# Wisconsin Urban & Community Forests

A Quarterly Newsletter of the Wisconsin Department of Natural Resources, Forestry Division

## Wisconsin Communities Respond to Emerald Ash Borer

*by Jen Statz, EAB Program Coordinator*
*Department of Agriculture, Trade and Consumer Protection*

Emerald ash borer has come to Wisconsin and a majority of the articles in this issue of *Wisconsin Urban & Community Forests* relate to how Wisconsin communities are preparing for this insect.

As resource managers, we are aware of the adverse environmental, aesthetic and economic impacts of this invasive species. Now is the time to reach out in a spirit of cooperation and partnership. By working together at the local, state and federal level we can accomplish great things for all of our forestry programs in Wisconsin.

EAB is the ultimate catalyst for positive change in urban forest management. Budget needs for municipal forestry and EAB management are front and center for the first time in many communities. Plans for current management as well as long-term management are being formulated. Most importantly these plans are being discussed and approved. Disposal of ash tree debris—a costly and daunting repercussion of this infestation—is being placed in a new light by taking a value-added approach. How can we best use this material? How can we avoid wasting a valuable timber resource? Creative ideas are being developed at all levels. Ash wood has a value to many people in many forms, all the way from mulch to furniture making to fuel for wood-fired power plants.

Through public outreach and education municipalities will be able to promote the replanting of removed ash trees with a wide variety of tree species. This will

*Continued on page 12*


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### Inside this issue:


*Community Profile: City of Neenah* ..... 2
*Emerald Ash Borer Update* ..... 3
*West Bend & Cedarburg Prepare for EAB* ..... 4
*Milwaukee & Glacierland Prepare for EAB* ..... 5
*Tree Profile: Lacebark pine* ..... 6
*What Damaged This Tree?* ..... 7
*Urban Tree Health Matters* ..... 8
*Coming Events* ..... 8
*Urban Forest Insect Pests: Horned oak gall* ..... 9
*Sparta Prepares for EAB* ..... 10
*Dane County, Stevens Point & Brown Deer Prepare for EAB* ..... 11
*LEAF* ..... 13
*Idea Exchange* ..... 14
*UF Resources: Emerald Ash Borer* ... 15
*DNR UF Contacts* ..... 16


### *Go Green and Help Us Save $$$$*

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To remain on our urban forestry mailing list. . .

**Thanks to all who have responded!**
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❒ I would like to "Go Green" and receive the newsletter electronically. My e-mail address is:

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P.O. Box 7921, Madison, WI 53707-7921

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Name _____

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**Community Profile:**

Tree City USA: 24 years

Miles of Streets: 129.35

Acres of Parks: 370

Municipal Cemetery: 1

**Program Profile:**

Staff:

- superintendent of parks/city forester
- certified arborist
- park/cemetery crews
- superintendent of streets
- street crews

Equipment:

- 2 aerial lift trucks
- 4 chippers
- 1 stump grinder
- 2 water tanks

2008 Forestry Budget: $188,180

# Community Profile:

## City of Neenah

*by Trevor Fink, Superintendent of Parks/City Forester, City of Neenah*

*Photo: Trevor Fink, City of Neenah*

*Neenah's Shattuck Park*

Neenah is a community of 25,000 people nestled along the shores of Lake Winnebago in the heart of Wisconsin's Fox Cities. Neenah began in 1835 as an industrial and agricultural mission. Incorporated in 1873, a good deal of Neenah's history runs through the Fox River, which played an integral role in the arrival of early settlers and in the city's development. Neenah's role in Wisconsin's paper industry began to take shape in 1872 with the establishment of Kimberly Clark Corporation. Many other paper mills and paper related businesses soon followed suit. These and other successful industries helped to shape Neenah's character.

The tremendous success of paper mills and other companies produced a social structure dominated by some of the most influential families in the Fox River Valley and the state. Many of Neenah's parks and public properties are the direct result of these families. Their community activism and financial resources helped provide the foresight in acquiring and developing lands for public recreational purposes.

Neenah's 8000 public trees (excluding natural wooded areas) are co-managed by the parks & recreation and public works departments. Pruning and removal operations for terrace trees are performed by the public works department. The parks & recreation department performs all maintenance operations on park and cemetery trees, maintains the tree inventory, assesses hazards, inspects for and manages disease and insect infestations, and plans and oversees all planting operations throughout the city.

Neenah has had the honor of being designated a Tree City USA for the past 24 years. This designation gives our community a great deal of pride and shows that Neenah is dedicated to the preservation and planting of trees. This commitment to urban forestry, as is the case with many communities in Wisconsin, began with the onset of Dutch elm disease. Around this time, the parks & recreation commission established a program called Trees for the Living to assist in the replanting and beautification of city parks. The program accepts donations used to plant trees in the city's many parks in honor of a loved one. Trees for the Living not only helped the city replace park trees lost to DED, but its success continues to this day with over 250 trees planted.

In 1994, the City of Neenah made a huge advancement in managing their urban forest. That year the city received their first Urban Forestry Grant which they used to conduct a street tree inventory. This led to the development of Neenah's Tree Management Plan in 1998, also funded through an Urban Forestry Grant. This management plan has been instrumental in pro-

*Continued on page 12*

**Wisconsin Urban & Community Forests**

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Articles, news items, photos and ideas are welcome.

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This newsletter is available in alternative format upon request and can also be downloaded in PDF format from our Web site: http://dnr.wi.gov/forestry/UF/

For breaking UF news, anecdotes, announcements and networking opportunities, sign up for The Urban Forestry Insider, DNR's twice-monthly e-newsletter. Archives are at http://dnr.wi.gov/forestry/UF/resources/InsiderArchive.html

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# Emerald Ash Borer in Wisconsin—Update

*by Linda Williams, Forest Health Specialist*
*and Bill McNee, Gypsy Moth Suppression Coordinator*
*DNR Northeast Region*

**New infestation—**On April 7, state agencies announced a third emerald ash borer infestation, in Vernon County. EAB was discovered in Victory, a small community along the banks of the Mississippi River, about 20 miles south of La Crosse. State officials were made aware of the infestation by an observant property owner. One of the first steps in responding to the infestation will be to quarantine movement of hardwood firewood, ash nursery stock, ash timber or any other article that could spread EAB out of the infested area. Federal officials are expected to approve Wisconsin's quarantine request for Vernon and Crawford counties within days. Following placement of the quarantine there will be a thorough survey of the area to determine the size of the infestation. Colleagues in Iowa and Minnesota are also considering survey options in their respective states. The news release can be found at www.datcp.state.wi.us/press_release/result.jsp?prid=2296.

