SPRING | SUMMER 2017

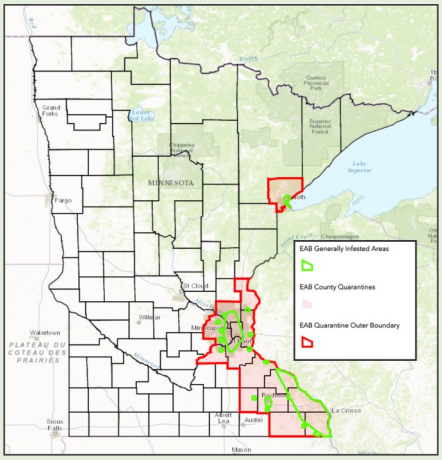
TreeIQ

The Minnesota Tree Inspector Quarterly Newsletter

Our Inaugural Issue

We are happy to present this first edition of *TreeIQ: The Minnesota Tree Inspector Quarterly*. *TreeIQ* will be a seasonal electronic newsletter devoted to providing timely technical information and community connections for Minnesota's certified tree inspectors.

EAB News and Resources



Tree Inspector Spotlight

DNR Forest Health Updates

TreeIQ&A - Call for questions!

Do you have any questions you would like to see answered by industry experts? Submit your tree inspector questions to **TreeIQ&A** at treesins@umn.edu and see them answered in a future edition!

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The Minnesota Certified Tree Inspector program was first implemented in 1974 and has since supported hundreds of participating communities around the state. Currently, there are more than 800 certified tree inspectors in Minnesota. TreeIQ is a seasonal electronic newsletter devoted to providing timely technical information and community connections for Minnesota's certified tree inspectors.

The Tree Inspector Program is administered by the Minnesota Department of Natural Resources in partnership with the University of Minnesota's Forestry Department.

DEPARTMENT OF NATURAL RESOURCES

Department of FOREST RESOURCES
University of Minnesota

Tree Inspector News

Upcoming Events

MnSTAC Forum: Why some elms win the battle against DED

April 20, 2017, 10:00am — 11:00am

Lake Nokomis Community Center

2401 E Minnehaha Parkway, Minneapolis, MN 55417

Brewing a Better Forest & Minneapolis Arbor Day Event

April 28th, 2017, 4:00pm — 8:00pm

Lake Hiawatha Park — 2701 E 44th St, Minneapolis

Tree planting, beer garden, tree climbing, 5k Race, Big Tree Bike Tour!

Tree Inspector New Certification Workshop and Exam

May 05, 2017, 9:00am — 3:45pm

Oakdale Discovery Center

4444 Hadley Ave N, Oakdale, MN 55128

Gathering Partners of Natural Resources Annual Conference

May 19 - 21, 2017,

University of Minnesota, St. Paul Campus

Sessions include presentations on agriculture, invasive species, Tree ID, Bee ID, pollinators, forestry, photography, phenology, and so much more!

Mature Adult Emerald Ash Borer

Beetles Emerged during a Tree Inspector New Certification Workshop

New and current tree inspectors encountered a set of unexpected guests at the recent New Certification Workshop at Maple Grove Public Works on April 7, 2017. Two adult emerald ash borer beetles emerged during the afternoon session of the workshop, giving attendees a rare chance to see living adult beetles.

"I still can't believe I saw an EAB alive – I almost feel like I met a celebrity!" writes Gina Hugo with the Sherburne Soil & Water Conservation District who found the beetles crawling on the floor. Hugo continues, "It would have been so easy for someone to walk out with one on their clothing – never being the wiser!".

The branch was originally from an infested tree in Maple Grove and was being stored at the public works facility. It's quite early to see adult EAB beetles in Minnesota, but storage for several weeks at 60F at the public works building helped these beetles acquire enough warmth. Generally, EAB adult beetles emerge after accumulating a minimum of 450-500 growing degree days (GDD base 50). Peak emergence has been observed between 900 and 1100 GDD.

All ash samples that the Tree Inspector Certification program uses for trainings are heat-treated in the Urban Forestry Outreach Research and Extension lab on the Saint Paul campus. As per the criteria that the Minnesota Department of Agriculture requires for safe transport, each piece of wood is "baked" in our plant sample ovens for 2+ hours at 175 degrees Fahrenheit, and then slowly cooled off.

The next New Certification Workshop and Exam will be held on May 5, 2017 at the Oakdale Discovery Center.

Visit www.mntreeinspector.com for registration details.

**Living adult EAB beetle sightings not guaranteed.*

Tree Inspector Profile

Jeff Cordes, City of Eden Prairie

Each issue of the Minnesota TreeIQ will feature a Tree Inspector profile. It's a way for us all to get to know and learn from each other a little bit. Our first profile is of one the first Certified Tree Inspectors I met when I moved to Minnesota 25 years ago. Jeff Cordes is a good example of a Tree Inspector who takes the position and responsibilities to heart and makes the program what it is today!

