

MISSOURI CONSERVATIONIST

VOLUME 87, ISSUE 5, MAY 2026
SERVING NATURE & YOU





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ON THE COVER

Male spicebush swallowtails are puddling on minerals along a creek.

NOPPADOL PAOTHONG

14mm lens, f/16
1/160 sec, ISO 400

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Inbox



Want to see your photos in the *Missouri Conservationist*?

Submit your photos online via [flickr.com/groups/mdcreaderphotos-2026/](https://www.flickr.com/groups/mdcreaderphotos-2026/), [mdc.mo.gov/magazine-reader-photos](https://www.mdc.mo.gov/magazine-reader-photos) or by emailing readerphoto@mdc.mo.gov

1 | Whorled milkweed by **Katy Hulsey**, via web submission

2 | Gray treefrog by **Todd Hall**, via web submission

3 | Green stink bug by **Steven Haddix**, via Flickr

4 | Prothonotary warbler by **Doug Wallace**, via Flickr

➔ In the December issue we plan to feature even more great reader photos. Send in your best year-round pictures of native Missouri wildlife, flora, natural scenery, and friends and family engaged in outdoor activities. Please include where the photo was taken and what it depicts.



Letters to the Editor

Submissions reflect readers' opinions and may be edited for length and clarity. Email Magazine@mdc.mo.gov or write to: MISSOURI CONSERVATIONIST PO BOX 180 JEFFERSON CITY, MO 65102

OWLS IN THE CLASSROOM

Thank you for your outstanding magazine! I teach elementary school science and used your article about owls to create a new lesson for my young students [*Owls*, February, Page 10]. They had fun pretending to be these amazing birds: flying silently, experiencing darkness, looking carefully, hooting to each other, and listening with all their might. Passing around the stunning photographs from your article helped them to visualize our local owls. Keep up the good work promoting nature for generations to come.

Christine Torlina Jefferson County

CONSERVATION AND 4-H

I really appreciate your magazine as I have taken it for many years. I was a 4-H volunteer for 52 years and in those years, I used the magazine in my entomology projects with the youth. Thanks for all the wonderful articles and stories.

Betty Mayo Huntsville

WHAT'S A PICTURE WORTH?

"A picture is worth a ... " We've heard it all before. The photos by Noppadol Paothong and David Stonner in *The Perfect Dichotomy* [March, Page 16] were, as always, awesome and absolutely amazing. The captions were kept to a bare minimum, which was just fine. It's not necessary to say more. As they were, the vibrant photos did tell a story.

To finish what I started to say, cliché notwithstanding: "A picture is worth a thousand words."

Alfredo I. Custodio Florissant

Up Front



* Growing up in small town Missouri, I learned what it means to be part of something bigger than yourself and the importance of being dependable, accountable, and committed to relationships. Those values continue to guide me today.

In conservation, success is rarely achieved alone. The work we do on behalf of Missouri's natural resources depends on people coming together, especially when managing our state's deer herd. At a time when it can feel like division and misinformation prevail, it's important to focus on what unites us. As social psychologist Jonathan Haidt shares, "The strongest and most satisfying communities come into being when something lifts people out of the lower level so that they have powerful collective experiences." That's exactly what conservation has represented in Missouri for generations.

For nearly 90 years, this agency has worked alongside Missourians who care about the outdoors to meet challenges head-on. That spirit is needed now as we face serious concerns about wildlife disease in our deer population. Science makes it clear that inaction carries real consequences, but the path forward depends on people, not just data. It requires listening, collaborating, and acting together.

Since my open letter in December, I've been encouraged by the thoughtful input we've received from hunters, landowners, and conservationists who care about Missouri's outdoor heritage. I'm grateful for your engagement, your perspective, and your commitment. We'll continue these conversations through additional listening sessions, and your voices will help shape the decisions ahead. Collectively, we can ensure a healthy future for our deer herd and the landscapes we all value.

JASON SUMNERS, DIRECTOR
JASON.SUMNERS@MDC.MO.GOV

Our Mission

The Missouri Department of Conservation protects and manages the fish, forest, and wildlife of the state. We facilitate and provide opportunity for all citizens to use, enjoy, and learn about these resources.



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HABITAT MANAGEMENT

Taking the Pulse of the Land

The Community Health Index allows biologists to quickly assess habitat condition

by Dianne Van Dien

✳ Fully evaluating a habitat — its plants, animals, soils, etc. — is a time-consuming endeavor, often taking weeks or months to complete. When agencies manage hundreds of thousands of acres, this level of effort is not possible across all their lands, so land managers need a less stringent but effective method. To better meet this need, MDC and partners recently developed the Community Health Index (CHI).

“CHI is a way to more rapidly assess and monitor our different natural communities, particularly those that have declined and we’re trying to restore,” MDC Natural Community Ecologist Mike Leahy explained.

With CHI, biologists look at key factors within a habitat type, covering a 40-acre survey unit in an hour or less depending on the terrain. The size and total number of survey units depend on the overall habitat acreage. The data are then plugged into a point system that generates a relative health score.



MDC and partners recently completed an evaluation of Missouri’s remnant tallgrass prairies with the newly developed Community Health Index (CHI). Remnant prairies are among the first habitats to be assessed with CHI because they are one of our rarest habitats.

It is somewhat like a doctor using blood pressure, cholesterol, and blood sugar as baseline indicators of a patient’s general health.

Most of a CHI score comes from vegetation. This is because vegetation influences everything else — it provides habitat for animals, is the base of the food chain, and is directly connected to soil.

“Based on expert opinion and field testing,” Leahy said, “we have a list of target indicator plant species. We then assign random points across the prairie or woodland, and as we navigate to those points, we check off the native plants as well as the nonnative, invasive species that we see. At the end, we assess the amount of shrub, tree, grass, and flowering plant cover.”

Data on birds, insects, reptiles, and amphibians are added when available from other surveys but are not required. CHI scores can be used to compare sites and to see how an area changes over time.

“We’re now going through the first run for the native grasslands and the pine-oak woodland restoration units,” said Leahy. “Our next effort will be looking at some of our glades and oak woodlands and then we’ll develop CHIs to assess some of our bottomland forest communities.”

At a Glance

The Community Health Index (CHI) provides a quick assessment of habitat health. Each habitat type has its own list of indicator species and landscape criteria that biologists look for during site surveys. These data are plugged into a scoring system, totaling up to 100 possible points.

CHI Components

- Landscape type and site size — up to 10 points
- Vegetation characteristics — up to 80 points
- Animal species — up to 10 points
- Degrading factors (invasive species, soil disturbance, etc.) — up to 11 points can be subtracted

Partners:

U.S. Forest Service, Missouri Prairie Foundation, The Nature Conservancy, University of Missouri



Rattlesnake master

Sericea lespedeza

On prairies, the presence of native plants, like rattlesnake master, adds points while invasive species, like sericea lespedeza, subtracts points.

In Brief

News and updates from MDC

BE BEARWISE

BY TAKING THE NECESSARY STEPS, HUMANS AND BEARS CAN ENJOY THE OUTDOORS WITHOUT CONFLICT

➔ As the weather warms and the many wonders of nature awaken in spring, MDC reminds people to be BearWise.

Missouri's estimated 1,100 black bears are waking up and are focused on fattening up after a long winter's sleep. Unsecured food sources around homes and outbuildings could attract the attention of a hungry bear.

MDC Black Bear/Furbearer Biologist Nate Bowersock said it is important that people remove or secure bear attractants from their property, such as bird feeders, trash, barbecue grills, pet food, and food waste.

"Black bears are super-focused on finding food in the spring," said Bowersock. "The quest for calories keeps bears active. When the eating is good, a bear can put on 2 to 3 pounds a day."

Bowersock added that keeping areas free of food attractants and letting bears find natural foods is in everyone's best interest.

"If you see a bear, let the animal be and enjoy the sighting, but be sure not to offer it any food," he said.

