

Southern Region Forest Health Update

Wisconsin DNR, Forest Health Protection Unit

June 28th, 2012 Vol. 9 No. 3

Topics in this update

Emerald Ash Borer
Gypsy Moth
Forest Tent Caterpillar and Elm Spanworm Defoliation
June Beetles
Walnut Twig Beetle Trap Surveys
Insect Rearing from Walnut Branches
Boxelder Wilt/Dieback (?) and Boxelder Blight
Miscellaneous

Articles in this newsletter were written by Mark Guthmiller unless otherwise noted
(Southern Region Forest Health Specialist)

Emerald Ash Borer (EAB) – Bill McNee

Since the last pest update there have been numerous confirmations of Emerald Ash Borer in Wisconsin. Rock, Walworth and Waukesha Counties had their first EAB detections this month. Richard Bong State Recreation Area in western Kenosha County is the first state-owned property to find EAB. A complete list of recent EAB detections as of June 26 is:

Rock Co. – infested trees found in Janesville

Walworth Co. – infested trees found in Lake Geneva, Fontana and the Town of Walworth

Waukesha Co. – an infested tree found in Mukwonago

Kenosha Co. – infested trees and adult beetles found at Richard Bong State Recreation Area

Ozaukee Co. – infested trees found in Port Washington

Brown Co. – infested trees located 3 years after finding an adult EAB on a trap in downtown Green Bay



Janesville Park's Director, Tom Presny, learning signs of EAB at the first detected site for the city. Photo by: Jeff Roe, WI DNR

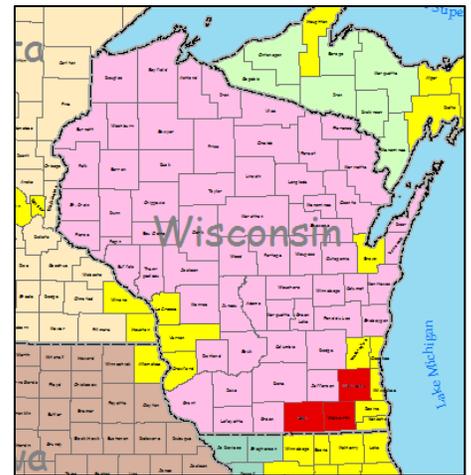


Adult EAB that had not yet emerged from under bark. Photo by: Jeff Roe, WI DNR



Infested ash tree showing thinning crown and dead branches. Photo by : Jeff Roe, WI DNR

Wisconsin has now accumulated enough growing degree days that EAB adult flight would now be underway in all counties, with peak flight as far north as Madison. Suspicious beetles or symptomatic trees should be reported to the EAB hotline, 1-800-462-2803, or emailed to: DATCPEmeraldAshBorer@wisconsin.gov.



Counties with first EAB detections in 2012 are shown in red. Yellow counties had first EAB detections in 2011 or earlier.

Do you want to be in the EAB loop? Don't forget to sign up!

To sign up for automatic e-notification of EAB news reports go to: http://datcp.wi.gov/Gov_Delivery/EAB/index.aspx

For more information on EAB and updates to quarantines:

<http://datcpservices.wisconsin.gov/eab/index.jsp>

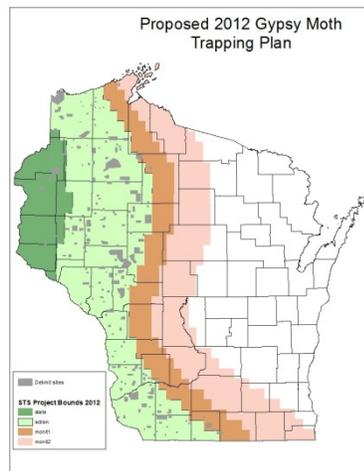
Gypsy Moth– Bill McNee

So far this summer, DNR forest health staff have not received any nuisance caterpillar reports from southern Wisconsin. We have received a few reports from the counties north of Green Bay, Clark and Jackson Counties in the central part of the state, and from the Bayfield area in northeast Wisconsin. A roadside survey in the Bayfield area has also detected significant defoliation. A couple observations of non-nuisance level gypsy moth caterpillars were also reported in Grant County in an area with heavy forest tent caterpillar activity. With the warm and dry weather, larval development has been about 2 weeks ahead of average. Larval survival should be very good and populations are likely to be higher in 2013.