Q. How long have you been a Tree Inspector?
Although my job titles and responsibilities have changed over time, I have been a Certified Tree Inspector for over 25 years.

Q. What is your educational background?
B.S. Urban Forestry, University of Minnesota.

Q. What have been the greatest challenges for MN Tree Inspectors during your tenure as one?
Speaking for myself and other Tree Inspectors I have worked with over the last 26 years I would have to say it is two-fold. First – understanding your role and responsibilities within the particular organization (city, Township, County, etc..) that you work for; working with your supervisor(s) to foster a firm grasp of the tools and resources you have at your disposal to provide the best customer service and professional conduct of your duties; second - continue to develop your clear communication skills both externally with homeowners/property owners and internally with your working group regarding the Tree Inspector duties you are responsible for. Strive to produce quality deliverables and always continue to improve the process. Never stop learning new things, or relearning things you once knew.

Q. What have been a couple significant contributions that the Tree Inspector program can take credit for, either state wide or in your community?
Minnesota Tree Inspectors can take pride in knowing they are part of a nation-wide program of excellence that other states in the U.S. look to for guidance on how to structure their diseased tree program and continuing education elements in support of the Tree Inspector program. Helping to curb the onslaught of DED, OW, and now EAB, along with the many other disease, insect, and chemical challenges to our trees/shrubs.

Q. Is there one Tree Inspector experience or memory that you would be willing to share?
Some odd things can happen to anyone dealing with people you have never met before. I took a call on the phone to my desk as the Eden Prairie Forestry Technician. The resident calling asked me what the city would do to take care of the squirrel problem in the city at their house since the squirrels were "throwing acorns" every time the resident stepped out the back door onto the patio. Thinking this was a joke, I made the mistake of chuckling, bad idea! In a heightened concerned voice, the resident began scolding me for making fun of the situation. I apologized and tried to explain that squirrel arms are not made in such a way that they can "throw" anything, including acorns, despite how they were portrayed in cartoons. I explained that the squirrels were just up in the oak eating or gathering acorns and when anyone stepped out onto her patio, they became startled and as they scurried away to safety their movement happened to dislodge some acorns that fell. The homeowner insisted I was wrong and wanted me to stop over so I could witness it. I met at the home and to the dismay of the resident, none of the squirrels "threw" acorns at us. The whole episode was sort of humorous to me but not for the homeowner.

Q. Is there one interesting thing about yourself that most people may not be aware of that you'd like to share?
I am a mycophagist, I eat a lot of different kinds of foraged mushrooms

Q. Thinking back on all of the courses, seminars, conference sessions that you have attended, is there any one that sticks in your mind that had an influence on you?
All of the courses I took at the U of MN with Dr. Robert Blanchette in Plant Pathology.

All of Douglas Tallamy's presentations on the critical need to plant native species in the existing historical biomes to help support the local ecosystems.

Q. In your opinion, what is/are the greatest challenges MN Tree Inspectors may face in the next 10-20 years?
Tree Inspectors everywhere must continue to learn and try to maintain the Tree Inspector status as a Tree/Woody plant expert so folks will not only listen to their advice, but seek it out. With the internet and all the social media, many people claim to be experts, and I have seen a lot of tree/woody plant misinformation being pushed out on many of these sites.

Q. How much longer do you plan on being a MN Tree Inspector?
No definitive end date to my Tree Inspector status. To me, interacting with homeowners/property owners has always been one of the more enjoyable parts of my profession.

Long-term Planting Success Often Begins With A Good Sweat!

By Gary Johnson

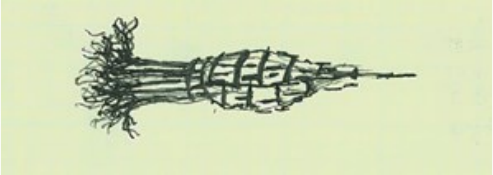
Professor, Urban and Community Forestry
Department of Forest Resources/Extension University of Minnesota

The shipment of bare-root trees has arrived fully dormant, and only two weeks until planting day. Are they ready to be planted in the landscape or installed in the gravel bed? Or, are they in such a deep state of rest that it could be days or weeks before they finally leaf out…if they leaf out at all? It's time to start sweating, but not about everything.

Bare-root trees and shrubs are field-dug in the autumn, placed in jacketed cool storage, aka "tree refrigerators," at around 32° F and 95% humidity for most of the winter and then shipped out, still in some state of winter rest. Some species will quickly begin active growth with no prompting when planted while others need to be gently awakened with a good "sweat."

