Southern Wisconsin Forest Health Update

Wisconsin DNR, Forest Health Protection Unit
December 17, 2014 Vol. 11 No. 6

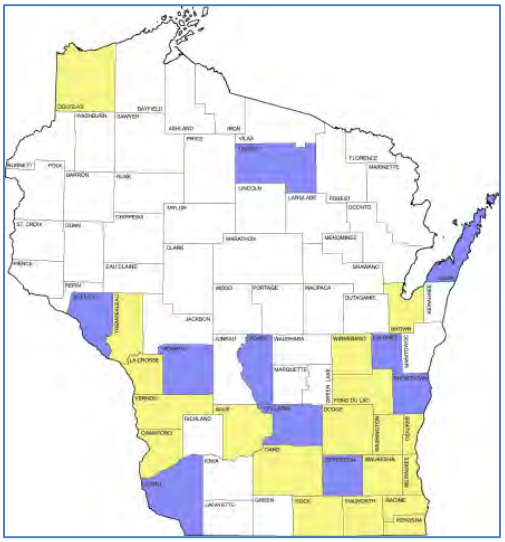
Topics in this update

Articles in this newsletter were written by Mark Guthmiller, Regional Forest Health Specialist, unless otherwise noted. For consistency, the newsletter title has been changed from "Southern Region Forest Health Update" to "Southern Wisconsin Forest Health Update"

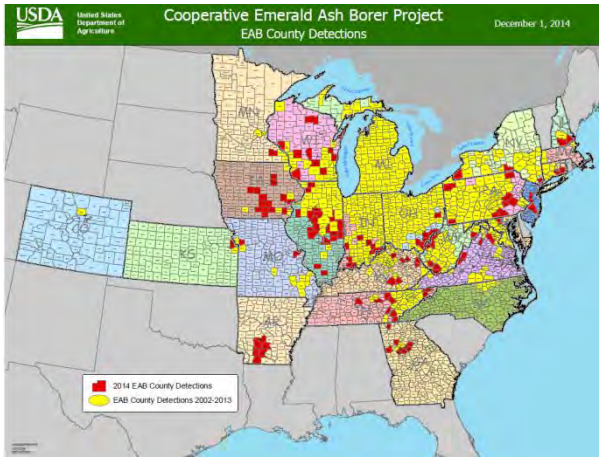
Emerald Ash Borer– Bill McNee

New Detections

Since the last Southern Region pest update was sent out in October there has only been one new municipal EAB detection in Wisconsin - the City of Arcadia in Trempealeau County. EAB was found for the first time in 10 Wisconsin counties during 2014, expanding the number of counties known to have EAB by more than 50% in a single year.



Counties shown in blue had first EAB detections in 2014. Counties in yellow had 2008-13 first detections.



Counties with first EAB detections in 2014 are shown in red. Map by USDA APHIS.

An updated national detections map has been released. Nationwide, 125 counties had first EAB detections in 2014 and this easily beats the numbers from previous years.

White Fringetree Update

Earlier this fall it was announced that EAB had been found infesting white fringetree, *Chionanthus virginicus*, in Ohio. Recently, the US Department of Agriculture (USDA) has announced that it will be conducting studies to determine the suitability of white fringetree, and other species in the Olive family, for EAB development (note - Ash trees are part of the Olive family). The studies will also look into whether white fringetree is being infested by EAB elsewhere in the country, or just in the Dayton, Ohio area where it was first found. Read more at: http://content.govdelivery.com/accounts/USDAAPHIS/bulletins/d79089 . White fringetree is not native to Wisconsin but is planted in northern states. More information about the tree can be found here: http://en.wikipedia.org/wiki/Chionanthus_virginicus.

White fringetree flowering.
Photo from www.forestryimages.org

Close-up of white fringetree flowers.
Photo from www.forestryimages.org.