**Delimitation in SE Wisconsin—**The Wisconsin Department of Agriculture, Trade and Consumer Protection has released its findings regarding the extent of the EAB infestation in the Newburg area. View the news release at www.datcp.state.wi.us/press_release/result.jsp?prid=2289. The area currently known to be infested is approximately 5000 acres in size and could contain as many as 50,000 ash trees. EAB is clearly here to stay. Newburg's EAB detection map (below right) shows stars where groups of infested trees are located. In the map (below center) you can see a 12-mile radius around Newburg with the infested area shown in the center (maps from DATCP).

**EAB funding—**Illinois Senator Dick Durbin's office says that Congress has approved $34.5 million for the fight against EAB. Durbin's office says that the money will be distributed through the US Department of Agriculture as a competitive grant program. More information is likely to follow. A news story can be read at www.msnbc.msn.com/id/29644977/.

**Newburg-area infestation aged—**EAB researcher Dr. Nate Siegert from Michigan State University collected tree cores from numerous ash trees in the infested area in and around Newburg to determine when the infestation started. After analyzing the samples using dendrochronology, Dr. Siegert reported that the infestation was present in Wisconsin by 2004. We have been unable to determine how the infestation first arrived in the area.

**Response recommendations for Newburg-area infestation—**A document outlining the response recommendations for the EAB infestation in the Newburg area is now available online at www.emeraldashborer.wi.gov/articleassets/ResponserecommendationsMar09JCC.pdf. The document includes recommendations for homeowners, landowners, communities and businesses on how they can help with prevention, early detection, and control and containment in the infested area. It also gives a summary of the local survey results and the status of ash in the area and lists implications of this information.

**Who to report EAB to—**If you suspect that you have found EAB please call the hotline at 800-462-2803. Reports and/or digital photos of suspicious insects/trees can also be e-mailed to eab@datcp.state.wi.us. For more information on EAB, visit the state's website, www.emeraldashborer.wi.gov. For compliance agreements and quarantine issues contact Bob Dahl at Robert.Dahl@wi.gov.

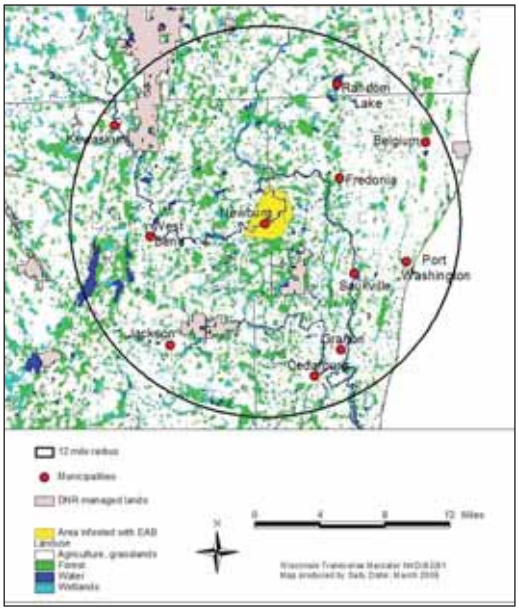
**Redheaded ash borer—**The photo in the margin shows one of our native insects that attacks ash. Redheaded ash borer is a longhorned beetle that lays its eggs on ash. The larvae bore under the bark as well as deeply into the wood of the tree. This particular insect was discovered while splitting firewood. You can see that this larva, with its round plump body and larger head, looks very different from an EAB larva (below) which is flattened and the segments easier to see.

Photo: Dave Cappaert, MSU

*EAB larvae*

Photo: Dale Behmke

*Redheaded ash borer larvae*



Credit: DATCP

*Newburg infested area*

*View maps and photos in color by accessing the newsletter online at:* http://dnr.wi.gov/forestry/UF/resources/ufnwsltr.htm

# Wisconsin Communities Prepare for EAB

## City of West Bend EAB Response

*by Mike Jentsch, Park and Forestry Superintendent*

Our response to emerald ash borer unofficially started when it was first identified in Michigan. Continued education of staff and monitoring of the situation since 2002 has allowed us to formulate ideas and avenues to communicate this situation to city staff, elected officials and our residents. Prior to the Newburg infestation, staff provided several EAB informational memos to elected officials and local media sources. We updated our approved street tree list which removed all ash varieties. Our former city tree was an ash. In 2007 we had all 5th grade students in West Bend vote on a new city tree. Not only did this provide an educational opportunity for the 5th graders, but also provided a great approach to continue the awareness of EAB. In May of 2008 our city participated in EAB Awareness Week. This involved information to local media, EAB signs and a formal proclamation that May 18–24 was EAB Awareness Week.

Since the Newburg infestation, which is within five miles of our easternmost border, city staff have begun making firm decisions towards the response to EAB. Staff have reviewed our street tree inventory, conducted an ash inventory on all publicly owned properties, reviewed staffing levels and equipment requirements, reviewed chemical treatment for size and variety of trees, examined in-house treatments vs. contractual costs, compared removal costs in-house to contractual costs, and reviewed tree establishment programs and wood utilization options. Most importantly we have communicated the pending impact of EAB to elected officials and local media.

City of West Bend
Park, Recreation & Forestry Department

Funding will be the determining factor in formulating a responsible action plan. Currently, we are focusing our funding on planting and not treatments. We will not be able to save many, if any, ash trees. We are planning on restructuring annual in-house forestry operations so we can efficiently respond to this situation and absorb as much as we can in-house. Preparation of a tree removal contract has started, along with a wood utilization plan. To gain outside assistance, we applied for a DNR Urban Forestry Grant to update our master plan and assist with our EAB plan. The city of West Bend will lose 25% of its street trees to EAB and funding will be the determining factor for the future of our urban forest.

## City of Cedarburg EAB Update

*by Kevin Westphal, City Forester*

*Photo: Kevin Westphal, City of Cedarburg*

*Fall 2008 treatment*

On August 4, 2008, WDATCP announced the discovery of an emerald ash borer infestation in the village of Newburg, just nine miles from Cedarburg's city limits. It has been estimated that EAB has been in Newburg for at least 5 years. Considering that EAB adults have the potential to fly 6 miles or more per year, it is likely that EAB is already in Cedarburg, we just haven't found it yet.

This insect represents a severe and urgent threat to Cedarburg's urban forest, approximately 20 percent of which is ash. In 2005 Cedarburg conducted a computerized street tree inventory which has proven invaluable in our planning efforts. The inventory identified 1675 ash trees located along city streets. Information about these trees was used to calculate the cost of removal and replacement ($1.3 million), the cost of annual chemical treatment ($70,000) and the annual economic benefit of ash street trees ($155,000) using the i-Tree Calculator. GIS based maps were created showing the number, location and size class of ash per aldermanic district.

The information was presented to council by the city forester along with staff recommendations. Different management options/strategies were discussed. In particular, the success story of the Grosse Pointe Farms, Michigan, treatment program was a focal point. The general consensus of Council was they did not want to lose their ash trees. Losing them, they felt, would have a devastating effect on the city landscape—increasing energy costs, lowering property values and affecting tourism. In the end the mayor summed it up by saying, "We are going to be spending money on this problem whether we cut them all down or whether we treat them so we may as well try and save them."

