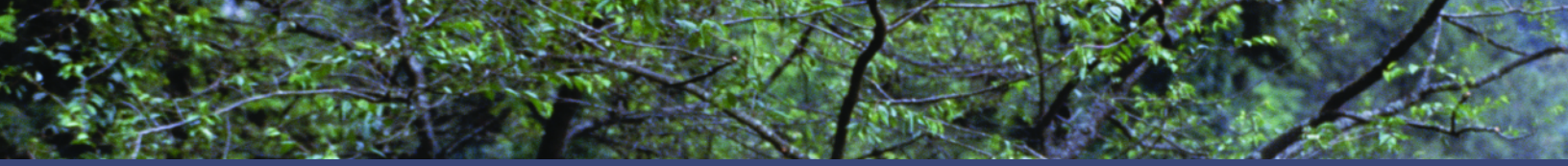
Emerald Ash Borer Homeowner Resources

More information on Emerald Ash Borer (EAB) is available on the Portage County UW-Extension Website www.portage.uwex.edu, or you can also call or stop by the UW-Extension office.

UW Extension
Portage County

Portage County Annex Bldg
2nd Floor
1462 Strongs Ave
Stevens Point, WI 54481
(715) 346-1316

Our Mission: To bring University of Wisconsin unbiased, research-based educational information to the residents of Portage County.



Extension Bulletin E-2942 Reprinted, March 2007

Ash Tree Identification

Ash species attacked by emerald ash borer include green (*Fraxinus pennsylvanica*), white (*F. americana*), black (*F. nigra*), and blue (*F. quadrangulata*), as well as horticultural cultivars of these species. Green and white ash are the most commonly found ash species in the Midwest with blue ash being rare.

While other woody plants, such as mountainash and pricklyash, have "ash" in their name, they are not true ash, or *Fraxinus* species. Only true ash are susceptible to attack by emerald ash borer.

To properly identify ash trees, use the following criteria:

Branch and Bud Arrangement

Branches and buds are directly across from each other and not staggered. When looking for opposite branching in trees, please consider that buds or limbs may die; hence not every single branch will have an opposite mate.

Diane Brown-Rytlewski

Leaves

Leaves are compound and composed of 5-11 leaflets. Leaflet margins may be smooth or toothed. The only other oppositely branched tree with compound leaves is boxelder (*Acer negundo*), which almost always has three to five leaflets. White ash (on left) and green ash (on right)

*Paul Wray, Iowa State University

Bark

On mature trees (left), the bark is tight with a distinct pattern of diamond-shaped ridges. On young trees (right), bark is relatively smooth.

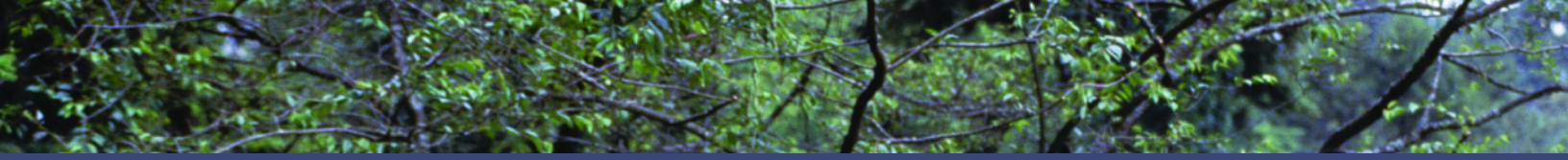
*Paul Wray, Iowa State University

Seeds

When present on trees, seeds are dry, oar-shaped samaras. They usually occur in clusters and typically hang on the tree until late fall, early winter.

MICHIGAN STATE UNIVERSITY EXTENSION

Emerald Ash Borer



Tree Species Resembling Ash

Boxelder *(Acer negundo)*

Exhibits opposite branching and compound leaves. However, has 3 to 5 leaflets (instead of 5 to 11) and the samaras are always in pairs instead of single like the ash.

