



# The Leaflet



Photo courtesy of Forest ReLeaf Volunteers

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## A year of extremes: Forests in floods

By Glore Ruiz, Forest ReLeaf Engagement Specialist

Most tree stewards and advocates intuitively know that trees aid in rainwater management. A tree's strong root systems not only help in water uptake but also hold the soil in place to prevent extreme erosion. Their leaves slow the speed of rainfall by intercepting raindrops, absorbing some of the impact, and reducing the velocity of the flow. A small percentage of the stormwater will even evaporate before reaching the ground. Overall, when compared to the concrete and asphalt found in many of our urban spaces, a lawn with trees produces 80% less stormwater runoff.

This ecosystem service that trees provide is more than just numbers—it also has a tangible impact on human health. In the last few years, an increased emphasis has been placed on the overlap between health in humans and the environment on a state and national level. The concept of One Health emphasizes that human wellness is a holistic combination of physical, mental, and social well-being, all of which are directly tied to the quality of our environment. In the words of former Missouri Department of Conservation Director Sarah Pauley, “If nature doesn't thrive, neither will we.”

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## Wood Ducks

Wood ducks are the most common waterfowl species that nest in Missouri. They nest within tree cavities, usually a mature tree with a hollow at least a few feet off the ground. Tree cavities provide a safe space for the wood birds to nest their eggs until they are ready to hatch. Habitat loss and overhunting for their meat and plumage caused severe declines in the wood duck's population by the late 1800s, but federal and state conservation laws helped rescue this species, and artificial nesting boxes have helped increase populations to where they are now stable.

*"Wood Duck" by flickr user Dan Strieffert, used under the Creative Commons Attribution license*

## Wooden Ducks

The earliest known waterfowl decoys are more than 2,400 years old and were found well preserved in a Nevada cave in 1924. Traditionally made with driftwood, two substantial pieces of wood are joined to make a wooden duck decoy; one for the body and one for the head. The art of their creation continues to this day, with utilitarian decoy ducks made with less detail, and occasionally out of plastic. Sculptural decoy ducks have become an art work in their own right, crafted with life-like details to create a piece of art rather than a practical tool.

