



# MISSOURI ForestKeepers MONITOR

WINTER 2007

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## Upper Mississippi Forest Partnership

By Steve Westin, Forestry Field Program Supervisor, Missouri Department of Conservation

### THE MISSISSIPPI RIVER IS THE LARGEST

floodplain river ecosystem in North America and the third largest in the world. Nearly two-thirds of the land area of the continental United States is drained by the Mississippi. The Upper Mississippi River Basin, located upstream from Cairo, Illinois, is a major sub-watershed of the Mississippi, with a drainage area of approximately 189,000 square miles in portions of six Midwest states.

The state forestry agencies from Missouri, Iowa, Illinois, Indiana, Minnesota, and Wisconsin have joined with the U.S. Forest Service to form the Upper Mississippi Forest Partnership (UMFP).

The goal of the partnership is to improve water quality and migratory bird habitat in the Upper Mississippi River watershed by restoring riparian forests and improving the condition of existing forests throughout the area.

### ISSUES OF CONCERN:

- Each year, sediment and nutrients are washed off the landscape, into tributaries, and ultimately into the Mississippi River, which reduces farm income, increases channel maintenance costs, threatens drinking water supplies, and fills side channels used by wildlife.
- Aquatic organisms and fish are harmed by environmental contaminants attached to soil particles and deposited in river pools. Dredging river sediment costs more than \$100 million annually.
- The Upper Mississippi River watershed comprises 15 percent of the entire Mississippi watershed, but contributes more than 30 percent of the nitrogen that causes the hypoxic zone in the

Gulf of Mexico. At times covering over 7,000 square miles off the coast of Louisiana, this "dead zone" is an expanse of oxygen-depleted waters that cannot sustain most marine life. Current estimates suggest that three times as much nitrogen is being carried into the Gulf today compared with levels 30 years ago, or at any previous time on record.

- Forests and wetlands that provide important migratory bird habitat continue to be lost or fragmented by population growth and development. Many of the remaining patches of forest are too small to function as healthy forest ecosystems.

### PLAN FOR ADDRESSING CONCERNS:

Because the Upper Mississippi watershed encompasses such a large area, a GIS analysis was conducted to prioritize where resources should be allocated. The analysis addressed four issues: reestablishment of bottomland forests; planting trees in riparian zones to prevent sediment from entering streams; identification of important migratory bird habitat; and conservation of priority forest areas.

### THE GIS DATA WILL BE USED TO:

- Prioritize the efforts of the four UMFP working groups (bottomland forests, riparian buffers, bird habitat, and priority forest conservation). Results from a 2006 stakeholders' meeting will also be considered.
- Prioritize projects funded through the Upper Mississippi River Watershed Fund, which is administered by the National Fish and Wildlife Foundation in partnership with the USDA Forest Service.



**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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**DESIGN:**

501creative, inc.

**ILLUSTRATIONS:**

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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# Advancing Armadillos

**LOCAL NEWSPAPERS AND TV BROADCASTS**

are increasingly reporting sightings of armadillos in Missouri. Many employees of the Missouri Department of Transportation, as well as passing motorists, have reported spotting the bodies of armadillos along our highways. As the number of sightings grows, it is time to learn more about this unusual animal.



The nine-banded armadillo (*Dasypus novemcinctus*) is the only armadillo which lives in the U.S. It is not native to Missouri, but began pushing into the southern part of the state in the early 1980s. It has now increased its range to north of the Missouri River.

The opossum-sized mammal has big claws and a long pig-like snout. Its head, body and tail are covered by a protective armor of bony material. The critter moves quickly and is a good swimmer. When startled, an armadillo can jump three to four feet straight up in the air, which is deadly if a car is passing overhead. Beetles, grubs and earthworms are the armadillo's primary diet. It is said they can smell insects through six inches of soil.

Most damage from armadillos occurs as a result of their habit of rooting in lawns, golf courses, vegetable gardens, flower beds, and the like. If you think you have an active one

