MISSOURI
ForestKeepers MONITOR
SUMMER 2007

INSIDE THIS ISSUE:

MISSOURI FORESTKEEPERS NETWORK

Stop Tree-Killing Hitchhikers: Keep the Emerald Ash Borer Out of Missouri!

A Special Pest Alert for Forestkeepers

Most folks wouldn't pick up hitchhikers along the road, but many unwittingly take them camping. A particularly destructive hitchhiker, the emerald ash borer (EAB), can hide in wood transported for campfires.

Emerald ash borers feast on ash trees. Since its discovery, EAB has killed over 20 million ash trees in Michigan, Ohio, Indiana, Illinois, and Ontario, Canada. Officials estimate that the costs associated with EAB range in the tens of millions of dollars. So far, no North American ash tree has been found to be resistant to EAB. This insect has the potential to remove ash entirely from our forests, somewhat akin to the wake of destruction left by Chestnut blight and Dutch elm disease.

You can play a critical role in preventing the spread of EAB to Missouri by doing a few simple things:

- Don't move firewood long distances. Firewood is one of the primary means EAB is transported to new locations. If you go camping outside Missouri, DO NOT bring any firewood back with you.
- Purchase and use firewood on-site whenever possible. If you must bring wood from home, please burn all that you bring, just in case EAB larvae is hitchhiking in the logs. This will kill the larvae.
- Keep a look-out for potential signs of an EAB infestation. Visit *www.emeraldashborer.info* to learn what to look for, and see page three in this issue for more information.

Further resources about EAB may be found at *www.missouriconservation.org/firewood*. To report a potential EAB sighting, contact your nearest Missouri Department of Conservation office.

The Missouri Department of Conservation has created an informational sign designed for posting at campgrounds. If you would like to help spread the word about this destructive pest by posting a few of these at your favorite campgrounds, please contact Justine Gartner at *justine.gartner@mdc.mo.gov*, or call the toll-free Forestkeepers hotline at 1-888-9-FOREST.

By educating the public about the danger of transporting EAB via firewood and by keeping a close watch on our local ash trees, we can help stop the spread of this unwanted hitchhiker!

MISSOURI FORESTKEEPERS NETWORK

MISSION:
To develop a network of informed citizens working to conserve, sustain and enhance Missouri's urban and rural forest resources through volunteerism, advocacy, and management.

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Courtesy of the Missouri Department of Conservation

The Missouri Forestkeepers Network is a statewide volunteer program administered by Forest ReLeaf of Missouri in partnership with the Missouri Department of Conservation. Membership is free.

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Arboriculture from A-Z

By Mark Grueber, Urban Forester, Missouri Department of Conservation

One of the most respected individuals in arboriculture was a stickler for defining his terms. The late Dr. Alex Shigo emphasized that we can't communicate effectively until we adequately define our terms.

An issue that troubles many in the field is misinformation. It seems that much of this inaccurate information comes from the misunderstanding and misuse of many common terms. It is my hope that this short article will provide you with a good understanding of some of this terminology and thus a better understanding of trees!

Here are some of the more common terms and their definitions:

Arboriculture – the practice and study of the care of trees and other woody plants in the landscape.

Arborist – a trained and experienced professional who provides care and management for trees and other woody plants. Arborists should be certified by the International Society of Arboriculture. Visit *www.isa-arbor.com* for more details.

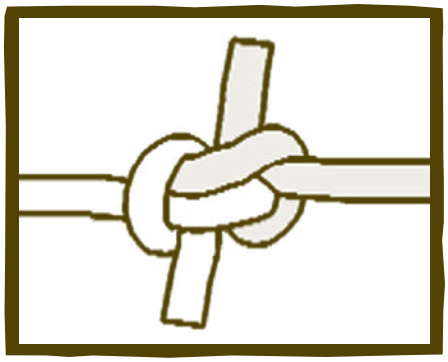
Compartmentalization – the natural defense process in trees to limit the spread of disease and decay organisms. Did you know that trees can't heal? Any injury to a tree, whether from a pruning cut, lightning strike, or vandalism, is with the tree throughout its life. Trees attempt to *seal* wounds or compartmentalize them to prevent harmful organisms from invading, rather than repairing the part of the plant that has been injured.

Cultivar – a cultivated variety of a plant, essentially a clone. Cloning has been part of the nursery industry for a long time. If you purchase a 'Red Sunset' maple, for example, your tree will have exactly the same characteristics as the parent tree. However, weather and site conditions will have a tremendous impact on how the tree eventually looks.

