

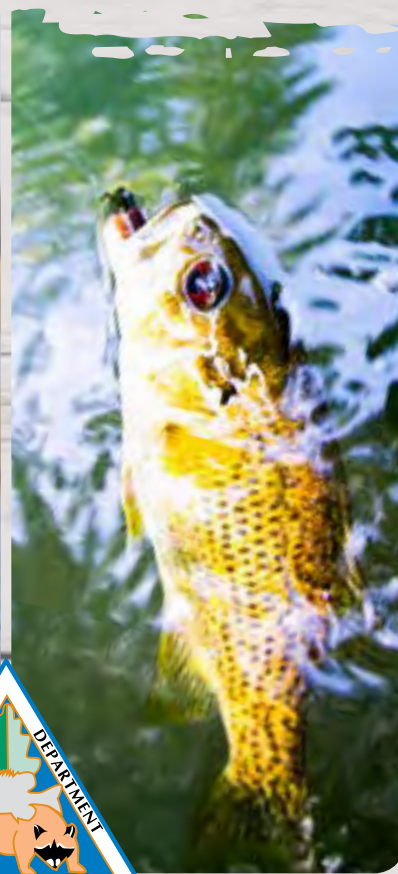
# MISSOURI CONSERVATIONIST

VOLUME 87, ISSUE 2, FEBRUARY 2026  
SERVING NATURE & YOU



# RENEW YOUR **HUNTING** *and* **FISHING** PERMITS TODAY

Buy Missouri hunting and fishing permits from vendors around the state, online at [mdc.mo.gov/buypermits](https://mdc.mo.gov/buypermits), or view through MDC's free mobile apps, MO Hunting and MO Fishing.



Serving nature and you®



**ON THE COVER**

A short-eared owl on a fence post amid the evening light.

**JIM RATHERT**

**GOVERNOR**  
Mike Kehoe

**THE CONSERVATION COMMISSION**

**CHAIR** Margaret F. Eckelkamp  
**VICE CHAIR and SECRETARY** Raymond T. Wagner Jr.  
**MEMBER** Edward C. Clausen  
**MEMBER** Frank H. B. Kruse

**DIRECTOR**  
Jason A. Sumners

**DEPUTY DIRECTORS**  
Andrew Bond, Laura Conlee, Aaron Jeffries

**MAGAZINE STAFF**

**MAGAZINE MANAGER**  
Stephanie Thurber

**EDITOR**  
Angie Daly Morfeld

**ASSOCIATE EDITOR**  
Larry Archer

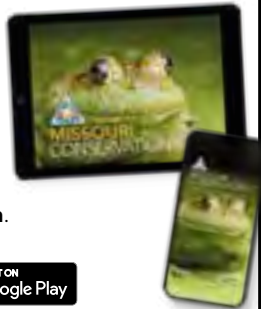
**PHOTOGRAPHY EDITOR**  
Ben Nickelson

**STAFF WRITERS**  
Kristie Hilgedick, Joe Jerek, Dianne Van Dien

**DESIGNERS**  
Kate Morrow, Marci Porter

**PHOTOGRAPHERS**  
Noppadol Paothong, David Stonner

**CIRCULATION**  
Marcia Hale



Download this issue to your phone or tablet at [mdc.mo.gov/mocon](http://mdc.mo.gov/mocon).



The *Missouri Conservationist* (ISSN 0026-6515) is the official monthly publication of the Missouri Department of Conservation, 2901 West Truman Boulevard, Jefferson City, MO (Mailing address: PO Box 180, Jefferson City, MO 65102.) Equal opportunity to participate in and benefit from programs of the Missouri Department of Conservation is available to all individuals without regard to their race, color, religion, national origin, sex, ancestry, age, sexual orientation, veteran status, or disability. Questions should be directed to the Department of Conservation, PO Box 180, Jefferson

City, MO 65102, 573-751-4115 (voice) or 800-735-2966 (TTY), or to Chief, Public Civil Rights, Office of Civil Rights, U.S. Department of the Interior, 1849 C Street, NW, Washington, D.C. 20240.

**SUBSCRIPTIONS:** Visit [mdc.mo.gov/conmag](http://mdc.mo.gov/conmag), email [subscriptions@mdc.mo.gov](mailto:subscriptions@mdc.mo.gov), or call 573-522-4115, ext. 3856. Free to adult Missouri residents (one per household); out of state \$13 per year; out of country \$19 per year. Notification of address change must include both old and new address (send mailing label) with 60-

day notice. Preferred periodical postage paid at Jefferson City, Missouri, and at additional entry offices.