USDA is also revisiting previous research into the potential for other Olive family species to serve as hosts for EAB. When other members of the Olive family, including lilac and privet, were tested for host suitability more than ten years ago, those species were not considered suitable hosts for EAB. Scientific reports from 2003-04 indicated that adult EAB had been found to nibble on the leaves of fringetree and other Olive family members in lab studies. We were unable to find any studies from that time period that examined whether EAB could complete its life cycle inside fringetree.

Keep an Eye Out for Woodpecker Activity - EAB larvae beneath the bark are a good-sized meal for a woodpecker, so keep an eye out for signs of woodpecker activity on ash branches and tree trunks as the birds hunt for larvae. Woodpeckers pick away the rough outer bark over an EAB gallery, and then drill down through it to get the EAB larva. As of mid-December there is probably little new 'flecking' present, but it should start appearing in January if the tree is moderately infested.

Woodpecker 'flecking' on EAB-infested ash in Walworth County. Photo by Bill McNee.

EAB and Related Power Outages

Recent media reports in several states have provided additional evidence that EAB is contributing to power outages during storms by creating abundant dead branches that can fall on power lines. If you work with trees near power lines, this story is worth reading: http://www.therepublic.com/view/story/775e8f1ea5a9489b90f66c417995fab0/MI--Ice-Storm-Power-Michigan

Gypsy Moth –Bill McNee

Gypsy Moth Suppression Program Applications

The application deadline for the WI DNR Gypsy Moth Suppression Program was due the first Friday in December. One application for suppression treatment was received statewide for 2015. Approximately 40 acres is proposed for treatment in the Town of Beloit, in Rock County. A localized infestation had nuisance level caterpillars and scattered defoliation in 2013. Egg mass counts indicate likely damaging levels of defoliation for 2015. Additional gypsy moth aerial treatments will be proposed in western counties by the WI DATCP as part of the national "Slow the Spread" (STS) program.

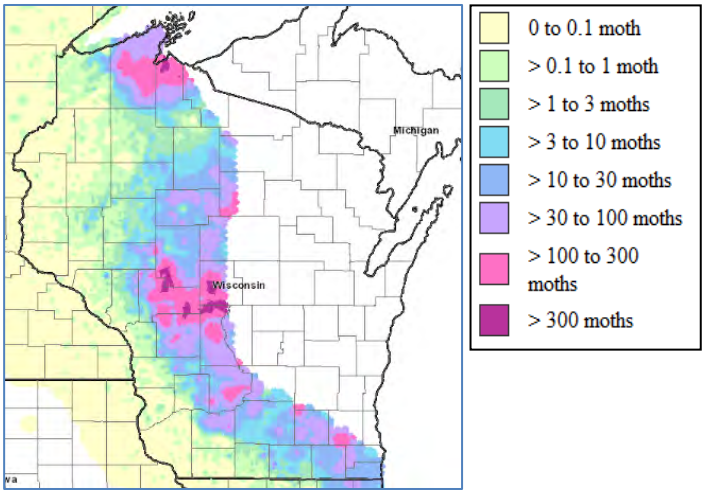
Egg Mass Surveys

Landowners and managers should continue to look for gypsy moth egg masses to predict the pest's population size and potential damage to trees next year. Information on oiling or removing egg masses is also available, and now until about the first week in April, is a great time to oil accessible egg masses. For more information on how to do egg mass surveys, visit www.gypsymoth.wi.gov. If you decide to do privately-organized aerial spraying, a list of for-hire applicators can be downloaded from the website. Early planning is necessary for participation in the state program and also recommended when working with a private applicator. DNR received very few nuisance caterpillar calls during the summer of 2014, and overall, we expect populations to remain low in 2015.

Gypsy moth egg mass on a picnic table. Photo by Bill McNee.

