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## Hot Cicada Summer

*By Glore Ruiz and Ellen Sulser*

Even a solitary oak can support a multitude of insects, fungi, and microbes. Research by entomologist Doug Tallamy has shown that native oaks support more than 550 different species of butterflies and moths alone. While many of these species tend to slip by unnoticed, starting this May, one insect will make itself impossible to ignore. Cicadas, the source of Missouri's quintessential summer sound, are predicted to come out in force in 2024. With wings that extend past their abdomen and large bug eyes, and a tendency to leave shed exoskeletons on trees and sign posts, cicadas are easy to recognize by sound or sight.

"Periodical Cicada Brood XIX (*Magicicada tredecassini*), captured at Penny's Bend Reserve, North Carolina, by cotinis on May 2, 2011.. Used under a Creative Commons license."

Although we are used to seeing cicadas every summer and may assume that they keep a rather stagnant population size, that is far from the case. Here in Missouri we experience both annual and periodical cicadas populations. Annual cicadas are brown, green and white with dark colored eyes and emerge from late June to August every year. Periodical cicadas, or the portion of the species that emerge in multi-year cycles, are seen less consistently, but when they emerge they heavily impact the overall population of cicadas. These cicadas have a slightly different



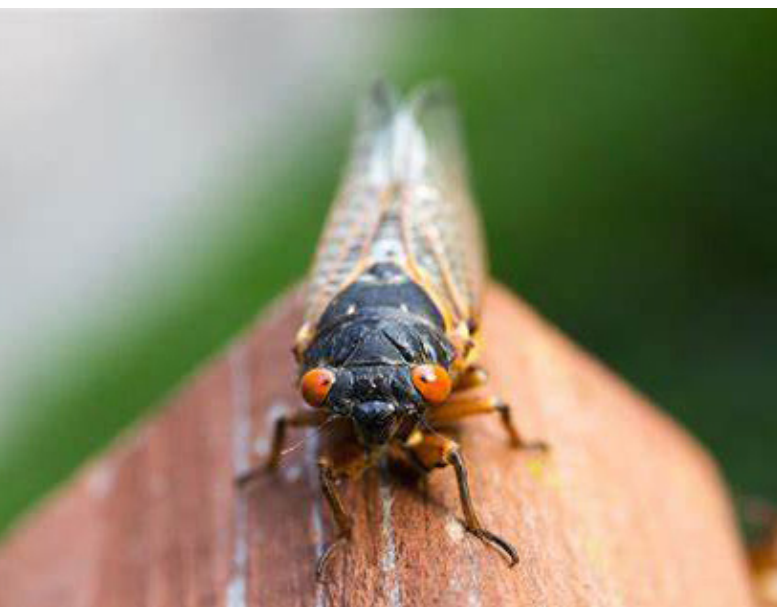
## Mysterious Bark Damage

Occasionally winter walks through the woods can lead to unexpected observations, like a series of holes drilled in a neat row on a tree. These are caused by Yellow bellied Sapsuckers. Their unique neat rows of holes, known as sap wells, are drilled into the inner bark layer (cambium) of tree trunks. Sap wells have been noted in more than 1,000 species of trees and other woody plants, but these birds prefer trees with sweet sap, such as birches and maples.

## Yellow Bellied Sap Suckers

Despite its name, the yellowish tint on the Yellow-bellied Sapsucker's underside is usually subtle. More often, what stands out are the vertical white stripes along this woodpecker's folded wing and its black-and-white face. Both male and females have bright red foreheads, but males also have red throats.

Although sap is an important food source for this species, especially in early spring, it makes up only about 20 percent of the bird's overall diet. The rest of its nourishment comes from phloem (soft inner tree bark) and insects, especially ants, that are procured by gleaning, excavating, and flycatching.



## Cicada Sound Levels

- A lawn mower pollutes as much in one hour as driving a car 20 miles.
- Lawn mowers use 580 million gallons of gasoline each year.
- 30 to 60% of urban fresh water is used for watering lawns.
- About 67 million pounds of pesticides are used on U.S. lawns each year.