Intentionally feeding bears can be dangerous because it makes them comfortable around people and can lead bears to cause significant damage to property while searching for food.

"When bears lose their fear of humans, they could approach people in search of food or may become defensive of the food sources they find near people, which could lead to conflict," Bowersock said. "When this happens, the bear cannot be relocated and has to be destroyed. A fed bear is a dead bear."

For more information on how to be BearWise or to report a bear sighting, visit mdc.mo.gov/bearwise.

Here are some tips to avoid attracting black bears to possible food sources:

- Store garbage, recyclables, and compost inside secure buildings or in bear-proof containers.
- Keep grills and smokers clean and store them inside.
- Don't leave pet food outside. Feed pets and remove empty containers.
- Refrain from using bird feeders in bear country from April through November. If in use, hang them at least 10 feet high and 4 feet away from any structure. Keep in mind that even if a bear cannot get to the birdseed, the scent could still attract it to the area.
- Use electric fencing to keep bears away from beehives, chicken coops, vegetable gardens, orchards, and other potential food sources.
- Keep campsites clean and store all food, toiletries, and trash in a secure vehicle or strung high between two trees. Do not keep food or toiletries in a tent, and do not burn or bury garbage or food waste.

Black bears are generally a shy, nonaggressive species. Follow these tips when outdoors in bear country to avoid unwanted encounters:

- Make noise, such as clapping, singing, or talking loudly, while hiking to prevent surprising a bear.
- Travel in a group if possible.
- Keep dogs leashed.
- Be aware of the surroundings. If there is evidence of a bear, such as tracks or scat, avoid the area.
- Leave bears alone! Do not approach them, and make sure they have an escape route.



APPLY FOR ELK AND BEAR HUNTING PERMITS

Missourians interested in hunting black bear and/or elk in the state this fall need to apply for a limited number of hunting permits for each starting in May.

Black Bear Hunt

MDC will offer 2,000 permits to harvest up to a maximum of 60 black bears across three MDC black bear management zones in the southern part of the state during the 2026 Missouri black bear hunting season, Oct. 17–30. MDC increased the number of available permits from 600 to 2,000 and increased the harvest quota limit from 40 to 60 bears to expand hunting opportunities. Missouri has an estimated population of about 1,100 bears.

"After reviewing results from the past five hunting seasons and considering the continued growth of Missouri's bear population of about 9 percent per year, we determined that the harvest quota could be increased and more permits could be offered to provide additional hunting opportunities, while still having a limited impact on the bear population," said MDC Black Bear/Furbearer Biologist Nate Bowersock.

"These changes will also inform future management recommendations as we evaluate how an increase in hunters might impact harvest rates," Bowersock added. "As the black bear population continues to grow and expand, the hunting season will be used as the primary population management tool."

Missouri hunters harvested nine black bears during the 2025 season, with two being females and seven being males.

To apply for the black bear hunt starting in May, visit short.mdc.mo.gov/ZrK.

Elk Hunt

MDC will again offer five permits to hunt bull elk in Missouri this fall — at least one permit designated for a qualifying landowner who owns property in Carter, Reynolds, or Shannon counties and the remaining four permits for qualifying residents. The 2026 elk archery portion will run Oct. 17–25 and the elk firearms portion will run Dec. 12–20.

Missouri has an estimated 325 free-ranging elk under MDC's elk restoration and management program. Missouri hunters harvested three bull elk during the 2025 season.

To apply for the elk hunt starting in May, visit short.mdc.mo.gov/Ztb.

MIGRATORY GAME BIRD AND WATERFOWL SEASONS

The Missouri Conservation Commission approved recommendations at its March meeting for the upcoming 2026 migratory game bird hunting seasons and 2026–2027 waterfowl hunting seasons.

✦ 2026 Migratory Game Bird Hunting

Mourning Doves, Eurasian Collared Doves, and White-Winged Doves

Season: Sept. 1–Nov. 29

Limits: 15 daily and 45 in possession combined total for all three species

Hours: One-half hour before sunrise to sunset

Sora and Virginia Rails

Season: Sept. 1–Nov. 9

Limits: 25 daily and 75 in possession combined for both species

Hours: One-half hour before sunrise to sunset

Wilson's (Common) Snipe

Season: Sept. 1–Dec. 16

Limits: 8 daily and 24 in possession

Hours: One-half hour before sunrise to sunset

American Woodcock

Season: Oct. 18–Dec. 1

Limits: 3 daily and 9 in possession

Hours: One-half hour before sunrise to sunset

Coots

Season: Same as duck season dates in the respective zones (See dates under Waterfowl Hunting for Ducks)

Limits: 15 daily and 45 in possession

Hours: One-half hour before sunrise to sunset

✦ 2026–2027 Waterfowl Hunting

Teal

Season: Sept. 12–20

Limits: 6 daily and 18 in possession

Hours: Sunrise to sunset

Ducks

Season:

- North Zone: Oct. 31–Dec. 29
- Middle Zone: Nov. 7–Dec. 13, 2026 and Dec. 19, 2026–Jan. 10, 2027
- South Zone: Nov. 26–29 and Dec. 7, 2026–Jan. 31, 2027

Bag Limit: 6 ducks daily with species restrictions of:

- 4 mallards (no more than 2 females)
- 3 wood ducks
- 3 northern pintails
- 2 redheads
- 2 canvasbacks
- 2 American black ducks
- 2 scaup for first 45 days and 1 scaup for last 15 days
- 1 mottled duck

Possession Limit: Three times the daily bag or 18 total, varies by species

Hours: One-half hour before sunrise to sunset

Snow Geese (White and Blue Phases) and Ross's Geese

Season: Nov. 11, 2026–Feb. 6, 2027

Limits: 20 blue, snow, or Ross's geese daily with no possession limit

Hours: One-half hour before sunrise to sunset

White-Fronted Geese

Season: Nov. 11, 2026–Feb. 6, 2027

Limits: 2 daily and 6 in possession

Hours: One-half hour before sunrise to sunset

Canada Geese and Brant

Season: Oct. 3–11 and Nov. 11, 2026–Feb. 6, 2027

Limits: 3 Canada geese and Brant in aggregate daily, 9 in possession

Hours: One-half hour before sunrise to sunset

Light Goose Conservation Order

Season: Feb. 7–April 30, 2027

Limits: No daily or possession limits

Hours: One-half hour before sunrise to one-half hour after sunset

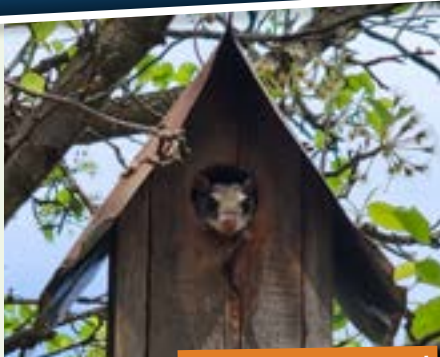
Methods: For the taking of blue, snow, and Ross's geese, hunters may use shotguns capable of holding more than three shells and recorded or electronically amplified bird calls or sounds or imitations of bird calls or sounds.

(continued on Page 9)

Ask MDC

Got a Question for Ask MDC?

Send it to AskMDC@mdc.mo.gov
or call 573-522-4115, ext. 3848.



Southern flying squirrel

Q: What is this animal that has taken up temporary residence in my birdhouse?

➔ This is a southern flying squirrel. Flying squirrels live in holes in trees — usually leftover woodpecker holes. However, they can squeeze into a hole about the size of a quarter, so they could even live in your wren house or attic.

They are common in Missouri, but they prefer mature oak-hickory forests with plenty of old, dead trees and rotten snags, riddled with woodpecker holes and other cavities. Their dens are usually lined with shredded bark, but other soft material, such as lichens, moss, feathers, or leaves, may be added. Hickory nuts and oak acorns are staple food sources, but seeds of many

kinds are eaten and corn is a favorite. They also eat quite a bit more animal foods — mice, shrews, carrion, birds' eggs, and insects — than other tree squirrels and most rodents.