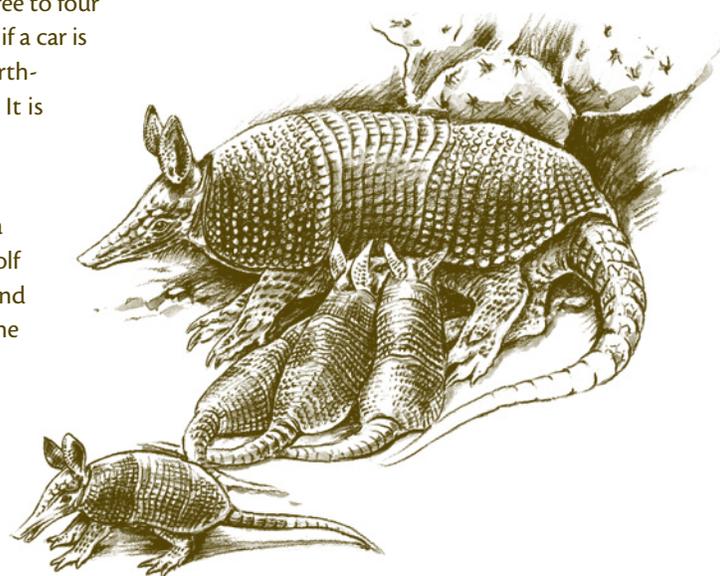
in your yard, look for shallow holes one to three inches deep and three to five inches wide. The armadillos dig these holes in search of food. Their digging handiwork has left some yards looking as if "a plow had gone through," says Tom Meister, a wildlife damage biologist for the Missouri Department of Conservation.

Many scientists have speculated that the armadillos' northward migration would be stopped by the cold weather. They do not have large fat reserves to help insulate their bodies, so logically it would seem they would be unable to adapt to the cold winter weather in our state. However, it appears that the armadillo is surprising everyone!

They dig burrows that range from two inches to 12 feet deep, and up to 25 feet long. Armadillos build large nests of grass or leaves inside their burrows. Even though their bodies may not be able to tolerate the cold for very long, living so far beneath the soil and snow can give them the insulation their bodies cannot provide.

Armadillos require a constant source of water. According to the experts, armadillos can survive in areas that receive at least 15 inches of precipitation every year. As Missouri's driest year in the last century yielded 25 inches of precipitation, the armadillo population in Missouri may be here to stay!

For more information on this unusual animal, go to: <http://hgic.clemson.edu/PDF/PCWDARMADILLOS.pdf>



FEATURED SPECIES:

# BLACK WALNUT

*Juglans nigra* L.



*Illustration courtesy of the Missouri Department of Conservation*

A Missouri favorite found throughout the state, black walnut is a large tree, reaching up to 90 feet in height with a straight trunk and rounded, open crown. Its shape and leaf form make it an excellent ornamental, but black walnut is most often grown for wood products or nut production. The wood is highly prized and used for many purposes, including veneers, gunstocks, furniture, and novelty items. The tasty nuts are used in baked goods, ice cream, and other foods, and they are an important food source for wildlife.

**LEAVES:** Alternate, pinnately compound; one to two feet long with multiple leaflets; hairy stalks; emerge late in the spring; turn yellow in fall and drop after the first hard frost.

**BARK:** Gray-black to brown, ridged and furrowed; chocolate-colored when cut; wood is hard, dark brown and coarse-grained.

**FLOWERS:** Male and female flowers are found on the same tree; males appear as catkins and females are in short spikes.

**FRUIT:** A round, green husk, 1½ to 2½ inches wide, which turns dark brown at maturity. Inner nut is dark-colored, hard and sweet.

**HABITAT & RANGE:** Often occurs in moist areas and semi-open woods; also found in old fields.

*Editor's note: Please see pages 5-6 for more information on the black walnut.*

## Treevia

FUN FOREST FACTS  
TO KNOW AND TELL!

- Growing, harvesting and processing trees into wood products gives thousands of people jobs and contributes about \$3 billion each year to Missouri's economy.
- Approximately one-third of Missouri is covered by forest land, featuring some of the finest oak, walnut, pine and red cedar trees anywhere.

## & QA

**Q:** I would like to incorporate Forestkeepers materials into my lesson plans. Can I get extra materials for my students?

**A:** Upon request, we will send a specified number of Biltmore sticker sets, window clings, and Student Observation Forms for educators enrolled in Forestkeepers. You may also be interested in obtaining a copy of the Correlations for the Missouri Forestkeepers Network & the Missouri Show-Me Standards & Science Grade Level Expectations to learn how the program can benefit your students. Simply contact us and we'll send the information you need.

Have a question about Forestkeepers, trees, or what you read in this issue? Contact us at [information@forestkeepers.org](mailto:information@forestkeepers.org) or by mail to: Q&A, c/o Forest ReLeaf of Missouri, 4207 Lindell Blvd., Suite 301, St. Louis, MO 63108. We will try to answer your questions in the next issue.