WI DATCP Gypsy Moth Trap Catch Data 2014

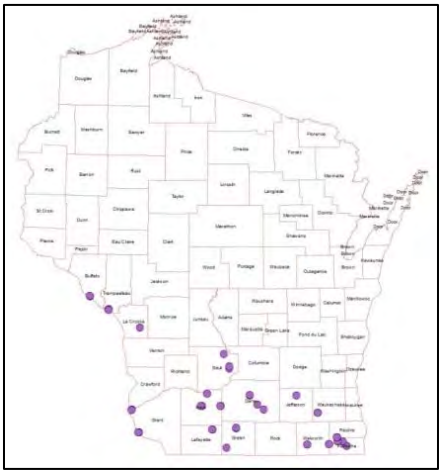
Trappers from the Wisconsin Dept. of Agriculture, Trade and Consumer Protection (DATCP) have finished taking down their gypsy moth traps, and about 93,000 male moths were caught in 2014. Catch numbers were down dramatically from 2013 in Wisconsin and other Midwestern states, likely due to the very cold winter, cool spring and rainy weather in June. Last year over 360,000 males were caught (note: about 13,000 traps were hung this year vs. 18,000 last year). The highest numbers of moths were trapped in Jackson County (11,700), Bayfield County (11,200) and Monroe County (9,700). For comparison, at this time last year Bayfield County was in the lead with 84,000 moths. If you are interested in a county-by-county catch map, contact Mark Guthmiller or Bill McNee.



Map of 2014 gypsy moth trap catches showing highest numbers in dark red. Areas in white were not trapped. Map by Gypsy Moth Slow-The-Spread Program.

Walnut Twig Beetle and Thousand Cankers Disease

In 2014, the DNR forest health program continued monitoring for walnut twig beetle and thousand cankers disease in southern and west central Wisconsin. Walnut twig beetle is a tiny beetle native to the southwestern US and is the main vector of thousand cankers disease. A total of 45 traps were placed in 15 counties by Scott Schumacher, our lead surveyor for this survey. Screening of collected beetle samples has been completed and there were no detections this season. Fungal cultures taken from wood samples to test for the presence of *Geosmithia morbida,* the fungus associated with thousand cankers disease, have all been negative.



Locations of WI DNR walnut twig beetle traps. There were no detections of walnut twig beetle in 2014.

Annosum Root Rot – Kyoko Scanlon

Annosum root rot, caused by the fungus, *Heterobasidion irregulare*, was first found in Wisconsin in 1993 and is now known to be present in 24 counties. It is considered to be one of the most destructive conifer diseases in the northern hemisphere. Prevention of this disease is key, as it is difficult to treat and control. Many tree species can be hosts, but in Wisconsin, annosum root rot is most common in red and white pine plantations.

Although there were no new county detections in 2014, additional infested pine stands were found in counties where the disease was previously documented. Columbia County forestry staff, Bruce Henderson, Brooke Hushagen, and Jim Bernett all worked at confirming the most recent detection at the Rocky Run State Natural Area this month. The River Valley School Forest in Iowa County, where annosum was detected in the early 1990s, was re-surveyed to evaluate disease spread. Numerous newly-infected disease pockets were found. An intensive survey was also conducted at a 2013 detection site in Grant County on the Blue River Unit of the Lower Wisconsin State Riverway, and additional disease pockets were detected.

Fall and early winter, before snow cover, is a great time to search for annosum fruiting bodies that may be associated with dying conifer trees or stumps from past thinning harvests. For more information on annosum root rot visit: http://dnr.wi.gov/topic/ForestHealth/AnnosumRootRot.html

Counties where annosum root rot has been detected are shown in green.

Annosum conks (fruiting bodies) detected at Rocky Run State Natural Area in Columbia County. Fall and early winter, before deep snow, is a great time to search for conks. Photo by Brooke Hushagen.