They are also the strictest of our nocturnal mammals. And they tend to be shy and suspicious, darting into a cavity if alerted by the smallest movement or noise.

On either side of their body, these squirrels have a loose fold of skin, called the patagium, which they use like wings to glide through the air. Cartilaginous spurs off their wrists hold these "wings" taut. Before leaping into space, they assess the landing site and gauge the distance by swaying their bodies and heads from side to side.

Q: Could you identify this thrush? The photo was taken in Cape Girardeau County in late April 2025.

➔ This is a gray-cheeked thrush. Gray-cheeked thrushes, Swainson's thrushes, and veery thrushes look similar and migrate through Missouri at the end of April through May, and then again in early fall, and can sometimes be seen together.

Shy and tricky to identify, gray-cheeked thrushes have grayer backs and tails than the reddish-brown veery. Gray-cheeked thrushes lack the warm buffy tan that would be seen around the eye, on the cheek, and on the throat of a Swainson's thrush.



Gray-cheeked thrush

These birds are notoriously furtive.

"... its shyness and seclusiveness, its habit of breeding in only the most inaccessible places, and its almost unbroken silence during most of the year have kept the taxonomic, distributional, and life-history facts concerning it in mystery so long that (the gray-cheeked thrush) has been correctly regarded as one of the least known of American passerine birds," wrote American Ornithologist G.J. Wallace in 1939.

This bird breeds in the taiga — the swampy coniferous forests of the high northern latitudes between the arctic tundra and vast prairies further south. These thrushes prefer tangled thickets where birders are most likely to encounter them during migration.

What IS it?

Can you guess this month's natural wonder?

The answer is on Page 9.





SPECIES OF CONSERVATION CONCERN

Kirtland's Snake

by Jeffrey T. Briggler

The Kirtland's snake (*Clonophis kirtlandii*) is a critically imperiled species in Missouri and is being considered for federal listing. Once considered extirpated from the state due to only a single individual collected in 1964, the species was rediscovered in 2006. Since that time, 14 individuals have been documented in Missouri. Their range spans nine states, from western Pennsylvania to northeastern Missouri. Within Missouri, the species is restricted to a few counties along the Mississippi River in the northeast region. Kirtland's snakes are small- to medium-sized, typically measuring 14-18 inches in length. They are reddish-brown to gray-brown, with four alternating round spots extending along the back. One of the species' most recognizable features is the distinct pink to

WHY IT'S IMPERILED

This species has likely declined because of extensive habitat loss, particularly the loss of bottomland prairie habitat and associated wetlands that are essential for shelter, foraging, and reproduction. Today, most remaining habitats consist of small, fragmented grassland patches located along highway rights-of-way and stream edges.

MDC RESTORATION EFFORTS

Efforts to maintain the few remaining bottomland prairie habitats and restoring degraded areas are vital to ensure the persistence of this species. MDC works closely with partners, particularly the Missouri Department of Transportation, as many of the existing reports for the species occur along roadsides. In addition, work with law enforcement is important to protect the small existing populations from illegal collection and trafficking.

WHAT CAN YOU DO?

This species is rarely seen, and most individuals are found alive or dead on or along roads. Occasionally, they may also be discovered under objects used as a cover in residential yards with abundant crayfish burrows. If you do encounter this small, harmless snake, please take a photograph and send it to Missouri State Herpetologist Jeff Briggler at Jeff.Briggler@mdc.mo.gov. Your help can provide valuable information in determining the distribution and conservation status of this rare species in Missouri.

red belly, marked with dark stippling along each side. This secretive species prefers open grasslands with damp soils, often near streams or wetlands. An abundance of crayfish burrows is an important habitat feature, as these burrows provide essential shelter.

✦ 2026 Youth Hunting Days

North Zone: Oct. 24–25

Middle Zone: Oct. 31–Nov. 1

South Zone: Nov. 21–22

Limits: Same as during regular waterfowl season

Hours: Same as during regular waterfowl season

Requirements: Any person 15 years of age or younger may participate in youth waterfowl hunting days without a permit provided they are in the immediate presence of an adult 18 or older. If the youth hunter is not certified in hunter education, the adult must have the required permits and have in his or her possession proof of hunter education, unless exempt. The adult may not hunt ducks but may participate in other seasons that are open on youth hunting days.

✦ 2026–2027 Falconry Seasons

Falconry Season for Doves

Season: Sept. 1–Dec. 16

Limits: 3 daily and 9 in possession, singly, or in the aggregate (any ducks, coots, or mergansers taken by falconers must be included in these limits)

Hours: One-half hour before sunrise to sunset

Falconry Season for Ducks, Coots, and Mergansers

Season: Open during waterfowl seasons (teal, youth, duck) in each respective zone and Feb. 11 through March 10, 2027

Limits: 3 daily and 9 in possession, singly, or in the aggregate during the regular duck hunting seasons (including teal and youth seasons) and extended falconry seasons (any doves taken by falconers must be included in these limits)

Hours: Sunrise to sunset during the September teal season, one-half hour before sunrise to sunset during the remaining seasons

Hunting Zones

Waterfowl hunting in Missouri is divided into three zones: North, Middle, and South. For a map and more information, visit MDC online at short.mdc.mo.gov/o5N or refer to MDC's *2026-2027 Migratory Bird and Waterfowl Hunting Digest*, available beginning in July where hunting permits are sold.



WHAT IS IT? PEREGRINE FALCON CHICK

A species of conservation concern in Missouri, the peregrine falcon is being restored using nest boxes on skyscrapers. These tall buildings mimic the cliffs that falcons used to depend on for nesting. Typically, three to four eggs are laid in nests from April through June, and incubation lasts up to 32 days. The hatched chicks are covered in white down, with large black eyes and disproportionately large feet and talons.

Nontoxic Shot Requirements

Shells possessed or used while hunting waterfowl and coots statewide, and for other species as designated by posting on public areas, must be loaded with material approved as nontoxic by the U.S. Fish and Wildlife Service. Get more information on nontoxic-shot requirements, allowed types, and conservation areas requiring use at short.mdc.mo.gov/Z9b.

Change to Federal Duck Stamp

Per the Federal Duck Stamp Modernization Act of 2023, the Federal Duck Stamp has been converted to a digital version and hunters are no longer required to carry a paper copy. Hunters must have a digital version in their possession.

BEAUTY FROM BARK

THE INNER BARK OF HICKORY TREES YIELDS STRENGTH AND BEAUTY THAT SURPASS GENERATIONS

by A.J. Hendershott | photographs by A.J. Hendershott and Sally Hancock

Most of us ignore bark. It covers tree trunks and branches, doing its work without a lot of flash. We might even be tempted to declare bark nothing for as little as we regard it. Despite its anonymity, bark provides an important service to trees — protecting them from insects, fungal infections, viruses, and even bacteria. All these infectious agents must contend with tree bark when performing their nefarious acts. Bark also keeps the living tree cells underneath from drying out, which is vital. From the tree's perspective, bark is essential. They simply can't do without it.

People once couldn't do without it either. Unfortunately, those human uses are getting lost in time. Native Americans, the first inhabitants of our state, had numerous uses for the bark of certain species. Europeans who settled here later adopted many of those same uses. Hickory trees are a great example of this. The hickory inner bark was once used to make woven baskets, lacing, buckets, woven chair seats, dye, and even bow strings. While many people have little idea what purposes bark could render, there are still flame keepers who know the skill of using bark for practical and artful purposes.

WORK BEFORE THE WEAVE

Meet Sara Bradshaw. She is a flame keeper in southeast Missouri. In the month of May, you can find her with a hickory log, strung between two sawhorses, using a drawknife to remove the gray outer bark, which is composed of dead cells. Bradshaw works to reveal

the orangish-ruddy colored inner bark layer. The living inner bark directly underneath is a reservoir of strength and durability. Bradshaw can work all morning on a single hickory log to clean it up for the next step — peeling off strips.