"Sweating" those trees, shrubs and vines that are in deep states of rest is a generations-old, reliable tree nursery practice that has very little (if any) research evidence to explain the process and why it works. But it works. It is a recipe that uses three ingredients to awaken those sleeping beauties: 1) Warmth 2) Humidity and 3) Time.

The Sweating Recipe

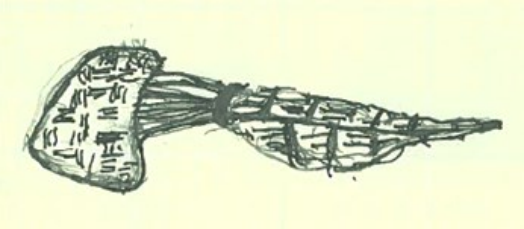


Bundle the trees or shrubs together by species. For ease of handling, bind the stems/branches together with twine.

1. Separate the species to be sweated and bundle them up in bunches of 5-10, depending on their size. Do not mix species in a sweat bundle because different species usually require different amounts of time.

2. Capture some warmth. Place the bare-root plants on the bare ground or the floor of a hoop house, barn or garage. If possible, temperatures should be supplemented if they are not in the 45-70°F range in the built structures. Warmth radiating from the earth is generally enough. Warmth from direct sunlight is too much and will likely damage the plants, so keep the bundles of joy shaded.

‘Beginning with a Good Sweat’ Continued



Wrap the roots in wet burlap or pack with wet straw or excelsior

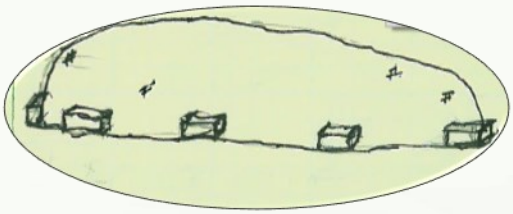
3. Bring on the moisture, but only on the roots. Syringe the roots thoroughly (spray with a hose or dip into tank) and then cover them with materials that will hold moisture, such as wet straw, wet burlap, or wet excelsior. **Do Not cover the stems and branches with these materials.** If for no other reason, buds need to be checked almost daily, so they need to be accessible and visible.

4. Complete the greenhouse. Cover it all – roots, stems and branches – with clear or opaque plastic and anchor down the edges like a burrito to keep the interior warm and humid…just like a greenhouse.

Clear plastic covering all roots and branches.

Bricks or anything to weight down the edges.

5. Start inspecting buds after 2-3 days. As soon as bud swell begins –usually recognized by enlarged buds and separating bud scales – it’s time to pull those species out and get them in the ground or the gravel bed. They are now ready to meet the tulips as long as outdoor temperatures are reliably above freez-



Tree Species

Maples (*Acer)*
Serviceberry (*Amelanchier)*
Birches (esp. *Betula nigra*
Musclewood (*Carpinus)*
Hickory (*Carya)*
Hackberry (*Celtis*)\
Eastern Red Bud (*Cercis)*
Pagoda Dogwood (*Cornus)*
Hawthorn (*Crataegus)*
Beech (*Fagus)*
Ash (*Fraxinus)*
Honeylocust (*Gleditsia)*
Crab/Apple (*Malus)*
Mulberry (*Morus)*
Black Gum (*Nyssa)*
Ironwood (*Ostrya)*
*Amur Corktree (*Phellodendron)*
Plums (*Prunus)*
*Ussurian Pear (*Prunus)*
Chokecherry (*Prunus)*
White Oak group (*Quercus)*
Skunkbush Sumac (*Rhus)*
*Black Locust (*Robinia)*
Weeping Willow (*Salix)*
European Mt-Ash (*Sorbus)*
Lilac (*Syringa)*
Bald Cypress (*Taxodium)*
Lindens (*Tilia)*
Elms (*Ulmus)*

Shrubs and Vines

*Barberry (*Berberis)*
Trumpet Vine (*Campsis)*
Variegated Dogwoods (*Cornus)*
Cotoneaster (*Cotoneaster)*
Potentilla (*Potentilla*)
Roses (*Rosa)*

Be Careful With These Species: Check with your state regulatory agency to determine whether they are listed as invasive in your state. Note: only the female Amur Corktrees are invasive for that species.

What if Sweating is Skipped?

1. They will experience a shorter growing season that first year.
2. Trees and shrubs will enter the winter with lower energy reserves due to the abbreviated growing season, and will be more likely to suffer winter season damage to roots, cambium and buds.
3. There will be less root growth that first season. Roots need photosynthates (sugars and starches) to grow.
4. People give up, think they are dead, stop watering and/or remove the sleepy ones.
5. Nothing… if the trees and shrubs have been sweated before they were shipped to you. Inquire whether this has happened from your nursery supplier.