**POSTMASTER:** Send correspondence to Circulation, PO Box 180, Jefferson City, MO 65102-0180. Phone: 573-522-4115, ext. 3856. Copyright © 2026 by the Conservation Commission of the State of Missouri.

Printed with soy ink

# Contents

FEBRUARY 2026  
VOLUME 87, ISSUE 2



# 22

**FEATURES**

**10**  
**Owls**  
Mysterious and magnificent birds of legend and myth.  
**by Jan Wiese-Fales**

**18**  
**Skunks**  
Beyond the smell.  
**by Angie Daly Morfeld**

**22**  
**Missouri River Hills**  
Improving property for nature and owners in priority geographies.  
**by Maddie Est**



# 18

**DEPARTMENTS**

- 2** Inbox
- 3** Up Front
- 4** Nature Lab
- 5** In Brief
- 28** Get Outside
- 30** Places To Go
- 32** Wild Guide
- 33** Outdoor Calendar

# Inbox



1



2



3



4



## 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](mailto:readerphoto@mdc.mo.gov)

1 | Groundhogs  
by David and  
Dorothy Kleindienst,  
via email

2 | White-tailed deer by  
Bill Allen, via Flickr

3 | Northern cardinal  
by Billy Davidson,  
via email

4 | Black widow  
by Doug Phillips,  
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](mailto:Magazine@mdc.mo.gov) or write to: MISSOURI CONSERVATIONIST PO BOX 180 JEFFERSON CITY, MO 65102



### DECEMBER ISSUE

I really love your magazine, but the December issue was exceptionally stunning. Such wonderful photos from my fellow Missourians, and I loved Jason Summers' family photo. The December issue is always my favorite. God bless this magazine and the Missouri Department of Conservation.

Alan Greene Newton County

### ETHICS

Your piece on photography [*Ethics in Wildlife Photography*, December, Page 2] was thoughtful and profound. In our efforts to document the natural world, Mr. Paothong has given us a foundation of practical guidelines with which to teach ethical photography for our next generations.

Dan Rinker Nixa

### CORRECTIONS

The *What Is It?* [December, Page 9] is an American beaver lodge, not a dam. Lodges are stand-alone structures that beavers live in, while dams are what block streams to create ponds.

Mark Putman submitted the photo of the Carolina mantis [December, Page 12] and the eastern comma butterfly [December Page 13].

# Up Front



### \* For me, February is often a restless month.

Most hunting seasons have closed, and the family doesn't usually enjoy cold days outdoors. Spring crappie fishing and turkey hunting often seem so far away. In the dormant state of winter, our forest and grasslands seem quiet. To fill the gap, I'll be spending this February with a chainsaw in hand. February is a critical month for habitat management. It's a great time to do timber stand improvement and edge feathering — two practices that encourage more sunlight to hit the forest floor, fueling the growth of native grasses, wildflowers, and shrubs. When coupled with prescribed fire, this creates favorable conditions for turkey brood rearing cover, quail and rabbit habitat, and pollinators.

February is also a great time to prepare fire lines through woodlands or around a grassland in anticipation of the right conditions to conduct a prescribed burn. The explosion of eastern red cedar across much of Missouri is a frequent reminder of the decline in fire on the landscape. Prescribed fire can be intimidating for many new to the habitat management tool. With a little experience and the right help, prescribed burns can be conducted safely and efficiently. Over the last several years, we've seen the establishment of several prescribed burn associations, which are groups of well-trained landowners and managers who come together to cooperatively return fire to the landscape.

Work done now sets the stage for healthier habitats, much like the work highlighted in *Missouri River Hills* (Page 22).

**JASON SUMMERS, DIRECTOR**

[JASON.SUMMERS@MDC.MO.GOV](mailto:JASON.SUMMERS@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.



### Conservation Headquarters

573-751-4115  
PO Box 180  
Jefferson City, MO  
65102-0180

### Regional Offices

Southeast/  
Cape Girardeau:  
573-290-5730

Central/  
Columbia:  
573-815-7900

Kansas City:  
816-622-0900

Northeast/  
Kirksville:  
660-785-2420

Southwest/  
Springfield:  
417-895-6880

Northwest/  
St. Joseph:  
816-271-3100

St. Louis:  
636-441-4554

Ozark/  
West Plains:  
417-256-7161

### Have a Question for a Commissioner?

Send a note using our online contact form at [mdc.mo.gov/commissioners](http://mdc.mo.gov/commissioners).