Fertilizer – a substance added to a plant or the surrounding soil to supplement the supply of essential elements. **Fertilizer is not plant food! You don't "feed" a tree.** It is unfortunate that the term plant food has become synonymous with fertilizer. Fertilizer does not provide energy to the plant. Energy is produced by the leaves during photosynthesis…remember your biology? Fertilizer can be as harmful to a plant as it can be beneficial. Know when and how much to fertilize! You can easily do a soil test to determine its needs by contacting your local University Extension office.

Hardiness (hardy) – the ability of a plant to survive low temperatures. Many times this term is used to describe how "tough" a plant is. Keep in mind that the person you're speaking with may have a different understanding of "hardy" than you do.

Native species – a species that naturally occurs in a region; the opposite of an exotic species. Native plants tend to be more tolerant of weather extremes and site conditions. Visit *www.grownative.org* for more information.



Zeppelin bend – a knot used by arborists with a really cool sounding name…and the only "good" z-word I could find in the arboricultural dictionary!

Definitions were paraphrased from the Glossary of Arboricultural Terms *published by the International Society of Arboriculture and* A New Tree Biology *by Dr. Alex Shigo.*

FEATURED SPECIES:

GREEN ASH

Fraxinus pennsylvanica Marshall

Illustrations courtesy of the Missouri Department of Conservation

Also known as red ash, this tree is adaptable to a wide range of conditions, transplants readily, and grows quickly. Because of this, it has been widely planted and is considered overplanted in many communities. The imminent appearance of the emerald ash borer in Missouri could wreak havoc on the tree populations in these communities. Green ash is a medium to large tree with a straight trunk and a round-topped crown. The wood of green ash is not as desirable as that of white ash, as the grain is coarser; however, it is used for many of the same items, such as musical instruments, tool handles, bats, and interior woodwork.

LEAVES: Opposite, pinnately compound with 5 to 9 leaflets and leaves somewhat spear-shaped; leaflets are 8 to 12 inches long; leaves are typically dark green on top and hairy underneath; leaves turn yellow in the fall and can be very bright and colorful.

BARK: Brownish with shallow grooves and interlacing ridges that form a diamond pattern.

FLOWERS: Appear in clusters in the spring before the leaves develop, with male and female flowers on different trees.

FRUIT: Appears in dense clusters; fruit is a winged seed (samara), which is 1 to 2 inches long and ½ inch wide. Female trees can produce an abundance of fruit and may be very messy.

HABITAT & RANGE: In addition to being found throughout many cities and towns, green ash grows naturally throughout much of the state. It is common in bottomland forests and by streams.

Treevia

FUN FOREST FACTS TO KNOW AND TELL!

- The emerald ash borer is very small, but very destructive. Metallic green in color, its slender body measures 1/2 inch in length and 1/8 inch wide. The average adult beetle can easily fit on a penny.

Q&A

Q: How can I tell if I may have found the emerald ash borer?

A: *The larvae of the EAB (immature stage) is flattened, cream-colored, approximately one-inch long when fully developed, and feeds underneath the bark of ash trees, leaving S-shaped galleries packed with fine frass. The adult beetle emerges from the tree, leaving a D-shaped exit hole that is 1/8 inch in diameter. These insects only attack and feed on ash trees; however, there are other insects and borers that are native to Missouri which also attack ash. Infested trees may show symptoms such as canopy dieback, vertical bark splits, sprouts from the base or on the trunk, the D-shaped exit holes, and woodpecker feeding. For more information, visit* http://www.mdc.mo.gov/forest/health/ashborer/ *or call 1-888-9-FOREST.*

Have a question about Forestkeepers, trees, or what you read in this issue? Contact us at *information@forestkeepers.org* or by mail to: Q&A, c/o Forest ReLeaf of Missouri, 4207 Lindell Blvd., Suite 301, St. Louis, MO 63108.