*Photo by David Stonner, courtesy Missouri Department of Conservation*



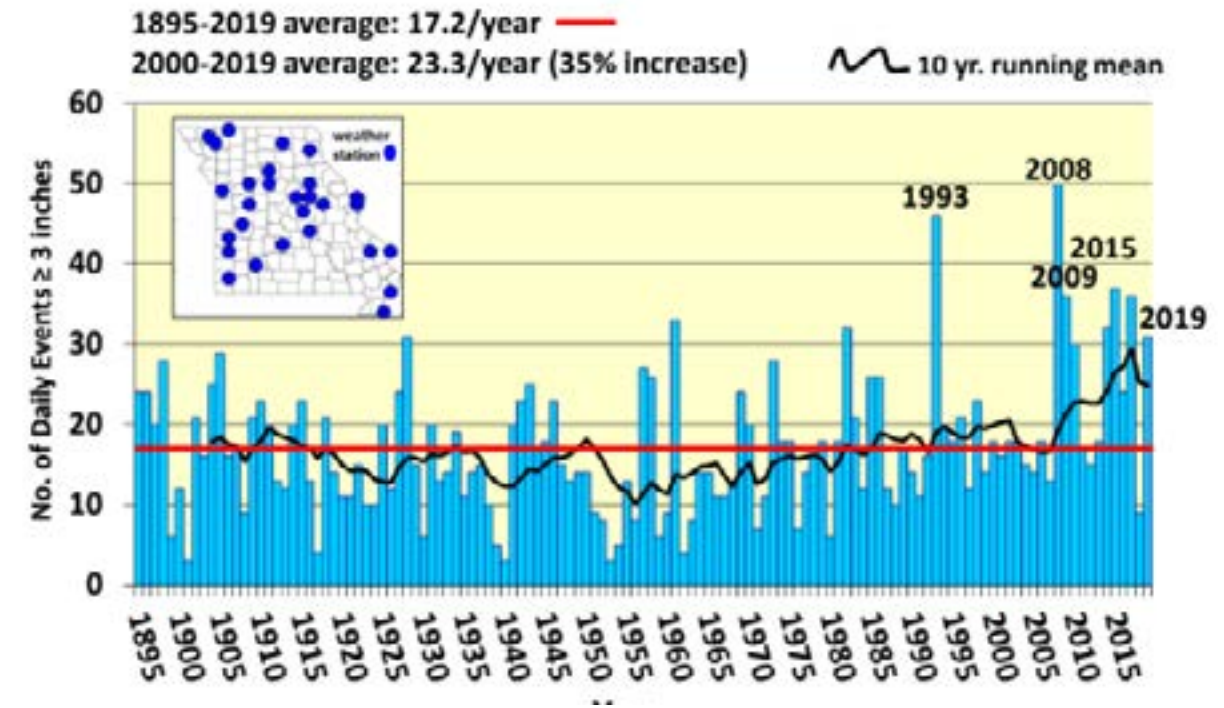
## Managing Woods for Wood Ducks

Whether large or small in acreage, your property can offer quality wood duck habitat. The most important steps are to protect trees with cavities that provide nesting locations and to install artificial boxes if natural cavities are in short supply. Establishing and managing for shrubby cover and emergent and thick woody vegetation along streams can provide both food and protective cover for broods. Plants that are rooted in soil and grow in shallow water, referred to as emergent plants, are important for growing ducks as they attract many aquatic insects, an important source of protein and the majority of wood duckling diets.

*"Wood Duck Nest Box" by Flickr user Jimmy Smith, used under Creative Commons Attribution Noncommercial License*

## The Forest in Flood

### Number of Daily Rainfall Events $\geq$ 3-inches in Missouri



Flooding and stormwater management are critical aspects of this relationship. Despite this summer's continued drought conditions, historic weather data shows that Missouri is in a "wet period." According to the National Oceanic and Atmospheric Administration and Climate Missouri, the average rainfall in Missouri has risen from an average of 17.2 days with observed rainfall over 3 inches from 1892-2000 to 23 days with above-average rainfall from 2000-2020. These longer and larger rainfall events, when interspersed with periods of water scarcity in hot months, can have catastrophic effects on our community's infrastructure and sense of personal safety.

The dramatic influx of rain on drought-parched and non-permeable surfaces leads to a volume of water that exceeds our municipal system's capacity, causing sewage and stormwater system backflow to pose a public health risk. While a traditional municipal approach relies on pipes and structures to manage stormwater, designers and planners are increasingly turning to plants to help reduce the load. Trees and other plants capture, slow, and filter out stormwater before it enters the system through natural filtration, infiltration, and evapotranspiration.

If asked how trees help with flooding, the first contribution most people think of is that trees intake a percentage of the rainfall for nutrient and water transportation. A USDA Forest Service study states that a community forest of 10,000 trees can retain approximately 10 million gallons of rainwater per year. One tree can reduce stormwater by up to 4,000 gallons annually, though this estimate is based on a large mature tree in southern California. In midwest forests, stormwater outcomes will be very sensitive to variables such as location, tree species, and tree age. This was highlighted at the 2024 Forrest Keeling Fall Field Day, where Jerany Jackson emphasized the importance of protecting mature canopy in his session "Greens Spaces and Growing Pains". Planting new trees in bioswales, rain gardens, and riparian buffers is crucial to managing future issues as their inherent rain-management benefits will grow alongside the tree. For the present, making sure we conserve our existing forests and protect our mature street trees will help us weather the storm ahead.

## Featured Species Bald Cypress *Taxodium distichum*

By Mark Halpin

Bald Cypress is the longest-lived tree species east of the Rocky Mountains. This is an incredibly durable tree: the wood is highly resistant to decay, and ancient logs salvaged from swamps are still viable for woodworking. The tree is resistant to pests and diseases of all types, its tissue exceedingly supple and able to withstand the hurricane winds so common in the southern portion of its range, as well as ice loads further to the north. Reaching 120 feet, it is often the tallest tree in an area measured from the ground (or water), but its habit of dwelling in swamps and bottomlands further protects it from damage. With a modest spread seldom exceeding 30 feet, it is paradoxically a huge tree that can fit into relatively tight areas in a landscape, and can be planted in close groupings without “cramping its style.”

Bald cypress is “bald” because it drops its needles; it is a “deciduous conifer”. We often use the terms “evergreen” and “conifer” interchangeably, but this plant, along with evergreen angiosperms like many hollies and the southern magnolia, remind us that this isn’t correct. Deciduous conifers are uncommon, but we have two in our region that perform admirably: Bald cypress, pond cypress (*Taxodium ascendens*, a “sister species”). Both are native to the “bootheel” area of the state, but have taken off in popularity in other areas due their elegant form and ability to manage storm water.