Gypsy moth caterpillar showing characteristic blue and red dots.

Pupation is occurring in the southern and central counties, and male moth emergence is expected to begin in late June. In preparation for adult moth emergence, the Wisconsin Dept. of Agriculture, Trade and Consumer Protection (DATCP) has completed its slow-the-spread mating disruption treatments in southwest counties and has hung gypsy moth monitoring traps in most southern Wisconsin counties. Approximately 19,000 traps will be hung across Wisconsin by early July.



WI DATCP 2012 gypsy moth trapping locations. Colored areas indicate different trap densities.

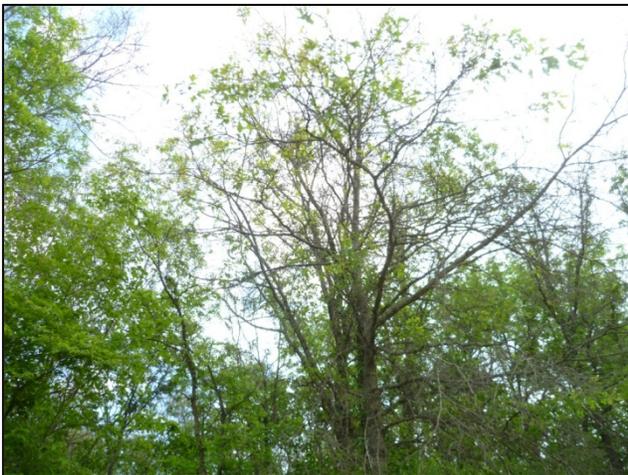


Male gypsy moth adult (left) and female adult (right).

Forest Tent Caterpillar and Elm Spanworm Defoliation

Southern Wisconsin experienced some defoliation from both forest tent caterpillar (FTC) and elm spanworm. Areas in the central part of the Baraboo hills that were problematic with both forest tent caterpillar and elm spanworm in 2011 had subsided this season. We did however get reports of defoliation by forest tent caterpillar and elm spanworm in the western township of Bear Creek in Sauk County and eastern township of Ithaca in Richland County. Thanks to the foresters in these counties for sending in the reports which helped target aerial surveys.

Wide spread defoliation by forest tent caterpillar was also detected during aerial surveys in Grant County south of the Wisconsin River in the area of Millville, Mount Hope, and Woodman townships. A couple of reports of gypsy moth caterpillars came in from this general area but spot checks indicated forest tent caterpillar as the main culprit in the defoliation observed. This area also had some frost injury, especially to red oaks followed by moderate defoliation with a few pockets of severe defoliation by FTC. It is possible we may observe some build of up two-lined chestnut borer on these oaks in this area due to multiple stressors. Moisture conditions will likely dictate how much mortality we see in this area.



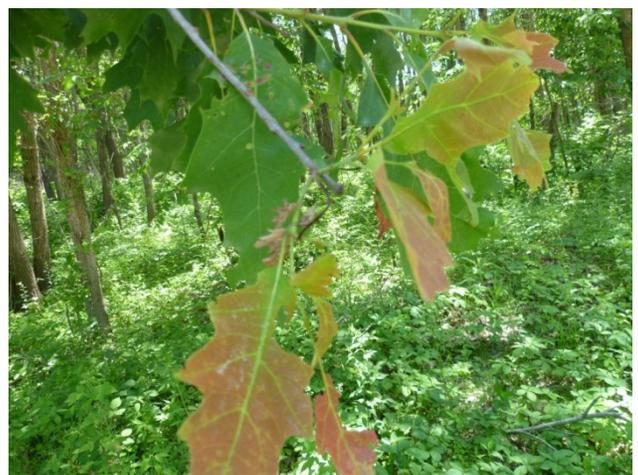
Moderate defoliation in Grant Co. by forest tent caterpillar.