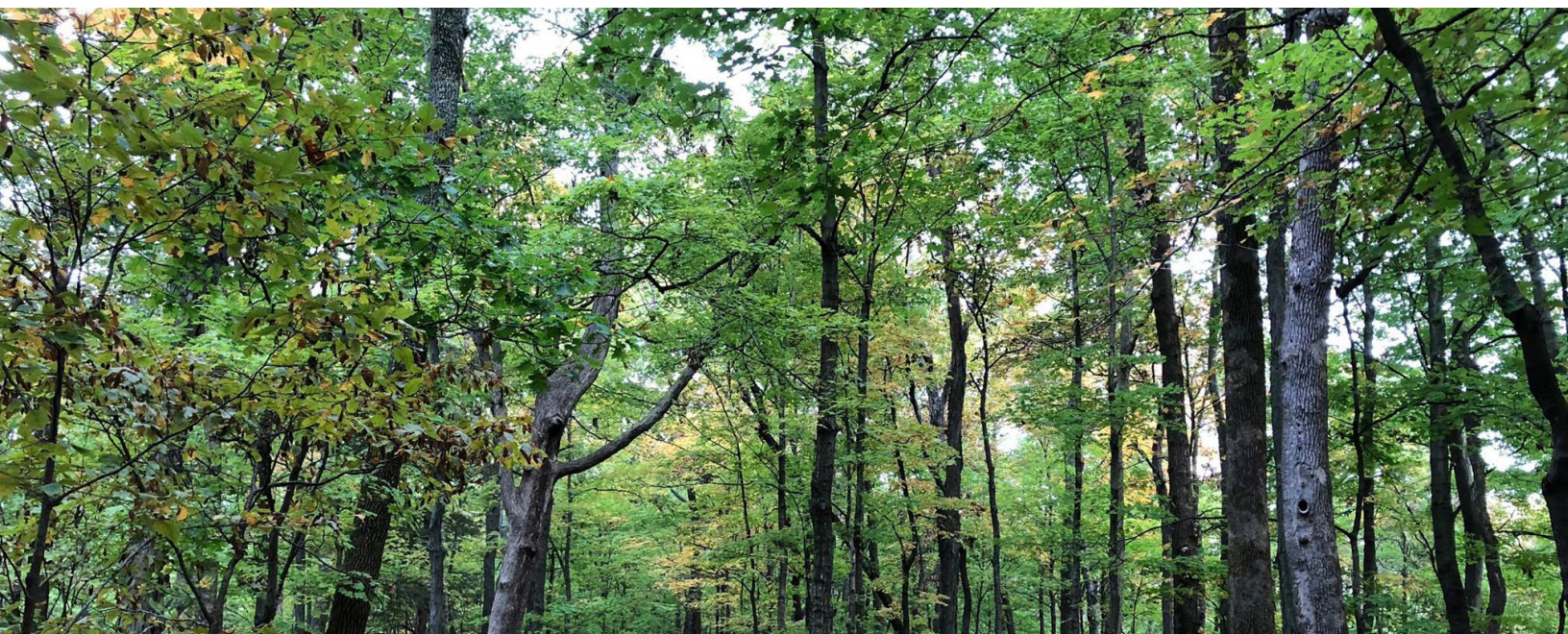
## Hot Cicada Summer (cont.)

