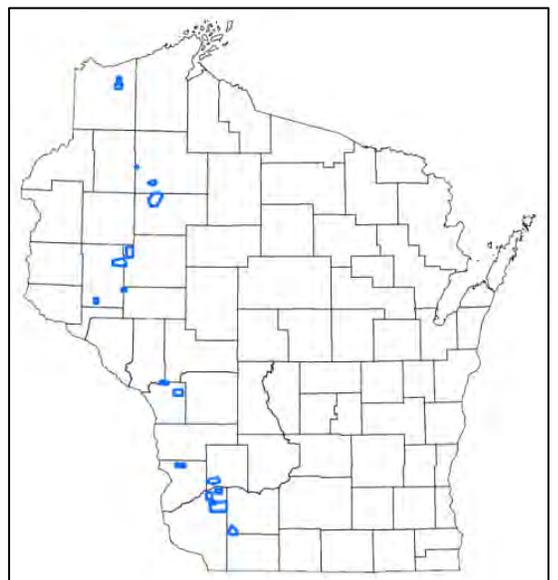
The first report of male gypsy moth flight was on July 9 in Rock County, and Biosim software predicts that male and female moths should now be present in most of Wisconsin. Due to the low populations and cold winter, we only had a handful of caterpillar complaints this summer. Currently, the only known defoliated areas are about five acres of swamp white oak in Jefferson County and about 80 acres of aspen in Ashland County. A localized nuisance level population was also reported in the town of Beloit in Rock County with some defoliation on individual trees.



Male (brown) and female (white) adult gypsy moths. Photo from www.forestryimages.org.

WI DATCP Flakes Treatments

DATCP began its pheromone flake (mating disruption) treatments in southwest counties during the week of July 7th and completed treatments in the northwest on July 25th. The treatments began in Crawford, Grant, Iowa, La Crosse and Richland Counties. Flakes are applied to confuse adult male moths and keep them from finding females when populations are low. Maps of spray sites can be viewed online at <http://gypsymoth.wi.gov> (click on a county to see treatment locations, then click on each respective area for a close-up map. DATCP hung about 13,000 gypsy moth traps this summer to monitor populations and plan for 2015 slow-the-spread treatments.

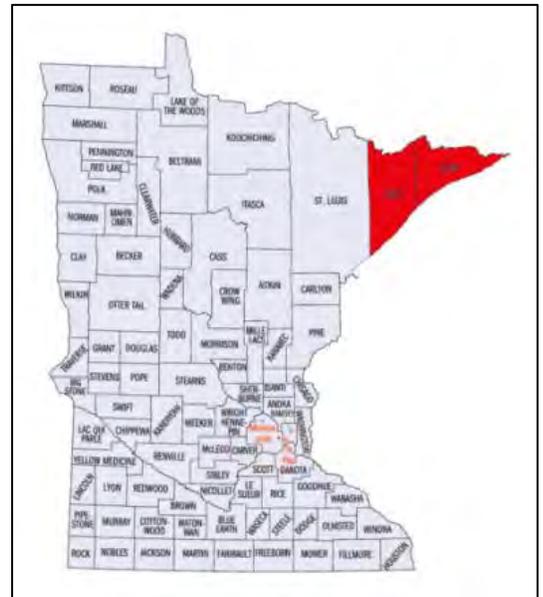


Slow-the-spread mating disruption treatment areas are shown in blue. (Modified from a map by DATCP.)

Minnesota Gypsy Moth Quarantine

Minnesota has quarantined two northeastern counties to reflect the spread of the gypsy moth into Minnesota. Effective July 1, Cook and Lake Counties (along the Lake Superior shoreline) were quarantined. More information about the Minnesota quarantine can be found online at:

<http://www.mda.state.mn.us/gmquarantine.aspx>.



Northeast Minnesota counties recently quarantined for gypsy moth are shown in red.