### Connect With Us!

/moconservation

@moconservation

@MDC\_online

## HABITAT MANAGEMENT

# From "Bee-Bass" to "Muskie-Monarch"

MDC staff test new materials to make floating wetlands more durable

by Dianne Van Dien

✳ **Floating wetlands bring the benefits of aquatic plants to lakes and ponds whose shorelines can't support them.** MDC Wetlands Coordinator Frank Nelson and Fisheries Biologist Kara Tvedt are co-leading a project to improve how these floating platforms of vegetation are designed.

"When you look at our floating wetlands, they're small, and you might think this isn't going to do anything," said Nelson. "But we're seeing positive results despite their small footprint."

In 2023, Nelson and Tvedt deployed several floating wetlands, each about 42 square feet, containing plants with root systems that grow down into the water. By filtering excess nutrients from the water, the plants have noticeably reduced the algae and scum on the surface of small water bodies.

Floating wetlands are not a new concept, but many of the materials typically used for them don't hold up over time. For this project, Tvedt explained, "we're looking at how we can get away from using



Floating wetlands improve water quality while also providing habitat for wildlife both above and below the water.

plastic and do some other types of designs that also have structural integrity. We need something that doesn't break down but has buoyancy."

They also need the floating wetlands to look nice and deter geese and other grazers from eating the plants. City Utilities of Springfield and other partners were interested in the evolving design.

After a year of working and learning, the team launched the "Bee-Bass" in July 2024. Made from aluminum pontoons and wire-mesh baskets filled with chunks of recycled glass aggregate (looks like large gravel), the Bee-Bass is 100 percent plastic-free. The name refers to how its native plants attract bees and other pollinators above the water, while under the water, the plants' roots provide habitat for bass and other fish.

"Since then, we've been tweaking that design," Tvedt said. "This past year we upgraded to our Muskie-Monarch\* — a little bigger critter name to reflect the new wetland's scaled-up size. It's more stable, with greater surface area, while needing less adjustment and less maintenance."

Over the coming years, they hope to streamline the process and share information with the public to make floating wetlands easier to adopt.

\**Muskie is short for muskellunge, a large fish in the pike family. Monarch refers to monarch butterflies.*

## At a Glance

MDC staff are testing designs for floating wetlands, with the goal of making them plastic-free, low maintenance, and long-lasting. The designs should be attractive as well as functional. Materials need to be durable and buoyant.

### Best finds so far:

Aluminum pontoons, wire-mesh baskets, recycled glass aggregate.