Welcome New Members

We would like to welcome the following new members to the Missouri Forestkeepers Network:

Hattie Alexander
Elizabeth Allemann
Amies Rendezvous
Dwain Asberry
Blue Jay Farm
Jason Bost
Nick Brammeier
Billy and Leticia Carpenter
Joseph and Candice Coleman
Currier Family
David Dawson
Ryan Dawson
Judith Dudley
Kristi Foster
Pat Frizzell
Paula Fusaro
Devin Gaspard
Steve Haile
Keith Halfpop
Travis Hambach
Incarnate Word Academy
Hudson School Fifth Graders
Jack and Stephenie Kitchingham
Jeff Lieber
Karen Lohkamp
Dylan Love
James Love
Ronald Marler
David May
Vanessa Melton
Benjamin T. Micek
Mill Creek Wilderness
Missouri Environmentalist
Judy Morton
Mike Noonan and Family
Jeray Norman
Dave and Floralyn Perry
Jason Powers
Robin Raine
Michael Rhoads
Tom Sampson
St. Nicholas Pre-School
Scofield's Grizzlies
Ken and Gloria Sennert
David Silvey
Ava Simnitt
Mary Singleton
Steven Singleton
Gabriel Smith
Becky Snelson
Ralph Street
Strop Family
Nancy Tharpe
Deb Vastine
Brian Waldrop/Missouri Stream Team 211
Weible Family Homeschoolers
West St. Francois County High School Science Department
Herb Williams
Mary Workman
Wright Family Homeschoolers

Do you know someone who might be interested in becoming a Forestkeeper? Call 1-888-9-FOREST or visit *www.forestkeepers.org* for details on joining our network of more than 1,900 citizens who are working to conserve, sustain, and enhance Missouri's urban and rural forest resources.

Summer Activity

A seasonal project to enjoy with the whole family

A Log Home

Find a decaying log in the woods and look for signs of life. Ask your kids or grandkids, "Did you know that log homes are busy places?" Explain that dead trees can spend the next several years as log homes.

You'll need:

- Magnifying glass
- Insect and/or mushroom field guides. These guides can be found in libraries, bookstores or on the Internet.

Use the magnifying glass to get a closer look. You may see holes in the bark made by birds in search of bugs, or by the bugs themselves leaving the tree. *(Note: If you live in areas with venomous snakes or biting insects, first make sure they don't inhabit the log you plan to study!)*

Carefully peel back a small part of the bark. Notice the smell of the decomposing wood. Look for evidence of tunneling insects. Sometimes, they leave debris underneath the bark. Look for long white or black strings, which are fungi decomposing the wood. Look for mushrooms on the log, which also indicate fungi. Using a field guide, identify the organisms that have made the log their home.

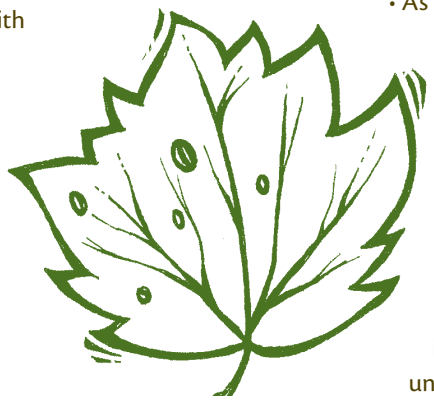
FORESTKEEPERS BULLETIN

Diseases and Healthy Forests

By Bruce Moltzan, Forest Pathologist, Missouri Department of Conservation

Missouri is well known for its oak-hickory forests, which make up 14.6 million acres of land for recreation and wildlife use. Management of this vast resource becomes a big priority when we consider the damage pests can cause.

There are three basic influences acting on our forests at any one time: fire, insects, and disease. Healthy forests need the combination of these damaging agents in order to maintain diversity. In recent years, much of the natural forest has been fragmented, giving rise to an increase in disease events. Trees, which were once buffered from pests, are now increasingly exposed along the edges of urban sprawl, often with undesired consequences.



Adding to the risk of disease are the increases in movement of wood and its products in ever broadening global markets. With free trade comes the potential to introduce pests that would otherwise never pose a problem to our native trees. Dutch elm disease, Chestnut blight, Butternut canker, White Pine blister rust, and Sudden Oak Death are all examples of diseases that were introduced into the United States in the last 100 years, all of which have significantly reduced the use of these tree species in forest and urban landscapes.

Disease differs from insect injury by definition as any harmful deviation, caused by a persistent agent, impacting the normal function of a tree. Diseases take time to develop and often disrupt vital functions such as growth, water uptake or photosynthesis.

Consider the following annual progression that comes into play every growing season:

- In early spring, *winter desiccation* can be seen on many junipers and pines. The primary damage occurs on the above ground branches of trees, as they wake up too early with their root systems still stuck in frozen soil. The result is that water does not move up the tree and the needles turn brown, so the tree appears to be burning up. In most cases, as the soil thaws, the tree recovers. However, in areas where conifers are exposed to high winds, damage can be severe.