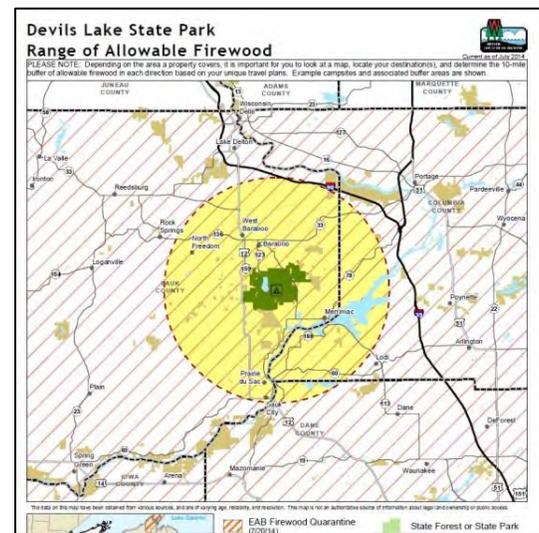
WI DNR State Property Firewood Rule

Wisconsin DNR implemented a more restrictive “10 mile rule” for firewood importation into state parks and forests as of June 1. More information can be found online at:

<http://dnr.wi.gov/topic/invasives/firewood.html>. “Certified” firewood is exempt from the restriction. Maps of the allowed importation area for each state property can be found online at: <http://dnr.wi.gov/topic/Invasives/FirewoodMaps.html>.

If you are bringing wood to a state property it must be all of the following:

- from within 10 miles of the state property; and
- from outside of a quarantined area, unless the property is also within a quarantine



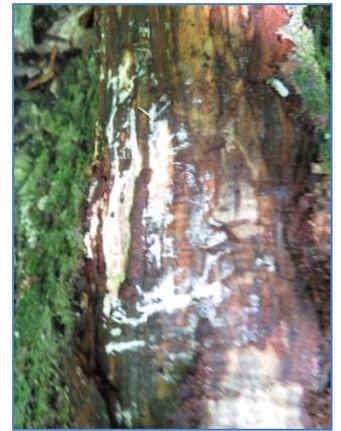
Sample 10 mile area for firewood importation into Devils Lake State Park in Sauk County.

Maple Dieback and Mortality

Recent aerial surveys indicated scattered areas of impacts to maples in the Baraboo Hills. The pattern was less than 50% canopy affected and scattered most notable on the north facing slopes. These areas were likely impacted by a couple years of elm spanworm defoliation, which caused damage to maples (as well as elms, basswood, and ironwood) in 2010 and 2011. In 2012 the drought added additional stresses. Initial ground investigations indicate a close association of dieback and mortality with *Armillaria* root rot. In addition, other observations of wood boring beetles and green streaking under the bark were observed and sampled. Some site specific evaluations are listed below.

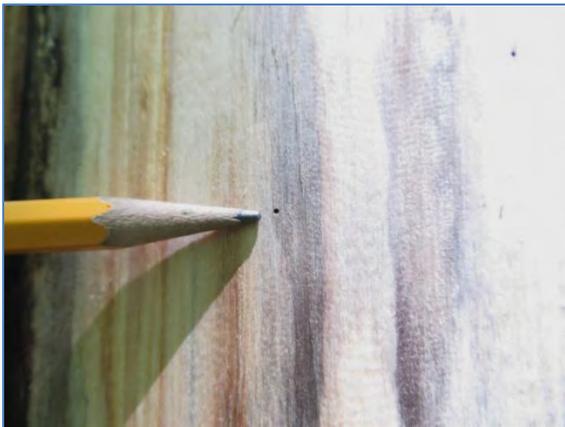
Red Maple Dieback and Mortality Waunakee State Wildlife Area

Red maple dieback and mortality was reported by DNR forester, Steve Holaday, at the Waunakee State Wildlife area in northern Dane County. Impacts were greatest on upper hills on small saw log size trees. Elsewhere on the property a few small pole size trees were also impacted. Subsequent observations, of similar dieback and mortality to red maple, were observed in a wooded area on state property in Sauk County as well. Armillaria root rot appears to be the primary cause of