Hillside showing scattered areas of heavier defoliation in Grant Co.



Early spring frost hit new expanding shoots on red oaks.



New flush of leaves from frost damaged red oak. Views of woods from distance had a reddish hue due to the new flush.

June Beetles

DNR assistant nursery manager, Roger Bohringer, reported catching some sneaky June beetles causing defoliation on red oak, black cherry, and other species on his property southeast of Boscobel. Evening observations of beetle feeding confirmed it was not forest tent caterpillar or gypsy moth. Roger wrote: “My home has a biblical plague-sized outbreak. You can’t open the back door at night without a swarm of them flying into the house. My daughter’s cats used to catch them and eat them. Now they just act annoyed by them like everyone else!” I loved Roger’s description of the infestation and can imagine the cats swatting at the beetles why trying to take a nap!



Damage to Roger’s oaks due to adult June beetle feeding

In 2010 Forest Health Specialist, Linda Williams and Todd Lanigan reported similar defoliation suspected to be from June beetles, Here is Linda’s write up from then:

[Todd Lanigan, WCR Forest Pest Specialist, and I visited a site in eastern Portage County where oak was defoliated. Red oak was preferred over white oak and other species in this mixed hardwood stand were not defoliated at all. The oaks in this stand had been defoliated quite rapidly, and experienced a similar defoliation last year. I suspect that adult June beetles were to blame (right). No insects or diseases could be found during the site visit but the rapid defoliation, preference for red oak, lack of feeding on anything else, and lack of insect or disease presence, seems to point to adult June beetles. Adult June beetles emerge after dark on warm spring nights, feed during the night, then burrow into the soil and leaf litter before dawn, spending the day hidden from all. This forest was next to a cattle pasture heavy to sod which is a favorite place for June beetles to lay their eggs and for the white grubs to complete development. Since I was there too late to find any adults, and I have never seen June beetle defoliation at this level in a forest setting, this is just my best guess as to the cause of defoliation. Larval surveys later in the year may shed some light on the matter but the very wet year that we’ve had may promote milky spore disease which could kill many of the larvae, causing the population to crash naturally.]



Night feeding by June beetles.

The June beetle (often referred to as June bug) even inspired a song:
<http://www.youtube.com/watch?v=dvqw6py7iKQ>

Walnut Twig Beetle Trap Surveys

Forest health staff have been busy this spring setting and monitoring funnel traps in southern and west central Wisconsin for the walnut twig beetle. Walnut twig beetle is associated with the disease referred to as thousand cankers disease. The beetle vectors a fungus as it feeds which causes a small canker. Many feeding attempts by many beetles eventually create thousands of cankers that, over a number of years, will kill the tree. To date thousand cankers disease has been found in many western states as well as Pennsylvania, Tennessee, and Virginia in the native range of black walnut. Researchers at UC Davis developed a pheromone lure for the walnut twig beetle allowing for a monitoring tool for this beetle. We will be monitoring and collecting samples from these traps during the summer and sorting insects for suspect walnut twig beetles for further identification. To date walnut twig beetle has not been detected in Wisconsin.



Toss bag and paint roller on extension pole used to hang trap high in tree.



Four funnel trap baited with a pheromone lure utilizing a liquid collection cup.



Declining walnut tree with trap established .

Insect Rearing from Walnut Branches

In 2011, as part of our surveys for thousand cankers disease, we conducted surveys of declining walnut stands. One observation commonly observed were galleries and larvae of buprestid beetles. Branch samples were collected this spring in order to attempt rearing out of wood boring beetles from a sub-set of sites visited last year. With assistance from Renee Pinski, rearing chambers were designed and constructed out of 5 gallon plastic pails. We are trying these out for this season to see how they work. We have had emergence of some beetles already and we will work to confirm that they are native species in the near future. So far emergence has only been from older dead and dry branch material. Declining branches sampled with green cambium have not yet produced any beetles. At this point I am assuming these are just secondary native beetles attacking declining trees. Once we complete identification we will add a report in this newsletter.