Maple Dieback and Mortality Update

In the August edition of the Southern Region Forest Health Update, I wrote an article on some maple dieback and mortality issues reported by Steve Holiday in northern Dane County. This was occurring on red maple and similar issues were observed on sugar maple in the Baraboo Hills around this time. Since then, a number of other site evaluations occurred, primarily on red maple stands in Sauk County. Sites included both upland and bottomland locations. While drought followed by Armillaria root rot might be the simple answer, there has been some inconstancy in detecting Armillaria. While Armillaria was usually readily detectible on trees with advance dieback or mortality, roots appeared healthy on trees exhibiting early symptoms of dieback. In one case, a root sample with small areas of root necrosis, came back positive for Botryosphaeria and not Armillaria.

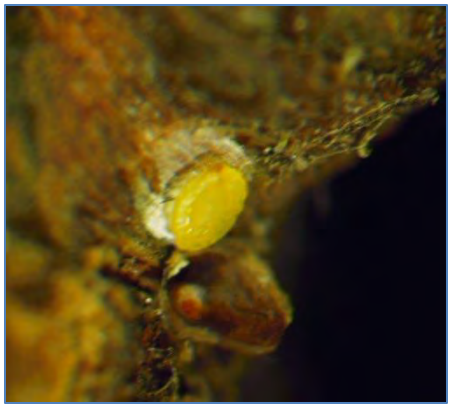
Dieback in a mixed red and sugar maple dominated stand.

A number of canker pathogens have been confirmed from the various stands evaluated, but again, no consistency. The cankers initially appeared associated with wood boring ambrosia or bostrichid (powder post) beetles. After peeling a number of red maple with cankers, newly forming cankers were not associated with these beetles. The beetles appeared to be attacking the older established cankers. However, it is possible that "re-invasion" by emerging beetles from these canker faces may "re-introduce" the canker pathogens to other areas of the tree, accelerating the dieback process.

The DNR Forest Health Lab isolated a number of canker pathogens from these sites, including *Phomopsis* spp. (3 of 5 sites), *Sphaeropsis* state of *Botryosphaeria* spp. (4 of 5 sites, one of the positives was confirmed by the UW Plant Disease Diagnostics Lab), and *Fusarium* spp. (5 of 5 sites). Note that multiple samples from a particular site might have had more than one of these canker fungi present or, on an individual sample, none at all. Since beetle introduction did not appear to be the initial mode of introduction, how were the canker fungi entering the trees? It might be that the fungi were directly penetrating trees stressed from the drought of 2012. Another possibility might be scale insects with sucking moth parts, creating small feeding wounds as a port of entry. Late in the season, I started noting crawlers and an unidentified armor scale, possibly part of the *Diaspididae* complex. Gloomy scale may be a possibility, but crawlers late in the season did not fit the biology. While high numbers of gloomy scale may cause dieback, I was seeing only low levels of the unidentified scale. For more information on gloomy scale: http://www.entomology.umn.edu/cues/Web/141GloomyScale.pdf If the dieback and mortality is all drought induced issues, we should start to see some recovery of these stands. Please continue to report stands with dying maples.

Advanced dieback with bark splitting and extensive epicormic sprouts.





From left to right: Red maple branch confirmed with Botryosphaeria canker; Wood borer hole at top of canker face; Armored scale with cover removed.

Princess Tree Eradication Efforts in Sauk County – Mike Putnam

Princess tree (*Paulownia tomentosa*) is a "prohibited species" under Wisconsin's invasive species law NR 40 and cannot be sold or planted in Wisconsin. So when three small populations were reported in Sauk County, efforts were made to eradicate them before they spread.

Forest ecologist, Gigi LaBudde, discovered two populations in Sauk City and Prairie du Sac and learned of a third tree near Devils Lake State Park. The Sauk City population consisted of eight to ten young trees growing along the Wisconsin River, with most coming up through riprap along a retaining wall, suggesting they had naturalized to the site and were not intentionally planted. These trees had previously been cut and had re-sprouted from the stumps. The Prairie du Sac population consisted of five trees planted on a single residential property as was the one tree near Devils Lake State Park.