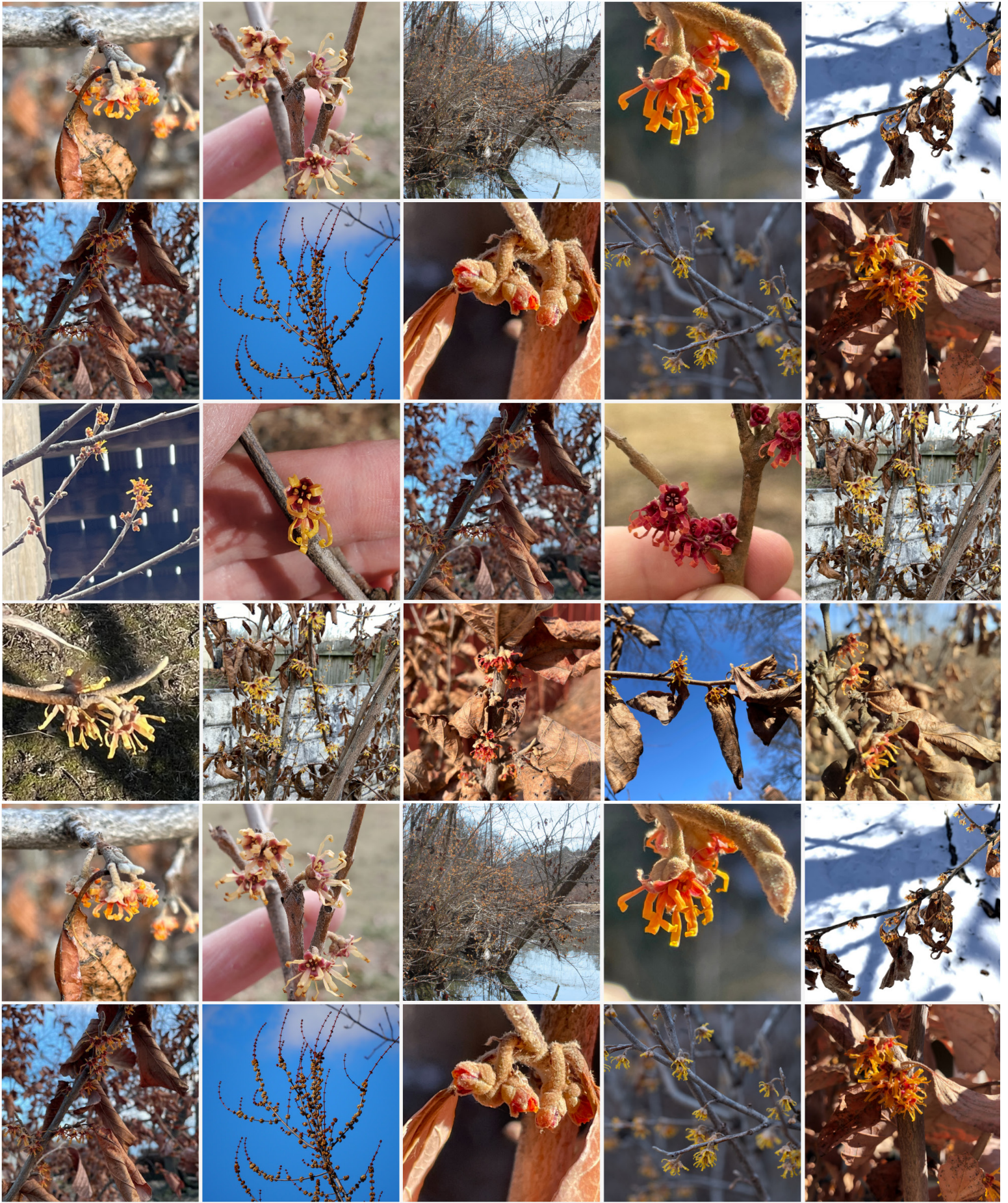
appearance as they have a black body with orange markings and red eyes. This year from May to June Missouri will be inundated with cicadas as Brood XIX emerges. Last seen thirteen years ago in 2011, this cicada is Missouri's largest brood and is nicknamed "The Great Southern Brood". This Brood consists of four species of 13-year cicadas whose range spreads from southern Iowa to the southern coastal states, and as far east as Washington D.C. Their emergence is triggered when soil temperature roughly eight inches below ground reaches sixty-four degrees Fahrenheit, around mid-May. After spending years as nymphs underground, they rush to attract potential mates through their "singing". Once the periodical cicadas are gone, this brood won't be spotted here again until 2037. Their impact on forests, however, will be seen almost immediately.

Female cicadas select the woody plant tissue of our shrubs and trees, searching for pencil sized twigs to use as egg laying sites. This process can strain the twig and potentially damage the tree. While a healthy adult tree can usually persist through this injury, a young or newly planted tree might not yet be able to sustain the loss of delicate branches. Although insecticide is not warranted and will not prevent cicadas from laying their eggs on trees, the young trees can be protected from cicadas with nets. The problem can also be circumvented by planting trees when periodical cicadas are not in mating season.

Ultimately, this means that this spring might not be an ideal time to plant a seedling, as that tree would be susceptible to the high cicada population that may be present and the resulting damage to its branches. While as many as 1.5 million cicadas can gather in an acre, their short lifespans keep these invertebrates from causing too much damage. Waiting to plant trees in early fall, after periodical cicadas are finished with their reproduction cycle, will allow those newly planted trees a much better chance at survival. Although periodical cicadas may delay our planting plans, they also play a valuable role in the food chain and enriching our soil.

Unlike many other summer insects, cicadas do not bite or sting, and are not toxic to people or pets. In fact, they're quite beneficial to our grounds and any residential lawns. Cicadas create underground tunnels that improve water percolation as well as aiding in gas exchange in compacted soil. Since cicadas in a brood die at the same time, in numbers greater than their predators can consume, they also provide a great deal of nutrients to the soil through their decomposition. Thanks to having a readily available food supply, birds and squirrels experienced a population boom during the last emergence of periodical cicadas. There were actually so many cicadas during this time that some of us humans tried a taste. In 2011, Sparky's Homemade Ice Cream in Columbia MO infamously decided that while they were out there, they might as well make a cicada flavored batch. While this garnered national attention and a surge of business for the local company, ultimately the shop realized the flavor was not something they were interested in keeping long term. According to the business owner, the flavor was only on the shelf for less than a day, and will not be making an appearance in 2024's summer menu. Hungry humans will have to look elsewhere if they're hoping for a satisfying crunch, or settle for the classic butter pecan.