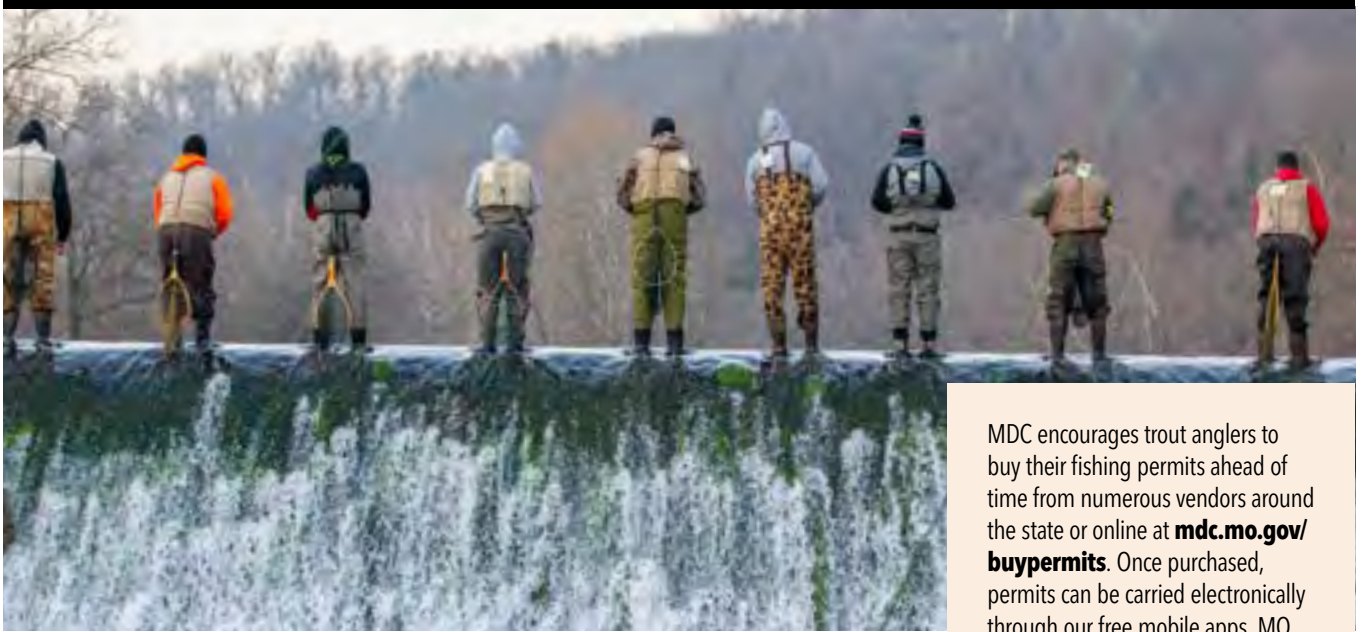


Recycled glass aggregate provides a light-weight substrate for planting native plants and allows their roots to reach the water. The plants gain nutrients from the water while also filtering out pollutants. The roots provide habitat for fish and other aquatic organisms.



# In Brief

News and updates from MDC



## TROUT OPENER

MARCH 1  
USHERS IN THE  
CATCH-AND-  
KEEP TROUT  
SEASON

➔ March 1 marks the annual opening of catch-and-keep trout fishing in Missouri at the state's four trout parks: Bennett Spring State Park near Lebanon, Montauk State Park near Licking, Roaring River State Park near Cassville, and Maramec Spring Park near St. James. The catch-and-keep season at the trout parks runs through Oct. 31.

MDC operates trout hatcheries at all four parks and stocks rainbow trout daily throughout the season. MDC staff stock more than 800,000 trout annually at the state's four trout parks and approximately 1.5 million trout annually statewide.

Trout anglers need a daily trout tag to fish in Missouri's trout parks during this time. Daily trout tags can only be purchased at each of the four trout parks. MDC encourages trout anglers to have the correct amount of cash for daily tags if possible. Missouri residents 16 through 64 and nonresidents 16 and older also need a fishing permit in addition to the daily trout tag.

The cost of a daily trout tag is \$5 for adults and \$3 for those 15 and younger. A daily fishing permit is \$9. The daily limit is four trout.

To prevent the spread of the invasive alga called didymo or "rock snot," the use of shoes, boots, or waders with porous soles of felt or matted or woven fibrous material is prohibited at all trout parks, trout streams, Lake Taneycomo, and buffer areas.

MDC encourages trout anglers to buy their fishing permits ahead of time from numerous vendors around the state or online at [mdc.mo.gov/buypermits](https://mdc.mo.gov/buypermits). Once purchased, permits can be carried electronically through our free mobile apps, MO Hunting and MO Fishing, available for download through Google Play for Android devices or the App Store for Apple devices.



Missouri has a wealth of trout waters, including red-, white-, and blue-ribbon areas that support naturally reproducing trout. MDC offers the Missouri Blue Ribbon Trout Slam to honor anglers who catch a trout in at least five of the nine blue-ribbon trout streams. Participants can have their successes listed on the MDC website. Learn more at [mdc.mo.gov/troutslam](https://mdc.mo.gov/troutslam). For more information on trout fishing in Missouri, pick up a copy of the *Trout Fishing in Missouri* booklet, available for free at MDC locations where publications are found or order one online at [short.mdc.mo.gov/4fK](https://short.mdc.mo.gov/4fK).



## DEER AND TURKEY HUNTING DATES

### 2026 Spring and Fall Turkey Hunting Dates

- Youth Spring Turkey Season: April 11-12
- Regular Spring Turkey Season: April 20-May 10
- Fall Archery Turkey Portion: Sept. 15-Nov. 13 and Nov. 25-Jan. 15, 2027
- Fall Firearms Turkey Portion: Oct. 1-31 (in open counties)

Youth hunters who are successful during the spring youth season may now harvest their second bird during the first week of the regular season. In the past, youth turkey hunters who were successful during the youth season could not harvest a second bird until the second week of the regular season.

Hunters using a Nonresident Spring Turkey Hunting Permit are now limited to one bird. Hunters using any other valid spring turkey hunting permit maintain the traditional two-bird limit.