*Paul Wray, Iowa State University

*Bill Cook, Michigan State University

European Mountainash *(Sorbus aucuparia)*

Leaves are compound with alternate (staggered) branching. Tree bears clusters of creamy white flowers in May. Fruits are fleshy, red-orange berries.

Diane Brown-Rytlewski

*Boris Hrasovec, University of Zagreb

Shagbark Hickory *(Carya ovata)*

Leaves are compound with 5 to 7 leaflets, but the plant has an alternate branching habit. Fruit are hard-shelled nuts in a green husk.

*Paul Wray, Iowa State University

*Paul Wray, Iowa State University

Elm *(Ulmus species)*

Branching is alternate and the leaves are simple with an unequal leaf base.

*Paul Wray, Iowa State University

*Paul Wray, Iowa State University

*Paul Wray, Iowa State University

Black Walnut *(Juglans nigra)*

Leaves are compound with 9 to 15 leaflets, but the plant has an alternate branching habit. Fruit is a large dark brown nut inside a green husk.

*Paul Wray, Iowa State University

Authors: Kimberly Rebek and Mary Wilson

*www.forestryimages.org

Rep - 3:07 - 10M - KMF/LB

Extension Bulletin E-2938 New, February 2005

Signs and Symptoms of the Emerald Ash Borer

Adult

A

Michigan State University

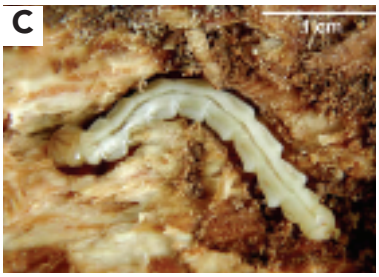
B

Michigan State University

- Bright, metallic green (Figs. A, B).
- 1/2 inch long, flattened back (Figs. A, B).
- Purple abdominal segments beneath wing covers.

Larva

C



D. Cappaert, MSU

- Creamy white, legless (Fig. C).
- Flattened, bell-shaped body segments (Fig. C).
- Terminal segment bears a pair of small appendages.

Canopy Dieback

D

E. Rebek, MSU

E

E. Rebek, MSU

- Begins in top one-third of canopy (Fig. D).
- Progresses until tree is bare (Fig. E).

Epicormic Shoots

F

J. Smith, USDA APHIS PPQ

- Sprouts grow from roots and trunk (Figs. F, G).
- Leaves often larger than normal.

G

J. Smith, USDA APHIS PPQ

Emerald Ash Borer

MICHIGAN STATE UNIVERSITY EXTENSION

Bark Splitting

H

J. Smith, USDA APHIS PPQ

I

A. Storer, Mich. Tech. Univ.

- Vertical fissures on bark (Fig. H) due to callous tissue formation (Fig. I).
- Galleries exposed under bark split.

Serpentine Galleries and D-shaped Exit Holes

J

D. Cappaert, MSU

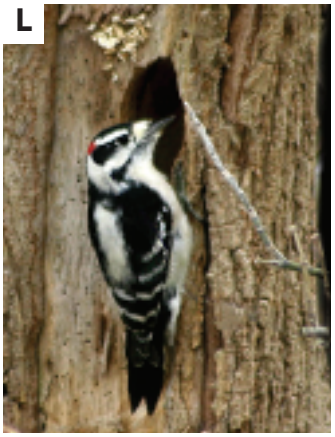
K

D. Cappaert, MSU

- Larval feeding galleries typically serpentine (Fig. J).
- Galleries weave back and forth across the woodgrain.
- Packed with frass (mix of sawdust and excrement).
- Adults form D-shaped holes upon emergence (Fig. K).

Increased Woodpecker Activity/Damage

L



D. Cappaert, MSU

M

Karen D'Angelo, MSUE

- Several woodpecker species (Fig. L) feed on EAB larvae/pupae.
- Peck outer bark while foraging (Fig. M).
- Create large holes when extracting insects (Fig. M).