Rearing bucket with hole in lid and plastic twist-on food container attached using rivets and hot gun glue.



Buckets stacked on side with food container oriented up. A moist paper towel is added to container for beetles to hang out in until collected. Extra food containers simplify collection process.

Boxelder Wilt/Dieback (?) and Boxelder Blight

In 2011, while surveying walnut, I commonly observed boxelder wilt like symptoms but never gave much thought to it. Looking closer I noticed some canker like open wounds and ambrosia beetle like attacks going into the heart wood on the main trunk. This made me wonder if we might possibly be seeing the ‘black stem borer’, *Xylosandrus germanus* also attacking boxelder (as was noted on walnut with suspect fusarium cankers last season). I had an opportunity to sample a boxelder branch last week while at a walnut site with the intent of trying to rear out borers. When examining the cut branch it had a characteristic red streaking in the inner sapwood and black fungal growth in the outer sapwood. There was mention in the literature of this commonly observed red streaking being caused by species of *Fusarium* fungus but this was apparently not substantiated in lab testing. Anyway, I am incubating the sample to see if I can get spore production out of the black fungal growth in the outer sapwood that may help ID what is causing the wilt and branch dieback symptoms. Why bother with this you say? Read on.



Wilting shoot of boxelder observed in Rock County.



Boxelder cross section showing common red streaking and unidentified black fungus under bark.

Another common observation this season has been distorted foliage on many boxelder that I have attributed to herbicide damage. Boxelder are considered highly sensitive to herbicide damage and this damage has been coined “boxelder blight”.

Here is a brief write up from a North Dakota State web site: [The most common plant-damaging air pollutant in North Dakota is drift from herbicides. Low levels of volatile herbicides such as 2,4-D are carried many miles and are sufficient to damage sensitive species such as boxelder and Siberian elm, even in cities. Herbicidal injury is usually evident as deformation of young leaves and shoots.

Leaves which develop before or after the exposure will be normal, so that affected foliage clothes only the middle part of the shoot (Figure 20). Higher dosages of herbicide will kill foliage or even shoots. This latter type of damage is common in field windbreaks.

Control: Minor deformity of sensitive species is uncontrollable as

long as phenoxy herbicides remain in widespread agricultural use.

Usually no permanent damage is done from low concentrations as the trees grow out of the symptoms. To prevent severe damage,

avoid spraying trees when applying herbicides. In home yards, do not

apply lawn herbicides within the dripline of trees. Do not spray trees with the same sprayer used to apply herbicides.] Source: <http://www.ag.ndsu.edu/pubs/plantsci/hortcrop/pp697-1.htm#Air>



Typical herbicide injury to boxelder showing distorted new growth.

I was going to poke fun at this highly prized species in North Dakota that warranted such outreach but then thought that might reflect badly on Wisconsin as I have just spent at least an hour looking into this dieback issue so far.

Now for the rest of the boxelder story:

Interestingly, California is reporting a species of ambrosia beetle called the “tea shot hole borer, *Euwallacea fornicates*, that is apparently vectoring a species of the *Fusarium* fungus which is impacting Avocado.