On September 8, the common council appropriated $45,000 to start treating publicly owned ash trees beginning immediately. The fall treatment contract was awarded to First Choice Tree Care, Inc. of Mequon. All public ash trees 12" DBH and greater were treated with a basal soil injection of imidacloprid plus slow-release fertilizer. In all, 577 street trees and 47 park trees were treated.

The city has budgeted to perform a second chemical treatment in spring 2009, this time to include trees under 12" DBH.

## City of Milwaukee EAB Response

*by Ian Brown, Technical Services Supervisor*

The City of Milwaukee has spent the last few years preparing for life with emerald ash borer. As EAB has become an established pest in the region, Milwaukee Forestry has accepted that it is not "if" but "when" it is confirmed within the city boundary. Milwaukee has over 200,000 street trees and approximately 36,000 ash. There are a number of systems Milwaukee will use to monitor and maintain the city's ash resource, including a comprehensive street tree inventory, chemical treatments and cutting-edge satellite imagery.

Data for the citywide inventory have been collected over the past three summers using teams of seasonal interns. Completion of the inventory is anticipated at the conclusion of August 2009. Milwaukee uses StrataPoint, a GIS-based system that spatially identifies individual trees to property parcels. Within this system, a number of data are collected including species, size, condition, property and site information. These data will be used to identify candidate trees for chemical trunk injections.

Milwaukee is moving forward with plans to chemically treat all city-owned ash in an effort to moderate/mitigate the impact of EAB. Injections are scheduled to begin during the growing season of 2009. In previous summers, time studies were conducted to compare efficiencies between a number of chemical delivery systems. The studies determined that pairing a hydraulic injection system from Arbor-Jet with the chemical Tree-äge™ (active ingredient emamectin benzoate) was the most efficient and effective option available. Plans are to inject half the trees on alternating years with enough chemical to provide two years of control. Injections are expensive and take time and personnel to conduct. It is still far less costly than removing and replanting all ash trees within a few years. The injection schedule is designed to prolong removals from a 2- to 3-year time frame out to 10 to 12 years, and possibly indefinitely. During this time, the urban tree canopy and the benefits (economic, sociological/psychological, environmental) it provides will remain intact.

Photo: City of Milwaukee

*City of Milwaukee staff using Arbor-Jet injection system.*

The final piece to the EAB puzzle is identifying hotspots of ash on private property. With the city having ultimate responsibility to manage hazardous trees, it has become a priority to identify neighborhoods or areas with significant ash components. Milwaukee contracted with NCDC Imaging to use hyperspectral image analysis to identify ash within the city. This technology uses the unique spectral signature of ash to identify areas of interest with relatively high populations of ash. These areas will be targeted for public outreach and information related to EAB, in addition to having more frequent hazard tree surveys in the interest of public safety. Product delivery for this project is scheduled for the spring of 2009.

All of these projects take time. It is the hope of Milwaukee Forestry that by taking a proactive approach to managing emerald ash borer before it reaches outbreak populations within the city, the pest can be effectively managed without catastrophic canopy loss.

## Glacierland RC&D Accelerates EAB Marketing in Northeast WI

*by Greg Hines, Coordinator*

Now that the emerald ash borer has burrowed its way into Wisconsin, the Glacierland RC&D has switched from educating the public about what this invasive species is to developing markets that can utilize this infested wood.

EAB was first discovered last summer just east of West Bend in a community called Newburg. For those naïve about what EAB is, in short, EAB will slowly kill all ash trees with which it comes in contact. It is possible that EAB has been in the Washington County area for six or more years. Because this invasive pest is relatively new to Wisconsin, Glacierland RC&D has partnered with the DNR and other organizations to educate the public about this species and what they can expect in the next few years.

For instance, in 2007, Glacierland RC&D received an Urban Forestry Grant which they used to educate communities and other organizations across northeast Wisconsin about EAB. Over 30 presentations were made by Glacierland RC&D staff to various county boards, land conservation committees, organizations and interest groups. Jessica Simons, an EAB expert from SE Michigan RC&D (ground zero where EAB was first discovered in the US), presented at two workshops. Also, she was the keynote speaker at a

GLACIERLAND RESOURCE CONSERVATION AND DEVELOPMENT, INC.
"Making Things Happen"

*Continued on page 10*

6

## Community Tree Profile:

# Lacebark pine (Pinus bungeana)

*by Laura G. Jull, Associate Professor & Extension Specialist*
*Dept. of Horticulture, University of Wisconsin–Madison*

Photo: Edward Hasselkus, Professor Emeritus, UW–Madison

*Pinus bungeana*

**Native To:** Northern China, commonly planted near Buddhist temples in China

**Mature Height:** 20–45' or more, particularly in its native China

**Spread:** 20–35'

**Form:** Pyramidal and shrubby when young, becoming oval to rounded and flat-topped with age. Form opens up with age and is often multi-stemmed, revealing the showy bark.

**Growth Rate:** Slow

**Foliage:** Evergreen leaves are needle-like, in fascicles of three, sharply pointed, stiff and rigid, 2–4" long, dark green with stomatal lines on both sides of the needle. Needles have a raised midrib and minute teeth along the margins. Needles remain 3–4 years before they drop from the tree. Needles tend to be spaced widely apart and concentrated toward the branch tips with the rest of the branch bare.

Photo: Laura Jull, UW–Madison

*Exfoliating bark*

**Buds and Stems:** Buds are pointed, ovoid, 1/3" long or longer, golden-brown, borne only at the ends of the branches. The buds resemble sugar-coated beer nuts. Twigs are light grayish green, glabrous and sometimes glossy.

**Fall Color:** None, evergreen species

**Cones:** Monoecious (separate male and female strobili borne on one tree); male strobili are orangish brown and clustered at the tips of the lower branches. Female cones are terminal, purplish brown at first in early spring, borne higher up in the tree and hang downward. Mature cones are evident in late summer to winter and are light yellowish brown, ovoid, 2–3" long, short-stalked, produced terminally and axillary either singly or in groups of two. Cones have a reflexed triangular prickle on the ends of the cone scales (umbo). Cones fall from the tree after the second year with two seeds per cone scale. Few cones are produced on a single tree.

**Bark:** Very showy, exfoliating into irregular, puzzle-piece-like patches similar to a sycamore but the color is a combination of light green, white, cream, gray, purple and brown. Bark is particularly showy when wet or when lit underneath from supplemental lighting. Bark characteristics do not become significant until the tree is around 10–15 years old.

**Site Requirements:** Requires a loose, moist, well-drained soil, full sun and is pH adaptable. Lacebark pine is intolerant to heavy clay, poorly drained soils, consistently wet soil, drought, air pollution and road salt.