New - 2:05 - 5M - KMF/LB

XHT1215

University of Wisconsin Pest Alert

UW Extension
University of Wisconsin–Extension

Provided to you by:

Portage County UW-Extension
1462 Strongs Avenue
Stevens Point, WI 54481
715-346-1316

Is My Ash Tree Worth Treating for Emerald Ash Borer?

PJ Liesch, UW Entomology, Patti Nagai, UW-Extension Racine County
and R. Chris Williamson, UW Entomology

This factsheet addresses some of the most frequently asked questions regarding the treatment of ash trees for emerald ash borer (EAB), and the removal and disposal of infested trees.

When should I consider treating my ash tree for EAB? *Based on current research, EAB treatments are suggested only for ash trees located within 15 miles of a confirmed EAB site, or for trees located within a quarantined area. Insecticide treatments are* ***not*** *necessary for ash trees located outside of these areas. Even within the 15-mile radius, not all trees should be treated. Due to the expense of insecticide treatments for EAB, consider the value of a particular ash tree in relation to insecticide treatment costs before making any treatments. Proper use of EAB insecticides can help maintain the health of high value ash trees over time. Lower value ash trees are not ideal candidates for EAB insecticide treatments.*

High value ash trees are candidates for treatment for emerald ash borer.

How do I know if my ash tree has value? *Ash trees can be a valuable part of the landscape. A properly cared for ash tree can increase property value, provide environmental benefits such as runoff and erosion mitigation, and reduce electricity costs by shading a home. Determining tree value can be subjective. Qualities to consider when assessing value include (but are not limited to) a tree's overall health, shape, location with respect to landscape design, and appearance through the seasons, as well as whether or not a tree provides shade. A healthy ash that is properly located in the landscape, has a nice shape and good fall color, and provides shade has value. An ash tree that is not healthy due to disease or insects, has poor shape or structural damage, is otherwise unattractive, or is in a bad location (e.g., near a power line) is of lower value.*

How do I know if there are ash trees in my area that are infested with EAB? *The Wisconsin Department of Agriculture Trade and Consumer Protection (DATCP) keeps track of EAB infestations in the state. Visit the Wisconsin DATCP Emerald Ash Borer Resource Guide website (http://datcpservices.wisconsin.gov/eab/) and follow the "Where has EAB been found?" link to access an up-to-date list and map of EAB infested counties and municipalities. You can also contact your local county UW-Extension office to see if EAB has been found in your area.*

How do I know if my ash tree has EAB? *Symptoms of an EAB infestation can include* ***canopy thinning*** *starting in the upper portion of the tree,* ***epicormic sprouting*** *(i.e., formation of sprouts) along the trunk,* ***bark splitting****, and* ***woodpecker damage****. These symptoms indicate general tree stress, and can be due to EAB. However, they also can be caused by diseases or insects other than EAB. Specific signs of EAB include* ***D-shaped exit holes*** *(~$^{3}/_{16}$ inch wide) in the bark of the tree,* ***S-shaped larval tunnels*** *and/or* ***larvae*** *(cream colored, up to 1½ inches long) beneath the bark, and* ***adults*** *(metallic green, ~$^{3}/_{8}$ inch long). Visit the UW-Madison Emerald Ash Borer in Wisconsin website (http://www.entomology.wisc.edu/emeraldashborer) for additional information on the symptoms and signs of EAB. If you suspect an EAB infestation, call the Wisconsin EAB Hotline at 1-800-462-2803.*

If I decide to treat my ash tree, will I have to treat every year? *In most cases, yes. Most insecticides registered for EAB management require yearly applications to effectively protect a tree. The one exception is TREE-äge (active ingredient = emamectin benzoate), which can protect a tree for at least two years. TREE-äge is a trunk-injected insecticide available only to professional insecticide applicators (e.g., certified arborists). TREE-äge can effectively protect an ash tree if the tree is treated every two years.*