"It's a dirty job," she said. "Bark flies all over the place as you use the drawknife. You end up with bark all over and inside your shirt, pockets, and even your pants. If you don't, then you are doing it wrong."

Her work reveals a laced network of fibers that are anywhere from one-quarter to one-half an inch thick, depending on tree diameter and which end of the tree you are on.

"I choose trees that are about 6 to 12 inches in diameter near the base," said Bradshaw. "I look for a straight and tall tree with few branches and knots. These trees give me longer strips, which really helps when I am weaving because I don't have to splice weavers so often."

Bradshaw can use anywhere from 120–180 linear feet of hickory fiber to weave one chair seat. She also says the inner bark is thicker at the base of the tree and will require more thinning than the sections near the top of the tree.

Her careful attention to removing the outer bark pays off with the next step. She retrieves a hooked linoleum knife and begins to score a long straight line down the length of the log. Occasionally, she runs the knife down that same line if she feels her first run wasn't deep enough. Then she moves over about an inch and scores another line parallel to the one she just scribed.

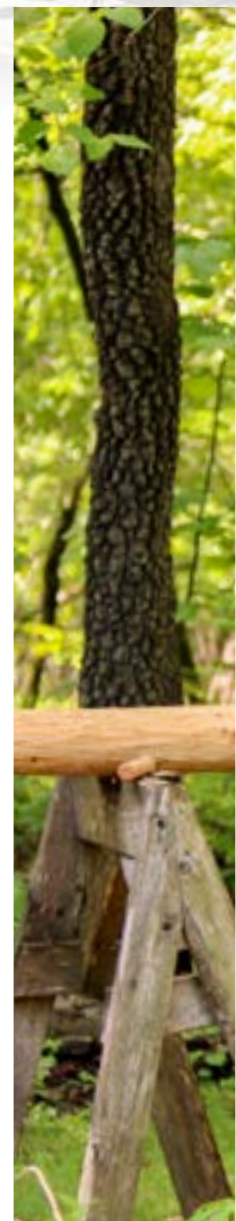
"I want to score the line all the way down to the sapwood," said Bradshaw. "If I don't, I will have trouble separating the strip from the one next to it."

With the first strip cut on both sides, she will use her knife tip to gently separate the inner bark from the sap wood on the log end. Once a corner is lifted, she can grip it and pull the whole strip up and peel it from the log.

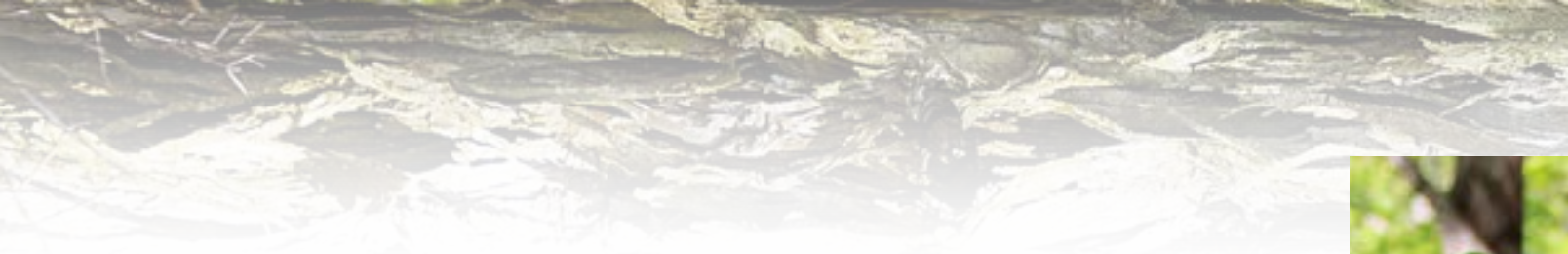
TIMING AND SLIPPAGE

"One of the magical things about this process is you can only do it at the right time in late spring and early summer," said Bradshaw. "In May or early June, this works great. If you try to do the same task any other time, you will find the bark is stuck like it is glued down. The old timers used to call this peeling of the bark 'slipping' because it slipped off easily."

The magic Bradshaw is speaking of has to do with the cambium layer setting down spring growth cells. That layer of cells is not nearly as strong as the summer growth, so the inner bark is easier to separate from the sapwood. Summer growth is far superior and impossible to peel off like it is in the spring.







She tests a small hickory limb in early May by attempting to peel bark from it. This allows her to see if the bark is slipping. If it isn't, she will wait a week. She does the same thing in mid-June. If the bark is no longer slipping, then she will have to wait until next May.

After Bradshaw scores an inch-wide strip and peels it off, then she coils the strip and ties a short piece of twine around it to dry. She proceeds to score another strip, coiling each strip as she goes until the whole tree has the white sapwood revealed.

"I have thinned strips immediately after removing them from the log, it can be a little gummy on your drawknife but it works," she said. "If I am pressed for time, I will let the coils dry and simply rehydrate them when I have time for thinning."

She knows the coils are dry because they are impossible to flex and can be stored indefinitely. When she intends to work the dried coils, she will place them in a bucket of water to soak overnight. This softens the coil enough to be uncoiled and shaved to the proper thickness. Bradshaw thins each strip down to roughly one-eighth to one-fourth inch thickness. She says this is easier to do when strips are off the log because you can see the sides and judge your thickness for how much to remove. Her tool of choice is her great-grandfather's drawknife.

Following the thinning, she grabs the scissors and trims up the widths to her prospective uses. If she wants weavers for a chair seat, she trims to three-quarters of an inch wide. Any excess will be used as one-fourth inch lacing for basket or bucket rims. If she is weaving a basket, she can trim down to three-sixteenths to one-half of an inch width depending on what type of basket she is making.

Final weavers and lace can be re-coiled in small loops for storage until ready to weave.

"Cutting a tree, removing bark, scoring, and peeling the strips can take half a day to a whole day depending on where you do your work. Then thinning those strips can take another half to full day depending on the size of your tree," said Bradshaw.

A PATTERN EMERGES

"My love for this lost art began the first time I sat in a rocker woven with the inner bark of hickory in a herringbone pattern," Bradshaw shared.

She was helping at a living history event in Texas County.

"As I sat and rocked, I wove my very first basket with the inner bark of a hickory tree. Beside me, two coworkers worked with practiced hands — one stripping bark from a hickory tree, the other thinning it down to the right size for weaving. Watching the transformation unfold before my eyes — from raw bark to functional art — something stirred in me. What was once just a tree had become something deeply personal and beautiful. In that moment, I knew I wanted to carry this skill forward."

And she has done just that.

"I started with a basket with a wooden handle," she said. "Then I tried another, this time incorporating a deer antler as the handle. When I showed my baskets to friends and family, they couldn't believe they were made from tree bark. They turned them over, inspected the weave, and marveled, 'There's no way this is bark.' Every time someone expressed disbelief, I would smile and happily explain how I harvest, prepare, and weave the inner hickory bark."

By the following spring, the tradition had already become a family affair. Bradshaw's daughter and mom spent time stripping bark from hickory trees, preparing it for future projects. With a

growing stockpile of material, she planned to make more baskets, but she also had a new idea. She wanted to weave a seat for a rocking chair.

The baskets are great, but one project is the epitome of bark weaving — a chair seat.

"As I shared this idea with family, I learned about a special heirloom — a rocking chair — passed down to the oldest granddaughter in each generation," Bradshaw said. "That meant my daughter would one day inherit it, becoming the fourth generation to carry it forward. When we received the chair, the seat was badly worn and made from synthetic material. I knew right then — this would be my next project."

What made the idea even more meaningful was the fact that the new seat would be woven from hickory bark harvested by three generations in her family.

"I chose the herringbone pattern, not only because I had used it before in stools and found it durable, but also because I loved its look," Bradshaw said. "Still, it was no small task. It took me two full years to harvest, cure, and thin enough bark to complete the seat." Now that Bradshaw has experience with seat weaving, she has a better idea of how many trees' worth of bark strips she will need and approximately how many linear feet.