**Hardiness Zone:** 5a

**Insect & Disease Problems:** Cankers, twig blight, bark beetles, but none serious and is usually pest free, though it can succumb to root rot in poorly drained soils. Needles subject to winterburn in exposed locations. Thin bark is easily damaged by equipment. Limbs are subject to breakage from heavy snow or ice loads due to possible included bark formation. Needs protection as it is marginally hardy to Wisconsin. Lacebark pine is sensitive to juglone and should not be planted near any *Juglans* species (walnut or butternut).

**Suggested Applications:** Lacebark pine makes a beautiful specimen tree in areas where the soil and moisture are conducive to its growth and survival. This pine is one of the most beautiful evergreens due to its outstanding mottled bark characteristics, providing year-round interest in the landscape. The form is open, allowing the bark to be seen easily. Removal of some of the lower limbs can increase the bark display. Lacebark pine is a small- to medium-sized tree that can be used as a specimen, in raised planters and Japanese gardens, or near patios or larger entranceways that allow sufficient space for it to grow. Lacebark pine is often used for bonsai.

**Limitations:** Lacebark pine is not suited for some urban landscapes due to its intolerance to poorly drained, heavy clay soils, air pollution and road salt. It is only cold hardy to zone 5a and is generally an expensive tree and slow to produce in a nursery.

**Comments:** Lacebark pine is a beautiful, evergreen, non-invasive tree for landscaping. It is a low-maintenance tree when cultural requirements are met. The species is named after Dr. Alexander von Bunge, a Russian botanist, who discovered it in a temple garden near Peking, China, in 1831.

**Common Cultivars, Selections or Related Species:** There are only a couple of cultivars and they are not commonly available except at specialty nurseries. The straight species is more easily obtained at some nurseries.

'Compacta': slower growing than the species, dense form, darker green needles, 20' tall

'Rowe Arboretum': more compact form, uniform habit, very showy bark, selected at the Rowe Arboretum in Ohio

*Continued on page 7*

# Announcing—New Urban Forestry Training Course!

*by Tracy Salisbury,*
*Urban Forestry Coordinator*
*DNR Northeast Region*

The Community Tree Management Institute (CTMI) is a new, advanced training course designed for Wisconsin municipal employees with tree related responsibilities but without a strong background in urban forestry.

CTMI is a continuing education course specifically tailored to the needs of municipal parks, planning or public works employees who have tree related responsibilities. This training is appropriate for those who manage or contract for forestry work, review planting plans, issue permits or inspect trees. The course focuses heavily on the management side, rather than the technical side, of municipal forestry programs.

CTMI is one of the most innovative and cost-effective forestry training programs in the Upper Midwest. Any local government employee seeking to enhance their management skills and improve the quality of life in their community, keep their public safe and reap economic, environmental and social benefits that community trees provide should attend CTMI!

***Dates***
There are three CTMI sessions scheduled for 2009–2010. To be accepted into the program, participants must be able to attend **all** three sessions.

***Session I***
Management and Administration
November 10–11, 2009

***Session II***
Technical and Policy Issues
February 23–24, 2010

***Session III***
Field Operations—Tour
June 22, 2010
Stevens Point, WI

***Program Cost:***

$250 If registered by June 30, 2009

$325 If registered after June 30, 2009

Fees include all course materials, meal and lodging costs for sessions I & II and meal costs for session III. Participants are responsible for their own travel costs.
Please contact your Regional Urban Forestry Coordinator (see back cover) for more information.
CTMI is sponsored by the Wisconsin Department of Natural Resources, in cooperation with the UW–Extension and UW–Stevens Point College of Natural Resources.

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*Community Tree Profile, continued from page 6*

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# What Damaged This Tree?

*Photo: Linda Williams, WDNR*

***Turn to page 15 to find out…***

*Do you have pictures of tree damage others ought to know about? Send them to Kim Sebastian (address on page 16) and we'll print them here!*

## Urban Tree Health Matters:

# Notes from the Plant Disease Diagnostics Clinic—A Look Back at 2008

*by Brian D. Hudelson, Director*
*UW–Madison Plant Disease Diagnostics Clinic*

As I think back over the 2008 growing season, I have to say that the first word that came to my mind was "boxwood," as I recalled an inordinate number of boxwood samples arriving in the Plant Disease Diagnostics Clinic this past year. At first I thought this might be a misperception on my part, as I have to admit that as I age, my memory is less and less "agile" than it used to be. However, checking back through my records, I found that I have been seeing an increase in boxwood submissions over the past couple of years. In 2006 the PDDC received two boxwood samples; in 2007, eight boxwood samples; and in 2008, a whopping 16 boxwood samples. Sixteen samples represents approximately one percent of the samples submitted to the PDDC in 2008 and, in my mind, a huge number of samples of a single species submitted in a given year.

The underlying causes of the problems exhibited by the 16 shrubs that were submitted varied, although the primary symptom of all of the sampled shrubs was the same—a dieback of the branches. Early in the season, the primary cause of this dieback appeared to be what I call "winterkill." The characteristic of this abiotic disorder is that the very tips of the branches brown or (more often) bleach and these symptoms develop over the winter or very early in the spring. I most commonly attribute this disorder to lack of cold hardiness of particular boxwood specimens or possible winter dehydration issues. Using boxwoods in the 'Green' series (e.g., 'Green Mountain,' 'Green Gem,' 'Green Mound,' 'Green Velvet') can help prevent problems with hardiness. These varieties were bred in Manitoba, Canada, and are hardy to zone 4. In addition, proper watering, especially into the fall, can help prevent boxwoods from dehydrating over the winter. In particular I recommend that established shrubs receive about one inch of water per week up until the point when the ground freezes or the first snow falls. If natural rains are not sufficient, then I suggest applying water at the drip line of shrubs (or more extensively if possible) using a soaker or a drip hose.

Adding a bit of confusion to the mix of diagnosing boxwood dieback problems is the ubiquitous presence of the fungus *Volutella* in dead boxwood branches. I tend to see the characteristic orangish/pinkish growth and sporulation of this fungus on dead boxwood branch tips after they have been incubated in a moist chamber in my clinic. However, growth of the fungus might also be observed in the field if conditions have been particularly wet. *Volutella* (particularly *Volutella buxi*) is a documented pathogen of boxwood and can girdle branches and lead to branch tip dieback. However, I tend to think of this pathogen as a somewhat opportunistic organism. I often find *Volutella* early in the growing season on branch tips that have most likely died from cold injury, but by mid-season, well beyond the point when I would expect cold injury to be an issue, I continue to recover *Volutella* from dead and dying branches. In these later-season situations I consider *Volutella* the potential cause of the dieback. Unfortunately, about the only way to manage *Volutella* when it becomes a problem is to prune out the dead branch tips. I suggest pruning four to six inches below the dead/dying area on each branch and disposing of the branches by burning or burying them. Pruning tools should be disinfected between cuts by dipping them in 10% bleach, or 70% alcohol (spray disinfectants that are at least 70% alcohol work well). This will help prevent accidental movement of pathogens (including *Volutella*) during the pruning process.