Boxelder is also listed as a host for this beetle but disease problems have not been detected on boxelder to date. For more information on this complex:

http://eskalenlab.ucr.edu/handouts/fusarium_dieback_english.pdf

On the other side of the United States, in the southeastern US, another complex of fungi and beetles are also impacting avocado (and redbay trees) called “Laurel Wilt”. Laurel Wilt is caused by a species of the *Raffaelea* fungus vectored by the exotic redbay ambrosia beetle, *Xyleborus glabratus*. To paraphrase US Forest Service employee, Manfred Mielke: “Say it ain’t so..don’t take away our guacamole!” For more information on the fungus *Raffaelea*: <http://www.public.iastate.edu/~tcharrin/399harrington8-53.pdf>

While I could not find reference to boxelder being impacted by Laurel Wilt, I did find a site with interesting symptoms of Laurel Wilt on a shrub called “pond spice”. The black fungal growth in the outer sapwood looks very similar to what I observed on boxelder. To see these symptoms scroll down to figure 3 at that attached link. <http://www.public.iastate.edu/~tcharrin/Pondberry.pdf>

So, for now the mystery continues. Is it *Fusarium*, *Raffaelea*, some other fungus, or just common *Verticillium* on my boxelder sample? Who knows, maybe spending an hour on a tree species many people would rather kill then save, we might save Wisconsin’s avocado industry! Stay tuned for any further identification to the cause of the boxelder wilt/dieback. And if you are seriously thinking of growing avocado’s in Wisconsin visit: <http://www.gardenguides.com/99621-grow-avocados-canada.html> (Canada is as close as I could come for advice).

Miscellaneous

Invasive Plants Corner:

Poison Hemlock - Bernie Williams

“The only good is knowledge and the only evil is ignorance.”

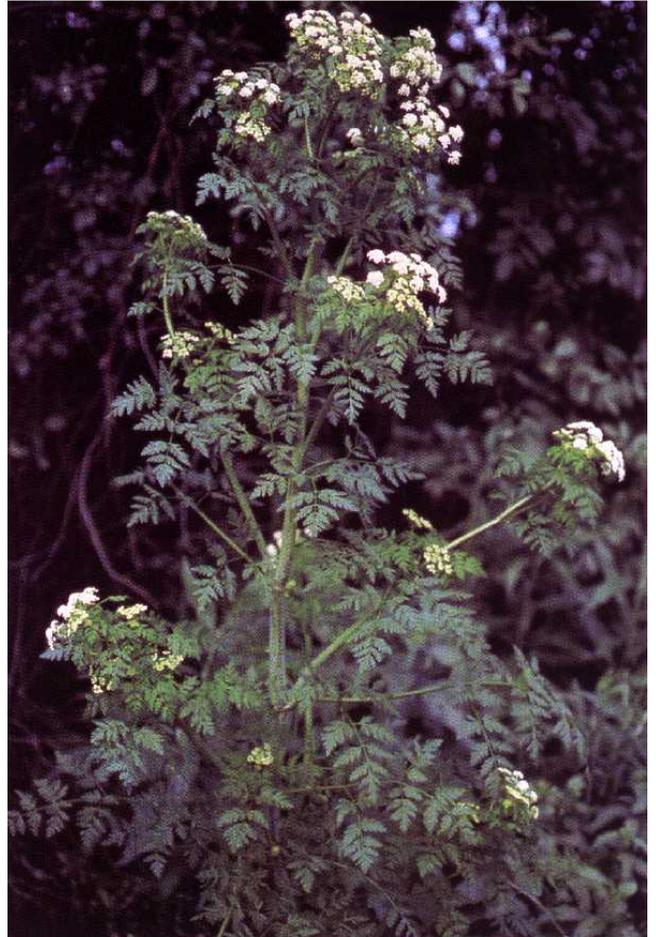
~Socrates

Blooming from early-June well into July, **Poison Hemlock**, *Conium maculatum*, is becoming more and more noticeable along roadsides and in moist meadows. Native to Europe and the Mediterranean, Poison hemlock is widely distributed throughout the U.S., and now, unfortunately Wisconsin too. A member of the Apiaceae, or Parsley family, it can be easily confused with other members of this family, like parsley, and Queen Anne’s lace, but unlike them, all parts of Poison hemlock are poisonous to livestock and humans. The Greek philosopher Socrates condemned to die for impiety in 399 BC was killed by drinking the juice of poison hemlock. So that said, and with it being JUNE – which just happens to be INVASIVES SPECIES AWARENESS MONTH it’s a good time to make sure you can start identifying Poison hemlock!