Bald cypress will grow quickly with adequate moisture (up to 2 feet per year), but is surprisingly tolerant of dry conditions and can be an excellent street tree. Its famous (and often-cursed) “knees” (pneumatophores, in scientific jargon) tend not to form in such dry conditions. Its soft foliage, lovely fragrance, long life and ease of care have made it a favorite in parks. It seldom requires any pruning other than removal of lower limbs for clearance. It’s one of those trees that’s almost too good to be true - long lived, fast growing, problem free, gorgeous and fragrant.



## Q&A

### What are these Tree’s Knees?

The Bald Cypress has well adapted to the aerobic soil conditions of the swamp.

In addition to a trunk of with a wide, swollen base, or buttress, that helps to support the tree in wet, unstable soil, it also grows knobby, cone-shaped humps around the base called knees. Its thought that these help with aeration of the roots and support stabilization of the tree.



### Did you know:

Many birds, including wood ducks, eat the seeds. In addition to providing food for wildlife, large trees provide habitat as well, supporting in their boughs nests of many species and becoming crucial habitat for more animals after the trees die, fall, and begin to rot on the forest floor.

# FOREST BULLETIN



Photo Courtesy of Glore Ruiz

## Restoration in action: ForestKeepers at Shoal Creek

By Ellen Sulser

This October, a dedicated group of ForestKeepers visited Neosho to observe restoration work being done firsthand. Since 2020, the Shoal Creek Watershed Alliance has been working to restore over 35 acres at the confluence of Hickory and Shoal Creeks. They’ve preserved over a mile of streambank and riparian corridor, as well as 5 acres of wetlands. This site serves as an educational hotspot for Stream Team and other local citizen science projects, showcasing how multipartner efforts can promote ecological well-being in southeastern Missouri.

The ForestKeepers arrived just in time to plant the last of 600 trees in a restoration project aimed at preventing streambank erosion. These native saplings, provided by Forest ReLeaf of Missouri, will act as stream buffers and help rebuild the native habitat. Before the Shoal Creek Consortium acquired the land, it had degraded due to loosely managed cattle and litter from the adjacent train tracks. From the back of a pickup truck, the work of the Land Learning Foundation, Nature Conservancy, Midwest Waters Initiative, Riverlaw.org, and Missouri Stream Team organizations was visible. At the edge of a regraded stream bank, visitors could see where tree stumps had been anchored along the banks with their roots facing into the current to slow down the flow of water and provide habitat for aquatic animals. Logs in the stream redirected the flow of water towards the center of the stream and away from the eroding banks. The tour also highlighted ephemeral wetlands, the start of a wet prairie and lowland ecosystem, and the beginning of a mixed woodland forest complete with Shellbark hickories for bat habitat. In the few years since the project began, Shoal Creek has already seen the return of seasonally migrating birds and wildlife.

The visit concluded with a summary of the site’s educational efforts, a recap of ForestKeepers Network accomplishments, and a Statewide Forest Health Review highlighting challenges and invasive species to look out for in the year ahead.

# Take a Hike!



Photo courtesy of MDC

## Quick Information:

**Acreage:** 76

**County:** Butler

**Owner:** Missouri Dept. of Conservation

**Directions:** From Neelyville, travel east on Highway 142 about 5 miles. Then turn right (south) onto Highway H. Travel south on Highway H for 2.5 miles. Follow this gravel county road for a half mile, until the entrance area on your left side.

## Allred Lake

*Oldest Cypress Grove in the State*

This is a small remnant of the once vast network of swamps and bottomland forests that once covered the Mississippi Lowlands of southeast Missouri. This area contains one of the best quality examples of lowland swamp and bottomland forest in Missouri. A 76-acre portion of the area is designated as a Missouri Natural Area and is managed and protected for its outstanding educational and scientific values. Here you can experience a natural scene similar to that found in Louisiana and other gulf coast states. Cypress, water tupelo, overcup oak, and water locust ring the slough called Allred Lake. Mature bald cypress trees are highly tolerant of saturated or flooded soils. The cones and scales float which is the primary method of seed dispersal. The wood of mature cypress is very rot resistant and is desired for fencing, boat planking, piers, siding and shingles.