# Welcome New Members

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

Beyers Family	Josh and Bailey Martinez	Trenton R-IX Biology
Tim Blankenship	Metallo Family	Albert Tryon
Clovis Cox	Richard and Deana Mieser	Valley Park High School
Emma Despain	Kathi Moore	Warren County R-3 High School
Girl Scouts of Mid-Continent Council, Kansas City	Perryville High School Environmental Science Class	Warrensburg Middle School Voyagers, 7th Grade
Richard and Katherine Grover	Sue Rhoades	Finis Watt
Aaron and Angie Jungbluth	Kenny Rodgers	William White
Juanita Kahle	Jim Schultz	Leroy Witthaus
Kingsville FFA	San Luis Rey	
Julie Lewman and Family	Seneca FFA	
Barbara Lier	South Holt FFA	

Do you know someone who might be interested in becoming a Forestkeeper? Call 1-888-9-Forest or visit [www.forestkeepers.org](http://www.forestkeepers.org) for details on joining our network of more than 1,800 citizens who are working to conserve, sustain, and enhance Missouri's urban and rural forest resources.

## WINTER ACTIVITY

*A seasonal project to enjoy with the whole family*



## Counting Whorls

### WHEN A BREAK COMES IN THE COLD

weather, as it often does during winter in Missouri, get outside and enjoy your yard or a local park. Take a look at the evergreen trees and learn how old they are by counting the branch whorls. Many needle-leaf trees put on one whorl (a circle of branches around the stem) each year. Find some young pine or spruce with your family, count all the whorls, and *voila* – you will have the age of the trees. This works best on trees under 30 years of age, and doesn't work with cedar.

### Look for trees that are...

- the same age as your children
- just a baby
- your age minus your son's or daughter's age
- the oldest ones

Point out that trees in the woods can be many different ages, and that size does not always correspond to age. Trees that are able to compete successfully for sunlight, nutrients, and water will grow taller and put on more girth than their counterparts. Sometimes the large tree may not be the oldest, just the best competitor!



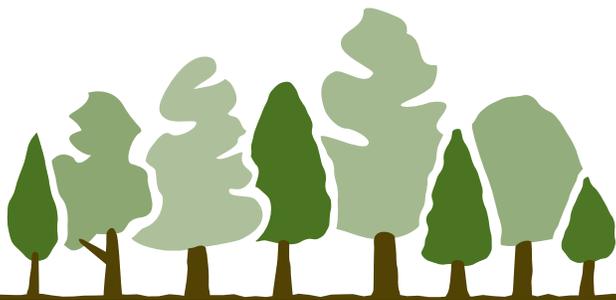
*Adapted from the Backyard Woods program of The National Arbor Day Foundation and the USDA Forest Service, Northeastern Area.*

## Upper Mississippi Forest Partnership

*continued from page 1*

Discussion with partners continues regarding where the UMFP can add value to local projects. If you are a landowner in this area of concern, consider reestablishing bottomland forests and/or planting trees in riparian zones to prevent sediment from entering streams.

Further information about the Upper Mississippi Forest Partnership may be found at: [www.na.fs.fed.us/watershed/upper\\_mississippi\\_partnership/](http://www.na.fs.fed.us/watershed/upper_mississippi_partnership/).



# FORESTKEEPERS BULLETIN

## Black Walnut: Missouri's Most Valuable Tree

**BLACK WALNUT (*JUGLANS NIGRA*) IS ONE** of the most valuable and sought after trees in the Midwest. It has long been in high demand for wood products because of its beautiful color, strength, durability, dimensional stability after drying, and excellent machining qualities. Besides excellent wood, walnut trees produce edible nuts and food for wildlife. When you care for and/or plant black walnut trees, you are making an investment that may pay off handsomely in future years.

### USES FOR WALNUT

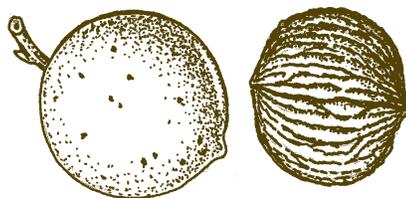
Top-quality logs are sliced into veneer, which is then glued to wall panels, doors, furniture, and cabinets. Veneer is most often cut from the lowest portion of the tree's trunk and is typically 8½ feet long with very few defects (e.g. small limbs, knots, or damage from pecking birds). Logs with more significant defects, including large limbs, knots, or areas of decay, or which are bent or curved, can often be sawed into usable lumber and gunstock blanks.



The portion of a tree not suitable for lumber may be used for novelty items. Wood from the stump, large branch crotches, and burls is especially desirable. However, specialty markets are limited.

Prices for standing timber vary greatly depending on log quality and size. The size at which a walnut tree should be harvested depends on its log quality and

growing site quality. A high-quality tree on a good site may be left to grow larger than 24 inches in diameter. A low-quality tree, or one on a poor-quality site, may be harvested when it is less than 16 inches in diameter. It is best to contact a forester for advice before harvesting or marketing walnut trees.