Gigi agreed to coordinate and facilitate the removal of the trees, with assistance from Kay Bangor and DNR forester, Mike Finlay, who volunteered his off work hours and chainsaw to the effort. The trees were all cut and stumps were treated with herbicides. These three locations will be monitored in the spring to insure the trees were killed and that there are no other princess trees showing up in the area.

Princess tree is a fast-growing tree, with showy lavender flowers, from East Asia, which has become invasive in some states. Princess tree can be recognized by its large fuzzy heart-shaped leaves that measure as much as twelve by nine inches. Catalpa is the only native tree that resembles princess tree but produces long beanlike seedpods. Each princess tree seed pod produces up 2,000 winged seeds that are dispersed by wind or water. When pods are not present you can compare the whorled three leaf attachment pattern of catalpa to the opposite paired leaf attachment pattern of princess tree.

If you find Princess tree in Wisconsin please report your discovery to DNR. With vigilance and rapid response, we can keep new invasive species, like princess tree, from gaining a foot hold.

(Michael Putnam is a WI DNR invasive plant program specialist with the Forest Health Protection program)




Clockwise from top left: The crew working at removal of an invasive princess tree; cut stump of a three stemmed tree reveals growth rings, showing the rapid growth potential; cut multi-stem shoots that need herbicide to stop sprouting; clusters of immature seed pods. Photos by: Gigi LaBudde

Invasive Crabapples?

Observations in Richland County

Earlier this season, DNR forester Mike Finlay, shared some concerns he had for what appeared to be a couple species of crabapples that were taking over some hillsides. On our way back from a landowner site visit we stopped by one problematic area and took some pictures and grabbed some samples. The WI DNR invasive plant staff folks are looking into resources to identify the crabapples. I asked Mike to share his observations on what he had been seeing in Richland County. Here is Mike's response:

> "The crabapples seem to be sun loving for the most part. The crabapple population we looked at is the worst but we have seen it in and around the area. It acts like an autumn olive, in that it fills in old fields and woodland gaps. One of the other sites, that we think has a dense population like this one, is a little south of here. So that site is about 5 miles away, and in general, it seems to be

found within or around that 5 mile range from the "mega" population we saw together. We have also found it just west of the mega population, in some gaps created by TSI (Timber Stand Improvement), so in a woodland setting, and likely bird dispersed. The crabapples were capturing the gap instead of other trees."

1) It grows dense when found in old fields with thinner soils or on degraded sites
2) It can invade wooded openings
3) It seems to occur within five miles of the main population at this point
4) It is near impossible to walk thru
5) It is effective at out-competing tree regeneration

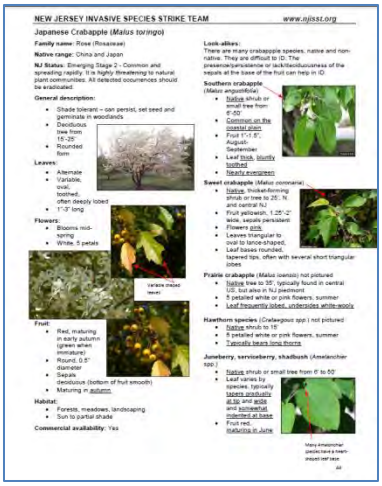
Crabapples observed taking over a hillside and woodland edge in Richland County.

Fruit and leaf shape of one of the unidentified crabapple species.

I also contacted Rachel Mackow, the New Jersey Invasive Species Strike Team (NJISST) Technical Coordinator who has done some control work with invasive crabapples, primarily the Toringo crabapple, and what her experience has been out east. Here is some of her reply:

"This tree grows incredibly dense in open fields, and also in open woods. Since most of our woods lack shrubs due to deer overpopulation, this combination is particularly alarming." She goes on to say, "I am unaware of the seed bank potential. However, our strategy is early detection and rapid response. By acting quickly we seek to prevent the next Japanese barberry, or in the case of the Midwest…the next buckthorn invasion."