Red maple showing signs of dieback (left) and mycelia of Armillaria invading the base of a tree (right).

dieback and mortality, attacking tree roots after drought and defoliation stressors as mentioned above. At this site a couple wood boring beetles (currently unidentified but possibly bostrichid beetles) appeared associated with green discoloration under the bark. Wood samples were collected and tested at the DNR pest lab. One sample was positive for Phomopsis but what role, if any, this fungus is playing is unknown and may be just a secondary issue. A small 4" diameter maple was also collected with attempts to rear more wood boring beetles. No beetles were recovered from this sample but a few woodwasps did emerge (see below).



Additional observations on red maple included exit holes and collection of a couple unidentified beetles (possibly bostrichid beetles). The beetle holes seemed correlated to the presence of green discoloration and decay. Phomopsis was isolated from this discolored area and near a beetle hole. The last photo shows the alpha and beta spores from culture (photo by Kate McKay).

Woodwasps Reared from Red Maple

As mentioned above, a few woodwasps were reared from the red maple showing signs of dieback. It appears to be the species *Xiphydria maculata*, which host plants include silver and red maple. What role, if any, these woodwasps might be playing in the dieback is unknown. It is highly possible they are just coming in on these dying trees and not likely a primary pest. I did find this 1984 publication on this species which I found interesting. Apparently a film was made of another woodwasp in this genus which was created for the alder woodwasp, *Xiphydria cameills*, back in the 1960's.



Woodwasp reared from red maple suspected to be *Xiphydria maculata*.

Article on *Xiphydria maculata*:

<http://insects.ummz.lsa.umich.edu/mes/gle-pdfs/vol17no1.pdf#page=19>

For more information on the historic film of the alder woodwasp and associated parasitoids:

<http://www.wildfilmhistory.org/film/261/The+Alder+Woodwasp+and+its+Insect+Enemies.html>

Sugar Maple Dieback and Mortality

A ground survey, following an aerial survey, was conducted on a part of The Nature Conservancy property in the Baraboo Hills of Sauk County. At this site scattered sugar maples were experiencing various levels of dieback and mortality, especially on the upper north facing slope. As with the red maple, *Armillaria* root rot appears to be the primary cause after a couple of years of various stressors. Although no beetles have been gathered, similar wood boring holes and green discoloration was observed on some small pole size sugar maple similar to the red maple. A heavy seed crop was observed last season with an extensive blanket of sugar maple seedlings in the area this year.



From left to right: Sugar maple dieback and mortality in the Baraboo Hills. TNC Project Coordinator, Ann Calhoun, points to the sprouts where dieback ends. Sugar maple seedlings cover the forest floor.

Oak Mortality

Both two-lined chestnut borer and oak wilt have been very prevalent this summer in southern Wisconsin. Oak wilt infected trees are also being impacted, in some cases, by two-lined chestnut borer. This is potentially confusing in making a diagnosis. Care should be taken in making such diagnosis and it is strongly encouraged to test oaks for oak wilt prior to any mitigation efforts. The drought of 2012 was a likely starting point for build-up of two-lined chestnut borer and last fall observations indicated we would see plenty of activity this season by this native beetle. We have not been disappointed (well, some people affected are disappointed).



A common site of wilting oaks observed in southern Wisconsin. This site was in Dane County but has not yet been tested for oak wilt.



DNR forest pathologist, Kyoko Scanlon, is showing how to determine the likelihood of grafted oak roots between trees at a Richland County site confirmed with oak wilt.



Old two-lined chestnut borer galleries on an oak in the Baraboo Hills.



Current year damage created by two-lined chestnut borer found in a white oak in Richland County.