MORE FROM HICKORY BARK

Besides chair seats and baskets, people have been known to make sheet buckets from hickory inner bark. After removing the outer bark, one short line is scored lengthwise and a perpendicular line around the diameter, so you remove a sheet like it was a paper towel peeling off the roll. The sheet is lightly scored for the base, folded, and then laced with hickory inner bark strips.

“These buckets are tougher than you might think,” said Bradshaw, thumping one with her finger.

Hickory inner bark was also used for bow strings for a unique form of bow fishing known as bowin’ and spikin’ in the Ozarks. Bows and their hickory strings were soaked for 45 minutes to ensure they were thoroughly wet through and through. If the bow seemed to be drying out, it was dunked to maintain the moisture. A dry bow string will not handle the stress of moving while shooting and will break. A soaked bow and string were used to launch a thick arrow made of pine, cedar, or cypress with small metal gigs for harvesting fish.

WEAVING IT ALL TOGETHER

When Bradshaw cuts a hickory tree, she isn’t simply gathering materials to work her art. She is managing her forest. She is quick to tell you she wants to manage a healthy forest and when two trees are too close together, one of them has to go. If she is careful about her choices, she will take the lesser of the two trees.

In other instances, Bradshaw will select a hickory for harvest two to three years from now and cut trees around it to ensure it gets plenty of light and water. When the tree is the appropriate size (6–12 inches), she can harvest it knowing it has been growing under the right conditions. While larger trees can offer more bark strips, they are tough to handle, and the inner bark is thicker, thus increasing the processing time.

Bradshaw encourages people who want to manage their forest to consult a private land conservationist (see Page 3 for your local contact) who can help identify trees that can be harvested for the sake of improving their forest. If some of those are hickories of the right size,





you may want to consider becoming a flame keeper as well. It is work, but when you are done you have a unique product that is guaranteed to attract attention.

Hickory inner bark was a widely used fiber for weaving seats and baskets. Its strength and beauty made it ideal for projects that supported weight and possessed an attractive quality that speaks to craftsmanship. Today people can order weaving supplies from a company that processes palm fiber for weavers. But a few people, like Sara Bradshaw, are keeping the art of hickory bark weaving alive by practicing and teaching others the craft.

Bark is more than something to ignore. Bradshaw has seen and demonstrated that under that gray flaky exterior is a resource to create something useful and beautiful.

Sitting in her hickory seat rocker, Bradshaw said, “To say I’m proud of this rocking chair is an understatement. It now sits in my home, a symbol of heritage, craftsmanship, and connection. Every time I sit in it, I think about the people who rocked in it before me — and those who will rock in it long after. It’s more than just a seat. It’s a story.” ▲

A.J. Hendershott is the education supervisor for the Southeast and Ozark regions.



Slow backing fires eliminate
invasive species and undesirable
saplings while causing little or
no harm to mature trees.

PHOTOGRAPH BY JERRY HEUER

Forest Management

PATIENCE AND PLANNING WILL LEAD TO
PROPERTY THAT CAN BE ENJOYED FOR GENERATIONS

by Tony Peper

Have you ever wanted to manage the forested portions of your property but were unsure how to begin? Maybe you feel as though you don't have time or it's just too daunting and overwhelming.

It may sound simple, but the best way to begin is with a plan. Take time to think about the goals you want for your property and envision the end game.

When my career began 21 years ago, most of the calls we received for private land assistance were from landowners interested in selling timber. In the early 2010s, there was a shift. More people called interested in increasing wildlife, primarily deer and turkey, on their land. Today, most calls are from landowners who just want their forest to be as healthy as possible.

When a landowner mentions a goal of healthy forests on their property, the focus becomes natural community management. In short, natural community management is habitat management that benefits all the native plants and animals on the property, including their physical environment, so the land is at its peak productiveness and will have the best chance at surviving whatever pest or pestilence that may arise.

Meet the Landowner

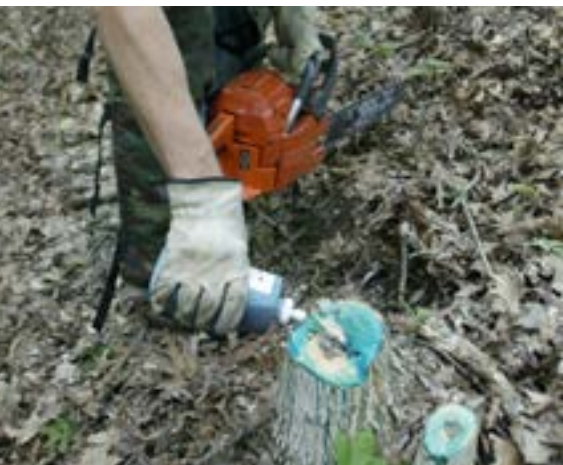
Mark Cantor began working on his property with MDC in 2017. The pictures in this article demonstrate his forest management journey, but the principles can be applied to all locations.

"When I first contacted MDC, I wanted a healthier forest, to improve the land for hunting and recreational pursuits, and to reduce the risk of uncontrolled wildfire," Cantor said.

In 2017, his property was typical unmanaged woodlands — a canopy composed predominately of oak and hickory trees with a midstory and understory comprised mainly of undesirable shade tolerant trees. His property was a blank slate. From here, a straightforward template was followed to achieve his goals.



An example of a prescribed burn at Peck Ranch Conservation Area.



Foresters engage in various methods of growth control, including cutting, girdling, and spraying.



Where to Begin?

That answer most often involves the combined use of prescribed fire and invasive plant species management.

Prescribed Fire

As the single best management tool we have, prescribed fire provides a myriad of benefits. Those benefits differ depending on the time of year you conduct the burn but can include reducing the number of invasive species and undesired trees, increasing the amount of grasses and wildflowers, shifting tree species composition, and more. Having a good understanding of the benefits of prescribed fire will help you plan how to implement this management tool on your property.

Once you have some objectives in mind on how to improve your property with prescribed burning, you can plan when and how to conduct your burns.

You will want to divide your property into burn units — these are acreages that are sized and shaped to make burns as easy and safe as possible. Utilizing existing features, such as roads, creeks, and trails, as boundaries for your burn units make it easier to prepare your burn control lines. If you don't have any of those, it just takes a little more work with a rake or leaf blower to create your lines.

Once you know where your burn lines will be, turning those into a permanent trail network will save you time on future burns. After your burn units are established, you will need to create a prescribed burn plan. This plan will outline all conditions and actions needed before, during, and after your burn to make sure it remains under control and meets your planned objectives while avoiding any damage to your property.

“Even if you think you are a pro at controlled burns, always have a team when you do a burn, even if it's a small area,” Cantor said. “The burn is amazing, productive, beautiful, and fun, but when I tried to burn myself, I did burn myself!”

While the timing of the burn has a large impact on the results, getting your first burn completed, whenever the conditions are correct, is most important as this starts the management process. For subsequent burns, you can be pickier with timing to achieve specific benefits. The frequency of burning will be determined by your objectives, but a standard rotation is to burn each area every two to four years, with more frequent burns to help reduce woody stems. Once your initial objectives have been met, you will want to reevaluate your burn regimen.

Invasive Plant Species Management

While the burns are being formulated, it's a good time to begin controlling invasive plants. As with everything, start with a plan. Focusing your control efforts will lead to greater success. Start in a location that gives you the most satisfaction. This is often around a house or in a favorite hunting spot. Once your location is determined, you will pick the control method for the species you want to focus on, as there are different techniques used on different species, and sometimes a combination of several practices is needed.

Hand pulling can be effective on very sparse and new infestations. Foliar spray, cut stump treatment, and basal spraying are



INVASIVE SPECIES MANAGEMENT

For more information about controlling invasive species on your property, visit short.mdc.mo.gov/ZJU.



This is how Mark Cantor's property looked prior to undergoing any management practices.