Revised Dec. 18, 2012

University of Wisconsin Pest Alert

UW Extension
University of Wisconsin–Extension

Can I treat an ash myself or do I have to call an arborist? *If your ash is smaller than 47 inches around the trunk at chest height [i.e., 15" diameter at breast height (DBH)], you may be able to treat your ash tree yourself. University of Wisconsin Pest Alert XHT1181 ("Homeowner Guide to Emerald Ash Borer Insecticide Treatments") provides a list of products currently available for homeowner use. If you decide to treat your own trees, be sure to read and follow all label instructions of the insecticide that you select to ensure that you use the product in the safest and most effective manner possible.*

In some situations, hiring a certified arborist to treat your ash tree may be more desirable. Professionals have access to specialized application equipment and additional insecticides not available to homeowners. They are also trained to measure trees accurately, and assess the overall health of trees. The Wisconsin Arborists Association website (http://www.waa-isa.org) has a list of certified arborists in the state.

Note that the University of Wisconsin does not endorse any insecticide products, and does not recommend any professional products over those available directly to homeowners.

Am I allowed to treat an ash tree in my yard between the sidewalk and street? *The answer to this question varies from municipality to municipality. In many cases, municipalities have treatment or removal and replacement plans already in place. Contact your local town, village or city to determine an appropriate strategy for protecting your sidewalk trees.*

How much does it cost to treat an ash tree for EAB? *A single tree that is 32 inches around at chest height (approximately 10" DBH) can be treated with a granular or soil drench homeowner product for about $20-35/year. Arborist treatment costs vary depending on tree size and location, the insecticide selected, and the application method. Other arborist-specific site visit charges may apply as well. Consult at least two arborists in your area to discuss treatment options and costs. To make an accurate comparison among service providers, make sure you know what insecticide will be used, the method of application, and how often treatments will be made. An arborist will not be able to determine the exact cost of treatment for your specific ash tree without a site visit, but an arborist should be able to provide you with a cost estimate for a typical ash tree.*

Do I have to remove my ash tree if it is infested with EAB? *Applying protective insecticide treatments to a healthy ash tree to prevent an EAB infestation is the best strategy for managing EAB. However, if a tree becomes infested and the infestation is detected early, you may be able to treat your ash tree to prevent further damage, and help the tree recover. Research suggests that insecticide treatments are significantly more effective on EAB-infested ash trees with less than 50% canopy thinning. Insecticide treatments are* ***not*** *recommended for trees with greater than 50% canopy thinning; these trees should be removed. Trees that become infested with EAB and are not treated will ultimately die and will need to be removed.*

How much does it cost to remove an ash tree? *Typically, a small (less than 25 feet in height) ash tree may cost a few hundred dollars to be removed by an arborist. Larger trees may cost $1,000 or more to be removed. Individual factors (e.g., the proximity of the tree to structures, power lines, or other hazards) can significantly increase the cost of removal. Tree removal costs also may vary from location to location in Wisconsin. Ultimately, removing recently killed trees while they are structurally sound, rather than allowing them to deteriorate, may be safer and more cost effective.*

How do I dispose of wood from an infested ash tree? *If you choose to remove an infested ash tree, check with your municipality to see if a wood disposal or utilization program is in place. If you have a tree removed by a tree care service, the service may be able to handle the disposal of wood from the infested tree. If you decide to use wood from an ash tree for firewood or other purposes,* ***use it locally****. Transporting infested wood risks spreading EAB elsewhere in the state, and may be in violation of Wisconsin's EAB quarantine laws. Information about Wisconsin's EAB quarantines can be found on the Wisconsin DATCP Emerald Ash Borer Resource Guide website (http://datcpservices.wisconsin.gov/eab/).*

For more information on controlling emerald ash borer: *Visit http://www.entomology.wisc.edu/emeraldashborer, http://datcpservices.wisconsin.gov/eab/index.jsp, or http://www.emeraldashborer.info, see University of Wisconsin Pest Alert XHT1181, or contact your county Extension office. For a video demonstration of treating your ash trees using a systemic drench, visit http://www.entomology.wisc.edu/new-video-protecting-your-tree-emerald-ash-borer.*

Thanks to Donna Henderson, Barb Larson and Vijai Pandian for reviewing this document.