For more information on oak wilt and two-lined chestnut borer visit:

Oak wilt: <http://dnr.wi.gov/topic/ForestHealth/OakWilt.html>

Two-lined chestnut borer: <http://hort.uwex.edu/articles/two-lined-chestnut-borer>

Walnut Surveys

Walnut Twig Beetle Survey

Scott Schumacher, our returning field surveyor for this season, has been busy putting up and monitoring walnut twig beetle traps. A total of 45 traps have been set in addition to efforts by WI DATCP. The first round of collections from most traps has been made and Scott is starting to screen these for walnut twig beetle. Scott has also been busy with set up, monitoring, and collecting beetles from EAB traps this season. Full results will be shared at the end of the field season.



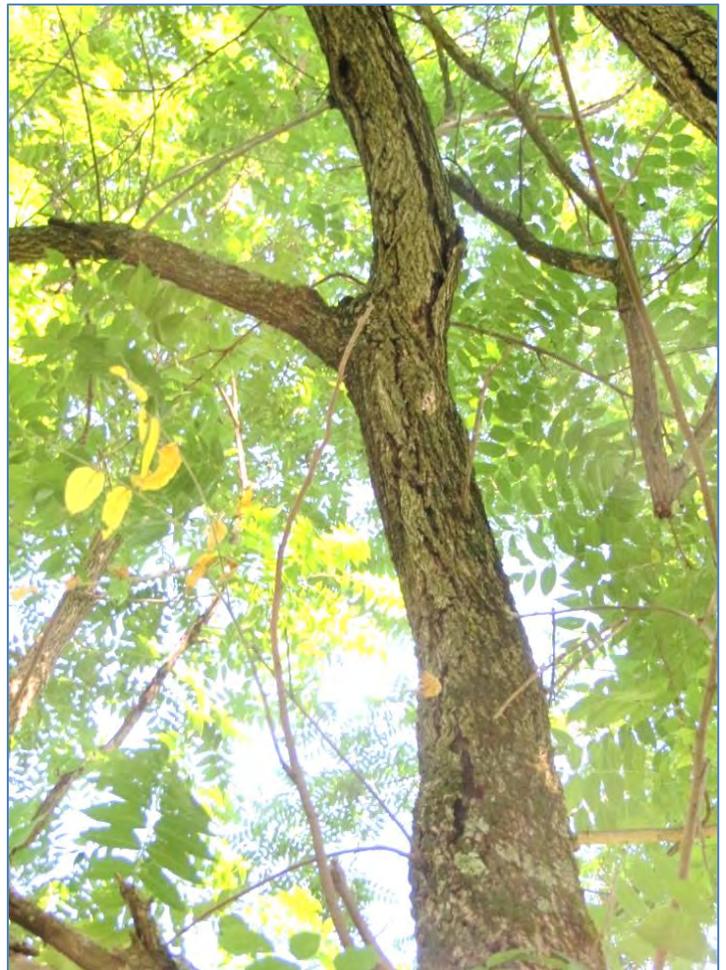
Scott Schumacher explaining how the walnut twig beetle trap works at a recent new forester training session. Photo by Paul Cigan.

Walnut Dieback and Mortality Site Visits

There have been a few reports of dieback and mortality in walnut this season. The site visits conducted so far did not have any signs of walnut twig beetle or thousand cankers disease. One commonly observed symptom was upper branch and main bole bark splitting, often associated with an elongate elliptical canker or decay underneath. Ambrosia beetle like holes were also commonly observed but no beetles were collected. Although the symptoms suggest possible black stem borer attack and Fusarium canker, lab tests have not been conclusive in culturing Fusarium. Cold injury from this past winter may also be playing a role in this bark splitting.



Suspected attack by the black stem borer, *Xylosandrus germanus*, or similar ambrosia beetle.



Typical bark splitting associated with dieback in walnut. Winter hardiness and cold injury may be playing a role in this damage.