Rachel acknowledges the extreme difficulty in identifying crabapples to species and recommends working with a botanist that specializes in crabapples in one's local area. "With all the hybrid varieties, focusing on identifying plants that appear out of place or don't have botanical features of our native crabapples, may be a starting point for addressing potential invasive concerns and the need for further identification and control considerations," she said.


NEW JERSEY INVASIVE SPECIES STRIKE TEAM www.njisst.org

Japanese Crabapple (*Malus toringo*)

Sample of the NJISST invasive plant fact sheets

The New Jersey Invasive Species Strike Team webpage also had a nice reference fact sheet document for many invasive species, including pictures of "look-a-likes". The Toringo crabapple fact sheet was on page 44. To check this out visit: http://www.njisst.org/files/PlantIDFactSheets.pdf

Invasive Plants Tracking Systems
I was also impressed with the New Jersey Invasive Species Strike Team's interactive mapping and tracking site for invasive plants. It is an integrated site with the EDDMapS tracking system developed by the University of Georgia-Center for Invasive Species and Ecosystem Health, with support from a number of federal partners. Folks interested in management of invasive species may want to check out these tracking system sites. For more information visit the NJISST tracking site at http://www.njisst.org/invasive-map.htm and the EDDMaps site at http://www.eddmaps.org/.

Smartphone App for Reporting Invasive Species
This UW Extension story describes a free smartphone application: "An app developed by the Great Lakes Early Detection Network (GLEDN) and Early Detection Distribution and Mapping System (EDDMapS) allows people to send pictures and locations of the invasive plants to an online mapping system. Land managers can use this information to respond to the new pests as they are emerging." For more information visit: http://www.uwex.edu/news/read/2013/6/Fighting_invasive_plant_species_with_your_smartphone.

Wisconsin DNR Invasives Website and Reporting
For additional information and reporting on invasive species in Wisconsin, visit the Wisconsin DNR Invasives webpage: http://dnr.wi.gov/topic/Invasives/

Miscellaneous Topics and Observations

Avon Bottoms Planting Update
With approximately 1,300 acres of bottomland hardwoods within the boundaries of the Avon Bottoms State Wildlife Area, concerns for forest management exists with expected pressures to the ash resource by emerald ash borer. In the spring of this year, the first planting attempts of alternative species occurred. Rock County DNR forester, Nick Koltz, reports on his observations from this year's planting effort:

> "Yesterday I was out on the Avon Bottoms Wildlife Area checking out the seedlings that were planted back in the Spring of 2014. These seedlings (primarily swamp white oak) were planted in ash-dense areas, to get a jump on the expansion of reed canary grass as Emerald Ash Borer (EAB) begins to impact the ash overstory. It appears that the overall success of the planting went quite well. There were instances where the seedling had out-competed the reed canary grass competition. Unfortunately, there were also some areas where the canary grass had literally engulfed the seedlings and bent them over. Overall, things looked good but they were not perfect. I am interested in possibly making use of a localized mechanical or herbicide treatments to set back the canary grass in future plantings. In areas where the canary grass was not an issue, I was very impressed by the growth that the swamp white oak seedlings put on! Many seedlings had more than doubled in size in just 1 growing season! Within the next 4-5 years EAB will be highly impacting Avon Bottoms and active reforestation efforts will be needed to replace the loss of the ash component."

A planted swamp white oak, giving hope for a forested future at Avon Bottms.

Dane County Extension Winter Seminar Series 2015
Lisa Johnson, Horticulturist with Dane County Extension, has put out the flyer for the 2015 "Winter Seminar Series" for professionals working in the green industry. For more information on speakers and topics, visit: http://dane.uwex.edu/files/2014/12/WSS2015-fillable.pdf

In The News:

-WI DNR NR 40 Invasive Species Listing Amended: The new regulations will go into effect after they are reviewed by the governor and the Legislature, and both could make modifications. Note: Emerald ash borer is being downgraded from 'Prohibited' to 'Restricted' because it is well established in Wisconsin. This does not mean that we are giving up on EAB, but rather it is a realization that eradication efforts would not be reasonable. Quarantine regulations still apply and "best management practices" are still recommended in quarantined counties. http://www.jsonline.com/news/wisconsin/natural-resources-board-expands-list-of-invasive-species-b99406748z1-285388931.html.