Finally, the third (and most serious) problem that I observed on boxwood in 2008 was verticillium wilt. This disease tends to cause more substantial dieback of boxwood shrubs than either winterkill or *Volutella*, and typically eventually leads to shrub death. While I do not typically think of boxwood as unusually susceptible to verticillium, I did have two boxwood

*Continued on page 9*

## Coming Events:

**Third Thursday of each month, noon–1:00pm** – ***Tree Talk: Live Online Brown Bag Lunch Series***. Visit http://actrees.org/site/stories/act_webcast_series.php.

**April 25–29, 2009**—***American Planning Association National Planning Conference***, Minneapolis, Minnesota. Visit www.planning.org/nationalconference/.

**May 6–8, 2009**—***American Public Works Association Wisconsin Chapter Spring Conference***, West Bend, WI. Visit http://wisconsin.apwa.net/.

**May 14–15, 2009—*Green Infrastructure Summit and Urban Trees Forum***, Washington, D.C. Visit: http://actrees.org/site/index.php.

## *Urban Forest Insect Pests:*

# *Horned Oak Gall*

*by Linda Willliams, Forest Health Specialist*
*DNR Northeast Region*

The horned oak gall wasp, *Callirhytis cornigera*, is a native insect that causes large round galls to form on the twigs of oaks. Although galls can cause branch dieback, a few galls on a tree shouldn't affect the health of the tree. If gall numbers are high enough you might notice loss of growth or tree mortality.

The life cycle of the horned oak gall wasp is long and complex. It begins when adult wasps lay their eggs on oak leaves in the spring of the year. These eggs hatch and form small leaf galls. This portion of the life cycle takes about three months to complete and adults will emerge and lay eggs on an oak twig, initiating the woody gall portion of the life cycle. When these eggs hatch and larvae begin feeding on the twig they secrete growth-regulating chemicals which cause the twig to produce the gall. The larvae are confined within the gall and feed only on gall tissue during their development. Larval development within the woody galls takes nearly three years, so a tree will have galls of varying age and size.

Horned oak galls are named for the horns that emerge from each larval chamber during the second year of development. The adult wasp chews a hole in the horn to exit the gall in the spring of the year. Those female gall wasps emerging from the horns will lay their eggs on oak leaves, thus completing the life cycle by initiating the leaf-gall portion of the life cycle. The horns usually break off after the wasps have emerged. Galls are not re-used. Older galls without their horns often resemble the galls of gouty oak gall, also caused by a Cynipid wasp, or Phomopsis galls.

Photo: Linda Williams, WDNR

*Horns protrude from each larval chamber of the horned oak gall.*

Once a gall begins to develop, it is almost impossible to stop or reverse its development. Natural enemies control the populations quite well so control is not usually necessary. When control is needed it's best to manually prune out the galls. If aesthetics are important, pruning the galls out of the tree is your best choice since galls take a couple years to develop and can remain on the tree for many years after the adults have emerged. Pesticide use is not usually practical for controlling horned oak gall since it is difficult to time properly to the emergence of the adults.

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***Urban Tree Health Matters,*** *continued from page 8*

samples where I confirmed the disease in 2008. Once again, *Volutella* is a confounding factor in diagnosing this disease. When I attempt to culture *Verticillium* (the fungus that causes verticillium wilt) from boxwood branches, *Volutella* commonly also grows from the tissue at the same time. It grows so rapidly that it tends to outgrow and mask the presence of *Verticillium*. I currently use a growth medium that is more selective for *Verticillium* when I process boxwood samples in an attempt to get around this problem. If verticillium wilt is the cause of the dieback in a particular boxwood shrub, options for management are limited. Infected boxwoods typically eventually die and should be replaced with non-*Verticillium*-susceptible shrubs. Given that boxwoods are typically grown as hedge shrubs, such replacements often reduce the aesthetic appeal of boxwood plantings. Unfortunately, replanting boxwoods in the same site will likely yield another dead shrub, as *Verticillium* is a soil-borne pathogen and replacement shrubs can easily be reinfected.

For more information on the Plant Disease Diagnostics Clinic and its services, as well as information on a variety of plant diseases (including verticillium wilt), check out the PDDC website at http://pddc.wisc.edu.

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**May 20, 2009, 10:00–11:00am**—***i-Tree ver 3.0 Update webcast,*** Urban Natural Resources Institute. Visit www.unri.org/webcasts/upcoming/.

**July 24–29, 2009**—***International Society of Arboriculture Annual Conference and Trade Show "Sailing Into the Future,"*** Providence, Rhode Island. Visit www.isa-arbor.com/calendar/Calendar.aspx.

**November 3–6, 2009**—***Wisconsin Parks and Recreation Association Annual Conference and Trade Show***, Kalahari Resort and Convention Center, Wisconsin Dells, Wisconsin. Visit www.wpraweb.org/.

**Nov 5-7, 2009**—***TCIA Expo***, Baltimore, Maryland, Tree Care Industry Association. Visit www.treecareindustry.org/index.aspx.

*If there is a meeting, conference, workshop or other event you would like listed here, please contact Cindy Casey. Please see back cover for contact information.*

***Glacierland RC&D,*** *continued from page 5*

separate statewide conference in May. The workshops were hosted by Brown and Fond du Lac counties and were attended by 50 people at each of the sessions.

In 2008, in conjunction with the Town & Country RC&D, Glacierland RC&D began identifying markets. Efforts are underway to inform the public about what is available to sell their infested ash trees. Developing markets help offset the costs of removing infested trees. EAB has already killed 40 million trees in other states. In Wisconsin alone, there are over 765 million ash trees in rural areas and approximately 5.2 million in municipalities. It costs approximately $350 to remove an 18-inch-diameter tree, so naturally one should be concerned.

Presently, a minimum of five vendors who want the infested ash trees have been identified. These vendors plan to use the wood in several different ways: 1) firewood, 2) pelletizing or briquettes, 3) flooring and lumber, 4) gasification (burning the wood resource to produce steam and electricity and selling it), and 5) selling it abroad as a source of biofuel.

In addition, a workshop is scheduled for August 15, 2009, titled **Lite on the Land—A Forestry Field Day**, which is being co-sponsored by the Glacierland RC&D. It will highlight state-of-the-art forest equipment and technology on tree removal, harvesting and safety. Other subjects include invasive species, wildlife management and replanting. Another similar workshop is being planned for 2010. To learn more about these workshops, or to contact Glacierland RC&D, please go to Glacierland RC&D's Web page at www.glacierlandrcd.org/.

## *City of Sparta & EAB Readiness Planning*

*by Jordan Skiff,*
*Director of Public Works*

The summer of 2008 brought the news that the Wisconsin forestry community had feared for years—the emerald ash borer had been found in Wisconsin. One of the communities that has taken a proactive approach to the spread of the borer is the City of Sparta, located near La Crosse in western Wisconsin.