XHT1181

University of Wisconsin Pest Alert

Provided to you by:

Portage County UW-Extension
1462 Strongs Avenue
Stevens Point, WI 54481
715-346-1316

Homeowner Guide to Emerald Ash Borer Insecticide Treatments

R. Chris Williamson and PJ Liesch, UW Entomology

Emerald ash borer insecticide treatment considerations. *Several insecticide products are available to homeowners for control of emerald ash borer (EAB). Since the presence and infestation level of EAB is quite difficult to determine at early stages of an infestation, insecticide treatments may be merited to mitigate damage by EAB. However, not all ash trees should be treated as some may be too extensively compromised or in poor condition to receive treatment. Tree location, value, and health, as well as the cost of treatment are all factors to consider. Due to the expense of yearly insecticide treatments, one should consider the value of a particular ash tree in relation to insecticide treatment costs before making any treatments. In addition, consider the health of each tree before treating. Research suggests that insecticide treatments are significantly more effective on EAB-infested ash trees with less than 50% canopy thinning. Insecticide treatments are* ***not*** *suggested for trees with greater than 50% canopy thinning. Trees with greater than 50% canopy thinning should be removed and destroyed in accordance with established guidelines. For a more detailed discussion on this topic, see University of Wisconsin Garden Facts XHT1215, "Is My Ash Tree Worth Treating for Emerald Ash Borer".*

Emerald ash borer insecticide treatment options. *Insecticide products available for use by homeowners are summarized in Table 1. They include:*

- *ACECAP 97 Systemic Insecticide Tree Implants (acephate)*
- *Amdro Tree & Shrub Care Concentrate (imidacloprid)*
- *Bayer Advanced Tree and Shrub Insect Control II (imidacloprid)*
- *Bayer Advanced Tree and Shrub Protect & Feed (imidacloprid)*
- *Bayer Advanced Tree and Shrub Protect & Feed II (imidacloprid + clothianidin)*
- *Compare N Save Systemic Tree & Shrub Insect Drench (imidacloprid)*
- *Ferti-lome Tree and Shrub Systemic Drench (imidacloprid)*
- *Monterey Once a Year Insect Control II (imidacloprid)*
- *Optrol (imidacloprid)*
- *Ortho Bug-B-Gone Year Long Tree & Shrub Insect Control (imidacloprid)*

Most of the products available to homeowners are systemic insecticides containing imidacloprid and are applied as soil drenches around the base of an ash tree. A few granular products are also available. Recent university research suggests that spring applications of imidacloprid may be most effective. Research also has demonstrated that soil applications of imidacloprid-containing homeowner products provide excellent EAB protection for ash trees that are less than about 47 inches in circumference [i.e., 15 inches in diameter at breast height (DBH)]. Due to differences in application rates and label restrictions, treatment by a tree care professional (e.g., arborist) may be the best option for larger trees. For best results, treatment of trees should begin before trees become infested. Lastly, insecticide treatments must be repeated each year.

Be aware that many insecticide products available at hardware stores and garden centers look alike. Carefully check all product labels before purchase to make sure that you have selected the correct product/active ingredient. ALWAYS read and follow the pesticide label directions on the product that you select!

Finally, note that although ACECAP 97 Systemic Insecticide Tree Implants are available to homeowners, we do NOT recommend that homeowners use these because they require physically drilling into a tree during their application.