# FOREST BULLETIN

## Phenology Fun

As spring creeps its way across the midwest, landowners, naturalists, and tree enthusiasts are keeping an eye out for spring blooms and early leaves. While many Missourians track the change of seasons informally, tracking nature's calendar of seasonal phenomena is a long standing method of biological study. Phenology is the study of how nature's events, such as flowering, migration, or leaf fall, are influenced by seasonal and climatic changes. Across the country, scientists and volunteers are keeping track of the timing of natural events through organizations like ForestKeepers and the USA National Phenology Network. This data collection is especially important as the climate changes. When an abnormally warm winter throws off the timing for an organism like a plant, that can have a cascading effect, causing dependent animals like migrating birds or pollinators to miss out on a food source.



"Most of what we know about how phenology has changed in recent decades is because of observations that folks have made on a voluntary basis," said Theresa Crimmins, a professor at the University of Arizona and director of the USA National Phenology Network in recent interview with St Louis Public Radio. "While making observations on phenology is really beneficial for science and trying to adapt to rapidly changing climate conditions, it's actually a really fun and rewarding experience too," Crimmins said. "Every time I go out there and look at my plants, I'm so glad that I did. It feeds my soul a little."

Inspired by the ongoing redbud phenology project, the Missouri ForestKeepers Network launched a new project in winter 2024: the Witch Hazel Hunt.

Vernal, or Ozark, witch hazel is among the earliest blooming native plants of Missouri. Its blooms, small flowers often hidden by persistent old foliage, provide sustenance and shelter to overwintering pollinators. While typically vernal witch hazel starts blooming midwinter, warm temperatures started an early bloom in St Louis. Forest Keeper Members sought to answer the following questions:

- 1) When does Ozark witch hazel flower and fruit across the tree's range in Missouri?
- 2) Has the timing of flowering and fruiting advanced in recent years?

By tracking observations on the plant's life cycle stages through budding and blooming through this process, known as phenology, we hope to gain a better understanding of this iconic species and the way it supports pollinators and moods throughout some of the coldest parts of winter. With this year as a baseline, the ForestKeeper Network will be able to start drawing trends about how much the shift in winter temperatures affects the plants and the species they support.

The witch hazel hunt had over 152 observations submitted through online and physical data sheets, with more arriving in the mail as we speak! This represents multiple observations across 60 zipcodes spanning the width of the state. Our team is processing the data and hopes to get an informational graphic and preliminary results on the Forestkeepers.org site in time for earth month. Keep an eye out for more information soon!

## Meet your State Forester *Michael Bill*

There's a new State Forester in town- after serving for 18 years in the Missouri Department of Conservation as a Resource Forester in Eminence, District Supervisor in Southern Missouri, and the statewide Habitat Management Coordinator, Michael Bill is taking over the role. Justine Gartner, the founder of Forestkeepers, held this position until her retirement this January. The State Forester leads the MDC Forestry Section- handling policy and procedures dealing with Sustainable Forestry Practices, Credentialing, Forest Products and harvesting as well as wildfire and prescribed burns. They coordinate with the Regional Resource Management branch to ensure that the high-level management and strategic plans made on the statewide level are implemented on the ground by managers in a way that aligns with both local resource needs and the existing policy.

Michael's hands-on background and range of experiences will bring a valuable perspective to the MDC Forestry Section. He's been a forester first-hand, so he knows how any policies created or decisions on a daily basis will affect the folks on the ground. That experience working with private landowners and partners will serve him well as the State Forester.

His love for the outdoors and immersing himself in nature was fostered at an early age while growing up in Illinois farm country. "I spent many days of my childhood exploring my family's 100 acre patch of woods," Michael said. "This early access to nature, in an area that was largely surrounded by cornfields, led me to focus on a career with a conservation outcome". It was at Southern Illinois University Carbondale that he discovered his love of Forestry as a subject and an occupation. In this new role, Michael looks forward to tackling some of the biggest challenges facing Missouri's Forest and Woodlands: the spread of invasive species, making sure there's enough professionals on the ground to make a difference, and the increase of parcelization of existing forest tracts and habitats.