### 2026-2027 Archery Deer Hunting Dates

- Sept. 15-Nov. 13 and Nov. 25-Jan. 15, 2027

### 2026-2027 Firearms Deer Hunting Dates

- Firearms Early Antlerless Portion: Oct. 9-11 (in open counties)
- Firearms Early Youth Portion: Oct. 24-25
- Firearms November Portion: Nov. 14-24
- Firearms Late Youth Portion: Nov. 27-29
- Firearms Late Antlerless Portion: Dec. 5-13 (in open counties)
- Firearms Alternative Methods Portion: Dec. 26, 2026-Jan. 5, 2027

The Missouri Conservation Commission approved changes to allow the early youth portion to be moved one week earlier in years when it overlaps with Halloween.

Get more information from MDC's *2026 Spring Turkey Hunting Regulations and Information* booklet and *2026 Fall Deer & Turkey Hunting Regulations and Information* booklet, available closer to the seasons where permits are sold and online at [mdc.mo.gov](http://mdc.mo.gov).

# Ask MDC

## Got a Question for Ask MDC?

Send it to [AskMDC@mdc.mo.gov](mailto:AskMDC@mdc.mo.gov)  
or call 573-522-4115, ext. 3848.

### Q: We caught this at the Lake of the Ozarks. What is it?

➔ This is an adult common mudpuppy (*Necturus maculosus maculosus*). Often found in deep pools, these fully aquatic salamanders have plumes of red gills behind their heads that vary in size depending on the oxygen content of the animal's habitat.

Common mudpuppies range in size from 8 to 13 inches. They are usually inactive during the day, remaining hidden beneath submerged logs, rocks, debris or tree roots. But they are active throughout the year, and MDC receives reports of these salamanders being caught on hook-and-line in Missouri's larger reservoirs and on rivers like the Osage and the upper Mississippi.

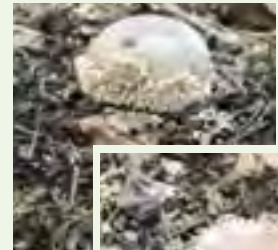
Common mudpuppies are harmless to humans and natural fish populations, and they are an integral part of the aquatic fauna of Missouri. If caught on a baited line or in a minnow trap, they should be released unharmed.

### Q: I found this on my land when I was cleaning brush. What is it?

➔ It appears to be a peeling puffball (*Lycoperdon marginatum*). These small, whitish mushrooms start off

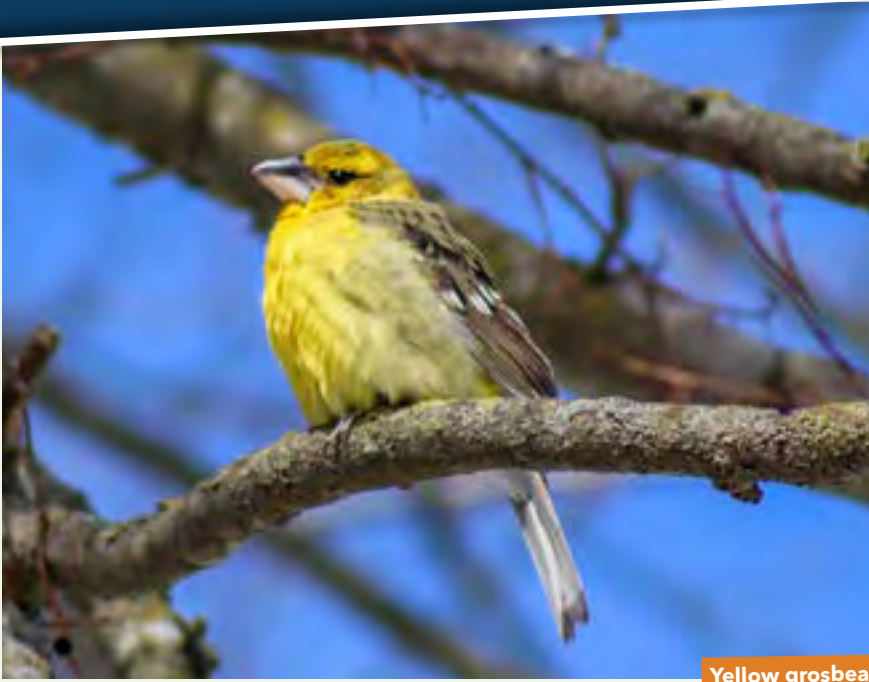


Mudpuppy



Puffball mushroom

covered with spikes, which slough off over time. As the puffball ages, the spines turn brown and break off in sections. They grow singly or in groups on the ground, in grass, in poor soil, disturbed areas, or in the woods. Look for them between June and October.