- As leaves break forth in spring on trees such as ash, maple and sycamore, *anthracnose* begins. Leaves begin to form brown spots and, if conditions are just right, the disease may cause leaves to fall to the ground. The severity of these *anthracnose* diseases will vary based on how much moisture is present and site conditions under which the trees are grown. In general, leaf pathogens only cause major problems for the tree if the next flush is also lost in the same season. A good cultural practice for control is to rake up the fallen leaves to reduce the amount of spores available for future spread of the disease.

- By the time May and June get here, our red oaks may suddenly start dropping their leaves, as is the case with *oak wilt*. Leaves bronze from their tips inward and fall because the oak wilt fungus clogs the water transport system. Oak wilt in red oaks is always fatal. Other wilts such as *Verticillium wilt* on maple and *Pine wilt* of Scotch pine also exhibit their symptoms during this time. Wilts are difficult

continued on next page >

CLIP AND SAVE

PREVIOUS TECHNICAL BULLETINS:

#1 Our Upland Oak-Hickory Forests
#2 Bottomland Forests
#3 Missouri's Coniferous Forests
#4 Urban Forests and Plantations
#5 The Gypsy Moth
#6 Dogwood Anthracnose
#7 The Japanese Beetle in Missouri
#8 Butternut Canker and Its Dwindling Host
#9 Asian Longhorned Beetle
#10 Chip Mills in Missouri
#11 Community Forestry
#12 Proper Pruning
#13 How to Hire an Arborist
#14 Can These Trees Be Saved?
#15 Maintenance of Backyard Trees
#16 Selecting Professional Tree Care
#17 Tree Protection During Construction
#18 Poison Ivy
#19 Tick-Borne Diseases
#20 Chiggers
#21 Snakes of Missouri
#22 Managing Your Forest
#23 Are You Protecting Missouri's Water?
#24 Selling Timber the Smart Way
#25 Timber Stand Improvement
#26 Benefits of Livestock Fencing
#27 Edge Feathering
#28 Managing for White-Tailed Deer
#29 Turkeys & Woodlands
#30 Underutilized Trees for Missouri Landscapes
#31 Managing Your Yard for Trees and Grass
#32 Windbreaks: Protection That Grows
#33 Evergreens: Selections for Your Landscape
#34 Specialty Products
#35 Heating with Wood
#36 Utilizing Eastern Red Cedar
#37 Black Walnut: Missouri's Most Valuable Tree
#38 Those Pesky Insects

You can access these bulletins online at *www.forestkeepers.org* by clicking on "Newsletters" on the homepage.

Diseases and Healthy Forests

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to control since they are often internally localized in the water transport system of the tree.

- As trees move into July and August, the heat index begins to play a prominent role in *drought scorch*. Many trees begin to experience browning along the edge of their leaves. Some, such as cottonwoods, drop their leaves entirely; this is a normal event for these trees each year.
- Oaks growing on ridge tops and south-facing slopes may begin to decline or look 'ratty' in appearance as their roots become further infected with *decay* and *stem cankers*. In general, red oaks are more prone to this condition, though recently white oaks growing in these locations have also been shown to decline.

When faced with leaf spots or browning, homeowners are often quick to ask what they can spray. However, most tree disease problems cannot be solved with the application of a chemical, or the expense of that chemical isn't warranted. Homeowners must first be sure of the specific problem that is occurring. Only then can a wise decision be made on the appropriate control strategy.

Often sanitation activities like raking and disposing of leaves, disposing of infected wood, or pruning out infected parts are the most effective control techniques. In addition, activities like mulching and watering trees may help to retain and increase moisture for the tree during dry conditions.

By September, most trees have gathered what they needed from the sun and stored this energy in their roots for next spring. If buds were set, then the likelihood of a return of the tree next spring is good. On the other hand, if tips of conifers have died or entire branches have died due to a specific disease, then the prognosis may warrant removal of diseased branches during the winter. A good rule of thumb says if two-thirds of a tree's branches are dead, then remove the tree and plant something else. Remember, the best advice is always to plant the right tree in the right place.

"Remember, the best advice is always to plant the right tree in the right place."