This woodland was thinned in 2017. The first fire was conducted three years after timber stand improvement, the second fire occurred two years later. The top of the picture is the property boundary where you can see an abrupt lack of surface vegetation.



Notice how hard it is to see the large tree trunk a mere 15 yards away. Thinning occurred in 2017. The first fire was conducted four years after TSI. The second fire occurred two years later. This growth is all from undesirable trees.



Woodlands can have less than 50 percent canopy and grow grasses and flowers over 3 feet tall. This site has had two fires and TSI completed.

the most common herbicide application methods. Mowing or forestry mulching is great on very dense stands but understand that when the plants are cut with these machines, the roots are still there and they can resprout. Furthermore, the initial regrowth typically does not have enough surface area to absorb sufficient chemical to kill the plant, so multiple years of follow-up herbicide treatment is needed.

The goal is to eliminate the entire population of invasive plants. This means not only killing the plant but exhausting the seed bank. For most woody invasives, like bush honeysuckle, this can take up to five years. The most important step is to learn more about the invasive species present on your property and how to control them without causing damage to the native plants.

Timber Stand Improvement

Once the invasives have been completely removed and your fires have corrected the tree composition, you are ready to move on to timber stand improvement (TSI). TSI means eliminating all undesired tree species (native trees that moved out of their traditional range due to the absence of fire) and poor-quality specimens of desired tree species.

“I try to find ways to utilize the TSI removed trees, primarily by getting them milled with a portable bandsaw mill and utilizing the lumber so I don’t waste resources,” Cantor said.

Throughout most of Missouri, oaks and hickories are the desired trees but there are pockets that have different target species so, as always, make sure you know your goals before starting. Getting a forester to visit and inventory your forest will provide information to guide your management.

From a natural community standpoint, we differentiate forested areas into two different community types — forests and woodlands. Generally, forests are found on north and east facing slopes. They can grow more trees that are typically large and have higher timber value. Woodlands are found on south and west facing slopes. They have fewer and smaller trees with more shrubs and grasses. Implementing TSI may result in you seeing additional invasive plant species. The improved habitat can attract more songbirds, which are a primary spreader of invasive seeds, and the thinned-out tree canopy will allow additional sunlight to reach the forest floor and increase the growth

rate of invasive plants. This just means you need to stay alert and know that your continued use of prescribed burning and invasive species control will allow you to keep those unwanted species in check.

“Timber management is not a one-and-done deal,” Cantor said. “It is a process. It’s fun and rewarding but takes effort.”

“I wanted a healthier forest, to improve the land.”

MARK CANTOR, LANDOWNER

TSI Without Prior Management

There are properties I visit that have had TSI or maybe a timber sale without the prior management techniques discussed in this article. The result is usually a flush of tree seedlings or invasive plants that are extremely thick.

Once again, timing is key.

If the thinning occurred recently — typically within four years — prescribed fire might eliminate the thick flush of trees. In these cases, proceeding with fire and invasive species removal as described here should produce similar results to management conducted in the proper order. Sadly, oftentimes it is too late, and the dense understory starts to inhibit enjoyment of the property.

Usually, this thick growth is not the desired complement of species. It is the same shade tolerant trees that were killed in TSI but were just too small to be treated at that time. By the time the saplings become a nuisance, they are usually too big for fire to eliminate. In these cases, another round of TSI will be required. Invasives will likely need to be treated, too. If a good burn regimen is kept after this retreatment, the property will begin to show desired results.

This is the time to revisit your plan again. Perhaps you would like some areas with thick cover. To get that, simply exclude these small sections from fire. They will grow thick with trees again, but this time they will be your desired species. Just remember to check these areas for invasives as fire is no longer controlling them.

In forest management, patience is key. It takes a lifetime to grow a mature tree, so management is going to take years. But successful management doesn’t just take time, it also takes timing. The timing and order of different management practices is critical, having as much affect on results as the actual management.

“MDC is a great partner,” Cantor said. “They have an interest in protecting our land, have staff with tremendous knowledge, and there are often cost-share funds available to help offset management costs. Call your conservation office and get ready to do a lot of work. The payoff is in the land.” ▲

Tony Peper is an MDC forester in Warren, Lincoln, and St. Charles counties.

PRIVATE LAND CONSERVATIONISTS

MDC has private land conservationists who may come out to your property to give advice and site-specific management recommendations. You can find them at short.mdc.mo.gov/4ok.



Swallowtails of Missouri

HUNGRY CATERPILLARS EMERGE
AS BEAUTIFUL BUTTERFLIES

story and photographs by Noppadol Paothong

One summer afternoon in 2013, I noticed something unusual in my neighbor's garden. Several tiny black-and-yellow caterpillars were feeding on her dill plants, chewing steadily through the leaves. Within a few days, the plants were nearly stripped bare, their feathery leaves reduced to thin stems. Then, about a week later, the caterpillars began disappearing one by one, each crawling away to find a safe place to form a chrysalis. A short time later, those hungry caterpillars emerged as beautiful black swallowtail butterflies.

That simple observation opened the door to a fascinating world. I soon learned that swallowtails are closely tied to specific host plants, and their caterpillars are masters of disguise, sometimes using deception to fool predators. When they are young, many resemble bird droppings, a clever strategy that helps them avoid hungry predators. Without paying close attention, you might walk right past one, never realizing that what looks like a splatter on a leaf is actually a caterpillar quietly feeding.

Some species take this disguise even further. Spicebush swallowtail caterpillars mimic small snakes, with large false



eye spots near the head that make them appear threatening when disturbed.

Swallowtails are also among the largest butterflies in North America, with wingspans ranging from 3 to 6 inches. Missouri is home to six species: **eastern black** swallowtail, **giant** swallowtail, **pipevine** swallowtail, **spicebush** swallowtail, **eastern tiger** swallowtail, and **zebra** swallowtail. All belong to the butterfly family *Papilionidae*, known for their large size, bold colors, and distinctive “tails” on their hindwings. These tails resemble the forked tail of a swallow

and may help confuse predators, causing birds to strike the wing tips instead of the butterfly’s body.

During the summer months, swallowtails are easy to spot across Missouri’s landscapes. You might see them drifting through open fields and gardens, visiting native wildflowers for nectar, or gathering along muddy trails and stream banks. At these damp spots, butterflies often engage in a behavior known as puddling. By sipping moisture from wet soil, they collect minerals, especially sodium, that help support reproduction. Most swallowtail caterpillars, except for the pipevine