So let’s get started, Poison hemlock is an herbaceous biennial or perennial, with branching stems growing up to 7’ tall in open wet areas, along the edges of streams, roadside ditches, and waste and industrial areas. It has a smooth stem, often streaked or spotted with purple, especially on the lower portion and interestingly enough these spots are called the “blood of Socrates.” The flowers are very small and white, with five petals, blooming in small umbel clusters. The leaves are broadly triangular in outline and as much as 15” long, but are finely divided with a lacy appearance. The roots are fleshy, creamy white and can be mistaken for carrots or parsnips but in most cases, they are branching or divided and have stringy rather than single roots like parsnips or carrots and are white rather than orange.

Poison hemlock contains numerous alkaloids, the most potent of which is coniine. Coniine is a neurotoxin, which can cause death by blocking the connections between muscles and nerves. It is described as causing paralysis beginning in the feet and ankles and ascending up the body, and causes death by paralyzing the respiratory muscles. Additionally, the alkaloids are volatile, and coniine can be absorbed through the skin, so poisoning can occur even from smelling or touching the plant.

Poison hemlock reproduces by seed with each plant producing roughly a thousand per season. The seeds are then spread by birds, animals, and water, though roadside maintenance and vehicles spread the seeds as well.



Poison Hemlock
By William & Wilma Follette @ USDA-NRCS
PLANTS Database / USDA NRCS. 1992.

So what can you do? With identified populations in 16 counties in Wisconsin already it's more important than ever to be aware and be on the look out for plants that appear to be out of place. Whether a pest, plant or pathogen invasive species are a daunting task but like Socrates said: *The secret of change is to focus your energy, not give up the fight.*

For more information on poison hemlock visit these web links:

http://dnr.wi.gov/invasives/fact/poison_hemlock.htm

<http://ipcm.wisc.edu/download/weeds/poison-hemlock-2010%202.pdf>

Aphids on Garlic Mustard

Earlier this spring, retired DNR employee Tim Fox, reported observing insects feeding on garlic mustard on his property in Dane County. They turned out to be a species of aphids. I later noticed a site in eastern Iowa County with a fair number of aphids on garlic mustard as well. The site I observed the aphids had some declining garlic mustard plants but I suspect herbicide treatment was used on those plants. A subsequent return visit to this Iowa County site indicated little impact on seed pod production of the impacted garlic mustard. However, I am not certain on the viability of the seed in the



Aphids on seed pods of garlic mustard



Aphids on underside of garlic mustard leaf

pod. Although I found brief mention in the literature regarding aphids on garlic mustard I did not find any information on studies related to aphids as a bio-control for garlic mustard. If anyone knows of additional information regarding aphids as a bio-control for garlic mustard I would be interested in hearing from you.

2012 Upper Midwest Invasives Conference

If you are interested in invasive species take a look at this fall conference planned for October 20-31 in La Crosse, WI

Information taken from the conference flyer:

[Following two successful invasive species conferences in 2008 and 2010, the expanded Upper Midwest Invasive Species Conference 2012 will be held at the La Crosse Center in La Crosse, Wisconsin. This year, Iowa is joining as a partner. The expanded geographic focus and the broad range of invasive species issues covered will likely draw more than the nearly 600 people who attended in 2010.

The purpose of UMISC 2012 is to exchange information on invasive species topics. **This is an all-taxa conference covering invasive aquatic and terrestrial plants, animals, pests, and pathogens.** The foci are to 1) strengthen awareness of invasive species issues, prevention, and management; and 2) facilitate information sharing and collaboration among researchers, land managers, natural resource professionals, university personnel, landscapers, nursery, agricultural or forestry employees, environmental specialists, lake association members, land owners, governmental agencies, nongovernmental organizations, and others interested in controlling the spread of invasive species in the Upper Midwest.]