At a population of just under 10,000, Sparta faced several obstacles in dealing with the EAB threat. We don't have a full-time forester, forestry staff or designated forestry board. City maintenance staff has been cut by 20 percent in the past seven years. The forestry budget is almost non-existent, only $5000 per year for tree planting and $8000 per year for brush grinding. Worst of all, Sparta responded to the Dutch elm disease problem by replacing the elms almost exclusively with ash trees. An estimated 50 percent of our publicly owned trees are ash.

On the positive side, Sparta received an Urban Forestry Grant from the DNR in 2008, part of which was intended to complete an ash tree inventory and EAB response plan. The plan was completed and presented to the city's elected officials in December 2008. A public information meeting for the public was also held.

Fortunately, Sparta has very few naturally growing ash trees, so forested areas are not threatened. The city also boasts a governing council that demonstrates a commendable balance of common sense and progressive thinking. The progressiveness led to the commissioning of the EAB study, and a desire to take action now to be better prepared when the borer reaches the area. The commonsense approach means that Sparta will not spend great amounts of money and do irreparable harm to the tree population in preparing for EAB. After all, we can always hope that a less expensive treatment, natural predator or other cure could eliminate the threat.

But the steps that we plan to take in advance will benefit our urban forest, whether the borer arrives sooner or later. We plan to provide flyers and announcements about EAB to the public, and will hold public meetings to inform them of the threat and our planned response. We plan to remove about 360 public trees that are unhealthy or interfere with power lines—trees that can be replaced with more appropriate trees and diverse species. A marshalling yard will be set up to handle several hundred trees if EAB arrives, but will be useful for annual tree operations anyway. We plan to buy some safety and tree removal equipment to prepare for EAB, but only in areas where equipment upgrades are already needed. We are pursuing partnerships with other communities, companies or residents to use wood waste, buy equipment together or receive joint training. Such partnerships will be beneficial regardless of the EAB threat.

So Sparta is trying to find balance, not wanting to panic, but also wanting to avoid burying our heads in the sand. We hope that by following these common-sense steps in anticipation of the emerald ash borer, we will be able to better deal with the effects when it arrives.

*Photo: City of Sparta*

*Ash along Sparta street.*

## Dane County Prepares for EAB

*by Anna Willow, Dane County Parks Invasive Species Planner*

With the emerald ash borer already present in southeastern Wisconsin, Dane County is taking steps to prepare for the invasive beetle's arrival. Thanks to an Urban Forestry Grant from the Wisconsin Department of Natural Resources, Dane County began developing its EAB response plan in January of 2008. With proactive preparation as its guiding philosophy, the county plan works to reduce the environmental impacts of the EAB within Dane County, mitigate the potential economic and social costs associated with emerald ash borer control efforts and damage, and find ways to put wood formerly considered "waste" to positive and profitable use.

The plan offers a brief historical background of EAB in North America and provides an illustrated guide to the information and education necessary for proactive management and local monitoring to take place. Once EAB reaches south central Wisconsin, Dane County residents, local officials and municipalities can look to the plan for a clear outline of options for EAB control and containment.

Since an increased volume of waste wood will be among EAB's most significant consequences, the plan also outlines various options for dealing with waste wood—from infestations as well as potential storm events—in an economically and environmentally sound manner. Dane County hopes to move into the next phase of wood utilization planning in the near future.

During the EAB planning process, the need for a more comprehensive examination of wood utilization options and the need for additional research exploring value-added uses for wood residue and alternative energies became apparent. Dane County plans to further investigate the feasibility and economics of wood utilization opportunities for wood products that have formerly been considered "waste" through a series of experimental demonstration projects.

The plan will be viewable soon at **www.co.dane.wi.us/lwrd/parks/**. Dane County welcomes comments on the plan from residents, municipalities and public officials.

*Photo: Linda Williams, WDNR*

*EAB adult beetle*

## Stevens Point Proactive about EAB

*by Todd Ernster, City of Stevens Point Forester*

Todd Ernster, the city forester in Stevens Point, has been concerned about the possible presence of EAB in the community for quite some time. Todd has acted upon this concern by keeping the city council and mayor aware of EAB through reports regarding training and particularly the field tours to Illinois in June of 2007 and the Newburg, Wisconsin, infestation in September of 2008. In both cases they learned how these areas are dealing with the infestations.

The forestry department also re-inventoried the city's ash tree population allowing Todd the ability to keep the city's park board up-to-date on the number, relative size, value and potential costs if future removals are called for. This information came into play when the city recently purchased a replacement chipper and Todd made sure it could accommodate the average street-sized ash tree, which is 14 inches in Stevens Point. This information is also helping determine future tree species that will be planted to replace the ash.

Todd has also connected with local tree retailers suggesting they avoid selling ash trees and has provided press releases to the newspaper explaining that, in the immediate future, residents should avoid planting ash. He has also provided homeowners with tree benefit information particular to Stevens Point which he gained through use of the STRATUM inventory data system. This has helped garner support for the forestry program as well as increase residents' awareness of not moving firewood and look towards how the city may have to deal with this considerable amount of wood waste should EAB arrive. Lastly the forestry department has decided that instead of pruning the questionably healthy ash trees and then re-evaluating future field operations, it will just remove these trees now, only leaving the highest-vigor trees to remain.

## Brown Deer EAB Readiness Replanting Program

*by Larry Neitzel,*
*Superintendent of Public Works/Village Forester*

In 2008 the villages of Bayside, Brown Deer, Fox Point, and the Schlitz Audubon Nature Center developed a North Shore EAB Readiness Plan (supported by a DNR Urban Forestry Grant) in preparation for an infestation in the area.

During 2008 the Brown Deer Village Board adopted a five-year plan to begin replacing public ash trees in the village and plant new trees in designated planting sites. The village's inventory showed that 31 percent (790) of the public trees were a form of ash. The program will bring the ash in the inventory down to a 12–15 percent range. The department of public works began reviewing the inventory for removals based upon structural condition, health, planting site appropriateness, lean, damage/possible damage to streets/walks/sewer/water, or not a specimen worth saving. The remaining ash trees will be in the best condition for survival and for possible future treatments against EAB. As you can see, size is not a factor in the removal criteria. Most trees to be removed will be in the 10"+ DBH range. The estimated total for the five-year program, not including department labor and equipment, is $65,600.

This program allows the village to spread costs over

*Continued on page 12*

***Emerald Ash Borer,*** *contined from page 1*

increase the health and vigor of our urban forests. It will also add diversity and beauty to our city streets and green spaces.

EAB will not be an easy problem to navigate. There are challenges every step of the way. By joining our collective resources and by pooling our thoughts and ideas we have the ability to turn a potential tragedy into one of our greatest urban forestry triumphs. Our state motto is FORWARD. We must move in that direction together to craft an EAB success story the State of Wisconsin will be proud of for years to come.