Giant



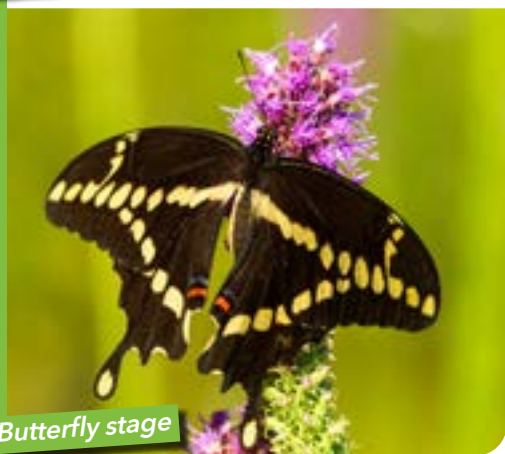
Egg stage



Caterpillar stage



Chrysalis formation



Butterfly stage

Pipevine



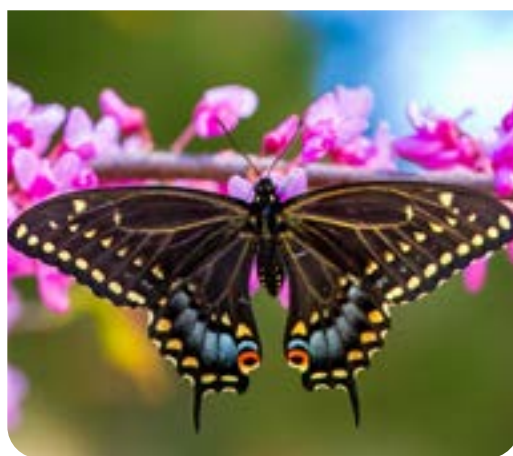
Zebra



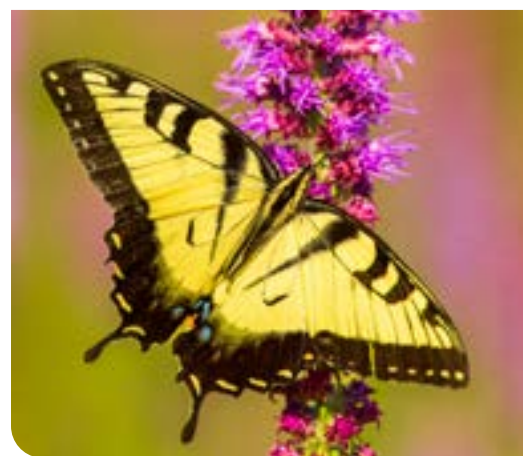
Spicebush



Eastern Black



Eastern Tiger





Giant

swallowtail, also have a fascinating defense mechanism called an **osmeterium**. When disturbed, they extend a small, forked orange gland from just behind their head that releases a strong odor to deter predators, such as birds and ants. Pipevine swallowtail caterpillars rely on a different defense. Because they feed on pipevine plants that contain toxic compounds, the caterpillars themselves become distasteful to predators and do not need this defensive gland.

Another remarkable feature of swallowtails is their close relationship with specific host plants. Female butterflies carefully select where to lay their eggs by sensing plant chemistry with receptors in their feet. The chosen plants provide food for the developing caterpillars. As winter approaches, the caterpillars form a chrysalis and remain in that stage through the cold months before emerging as adult butterflies the following spring.

Many caterpillars can feed only on certain plants because they have evolved to handle the unique chemical defenses those plants produce. Over time, butterflies and their host plants have developed a close relationship that helps ensure the caterpillars have the right food to survive.



Eastern tiger



Eastern tiger caterpillar with osmeterium

For example, eastern black swallowtails use plants in the carrot family, such as parsley, dill, fennel, and Queen Anne's lace. Giant swallowtails rely on plants in the citrus family, including prickly ash and hop tree. Pipevine swallowtails depend on pipevine plants, whose toxic compounds protect both caterpillars and adults from predators. Spicebush swallowtails feed on spicebush and sassafras, while eastern tiger swallowtails use a variety of trees including tulip trees, wild cherry, ash, and magnolia. Zebra swallowtails are highly specialized and rely almost exclusively on pawpaw trees.

Planting a wide variety of nectar-rich flowers, such as milkweed, purple coneflower, blazing star, beebalm,



Eastern black



Spicebush



Pipevine



Zebra

ironweed, and asters, can provide essential food for adult swallowtails throughout the growing season. Even a small garden planted with native flowers can become an island of habitat that supports not only swallowtails but many other pollinators as well.

These close relationships between butterflies and native plants highlight an important conservation message — native habitats support entire life cycles. When we plant native species in our landscapes, we are not just creating beauty, we are helping wildlife thrive.

On warm summer days in Missouri, swallowtails are a familiar and welcome sight, gliding along woodland edges, drifting across prairies, and visiting native flowers in backyard

gardens. Their beauty, fascinating life cycle, and close relationship with native plants make them some of the most recognizable butterflies in our state. Sometimes their story begins with something as simple as a few hungry caterpillars quietly feeding in a garden. ▲

Noppadol Paothong has worked as a staff photographer with the Missouri Department of Conservation since 2006, focusing on rare and endangered species. He also is an associate fellow with the International League of Conservation Photographers. He hopes his images will help people connect with nature and the conservation issues for which he deeply cares.

Get Outside

in MAY → Ways to connect with nature



May is for Mom

Mother's Day is commemorated in May. But moms in the animal kingdom are also doing their part and should be acknowledged.

- Female crayfish lay eggs in the spring but adhere them with a glue-like substance to their swimmerets under the abdomen. Even after hatching, the young remain attached to their mother's swimmerets until they have completed two molts. She's not getting a moment's peace!
- Female beavers leave the den with their month-old kits and start swimming with them. As any mother knows, that's a stressful proposition.
- Female **woodchucks** watch as their young, born in March, venture out of the burrow to play, and often wrestle. These are times when siblings have to figure things out for themselves.
- Female grackles nest in evergreens and other bushy trees, raising young. At first, the young make cheeping sounds, but their demanding voices become louder and creakier as they grow. A sound every mother loves.

Where There's Smoke... There's Flowers?

An **American smoke** tree is a small-to-medium tree that flowers in May. The flowers are small and not showy, but once they fall away, the tree is left with the "smoke" — long, red or purple, hairlike stalks that create a smoky appearance in crowded clusters.



American smoke tree

Black Gold

Missouri is the world's top producer of **black walnuts**. In fact, black walnuts are so important that they were designated as the state's official tree nut. These walnuts, which appear in the fall, are dependent upon the tree's spring flowers, which may go unnoticed. Both male and female flowers appear on one tree. Male flowers, or **catkins**, hang in yellow-green clusters while female flowers appear as spikes.



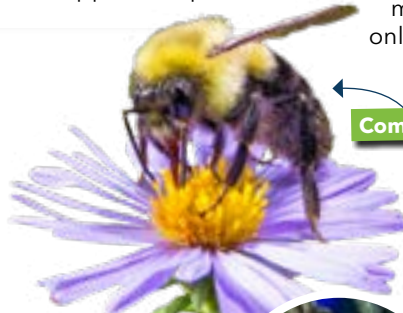
Catkins



Black walnut

Be Bee Aware

Each year, May 20 is World Bee Day. It calls attention to the critical importance of the world's diversity of pollinators, most of them bees. Learn more about Missouri's bees through MDC's online *Field Guide* at short.mdc.mo.gov/4gM.



Common eastern bumblebee



American bumblebee

Natural Events to See This Month

Here's what's going on in the natural world.



Red-spotted purples fly through October.



Bowfin spawn in southeast Missouri.



Rocky Mountain toad breeding peaks in mid-May.

Find more events in your area at mdc.mo.gov/events

Poison ivy



ST. LOUIS REGION

WILDLIFE:

Poisonous and Venomous Things Discovery Table

Saturday • May 16 • 9 a.m.-1:00p.m.
St. Louis Regional Office/Busch Memorial CA,
2360 Hwy D, St. Charles, MO 63304
Registration not required. For more information,
call 636-441-4554 or visit short.mdc.mo.gov/oir.
All ages

Come and learn about poisonous and venomous things found in Missouri. We will have information on snakes, spiders, bees, wasps, hornets, scorpions, mushrooms, and everybody's favorite, poison ivy. As summer begins and fall follows, discover the plants and animals you may see during outdoor activities at Busch CA and elsewhere. Drop by any time during the program time.

SOUTHEAST REGION

COMMUNITY FISHING: City of Rolla Kids Fishing Day

Saturday • May 23 • 8 a.m.-2:00p.m.
Ber Juan Park, 1200 Holloway St., Rolla, MO 65401
Registration not required. For more information,
call 888-283-0364 or visit short.mdc.mo.gov/oiV.
All ages

MDC is partnering with the City of Rolla to offer a Kids Fishing Day at Ber Juan Lake, located behind The Centre. MDC will provide the poles and City of Rolla Parks and Recreation is providing the bait. In addition to having a great time fishing, participants can learn how to ID fish, receive a free adhesive ruler to measure their catch, play a casting game, receive free MDC fishing publications, and learn how to use the MDC phone app, MO Fishing, to find public areas to go fishing in the future.



The hawthorn, our state flower, blooms through June.



Common nighthawks arrive.

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Places to Go

SOUTHEAST REGION

Millstream Gardens Conservation Area

A tourist attraction reborn
by Larry Archer

✦ Once known for the roadside attraction whose name still graces the property, Millstream Gardens Conservation Area (CA) is still an attraction, but now it's because of its natural traits and not the kitschy creations of its owner.