On drier ground of the bottomland forests, surrounding the sloughs, look for the stunning blooms of spider lilies in the summer months. In the sloughs swim fishes at the northern edge of their range, the taillight shiner and the cypress darter. Look and listen for prothonotary warblers, wood ducks, green herons and barred owls here.

From the area parking lot a short trail leads to a boardwalk and overlook above the slough waters constructed along the western side of the lake for nature viewing and photography. Fishing is not permitted here due to the rare fish species inhabiting the small slough.

## Featured Events

### Establishing a White Oak Seed Orchard

Wednesdays- Jan 15, Jan 22, and Jan 29, 12- 1:00 pm

**Register at <http://muext.us/WhiteOakGardenPlot> or contact Schweiss at [schweissb@missouri.edu](mailto:schweissb@missouri.edu).**

University of Missouri Extension has partnered with the Missouri Department of Conservation on a program to establish white oak seed orchards on private land. Interested landowners can receive 50 white oak seedlings after completing a free three-part webinar series.

### Prescribed Burn Workshops

Saturday, January 11th 9:00 am- 2:30 pm at Land of the Osages Research Center

Saturday, January 18th 10:00 am- 2:00 pm at MDC Branson Office

Prescribed burning can be a valuable tool for managing native plant diversity and controlling undesirable vegetation, but it can be dangerous and ineffective when not used properly. This workshop will provide basic information about how to plan and execute a prescribed burn for grassland management.

Upon registration, participants will be emailed a link to the virtual/online portion of the prescribed burn course. Registrants will need to successfully complete the online course and quiz to attend the field day event. Please bring your certificate of completion and mileage record.

### First Day Hikes with Missouri State Parks and Missouri Department of Conservation

Wednesday, January 1st, 2025 (varies)

**View Participating Locations at [mostateparks.com/FirstDayHikes](https://mostateparks.com/FirstDayHikes)**

Explore a new park or rediscover an old favorite with this annual tradition. 23 state parks and historic sites are scheduled to participate, as well as MDC sites like Powder Valley Nature Center. Hike distance and trail intensity vary by location.

### Trees: A Walk in the Bark

Saturday, January 11, 2025 10:00 am - 11:30 am

Cape Girardeau Nature Center

Many people find it difficult to identify trees in the winter. Leaves are gone, one of the only things left is bark, and many are left feeling like they are in a sea of nameless vertical logs. Learn how to identify a variety of trees in winter while enjoying a walk on one of the nature center trails.

### Homeowner Tree Care: Caring for Your Trees

Date: Saturday, January 18, 2025 10:00 am -12:00 pm

MDC Northwest Regional Office

Learn best management practices for your local landscape and how to identify and address common tree issues.

## Welcome Members!

Jerry Aldon  
Chelsey Aragon  
Krystyn Baker  
Sueanne Cmheil-Warn  
Hunter Davidson  
Victoria Dudgeon  
Sarah Faggetti  
Ben Gazall  
Steven Gee  
Shauna Gholston  
Teresa Hireman  
Amber Turnbough  
Casey Villanueva  
Kacy Wells  
Michael Wilkinson  
Danica Wiser

The Leaflet is produced by the Missouri Forestkeepers Network in partnership with the Missouri Department of Conservation and Forest ReLeaf.

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### CONTRIBUTORS

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[forestkeepers.org](https://forestkeepers.org)

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## Tree Tasks for the New Year

*Shake off winter hibernation and take advantage of opportunities outdoors to observe and care for trees.*



### **Tackle Pruning Projects**

Winter is the best time to prune many species because they are dormant and subject to less stress. Evaluating which cuts to make is easier because crossover branches, water sprouts, bad branch angles, and double leaders are all easily visible on naked branches.

### **Take on a Species ID challenge**

Tree evaluation in winter provides a unique perspective. It allows us to look beyond leaves and hone in on some of the subtle characteristics that are often overlooked. Because bark, buds, and form are the defining means of winter tree identification, it's a great time to brush up on learning the variation between species and how to distin-

guish between trees with similar foliage.

### **Look at Seasonal Features**

Keep an eye out for early winter blooms of maples, persistent berries on deciduous hollies and hawthornes, and displays of peeling bark on birch, hints of ochre in Osage orange trunks, or the distinctive squares of persimmon.

### **Participate in the Vernal Witchhazel Hunt**

Keep an eye out for the 2025 request for help tracking the bloom time of this unique ozark species.

Stay in up-to-date on this, and other projects at [forestkeepers.org](https://forestkeepers.org)