For more information or to print a copy of the conference flyer visit:

<http://sewisc.org/sewisc-events/232-2012-upper-midwest-invasive-species-conference>

Imprelis Herbicide Update

While back in Minnesota a couple of weeks ago I took a look at my father-in-laws spruce trees to see how they were fairing after last year's yard treatment with the lawn herbicide Imprelis. My observations were similar to what is mentioned in the information brief posted at the link below.

http://www.ppd.l.purdue.edu/PPDL/pubs/briefs/ImprelisUpdate2012.pdf?utm_source=June+20+Update&utm_campaign=IAA+June&utm_medium=email

Megarhyssa Parasitoids

While monitoring a walnut twig beetle trap I spotted this neat parasitoid that attacks woodwasps. Woodwasps (or horntails) are found in declining or recent dead trees. In 2011, a nearby walnut tree had just died and had a pigeon tremex woodwasp stuck to the tree. It is likely this large Ichneumonid wasp was going after woodwasps in that tree or one of the adjacent declining trees.

For a little more information on *Megarhyssa atrata* go to: <http://bugguide.net/node/view/6324>



A giant ichneumonid wasp, *Megarhyssa atrata*, observed in Richland County.

“Marcescence” and Cross Country Skiing

A friend of mine, who is an avid cross country skier, always complains to me about the oak leaves that wait until mid-winter (or longer) before deciding to drop. This of course makes for a less than smooth glide, and as I can attest to, a periodic fall in the snow. This brings up the science term referred to as “marcescence”. No, this is not a line of fragrances I am marketing, as suggested by forestry team leader Bill Carlson. Rather this is related to why some tree species hold leaves well into the winter or early spring. A nice write up on this can be found at:

http://www.ehow.com/info_8114983_do-longer-other-leaves-fall.html

What generated this topic was a sample of an oak leaf that had a shredded petiole and concern whether this was insect or disease caused. I have observed small oak trees at Devils Lake State Park while monitoring leaf development for gypsy moth spraying over the years. Consistently these trees exhibited a high level of “marcescence”, holding on to leaves late into the spring. Being located in an open area with frequent winds, the old brown leaves twist and become shredded at the petiole but continue to hang on.



A red oak at Devils Lake State Park exhibiting a high level of marcescence.

So the solution to my friend's problem is a major genetic breeding program, to either favor for very early marcescence, or like the oaks at Devils Lake, favor for those that cling for dear life well into the spring after the snow has melted.

(By the way, I may come out with a line of natural fragrances when I retire with the first offering being "Lemon of Zantho by Markescence". Watch for it!)

Lone Star Tick Report

Iowa county forester, Tom Hill, had a resident from the town of Ridgeway in Iowa County bring in a sample that was confirmed as a lone star tick. I contacted UW extension entomologist, Phil Pellitteri, and he said he gets one or two of these ticks a year showing up at his office. He suspects these migrated in possibly on birds and likely not from a breeding population in the state.

For approximate distribution map and some of the associated tick borne diseases visit:

http://www.cdc.gov/ticks/geographic_distribution.html



Photo of lone star tick sent by Iowa County forester, Tom Hill.

Leaf-footed Bug on Ash

Last week while out surveying, I commonly observed numerous leaf-footed bugs on ash. I believe it is the species *Acanthocephala terminalis* with its distinct orange tipped antennae. This group of leaf-footed bugs are primarily plant feeders although a few are predaceous. This group of bugs also has sent glands and individual species give off a distinct odor which can be either pleasant or not so pleasant (Another fragrance to watch for: "Essence of Acanthos". I hope I pick the right species!)

This link talks about a report of this species that dates back to 1922 by Roland Fountain Hussey in a book on hemiptera in Michigan. Page 16 of the book talks briefly about this species on ash.

<http://livingwithinsects.wordpress.com/2012/06/04/acanthocephala-terminalis/>



Commonly observed leaf-footed bug on ash.

Exotic Caterpillar?

Any idea what this is?