Located on nearly 916 acres in southeast Missouri's Madison County, the original Millstream Gardens hosted a variety of features that sprung more from owner Elmer Tiemann's imagination than from the natural surroundings, according to Forester Becky Fletcher.

"He planted all kinds of flowers out there along the trail, and he would take people on a little hayride," Fletcher said. "The trail today is part of that area he used to go through. He also had all sorts of other touristy things. He had a western village, an Indian village, and a maple sugaring hut. That was all part of the attraction that he set up."

Millstream Gardens CA's allure now focuses primarily on the St. Francis River attribute that carries the previous owner's name — Tiemann Shut-ins. A destination for whitewater kayakers, the granite shut-ins host paddling events, while local trails attract hikers and the pavilion draws families and groups looking for a picnic, reunion, or wedding venue.



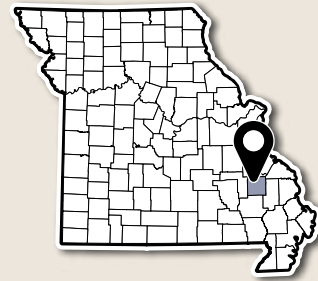
"The trail along the river, as you go from the pavilion, goes all the way to the Forest Service ground and ends up at the Silver Mine Campground, so that's a good 2½-mile hike if you're looking for a hike along the river."

—MDC Forester Becky Fletcher

LARRY ARCHER



The flow of water from the St. Francis River has formed small pools in the granite that creates Tiemann Shut-ins in Millstream Gardens CA. The shut-ins are a key attraction at the area and often host whitewater kayaking events. The river also hosts a variety of wading bird species looking for a meal, such as the great blue heron and spotted sandpiper (inset).









MILLSTREAM GARDENS CONSERVATION AREA

consists of 915.9 acres in Madison County. From Fredericktown, take Highway 72 west 8 miles and County Road 9534 south to the area. From Fredericktown to the area south of the St. Francis River, take Highway 72 west to Route D. Take Route D south to the area.

37.5796, -90.4656

short.mdc.mo.gov/o5k 573-290-5730

WHAT TO DO WHEN YOU VISIT

-  **Archery** Includes a 10-station field archery walking course.
-  **Bicycling** Includes 4.2 miles of improved, unimproved, and service roads open to bicycling year-round.
-  **Birdwatching** Included in the National Audubon Society's St. Francis River Watershed Important Bird Area (short.mdc.mo.gov/oit). Included in the Missouri Birding Trail (short.mdc.mo.gov/oio). The eBird list of birds recorded at Millstream Gardens CA is available at short.mdc.mo.gov/oiv.
-  **Fishing** Includes nearly 2 miles along the St. Francis River. Black bass, catfish, rock bass, suckers, sunfish, walleye/sauger.
-  **Hiking** Includes 2.4 miles of trails. Also connects area to U.S. Forest Service Silver Mine Campground.
-  **Hunting Deer and turkey** Regulations are subject to annual changes. Refer to MDC's regulation page online at short.mdc.mo.gov/Zjw. Also **dove, quail, rabbit, and squirrel**.

WHAT TO LOOK FOR WHEN YOU VISIT



Great blue heron



Great crested flycatcher



White-tailed deer



Prairie lizard



Blue-eyed Mary

Collinsia verna

Status

Native Missouri wildflower

Size

Height:
to about 15 inches

Distribution

Scattered statewide,
concentrated in central Missouri



Blue-eyed Marys are one of the few Missouri wildflowers that are truly blue. The flowers of blue-eyed Mary are small — only about a half inch wide — but this pretty wildflower makes up for it by usually appearing in abundance, covering a patch of forest floor with little sky-blue and white “faces.” Blooms appear from April through June. This wildflower is often found in moist, open wooded hills or valleys and along streams.



HUMAN CONNECTIONS

This native wildflower does well in moist, rich soils and prefers dappled lighting. It can be grown easily from seed; however, competing flowers must be kept away so they don't crowd out developing seedlings.



ECOSYSTEM CONNECTIONS

Blue-eyed Marys are important for pollinators. Bumblebees, other bees with long tongues, and some butterflies glean nectar from these blooms.

Outdoor Calendar

❖ MISSOURI DEPARTMENT OF CONSERVATION ❖

FISHING

Black Bass

Impounded waters and non-Ozark streams:
Open all year

Most streams south of the Missouri River:

- ▶ Catch-and-Release:
March 1–May 22, 2026
- ▶ Catch-and-Keep:
May 23, 2026–Feb. 28, 2027

Bullfrog, Green Frog

June 30 at sunset–Oct. 31, 2026

Nongame Fish Giggling

Impounded waters, sunrise to sunset:
Feb. 16–Sept. 14, 2026

Paddlefish

On the Mississippi River:
March 15–May 15, 2026
Sept. 15–Dec. 15, 2026

Trout Parks

State trout parks are open seven
days a week Mar. 1 through Oct. 31.

Catch-and-Keep:

March 1–Oct. 31, 2026



**Only hunters selected through a random drawing may participate in these hunting seasons.*

For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code of Missouri* at short.mdc.mo.gov/Zib. Current hunting, trapping, and fishing regulation booklets are available from local permit vendors or online at short.mdc.mo.gov/ZZf.

Buy Permits and Permit Card

Buy Missouri hunting and fishing permits from numerous vendors around the state or online at mdc.mo.gov/buypermits. View permits through our free mobile apps, MO Hunting and MO Fishing.



Permit cards are an additional way to show proof of most permits. Buy a new permit card for a one-time fee of \$5 at mdc.mo.gov/buypermits. Buyers can select from five images: bass, range, buck, bluebird, or mallard duck.



HUNTING

Black Bear*

Oct. 17–30, 2026

Bullfrog, Green Frog

June 30 at sunset–Oct. 31, 2026

Coyote

Restrictions apply during April, spring turkey season, and firearms deer season.

Open all year

Crows

Nov. 1, 2026–March 3, 2027

Deer

Archery:

Sept. 15–Nov. 13, 2026

Nov. 25, 2026–Jan. 15, 2027

Firearms:

- ▶ Early Antlerless Portion (open areas only):
Oct. 9–11, 2026
- ▶ Early Youth Portion (ages 6–15):
Oct. 24–25, 2026
- ▶ November Portion:
Nov. 14–24, 2026
- ▶ Late Youth Portion (ages 6–15):
Nov. 27–29, 2026
- ▶ Late Antlerless Portion (open areas only):
Dec. 5–13, 2026
- ▶ Alternative Methods Portion:
Dec. 26, 2026–Jan. 5, 2027

Elk*

Archery: Oct. 17–25, 2026

Firearms: Dec. 12–20, 2026

Groundhog (Woodchuck)

May 11–Dec. 15, 2026

Pheasant

Youth (ages 6–15):

Oct. 24–25, 2026

Regular:

Nov. 1, 2026–Jan. 15, 2027

Quail

Youth (ages 6–15):

Oct. 24–25, 2026

Regular:

Nov. 1, 2026–Jan. 15, 2027

Rabbits

Oct. 1, 2026–Feb. 15, 2027

Squirrels

May 23, 2026–Feb. 15, 2027

Turkey

Spring:

April 20–May 10, 2026

Fall:

- ▶ Archery Portion:
Sept. 15–Nov. 13, 2026
Nov. 25, 2026–Jan. 15, 2027
- ▶ Firearms Portion:
Oct. 1–31, 2026

Waterfowl

See the Migratory Bird and Waterfowl Hunting Digest or visit short.mdc.mo.gov/ZZf for more information.



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As you venture outside, you will encounter nature in all its forms — furry, feathered, or even scaly, like this western ratsnake. Western ratsnakes, also called black snakes, are active during the day. They are harmless and out exploring, just like you. So, get out there! What will you discover?

📷 by **Noppadol Paothong**

Free to Missouri households

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