**Don't Move Firewood website**—The Don't Move Firewood website **www.dontmovefirewood.org** hosts some great educational (and amusing) EAB videos that show how easy it is to spread EAB on firewood. The newest video, *Bugnet,* takes a look at who killed the tree and you get to see a lineup of suspects. Again, it's an amusing way to make a point to not move firewood because of the bugs it can harbor. There is also a new "firewood calculator" on the left side of the home page that will help you determine how much money you save by buying firewood closer to where you use it. It gives you information on money wasted and excess $CO_2$ produced; check it out!

***City of Neenah,*** *continued from page 2*

viding a clear outline of how the city's urban forestry activities are managed and carried out. The inventory and management plan are vital tools in providing specific information to citizens and public officials about Neenah's urban forest and the resources needed to sustain it.

One of Neenah's biggest challenges was the June 11, 2001, storm that swept through the Fox Valley area. In all, over 130 public trees needed to be removed due to storm damage. Through the generosity of numerous donations to the city's Trees for the Living program, and with the assistance of another Urban Forestry Grant in 2002, Neenah was able to replace all trees lost from the storm. Since that time, forestry operations have increased their focus on preventative maintenance to help avoid the type of tremendous losses which were incurred from that storm.

In 2003, the city partnered with Future Neenah, Inc., a nonprofit civic development organization, to begin what was a huge step in revitalizing the downtown area. Due to environmental stresses and abuse, many of the existing downtown ash and linden trees were in very poor condition. With the assistance of an Urban Forestry Grant and private donations, Neenah was able to remove and replace these trees with species more suitable to the site. Large concrete curb planter boxes were built to protect the new trees and give them a larger growth area. This project has shown just how effective a private/public partnership can be at accomplishing community forestry goals. Since that project, cooperation between these two groups and other private entities has led to the reconstruction of Shattuck Park and to the construction of the Neenah Riverwalk. All of these projects have been instrumental in attracting business and creating jobs in downtown Neenah.

Looking ahead, one of our biggest challenges, as with most Wisconsin municipalities, is preserving our community forest infrastructure. Many times revenue caps, budget cuts and expenditure restraints cause officials and residents to overlook our urban forest and the vital role it plays in our infrastructure. Invasive species, storms and other tree health issues are a big threat to every community's urban forest. As we go forward, Neenah will continue building on the past successes we have experienced with private/public partnerships. Being creative and cooperative will give future generations the tools and resources they need to preserve, protect and grow Neenah's community forest.

***Brown Deer EAB Readiness Replanting Program,*** *continued from page 11*

a longer period of time, reduces problems of dealing with future dead/hazardous trees, provides opportunity to begin the replanting/recovery process with lower costs and faster establishment of the canopy, offers greater flexibility in organizing schedules and personnel, and facilitates more cost-effective utilization of ash wood. The cost to remove and dispose of an infested tree could be three to five times the cost for normal removal and disposal. This has to be weighed against the immediate impacts to the tree canopy, resident feelings on the removal of healthy trees and possible future research that may find an effective control to EAB. To combat the loss of tree canopy, the village will also be planting additional trees in identified open planting sites (300+ identified). New plantings will be of selected species so as not to exceed 12 percent of total inventory. Therefore, maples and locusts will not be planted, but resistant elms, oak, beech, catalpa, ginkgo, etc. are a sampling from the planting list.

# Urban Forests—Making the Forestry Connection for Urban Youth



*by Sarah Gilbert, Program Coordinator*
*LEAF—Learning, Experiences, & Activities in Forestry*

## Meaningful learning

The words, "When am I ever going to use this in real life?" are uttered in algebra classrooms across the country. A student who doesn't see the connection between the things they are asked to learn and their own lives will likely question the need to learn it at all. When asked to learn about a forest that is miles away, students may not understand their connection to it or its importance to them. An urban forest, on the other hand, is an up-close opportunity to make that meaningful connection for students who may have only seen pictures of forests far away.

It's human nature that the things we are most eager to learn are the things that are relevant to our lives. The urban forest just out your back door can be a wonderful teaching tool and relevant starting point to learn about all of our forests and other ecosystems.

## Making the connection

The LEAF program (Learning, Experiences, & Activities in Forestry) is making use of the subjects of urban forests and urban forestry to help K–12 students in Wisconsin connect to all forests. The *LEAF Urban Forest Lesson Guide* supplements existing educational materials for teachers. The guide covers a variety of subjects, but the main goals of the lessons are to:

- define the urban forest
- list the benefits of urban forests
- explain how and why we manage urban forests
- tell students how they can get involved

An important part of each lesson is a conclusion activity, "Beyond the Urban Forest." These activities ask students to reflect on what they just learned about a familiar place and use that knowledge to try to understand an unfamiliar place. For instance, in the 5- to 8-grade lesson about management, biodiversity and invasive species, students are asked to create a presentation about how the local invasive species they learned about could impact rural forests farther away.

## Going in reverse

If you're starting to think this guide is just for Milwaukee students, stop! Just as the skeptics in urban areas wonder what a forest miles away has to do with them, those who don't live in, or don't think they live in, urban areas may wonder why they should care about urban forests.

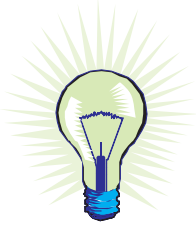
The "Beyond the Urban Forest" conclusion can easily be modified to become an introduction to the lesson. In less-urban schools, discussing the potentially more familiar rural forest first allows those students to start with what's relevant to them. Then they can move on to learning about the value of urban forests.

## Get the guide

- Do you know a K–12 teacher who could use this material? The *LEAF Urban Forest Lesson Guide* is online for free download. Its intended audience is K–12 teachers, but we encourage anyone who is invited into classrooms to use it. To get the guide, go to **www.uwsp.edu/cnr/leaf/Educators/lg_urban.aspx**.
- Is there a school in your area that would like a LEAF workshop? Our workshops can be a few hours long to a full 12-hour, for-credit course. Teachers learn forestry background and tips for using the lesson materials.
- Need suggestions for educational activities for your Arbor Day celebrations, or have suggestions to share? Please contact Sarah Gilbert at **Sarah.Gilbert@uwsp.edu** or 715-346-4924. For more information about LEAF, go to **www.uwsp.edu/cnr/leaf**.