-UW CALS Article on EAB: The fall edition of "grow, Wisconsin's Magazine for the Life Sciences", included an article on emerald ash borer, written by Ron Seely. The article starts on page 16. http://grow.cals.wisc.edu/files/2014/11/GrowFall2014-sm1.pdf

-Mountain Pine Beetle Threat to Minnesota Pines: Midwestern pine species found to be suitable for the mountain pine beetle: http://www.twincities.com/localnews/ci_26999586/minnesota-researchers-race-stay-ahead-mountain-pine-beetles?source=rss

-Southern Pine Beetle found in New York State: Southern Pine Beetle found in New York State for the first time. Milder winters may be helping it to migrate north: http://www.nytimes.com/2014/10/29/nyregion/long-island-confronts-destructive-southern-pine-beetles.html

-Spotted Lanternfly in Pennsylvania: Spotted Lanternfly found in Pennsylvania. It's not a fly but is actually a planthopper: http://entomologytoday.org/2014/12/04/the-spotted-lanternfly-an-invasive-insect-that-is-beautiful-but-threatening/

-Thousand Cankers Disease Fungus Update: Thousand Cankers Disease fungus originated in southern California and mutates easily: http://scienceblog.com/75339/fungus-behind-deadly-disease-walnut-trees-mutates-easily-complicating-control/#O6GVrFwkMfuiPBKH.97

HAPPY HOLIDAYS!

SOD Forest Health Assistance
Wisconsin DNR, Forest Health Protection Unit
December 2014

Contacts for DNR staff, municipal foresters, and forestry cooperators

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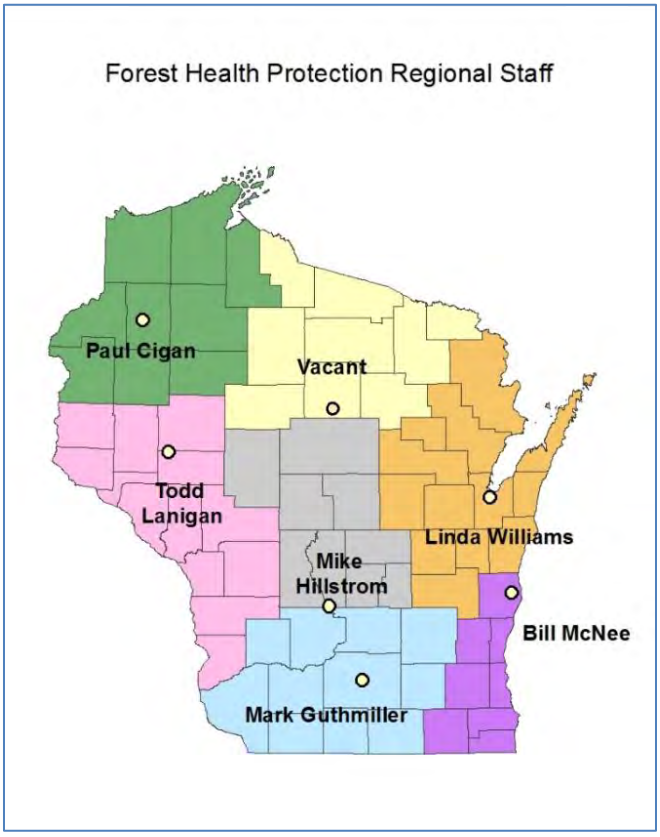
For a statewide forest health staff list:
http://dnr.wi.gov/topic/ForestHealth/staff.html

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: dnrfrgypsymoth@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.]