CLIP AND SAVE

More Than Oaks: The Comprehensive Wildlife Strategy and Forest Wildlife

By Dennis Figg, Wildlife Programs Supervisor and Amy Buechler, Natural History Biologist, Missouri Department of Conservation

Healthy forests are busy places full of wildlife. Forests have woodpeckers hammering at beetle grubs, chickadees in the treetops, squirrels chewing on acorns, frogs in the ravines, and fungi that grow on fallen branches, littering the forest floor among the ferns. Healthy forests grow much more than oak trees!

Working with Missouri's broad conservation community, the Missouri Department of Conservation developed a comprehensive wildlife strategy to conserve wildlife in the broadest sense – trees, insects, wildflowers, grasses, birds and other animals. The Missouri landscape supports a wide diversity of habitats and natural communities. The Comprehensive Wildlife Strategy (CWS) helps ensure that forest wildlife remains healthy and productive.

In this rapidly changing world, much forest habitat is becoming highly-altered or permanently lost. Missouri's CWS accomplishes several things for forest habitats.

First, it identifies specific places where we still have healthy functioning forests. How do we know that? Partly, we recognize healthy forests because they have all or many of the plants and animals you would expect to find there. Places like the forested hills surrounding Current River, Eleven Point River and Bryant Creek should be a priority for us well into the future because they are healthy today.

Secondly, the strategy identifies places where forest restoration is badly needed. Some of the best bottomland forests in the state are in the Missouri Bootheel, but they are fragmented and most are not presently large enough to sustain wildlife for the long term. Planting trees and growing restored forests in the vicinity of Donaldson Point Conservation Area (southeast of New Madrid) is an important conservation action.

Thirdly, not all forests are created equal, but the various forest types are all equally important. The point is that different forest types produce different wildlife. For example, the birds you observe in the mixed pine oak lands of the high dry ridges of the central Ozarks are different than the birds that live in the cool damp mesic forests along the Missouri River bluffs. One of the goals of the CWS is to conserve healthy versions of all forest and woodland types across the state.

The places where we have a strong opportunity to conserve or restore healthy habitats, including forests, are called, "conservation opportunity areas." In these places, the strategy helps various conservation agencies and partners integrate their conservation interests. If everyone is in agreement on the kinds of wildlife that need to be encouraged in the long run, then we can work more effectively together.

Missouri's CWS offers a way for Missouri's conservation partners to work together to conserve "all wildlife." Members of the Missouri Forestkeepers Network play an important role in monitoring and keeping forests healthy. The CWS strives to keep common species common, from chickadees to squirrels, ferns, and oak trees! Together, we can work to keep these natural resources healthy for future generations.

To learn more about Missouri's Comprehensive Wildlife Strategy, visit: *www.missouriconservation.org* and search for "Conservation Opportunity Areas."

Mentor Program

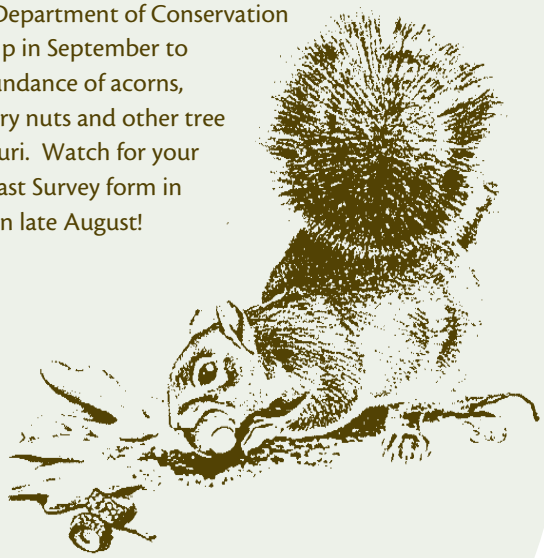
If you find yourself thinking that you'd like to get started on your tree observations and other activities, but are unsure just where or how to begin, then the **Forest Mentor & Apprentice Program** may be just what you need!

To sign up for the program, simply contact us and request an application. We will then do our best to match you up with an experienced member to help you where needed. Mentoring is available in many subject areas, including tree observations, tree care, tree identification, forest management, insects & diseases, and advocacy. The amount of time you spend in the program is up to you and your mentor!

For an application or more information, call 1-888-9-FOREST or contact us at *information@forestkeepers.org*.

Feel Like a Nut?

The Missouri Department of Conservation needs your help in September to survey the abundance of acorns, walnuts, hickory nuts and other tree fruits in Missouri. Watch for your copy of the Mast Survey form in your mailbox in late August!



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