Bleeding Cankers of Walnut

An interesting problem was observed on a lone mature walnut while working with staff at Governor Nelson State Park this summer. This walnut was exhibiting numerous bleeding wounds on the main trunk and scaffold branching. About 2/3rds of the upper canopy was dead with a central live crown. When the trunk was peeled, extensive long canker/decay patches became evident, much like lines of a zebra. Some small ambrosia beetle holes were also evident. Samples were taken for culturing. Lab cultures came back negative for *Fusarium*, *Geosmithia*, and *Botryosphaeria*. There were some orange spore horns fruiting on the inside of the bark which was diagnosed as a *Valsa* sp. and might be related to the canker symptoms. In addition to lab testing, a large branch was cut up and placed in a rearing container and three different ambrosia beetle species were recovered. They have not yet been keyed out but there were a couple possible *Xylosandrus* species, a few possible *Xyleborinus* species, and many beetles of what are suspected to be a *Monarthrum* species. A subset of the suspected *Monarthrum* beetles are being cultured for fungi with results pending. Additional testing of symptomatic wood for *Phytophthora* species is also being planned with the help of WI DATCP plant lab. Another possibility of what is going on might be bacterial related cankers of some sort. The tree has been cut and removed with plans to burn the debris.



From top left clockwise: Bleeding wounds on walnut, large elongate cankers/decay under bark, numerous exit holes, and one of many suspected ambrosia beetles possibly in the genus *Monarthrum*.

Miscellaneous Topics and Observations

Photo Gallery:



An interesting ground nesting wasp was observed at a rest area in eastern Jefferson County. I believe it is the great golden digger wasp, a non-aggressive solitary wasp. There were more than a dozen of these wasps flying around while I ate my lunch sitting next them. They were very friendly but kept their distance. More info: <http://mdc.mo.gov/discover-nature/field-guide/great-golden-digger-wasp>



The giant ichneumon wasp is a helpful parasitoid wasp that attacks the pigeon tremex horntail. Note it's long "ovipositor" prior to inserting it in this maple tree. Such an ichneumon wasp was recently observed during our new forester training. I was also recently contacted from a relative in South Dakota curious about a strange insect on maple that I suspect is this critter. It is harmless to humans. For more information:
http://en.wikipedia.org/wiki/Megarhyssa_macrurus
http://en.wikipedia.org/wiki/Megarhyssa_macrurus



A severe case of jumping oak gall on white oak in Richland County causing a re-flush of new growth. There were a number of reports of this cynipid wasp gall in southern Wisconsin this season. For more information:
http://msue.anr.msu.edu/news/jumping_oak_gall_causing_damage_to_white_oak



A saddled prominent caterpillar was observed on a walnut leaf from Richland County. No defoliation was observed but they can go into outbreak feeding on numerous hardwood species, with sugar maple being a favorite. For more information:
<http://na.fs.fed.us/spfo/pubs/fidls/saddled/fidl->

In The News:

- Asian Longhorned Beetle appears at another site on Long Island, New York: They have now been battling ALB on Long Island for 18 years since the initial North American detections in 1996. Most of the detections in the New York City area have been successfully eradicated, but some are still being battled and now a new infestation has been found. More information can be found at:
<http://www.newsday.com/opinion/it-s-another-beetle-invasion-editorial-1.8657452>.

- Thousand Cankers Disease pathogen detected in Indiana: <http://www.journalgazette.net/article/20140619/BLOGS01/140619255>. This is the first time that the pathogen has been detected on an insect other than the walnut twig beetle, its usual insect vector.
- Noisy caterpillars put plants on alert: http://www.nytimes.com/2014/07/02/science/noisy-predators-put-plants-on-alert-study-finds.html?ref=science&_r=0.
- Mosquitos are bad this summer: <http://www.jsonline.com/news/wisconsin/blood-donations-mosquitoes-are-feasting-on-milwaukee-area-residents-b99306455z1-266126071.html>.
- Start thinking about some exotic species as beneficial: <http://news.nationalgeographic.com/news/2014/07/140724-invasive-species-conservation-biology-extinction-climate-science/>.
- World's largest aquatic insect found in China: <http://blogs.scientificamerican.com/running-ponies/2014/07/22/largest-aquatic-insect-in-the-world-found-in-china/>.