The rich nut meats of the black walnut are also prized. They are used primarily in commercial baking, ice cream, candy, and for retail sale. Missouri produces more walnut nut meats than any other state in the nation. The shells are ground and used as a polishing abrasive, as an additive to well-drilling mud, and in dozens of other products.

Walnuts are an important food for squirrels, white-tailed deer, and woodpeckers.

### WHERE WALNUT GROWS

Black walnut is also called American black walnut and eastern black walnut. This tree occurs in every county of the state, although it is generally found as isolated trees or small stands.

Black walnut is a long-lived tree, sometimes exceeding 200 years in age. If you are considering planting this tree for an investment, bear in mind that your grandchildren will be the ones to realize the return. High-quality trees take more than a lifetime to develop.

Walnut grows best in deep, well-drained, almost neutral soils. It can be found on almost any site,

By Justine Gartner,  
Forestry Field  
Program Supervisor,  
Missouri Department  
of Conservation

*continued on next page >*



**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

You can access these bulletins online at [www.forestkeepers.org](http://www.forestkeepers.org) by clicking on "Newsletters" on the homepage.

# Black Walnut: Missouri's Most Valuable Tree

*continued from page 5*

except where it is constantly wet. Look for it in mixed stands of ash, cherry, basswood, sugar maple, white oak, hickories, or elm.

## AGROFORESTRY

Not willing to wait years for a return on your trees? Then consider growing trees solely for nut production. Plant them in widely spaced rows and adapt the "alley cropping method" by placing row crops between them or shrubs beneath them. Unfortunately, trees grown for nuts usually produce poor quality timber as the wide spacing encourages low branches.

Agricultural crops grown between tree rows provide annual income while the nut trees mature. Crops that have been grown successfully with walnut include corn, soybeans, winter wheat, forage, vegetables, berries, and even Christmas trees. Over time, the nut trees may take over the site, ending other agricultural activities. As a rule of thumb, space trees relatively close together within a tree row (six to 10 feet), but space rows far apart (40 feet or at least four feet wider than the equipment used to maintain annual crops).

## MANAGEMENT OF EXISTING TREES

The quality of existing stands of black walnut can be increased with a little effort. Releasing trees with good form can exponentially increase their growth, and a little time spent pruning can drastically reduce the number of defects in a tree. Remember that it pays to grow high-quality trees! Markets for crooked, limby, and short-bodied walnuts are poor.

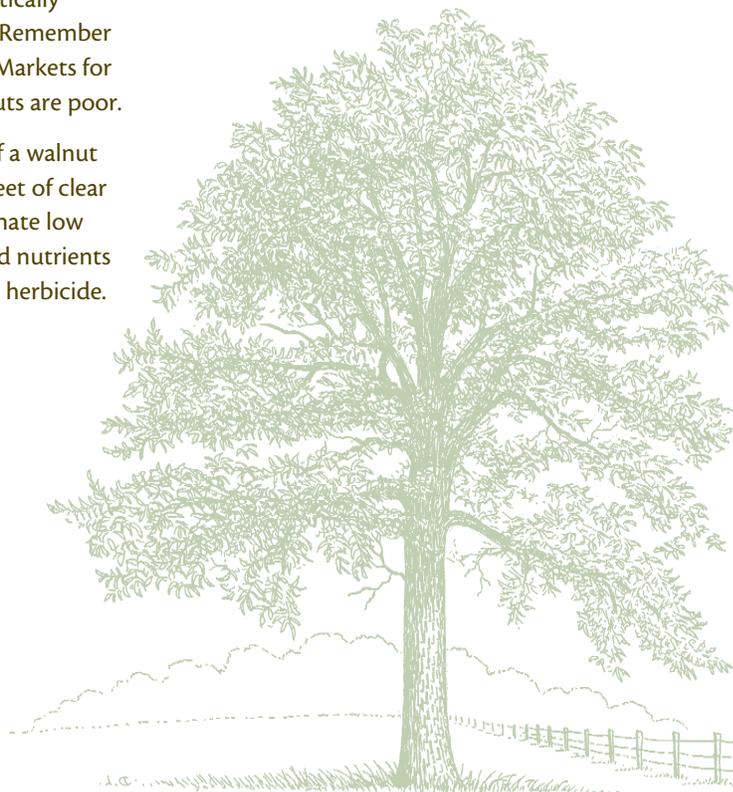
For best results, the crown or the top of a walnut tree needs room to grow. At least five feet of clear space around the top is desirable. Eliminate low quality trees that compete for space and nutrients by girdling them or injecting them with herbicide.