References Consulted: (all available on-line)

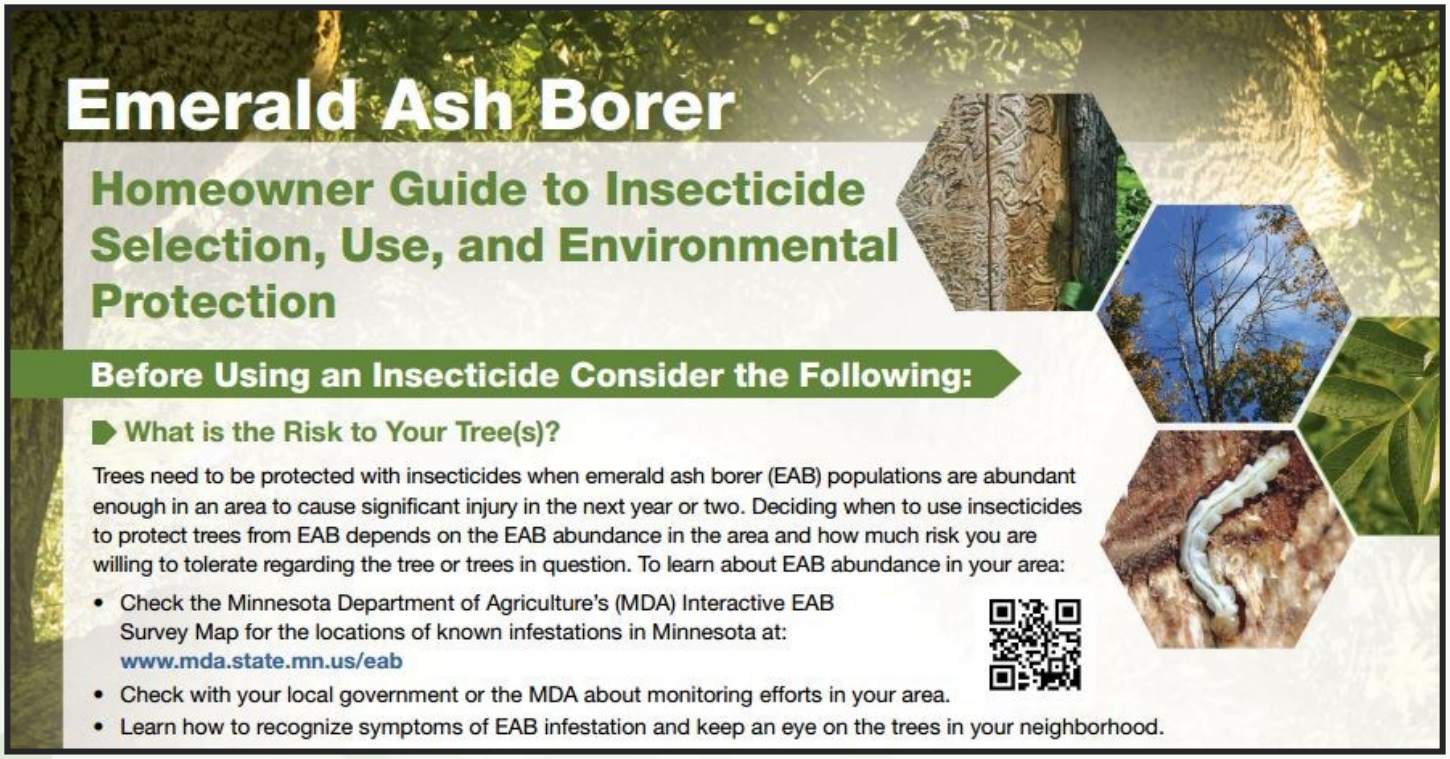
1. Caring for Bareroot Nursery Stock. Lawyer Nursery, Inc. No date, but a very good guide.
2. Creating the Urban Forest: The Bare Root Method. Urban Horticulture Institute, Department of Horticulture, Cornell University, Ithaca, NY. 2009. There is a lot more information than just "sweating" in this guide.
3. Pest Update (April 15, 2015). Vol. 13, no. 9. Author was John Ball, Forest Health Specialist SD Department of Agriculture, Extension Forester SD Cooperative Extension. The section on "sweating" starts on page 2.
4. Ellison, Dana S., Robert Schutzki, Pascal Nzokou, Bert Cregg, 2016. Root growth potential, water relations and carbohydrate status of ash alternative species following pre-plant storage. Urban Forestry & Urban Greening, 18 (2016):59-64. If you like reading research-based information from a refereed journal, this is a good read.
5. Sweating. In: A Practical Guide to Handling and Growing Bareroot Trees. No date. Femrite Nursery Co.
6. Halcomb, Mark and Amy Fulcher. 2017. Sweating Nursery Stock to Break Dormancy. University of Kentucky College of Agriculture.
7. Sweating Nursery Stock. In: Chapter 6 of Planting and Pruning of Woody Plants. Protecting Existing Trees From Construction. No date. Minnesota DNR.
8. Sweating of Nursery Stock. In: Inspection & Contract Administration Manual for MnDOT Landscape Projects. 2013 edition. A comprehensive manual on tree planting.
9. Sweating Bare Root Plants. In: 2014-2015 Cross Nurseries, Inc. Wholesale Price List.
10. Temporary Storage and Handling of Container, Bareroot and Cutting Stock. No date. Plant Materials Technical Note Number MT-51. USDA Natural Resources Conservation Service (NRCS), Montana.
11. Tree Sweating – When Is it Needed? In: Plant Chat, NRCS Spring, 2007, Volume 7, Issue 2.