Revised April 23, 2015

University of Wisconsin Pest Alert

UW Extension
University of Wisconsin–Extension

Table 1 Emerald ash borer insecticide treatments available to homeowners			
Product	**Active Ingredient**	**Timing**	**Type of application**
Amdro Tree & Shrub Care Concentrate (D) *Bayer Advanced Tree & Shrub Insect Control II (D)* *Bayer Advanced Tree & Shrub Protect & Feed (D or G)* *Compare N Save Systemic Tree & Shrub Systemic Insect Drench (D)* *Ferti-lome Tree & Shrub Systemic Drench (D)* *Monterey Once a Year Insect Control II (D)* *Ortho Bug B Gone year Long Tree & Shrub Insect Control (D)*	*Imidacloprid*	*Mid-April to mid-May*	*Soil Drench (D)* *or* *Granular (G)*
Optrol (D)	*Imidacloprid*	*Mid-April to mid-May* *and/or* *Early-Sept. to mid-Oct.*	*Soil drench (D)*
Bayer Advanced Garden Tree & Shrub Protect & Feed II (D or G)	*Imidacloprid* *+* *Clothianidin*	*Mid-April to mid-May*	*Soil Drench (D)* *or* *Granular (G)*
ACECAP 97 Systemic Insecticide Tree Implants	*Acephate*	*Mid-May to mid-June*	*Trunk Implant*

Other emerald ash borer treatment options. *Homeowners may also contact a certified arborist or certified pesticide applicator to treat their trees. See http://www.waa-isa.org for a list of certified arborists in Wisconsin. Professionals have access to some products that are not available to homeowners.*

The University of Wisconsin does not endorse commercially available insecticide products over those available directly to homeowners. Products discussed in this fact sheet have been evaluated in university research tests on EAB.

For more information on controlling emerald ash borer: *See http://www.entomology.wisc.edu/emeraldashborer, http://www.emeraldashborer.wi.gov or http://www.emeraldashborer.info or contact your county Extension agent. For a video demonstration of treating your ash trees using a systemic drench, see http://www.entomology.wisc.edu/new-video-protecting-your-tree-emerald-ash-borer.*

Thanks to Kristin Krokowski, Patti Nagai, Phil Pellitteri and Robert Tomesh for reviewing this document.

Wisconsin Emerald Ash Borer Program

ASH WOOD PROCESSING OPTIONS FOR THE HOMEOWNER

Managing Emerald Ash Borer (EAB) Infested Wood

A key aspect of reducing the spread of emerald ash borer is properly managing the wood, brush and stump grindings generated by removal of infested trees. This requires an understanding of the processes that will destroy the insect, but also the federal, state and local regulations that apply to those processes. The preferred method of managing the wood is to have it processed in a manner that utilizes the wood and eliminates the risk of spreading EAB to new areas. If you suspect you have EAB, please contact the EAB Hotline at 1-800-462-2803 for confirmation. Additional information can be found at www.emeraldashborer.wi.gov.

Processing Options to Eliminate EAB

The following options are available for processing infested ash wood to kill EAB or prevent completion of its life cycle and spread to uninfested trees:

- ***Chipping***: Ash wood, brush and stump grindings must be chipped or ground down to a maximum size of no more than 1" in two dimensions (two of the three measurements - length, width and depth - must be 1" or smaller). The typical chipper used in tree care operations will not reliably create chips that meet this specification, but some may if fed through the chipper multiple times. Check with your manufacturer. Chippers equipped with a 1" screen will assure compliance. No Department of Natural Resources (DNR) waste program approvals or licenses are necessary for grinding or use of this material.
- ***Debarking for lumber***: Complete removal of all bark, plus ½ inch of wood. The debarked wood can be milled into lumber. Any bark remaining on the lumber must be removed before the lumber can be moved out of the quarantined areas. Note that the removed bark and wood must be chipped down to a maximum size of 1-inch by 1-inch in 2 dimensions*. (This option is designed for the professional, but some homeowners may have the equipment to perform this task)*
- ***Burning:*** Wood, brush or chips may be burned prior to insect emergence. This should be used as a last resort.
    - **NOTE:** Before any burning is initiated, homeowners should check with their community to see if they have any burning ordinances.
- ***Aging:*** Ash wood material that is aged for 2 years after tree death will be free of EAB. The wood will have dried to the point EAB can no longer survive in it and any EAB present when the tree died or that infested the wood shortly after cutting will have emerged during the 2 year period. If this processing option is used, it should be understood that EAB will continue to emerge during the 2 year aging period and this wood poses a risk of infestation to living ash in the area where it is being aged. This wood must not be moved out of a quarantined area during the aging period.