Although his work has him looking at the big picture, Michael recognizes that individual efforts will also go a long way to understanding and addressing these issues. "Citizen Science is a big part of the solution, whether folks are monitoring forest health or tracking bees and other pollinators, there's lots of opportunities for people to be involved as advocates through the Forestkeeper Network and other organizations. Missouri has a long history of citizens acting as a voice in the community and promoting conservation- that's why we have the organization of MDC... citizen lead efforts that made a long-term difference that we're still seeing now."

What's the State Foresters Favorite tree?

"Definitely an Oak- I'd say my favorite is the White Oak... It's a great species: beautiful and an excellent wildlife tree and timber product. It's drought resistant, lives along time - there's a lot to love!"

# Take a Hike!



## Eagle Bluffs Conservation Area

*The area sits on the Missouri River & Perche Creek, providing over 10 miles of stream frontage on Eagle Bluffs & has adapted to the Missouri River's changing course.*

### Quick Information:

**Natural Wildlife Refuge:**

**Acreage:** 4,431

**County:** Boone County

**Owner:** Missouri Dept. of Conservation

**Region:** Central

**Address:** 24279 State Highway 51  
Puxico, MO 63960

MDC purchased the Eagle Bluffs Conservation Area to offset the loss of nearly 90% of Missouri's historical wetlands. The wetlands have been restored by creating 17 shallow pools. The wetland management infrastructure includes 30 miles of levees, 61 water control structures, river water supply pumps, a water supply junction box, pump-out facilities, and a pipeline linking the area to the City of Columbia's wastewater treatment wetlands.

Columbia and MDC entered into a cooperative agreement that allows MDC to use treated wastewater as a primary water source for the wetlands. The city's "recycled" wastewater provides a near constant source of water, but river pumps can supplement the water supply when need exceeds the flow.

The wetland pools allow the flooding of 1,100 acres of moist soil marshes, emergent marshes, and crop fields. These provide year-round habitat for migrating and wintering birds and wildlife. In the fall, the area's beauty is enhanced by colorful foliage along the bordering limestone bluffs. The Katy Trail State Park passes through this area and adds to the public's enjoyment of the area. The parking lot located on Warren School Road provides walking access to the scenic overlook.





### *Upcoming Events*

#### **Oh, for the Love of Trees!**

Date: Saturday, April 13, 2024 1:00 pm - 2:00 pm

Location: Cape Girardeau Nature Center

Celebrate Arbor Day early! Planting trees is a fun and rewarding experience, whether it's one or a hundred trees. But the fun isn't over; learn about the next steps on how to care for your newest tree generation. A few extra measures go a long way when giving your trees a leg up as they grow and mature.

#### **Wild Edibles: Tasty and Wild Spring Jellies, Syrups, and Sodas**

Date: Tuesday, April 16, 10:00 am - 11:30 am OR 12:00 pm to 1:30 pm

Location: Lost Valley Hatchery

Spring flowers make for some delicious jellies, syrups, sodas, and other wild treats. Join us to learn how to identify, harvest, and prepare jellies, syrups, sodas, and other wild edibles. This class includes both native plants suitable for planting in your yard and non-native plants you can weed and eat.

#### **On the Road to Maple Woods NA - Virtual**

Date: Thursday, April 18, 2024 12:00 pm - 1:00 pm

Registration required through <https://DeepRoots.org> (adults) This is a mature maple/oak forest and is recognized by the National Park Service as a significant Natural Area in Gladstone, Missouri. Learn with MDC experts why it is a popular spring destination to view migrant songbirds and wildflower displays. This program is in partnership with Deep Roots KC.

#### **Hiking: Spring Beauty at Saint Francois State Park**

Date: Saturday, May 11, 2024 9:00 am - 3:00 pm

Location: Cape Girardeau Nature Center

With the icy winds of winter giving way spring wildflowers start to bloom. Join us at Saint Francois State Park for a hike along a 3.4 mile trail. This trail follows the Current River before climbing 300ft in elevation and looping back. Pack your lunch and enjoy the beautiful scenery when we stop to eat. The difficulty of Swimming Deer Trail is moderately-difficult due to the 300ft elevation gain along the middle of the trail. Participants will meet at the nature center and carpool to the state park.

# Welcome Members!

Brittany Booth  
Alyssa Carter  
Anne Coleman  
Eva Fingerhut  
Nolan Gartin  
Claire James  
Jennifer Johnson  
Deborah Kirsch  
Silvia Kozlovsk  

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Jack Hambene  
Amy McGough  
Emily McNiff  
Ann Ulrich  
Jason Welcher

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