Tree Inspector Resources

As certified tree inspectors and natural resource managers, fielding questions from the public in regards to emerald ash borer will become more and more common here in Minnesota. Having an on hand collection of educational materials can be an efficient and effective way to get the best information out to your communities.

Home Owner Guide to Insecticide Selection, Use, and Environmental Protection

There are various insecticides available to protect ash trees from emerald ash borer. This document provides a comprehensive overview of available insecticides and other important aspects to consider when choosing to treat ash trees.



Emerald Ash Borer

Homeowner Guide to Insecticide Selection, Use, and Environmental Protection

Before Using an Insecticide Consider the Following:

What is the Risk to Your Tree(s)?

Trees need to be protected with insecticides when emerald ash borer (EAB) populations are abundant enough in an area to cause significant injury in the next year or two. Deciding when to use insecticides to protect trees from EAB depends on the EAB abundance in the area and how much risk you are willing to tolerate regarding the tree or trees in question. To learn about EAB abundance in your area:

- Check the Minnesota Department of Agriculture's (MDA) Interactive EAB Survey Map for the locations of known infestations in Minnesota at: www.mda.state.mn.us/eab
- Check with your local government or the MDA about monitoring efforts in your area.
- Learn how to recognize symptoms of EAB infestation and keep an eye on the trees in your neighborhood.

Looking for more information?

University of Minnesota EAB Extension Page

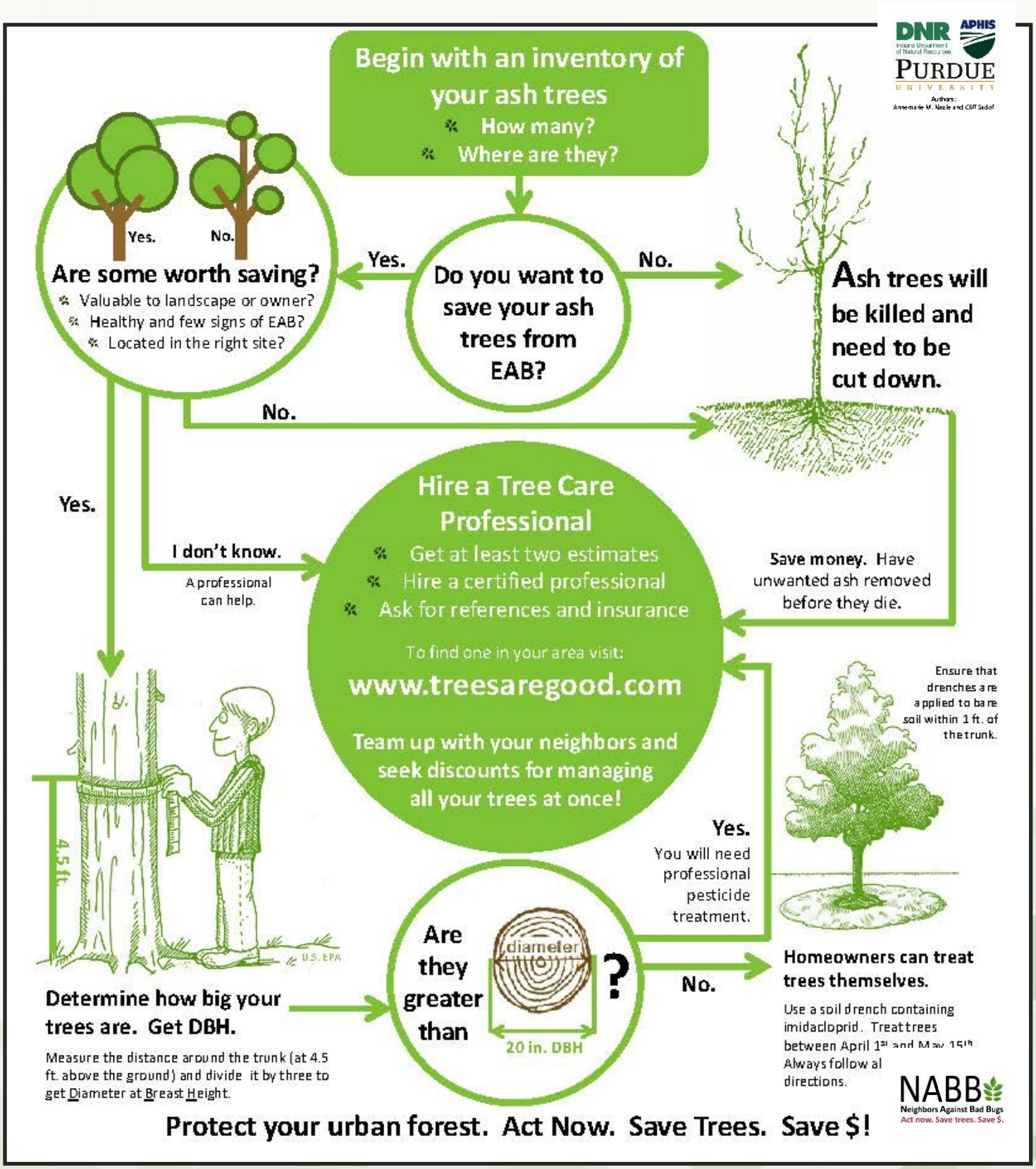
Extension professor Jeff Hahn has put together a great website with plenty of resources to get you started. Visit this site: http://www.extension.umn.edu/garden/insects/find/emerald-ash-borer/