The Wisconsin Emerald Ash Borer Program is a cooperative effort between the Wisconsin Department of Agriculture, Trade and Consumer Protection, the Wisconsin Department of Natural Resources, the University of Wisconsin-Madison, the University of Wisconsin-Extension, the United States Department of Agriculture-Forest Service and the United States Department of Agriculture –Animal and Plant Health Inspection Service – Plant Pest Quarantine. *v. 2/27/2013*

Wisconsin Emerald Ash Borer Program

Please note that a compliance agreement from DATCP is necessary to move any ash material such as firewood, lumber, mulch, or wood chips out of quarantined areas.

Storage Until Processing

- Adult emerald ash borers can emerge from infested wood from May through September. Infested wood should be processed by April 30 to avoid risk of emergence.
- Double-bagging: If processing before adult emergence is not possible, or if infested wood is found during an emergence period, double-bagging can be used to contain emerging adults. This procedure only is feasible for small quantities of infested wood. Double bag in 4-mil or thicker plastic bags. Keep in closed bags until October 1 to contain emerging adults. This is a temporary storage plan; processing should occur after bagging to destroy EAB.
- Wood may be stored temporarily either on site or at a dedicated collection sites if your community has one open to the public.

Official Contact Information

Wisconsin Department of Agriculture, Trade and Consumer Protection
Christopher Deegan, Plant Protection Section Chief
608-224-4573 or Christopher.Deegan@wisconsin.gov

USDA-APHIS, Plant Protection & Quarantine
JoAnn Cruse, State Plant Health Director
608-231-9545 or Joann.m.cruse@aphis.usda.gov

Wisconsin DNR Forest Products Utilization and Marketing
Steven Hubbard, Forest Resource Analyst
608-231-9329 or Steven.Hubbard@Wisconsin.gov

Wisconsin DNR Waste and Materials Management contacts by county:
http://dnr.wi.gov/topic/waste/epas.html

Brought to you by:
Portage County UW-Extension
1462 Strongs Ave
Stevens Point, WI 54481
715-346-1316

The Wisconsin Emerald Ash Borer Program is a cooperative effort between the Wisconsin Department of Agriculture, Trade and Consumer Protection, the Wisconsin Department of Natural Resources, the University of Wisconsin-Madison, the University of Wisconsin-Extension, the United States Department of Agriculture-Forest Service and the United States Department of Agriculture –Animal and Plant Health Inspection Service – Plant Pest Quarantine. *v. 2/27/2013*

Wisconsin Arborist Association

www.waa-isa.org

Arborists listed by the WAA as serving Portage County

Agape Tree Care
N4383 Jacobson Dr
Rio, WI 53960
608-770-1487
Base County: Columbia

Barnes, Inc
6433 Nesbitt Rd
Madison, WI 53719
608-845-3230
Base County: Dane
www.barnesinc.net

Eagle Tree Care, LLC
2033 Oak St
Stevens Point, WI 54481
715-252-5009
Base County: Portage
www.eagletreecarellc.org

First Choice Tree Care, Inc
1135 County Rd DB
Mosinee, WI 54455
800-342-9498
Base County: Portage
www.firstchoicetreecare.com

Glen R Stanosz Plant Health Consultant, LLC
7107 Spring Hill Dr
Middleton, WI 53562
608-516-1641
Base County: Dane

Steigerwaldt Land Services, LLC
856 N. Fourth St
Tomahawk, WI 54487
715-453-3274
Base County: Lincoln
www.steigerwaldt.com

Steven R. Bassett, Inc
2733 Gust Rd
Verona, WI 53593
608-848-6152
Base County: Dane
www.srbassett.com

Arborists are listed in alphabetical order as they appear on the WAA website.

This list is for informational purposes only and does not constitute an endorsement, referral or recommendation by Portage County UW-Extension.

For more information contact the WAA at (262) 899-0060 or visit www.waa-isa.org.

Notes

UW Extension
Portage County

Portage County UW-Extension
1462 Strongs Ave, Stevens Point, WI 54481
(715) 346-1316 ~ www.portage.uwex.edu