Forest health program staff gets a lesson on veneer log grading. Thanks to Kretz Lumber for a very informative and educational tour.

SOR Forest Health Assistance

Wisconsin DNR, Forest Health Protection Unit

July 2014

Contacts for DNR staff, municipal foresters, and forestry cooperators

<p>Mark Guthmiller Forest Health Specialist Wisconsin DNR 3911 Fish Hatchery Road Fitchburg, WI 53711 Phone: (608) 275-3223 Email: Mark.Guthmiller@wisconsin.gov Columbia, Dane, Dodge, Grant, Green, Iowa, Jefferson, Lafayette, Richland, Rock, and Sauk</p>	<p>Bill McNee Forest Health Specialist Wisconsin DNR 1155 Pilgrim Rd. Plymouth, WI 53073 Phone: 920-893-8543 Email: Bill.McNee@wisconsin.gov Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Walworth, Washington, and Waukesha</p>
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For a statewide forest health staff list: <http://dnr.wi.gov/topic/ForestHealth/staff.html>

Additional Program Web-based Resources:

WI DNR Forest Health web site:
<http://dnr.wi.gov/topic/ForestHealth/>

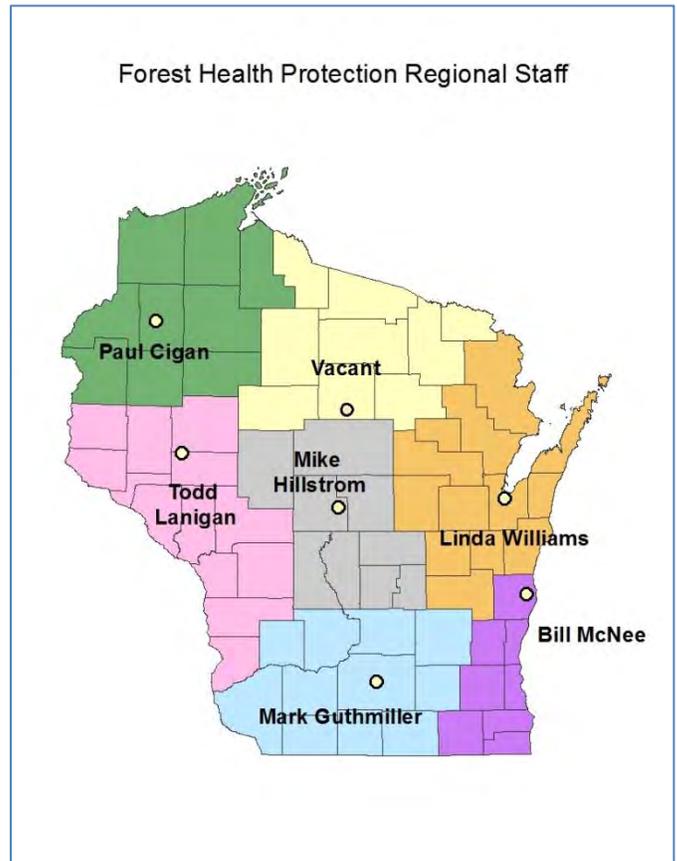
Report Emerald Ash Borer:

by phone 1-800-462-2803
 by email:
DATCPEmeraldAshBorer@wisconsin.gov
 visit the website: <http://emeraldashborer.wi.gov>

Report Gypsy Moth:

by phone at 1-800-642-6684
 by email: dnrfgypsymoth@wisconsin.gov
 visit the website: <http://gypsymoth.wi.gov>
(It is also recommended to report gypsy moth to your local government)

Please direct **public inquiries** regarding **yard tree concerns** to UW county or state extension offices: <http://www.uwex.edu/ces/cty/>



[Pesticide use: Pesticide recommendations contained in this newsletter are provided only as a guide. You, the applicator, are responsible for using pesticides according to the manufacturer's current label directions. Read and follow label directions and be aware of any state or local laws regarding pesticide use.]