Emerald Ash Borer Information Network

This website houses an exhaustive collection of all things EAB. This national resource features both articles and archived presentations on the many facets of dealing with EAB. Visit this site: http://www.emeraldashborer.info/

Managing Emerald Ash Borer: Decision Guide

It's common to receive the question, "Should I treat my ash trees?" This publication is designed as a decision tree for home owners and landscape managers. It is a simple two page document that clearly illustrates the thought process that goes into deciding whether or not to treat an ash tree. This decision guide can be found at Jeff Hahn's U of M EAB Extension page.

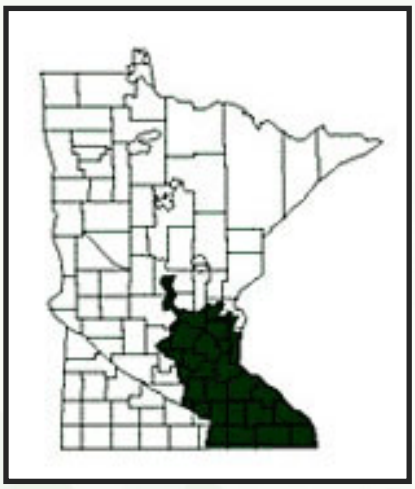


Recommended trees for Minnesota: An ecosystem approach

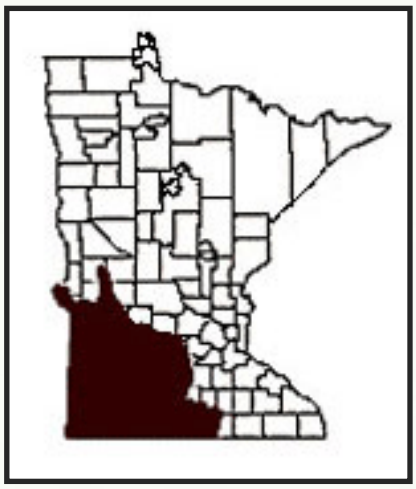
Trees shade and cool us in the summer, protect us from cold winter winds, supply us with clean air to breathe, beautify our communities and provide habitat for wildlife. Selecting the trees that will survive and grow into healthy urban forests requires a thorough analysis of the planting site and a careful match of the trees to that environment.

The 2009 discovery of invasive pest emerald ash borer in Minnesota means that many landowners are looking for alternatives to ash. These recommendations reflect this concern and can assist landowners making decisions about ash alternatives.