*Student examines cicada on tree.*

*Photo: LEAF*



*Does your community or organization have an idea, project or information that may be beneficial to others? Please let your regional urban forestry coordinator know. We will print as many of these as we can. If you see ideas you like here, give the contact person a call. They may be able to help you in your urban forestry efforts.*

# The Idea Exchange…

*compiled by Olivia Witthun, Urban Forestry Assistant DNR Northeast Region*

## Donations for Tree Planting Linked to Water Bill

The City of Durham, North Carolina, gives its residents an opportunity with each water bill to donate to the community's Tree Planting Donation Program which helps fund the planting of public trees. To donate, residents have the option of rounding up their water bill to the nearest whole dollar, adding a specific donation amount to their bimonthly water bills or donating a lump sum. Small donations add up to a large amount for the planting of Durham's public trees. *Info:* www.ci.durham.nc.us/departments/general/forestry_donation.cfm *and* www.ci.durham.nc.us/departments/works/pdf/donation_form.pdf

## We Dig Your District—Involving Community Leaders

This partnership between Trees Forever and Alliant Energy not only helps to plant trees in each of the five Cedar Rapids, Iowa, districts, but it also gets community leaders involved. As newly elected council members enter office, they are often unfamiliar with the all the events and organizations they should be part of. We Dig Your District information and T-shirts are sent to each new council member informing them of the program and giving them the opportunity to nominate areas of their district to be planted with trees. Council members are invited to all the planting events in their district. Over the years, hundreds of volunteers, school children, companies and government leaders have taken part in the We Dig Your District planting events organized by Trees Forever and Alliant Energy. This fun event gets the new and returning council members out in their districts to interact with their constituency and do something good for their community and the environment—plant trees! *Info:* www.treesforever.org/Content/Get-Involved/Programs/We-Dig-Your-District.aspx

## Youth Tree Team Keeps Trees Watered

Keep Indianapolis Beautiful, Inc. created Youth Tree Team to help maintain Indianapolis's newly planted trees. The team is comprised mostly of high school students and several collage students. They work part-time during the summer months and on Saturdays during the spring and fall primarily to water young trees, but they also do some mulching and pruning. The team is paid slightly above minimum wage and receives a free lunch each work day. Fridays are enrichment days. They may meet with a landscaping professional, go to a local university for arboriculture training or even engage in team-building exercises such as whitewater rafting and adventure courses. Interest in the program is high. Applicants must go through a three-tier application process: an obstacle course to determine their ability to work as a team member, volunteering for a tree planting, and then an interview. This selection process has been so successful that no one has been fired or dropped out before completing the season. Indianapolis's trees are healthier because of the Youth Tree Team and the benefits to the students are numerous. *Info:* http://actrees.org/site/stories/keeping_trees_watered_part_3_of_3.php?tag=news

## New Bird Manual Available

The Birds Without Borders—*Aves Sin Fronteras*® staff is proud to announce the publication of its new manual for Wisconsin and eastern United States landowners:

"The Birds Without Borders—*Aves Sin Fronteras*® Recommendations for Landowners: How to Manage Your Land to Help Birds (Wisconsin, Midwest and Eastern United States edition)." A PDF is available for free download on our website: www.zoosociety.org/wilandowner.

The manual summarizes five years of research in Wisconsin and years of follow-up data analysis. It provides information on habitats and food resources found to be important to birds. It also includes ways bird lovers and lay people can help birds.

## Urban & Community Forestry Program Resources:

# Emerald Ash Borer

*compiled by Cindy Casey, Urban Forestry Coordinator DNR West Central Region*

***Emerald Ash Borer Toolkit for Wisconsin Communities***—Wisconsin DNR Urban Forestry Program, updated August '08, http://dnr.wi.gov/forestry/uf/eab/.

The EAB toolkit is available online, as downloadable files or on CD. Designed to help municipalities prepare for EAB, the toolkit contains a readiness planning checklist; a readiness plan template; information and suggestions about detection, control, wood handling and utilization; sample mutual aid agreements; tree and insect identification fact sheets; contact information, and more.

***Emerald Ash Borer—What You Need to Know***—Michigan State University, 2006, www.goodcamper.info/cdfiles/index2.html.

Download files or order the DVD & CD set. A suitable replacement for USDA's *The Green Menace* CD, which is out of date. Highlights include municipal readiness planning guidance, sample EAB management plans from Ohio communities, and a number of videos on topics such as ash and insect identification, and EAB signs and symptoms.

***Urban Forestry Insider***—Wisconsin DNR Urban Forestry Program, http://dnr.wi.gov/forestry/uf/resources/InsiderArchive.html.

The Insider is a biweekly electronic bulletin of current events and other topics of interest to the urban forest community in Wisconsin and beyond. Each issue contains links to EAB news and updates geared for Wisconsin audiences. Available by free subscription.

***Wisconsin EAB Website***—A cooperative project by Wisconsin Dept of Agriculture, Trade and Consumer Protection; Dept of Natural Resources and UW–Madison, www.emeraldashborer.wi.gov/.

This newly redesigned website is intended as the central source of current Wisconsin EAB information. Find survey updates, insect distribution maps, the State of Wisconsin EAB Response Plan, insecticide information, quarantine FAQs, coming events, etc. Helpful tabs, including one specifically for municipalities, guide users to topics of interest.

Share what your community is doing in response to EAB with others. Send your story to Laura.Wyatt@wisconsin.gov.

# What Damaged This Tree?

*Continued from page 7*

**Answer:**

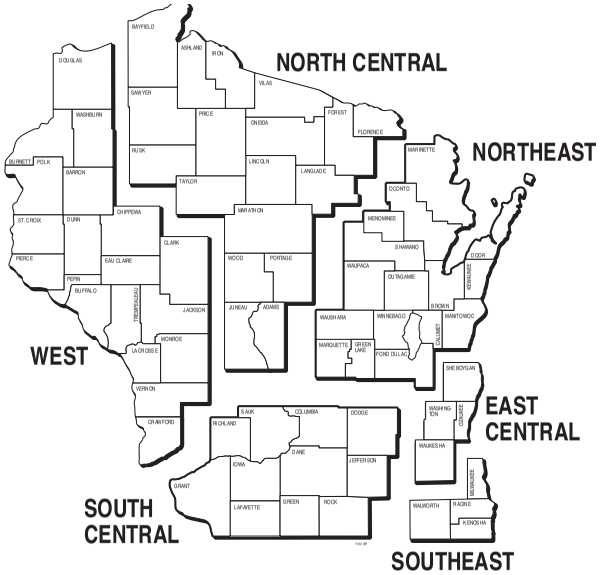
Disk golf damage! In some of the larger urban parks in northeast Wisconsin, disc golf courses have popped up. These are free to the public and are very heavily used. The trees within the photo, along a disc golf course, are actually in "the rough" as you would have to be off course to hit these, but you can see the significant damage. This kind of damage occurs throughout the growing season and there has been concern about damage to oaks during the high risk period.

In this photo notice the bare dirt which has led to significant soil erosion. This is also quite common on the disc golf courses as the golfers trample any/all vegetation to get their shot and the courses are so heavily used that bare soil is what you end up with.

*Photo: Linda Williams, WDNR*

*Do you have pictures of tree damage others ought to know about? Send them to Kim Sebastian (address on page 16) and we'll print them here!*

# *Wisconsin DNR Urban and Community Forestry Contacts*




**World Wide Web Site:** http://dnr.wi.gov/forestry/uf/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