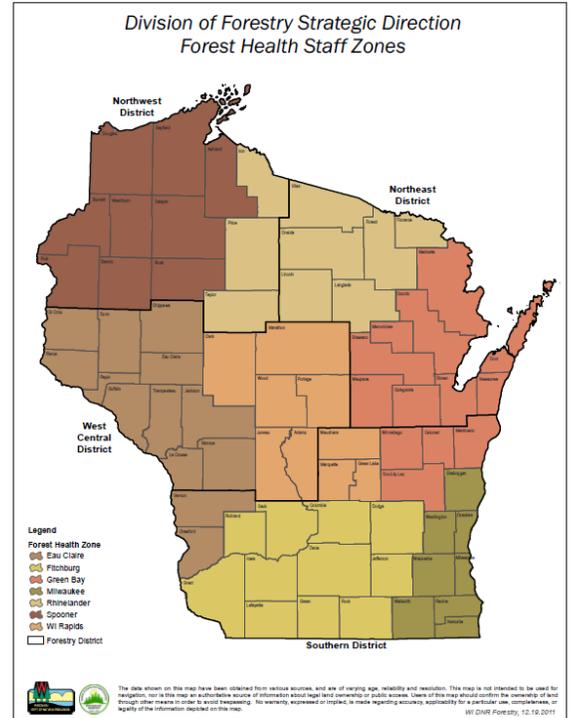


Look again. Wild! Click here if you still don't see it:

<http://en.wikipedia.org/wiki/Bee-eater> (Thanks to Todd Lanigan for sharing this!)

Forestry Program Changes

While the division of forestry is undergoing some changes in program structure, the forest health program staff will continue to service the same counties as currently assigned. As the division of forestry transitions from a regional structure to a district structure we hope to reduce confusion regarding communication. At the end of this newsletter is the contact page for those requesting technical assistance. Note that at this time we do not have any changes to the contact page but wording will change from Region to District in the next newsletter.



Forest health staff zones shown in color with the districts outlined in dark lines.



And remember: Don't You Be a Drag! Leave those invasive seeds there!

SOR Forest Health Assistance
Wisconsin DNR, Forest Health Protection Unit
September 2011 to September 2012

Contacts for DNR staff, municipal foresters, and forestry cooperators

For general forest health and municipal level urban forest health issues

Mark Guthmiller (SOR region: SCR & SER combined) 608-275-3223

For gypsy moth

Mark Guthmiller (SCR Team area) 608-275-3223

Bill McNee (SER Team area) 920-662-5430

Andrea Diss-Torrance (Statewide issues) 608-264-9247

For emerald ash borer

Mark Guthmiller (SCR Team area) 608-275-3223

Bill McNee (SER Team area) 920-662-5430

For beech bark disease/beech scale

Mark Guthmiller (SCR Team areas) 608-275-3223

Bill McNee (SER Team area) 920-662-5430

For invasive plants

Tom Boos (Statewide issues) 608-266-9276

Direct public inquiries regarding yard tree concerns to UW county or state extension offices:

UW Extension <http://www.uwex.edu/ces/cty/>

or

Emerald ash borer hotline 1-800-462-2803

Emerald ash borer e-mail DATCPEmeraldAshBorer@wi.gov

Gypsy moth hotline 1-800-642-MOTH

Additional Program Web-based Resources:

Forest Health web site: <http://dnr.wi.gov> Keyword: forest health

Gypsy Moth web site: <http://gypsymoth.wi.gov/>

Emerald ash borer web site: <http://dnr.wi.gov/topic/ForestHealth/EmeraldAshBorer.html>

Emerald ash borer cooperative state web site: <http://emeraldashborer.wi.gov/>

Note: Southern Region is composed of both SCR and SER Team Counties

SCR Team Counties: Columbia, Dane, Dodge, Grant, Green, Iowa, Jefferson, Lafayette, Richland, Rock and Sauk

SER Team Counties: Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Walworth, Washington, and Waukesha