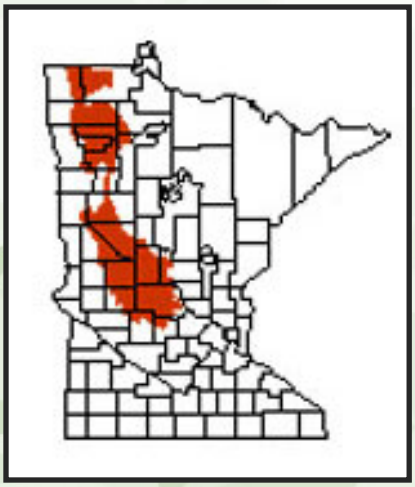
The Recommended Trees series recognizes that Minnesota is an ecologically diverse state. For this series, the state is divided into major ecological regions, each with characteristic soils, precipitation patterns, topography, and natural vegetation. Recommended trees for each region perform reliably in that environment, and should thrive for many years.



Southeast



Southwest

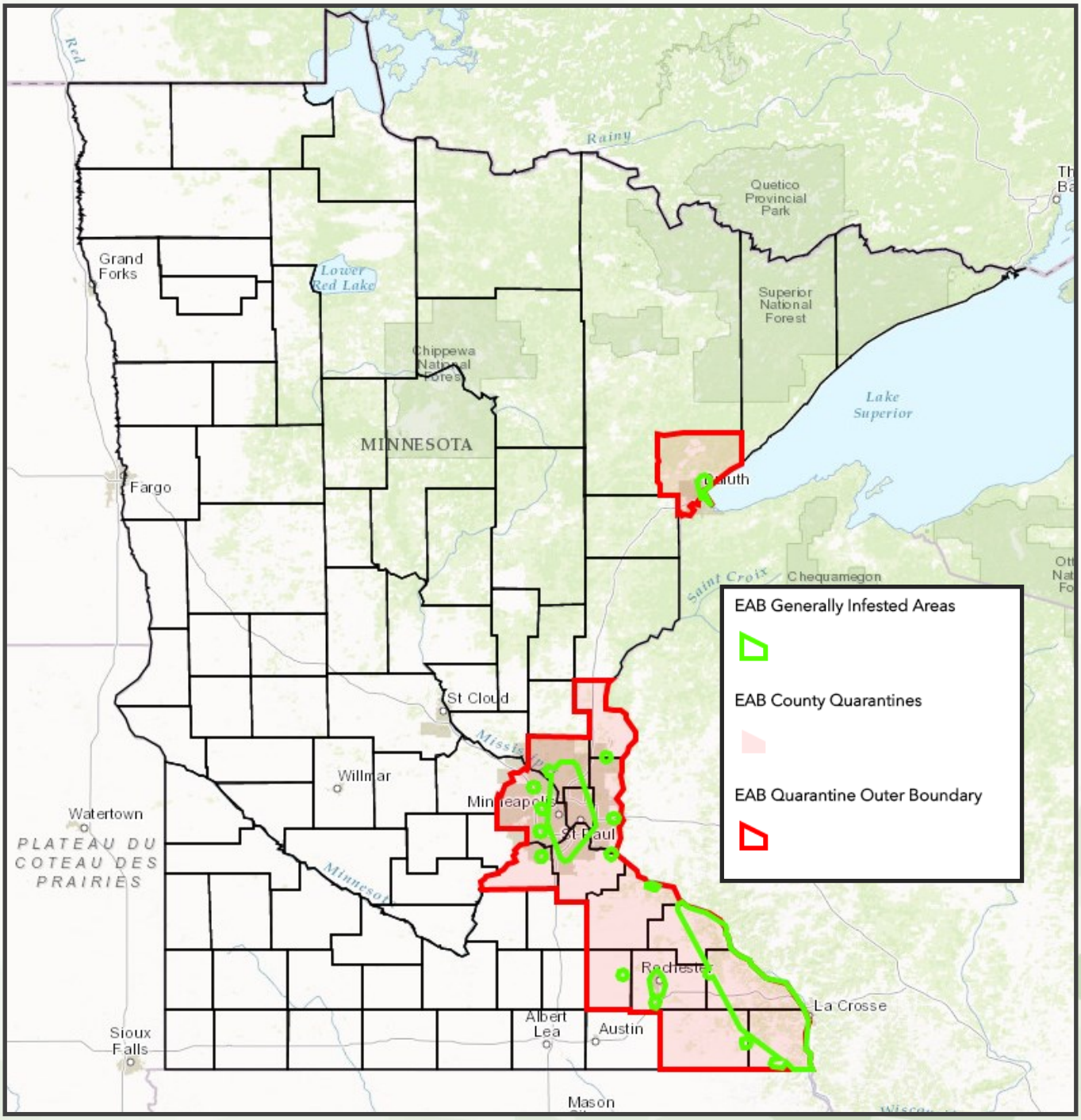


Northwest and central

Northern tallgrass prairie

Emerald Ash Borer in Minnesota

As of April 17th, 2017



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Minnesota Department of Agriculture (MDA) Web Map
Esri, HERE, Garmin, FAO, NOAA, USGS, EPA, NPS |

Q: How is the Risk Status of Oak Wilt Determined?