Walnuts with more room will grow faster. In fact, the growth rate may more than double that of crowded trees. When selecting walnut trees to release, be sure to select those of the highest quality. (Forestkeepers Bulletin No. 25, "Timber Stand Improvement," provides more information on this topic, and Bulletin No. 12 outlines proper pruning techniques. You can access these bulletins at [www.forestkeepers.org](http://www.forestkeepers.org).)

## FUTURE OF BLACK WALNUT

Growing black walnut trees requires energy, enthusiasm, money, and years of commitment. Although walnut timber value has increased over time, changes in supply and demand, land prices, and the tax consequences of growing trees make it difficult to predict the long-term financial outlook for this wood. However, black walnut has been, and continues to be, a premier hardwood marketed throughout the world. Some uses of black walnut have decreased, while new uses for the wood, nuts, and by-products continue to expand.

Whether you plant just a few trees for wildlife or many acres for wood products or nut production, the rewards of growing black walnut can be very satisfying.



# Snapshot!

Highlights of Forestkeepers activities around the state in 2006

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## CENTRAL REGION

John Foster pruned nearly 50 walnut and oak trees and removed weedy trees from his property in Boone County.

Gwen Wilder planted 25 trees and managed a TSI program on 60 acres in Howard County.

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## KANSAS CITY REGION

Linda Hezel planted and cared for over 100 trees and hosted tours of her farm in Clay County.

Mark Hatfield worked with 140 students on an outdoor classroom project at Campbell Middle School in Jackson County.

Norval Netsch planted and cared for over 300 trees and recorded tree observations in Johnson County.

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## NORTHEAST REGION

Theresa Casey and 80 of her high school biology students monitored the condition/health of trees at Mark Twain Lake in Ralls County.

Caryl Meier assisted the Missouri Department of Conservation with Scout activities for Arbor Day in Monroe County.

Tom and Cindy Wiltshire managed their property in Lewis County for pests and attended several forestry-related training sessions.

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## NORTHWEST REGION

Harry Wolfe monitored trees and maintained food plots for a variety of birds on his land in Chariton County.

Ronald Adam spent time locating and identifying butternut trees and treating unwanted vegetation in Clinton County.

James Brown planted cedar, oak, pine, walnut and many other tree species on his property in Gentry County.

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## OZARK REGION

Bob Danburg planted several dogwood and peach trees on his property, and he put out 15 nest boxes for bluebirds in Wright County.

Duane Martin and Cub Scout Pack 202 learned about tree and shrub identification and also spent time picking up trash at a Scout day camp.

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## OZARK REGION, *continued*

James Hyland sprayed for pine webworm and worked in his woods doing TSI and making firewood in preparation for planting additional trees in Texas County.

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## ST. LOUIS REGION

Jesse Black surveyed his property in St. Louis County for deer and turkey populations.

Brian Murphy used Forestkeepers materials with his students and worked on building an outdoor classroom at Valley Park High School in St. Louis County.

Joseph Stefanko maintained eight food plots over the summer and picked up trash/maintained fire trails in St. Charles County.

Ted Allison planted 140 trees in 63 different species on his property in St. Charles County.

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## SOUTHEAST REGION

The Edgar Family took time to plant trees, treat unwanted vegetation, and take care of a public area in Cape Girardeau County.

Carol Wilkinson began the process of turning her 1.5 acres in Cape Girardeau County "back to nature" with more vegetation for wildlife.

John Stanard built an eight-acre moist soil unit for waterfowl and other wildlife in Butler County.

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## SOUTHWEST REGION

Dwight and Barbara Ittner planted new seedlings on their 129-acre tree farm in McDonald County.

Tim Warden installed a deer feeder and cleaned and restocked a wildlife pond in Christian County.

Erica Cox incorporated Forestkeepers into her lesson plans for her students and helped them record observations of trees in Laclede County.

Liz Ballard spent hundreds of hours installing/maintaining a wildlife water source, in addition to advocating on behalf of the environment in Christian County.

# Mark Your Calendar

Spring 2007 Workshops & Events

## Basic Tree Care Workshop

St. Louis – March 10

## Forestkeepers Annual Conference

St. Charles – June 2

Call 1-888-9-FOREST or check the website at [www.forestkeepers.org](http://www.forestkeepers.org) for more information.

# Hunt for Strange & Extraordinary Trees

Thanks to everyone who submitted photos for the Second Annual Hunt for Strange & Extraordinary Trees!

The strangest and most extraordinary images from the hunt will be available for your viewing pleasure on the Forestkeepers website beginning in February. Winners of the random drawing for all participants will be notified on February 28 and the winners' names will then be posted on the website.



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