Answer by **Jennifer Juzwik**, Plant Pathologist, US Forest April 13, 2017

Count to Three

For the past 16 years, the decision to change the risk of overland transmission of the oak wilt fungus to "high" in early spring has been made by oak wilt experts based on consideration of the following three factors.

First, new oak wilt mats are breaking the bark on red oak trees that completely wilted the previous summer. We know that the fungus starts aggregating in the cambial area of such trees when ***ambient (air) temperatures are at least 43 F; however, it takes additional time and sufficient temperatures for the mats and pressure pads to grow large enough to rupture the bark.***

Secondly, *Colopterus truncatus* is the earliest spring-arriving species of the two principal oak wilt nitidulid beetle vectors; thus, evidence of its dispersal in oak stands is taken into account. In general, these insects are considered to disperse when ambient air temperatures are in the upper 50 Fs or higher.

Lastly, careful review is made of daily highs in temperature for the previous week and of the predicted high temperatures for the upcoming 10 days. If five or more consecutive days of temperatures in the upper 50 Fs or higher are predicted, and the other two factors are known to occur a recommendation is made to change the oak wilt risk to "high."

Moving from High to Low

The decision of when to change the risk of overland transmission from "high" to "low" in July is made by the same person on the basis of the following factors.

1) *Mat condition* - Peaks in oak wilt mat production in Minnesota occur during the spring and fall. Mat condition rapidly deteriorates (i.e. viable spores no longer available) when ambient temperatures are above 85 F. Thus, patterns of high ambient temperatures that occurred during June are considered as well as condition of mats observed in the field.

2) *Xylem vessels* - The shift from large springwood to small summerwood vessel formation in red oaks occurs in July.

3) *Nitidulid beetle vector population and behavior – Colopterus truncatus* population peaks in late April and May in Minnesota, but the other principal vector species, *Carpophilus sayi*, has several peaks during the growing season, starting in mid to late May. However, the species has not been found in fresh wounds on healthy oaks after mid-July in Minnesota.

Further information that may be of interest

A recently completed trapping study in 12 sites across Wisconsin has documented *Colopterus truncatus* and *Carpophilus sayi* dispersal from early spring through mid-fall (Stephanie Jagemann, M.S. student, Dept. of Entomology, University of Wisconsin). Preliminary results indicate the general rating of "high" risk for April 1 – July 15 is valid in terms of dispersal of these two species. A degree-day model is being developed and should be available for use in 2018.

Timing of springwood vessel formation is another factor that deserves attention, but has not been followed annually or modelled. Red oak susceptibility to infection by the oak wilt fungus is highest during spring during the period of springwood vessel formation. Documentation of initiation and duration of springwood vessel formation in the Lower Peninsula of Michigan was published in 1968. A new study on this factor has just started at Michigan State University.

MnDNR Forest Health Update

MNDNR Forestry's forest health unit is a great resource that we often tap into to bring current information to tree inspectors. For example, many of you have probably seen Brian Schwingle, DNR Forest Health Specialist, speak at one of our certification or recertification workshops. The forest health unit publishes information on a number of topics about forest insects, diseases, and other environmental stress agents. These publications come to us by way of both annual reports and their Forest Insect & Disease Newsletter.

2016 Forest Health Annual Report

Insects covered in this report include bark beetles of pine and spruce, eastern larch beetle, emerald ash borer, forest tent caterpillar, gypsy moth, jack pine budworm, larch casebearer, spruce budworm, and twolined chestnut borer.

Tree diseases covered in this report include bur oak blight, oak wilt, heterobasidion root disease, *Diplodia*, pine-oak and pine-pine gall rusts, and spruce needle rust.

Environmental stress agents covered in this report include aspen and birch decline, black ash decline, wildfire, wind, hail damage, flooding, drought, and late frost.

Link: **http://files.dnr.state.mn.us/assistance/backyard/treecare/forest_health/annualreports/2016-annual-report.pdf**

Forest Insect and Disease Newsletter

Visit the DNR Forest Insect and Disease Newsletter webpage to find articles written by DNR regional Forest Health Specialists published in current and past newsletters. You can also subscribe to receive updates about the Forest Insect and Disease Newsletter here (link: http://www.dnr.state.mn.us/fid/index.html).

Tree Inspector Program Notes

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The University of Minnesota offers certification and recertification opportunities and proctors new certification exams at the certification workshops. For more information on the Tree inspector program, the certification, and other frequently asked questions, please visit us at www.mntreeinspector.com.

Contact treesins@umn.edu with any questions or submissions.

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