Yellow grosbeak

**Q: Could you please identify this bird? It was seen about 10 miles south of the Missouri border.**

➔ The photo is of a female yellow grosbeak (*Pheucticus chrysopleus*). This beautiful grosbeak is native to Mexico and only occasionally seen in the southwestern states. Identifying characteristics include the very stout bill and white wing markings.

For our region, this may be considered a rare vagrant or “accidental” species, said MDC

Conservation Educator David Bruns.

“I believe some bird enthusiasts would be willing to drive significant distances for a chance to see this in Arkansas,” he noted.

This species of grosbeak is found in tropical forests and edges, brushy woodlands, and shade-coffee plantations. They are usually seen singly — occasionally in small groups — feeding quietly at all levels in fruiting trees, according to Cornell Lab’s eBird website.

*Psst!*  
**WE WANT TO HEAR FROM YOU**



To better understand our readers and deliver the best content, we need to hear from you! Please take a few minutes to respond to the *Missouri Conservationist* reader survey.

Scan the QR code with your smartphone or visit [short.mdc.mo.gov/4w8](http://short.mdc.mo.gov/4w8). The survey should only take approximately 5 minutes.



## What IS it?

Can you guess this month's natural wonder?

The answer is on Page 9.



**INVASIVE  
SPECIES**

# MISSOURI'S LEAST WANTED

*Invasive nonnative species destroy habitat and compete with native plants and animals. Please do what you can to control invasive species when you landscape, farm, hunt, fish, camp, or explore nature.*



Leaves can have smooth, lobed, or toothed edges.

## The Princess Tree

by Angela Sokolowski

The princess tree (*Paulownia tomentosa*) is a highly invasive, deciduous species that rapidly colonizes forests, roadsides, and riverbanks. It has large, fuzzy, heart-shaped leaves arranged oppositely on the stem. In early spring, the tree produces clusters of fragrant, pale violet, trumpet-shaped flowers prior to leaf emergence. Leaves and flowers closely resemble those of catalpa trees. Blooms become egg-shaped woody seed capsules that persist throughout the winter months.



### Why It's Bad

Marketed as a fast-growing ornamental (also known as empress tree or royal paulownia), it can spread into natural habitats and outcompete and shade out native hardwood species, leading to reduced forest biodiversity and resources for wildlife. A single mature specimen can disperse up to 20 million lightweight seeds annually.

### How to Control It

**Mechanical:** Hand pull young seedlings, removing the entire root. Simply cutting mature trees without using herbicide is ineffective, as it stimulates aggressive root suckering.

**Chemical:** Effective herbicides have glyphosate or triclopyr as the active ingredients. Apply a mix of 50 percent herbicide concentrate and 50 percent water to stumps of freshly cut trees. Always follow herbicide label instructions.



## DANIEL DEY NAMED MASTER CONSERVATIONIST

During its December meeting, the Conservation Commission presented Daniel Dey of New Bloomfield with the Master Conservationist Award for his lifetime commitment to forestry and conservation.

Dey has been a leader in forestry research and teaching for more than 30 years with a focus on improving the productivity, diversity, health, value, and sustainability of forests in Missouri and beyond.

He has spent most of his career in Missouri, including two early years as the MDC forest research supervisor followed by 26 years with the USDA Forest Service where he was promoted to positions of progressively greater responsibility, scope, and stature. These included research forester, research project leader, assistant director of research, and most recently as a "super scientist," the highest rank that can be earned by a scientist in the USDA Forest Service.

Dey's research, outreach, and education efforts include providing forestry research leadership for MDC's Missouri Ozark Forest Ecosystem Project. The project is a comprehensive, landscape-scale experiment measuring the effects of forest disturbance on wood, water, wildlife, health, and sustainability of Ozark forests.

Dey was also involved in restoring mixed oak-pine forest habitats to increase landscape-scale animal diversity with emphasis on restoration of the brown-headed nuthatch in southern Missouri.

Dey's research includes advancing understanding of white-oak health and productivity with special emphasis on sustainability of Missouri's white oak resource for manufacturing oak barrels sold globally. Oak cooperage production is important in creating employment and investment opportunities in rural Missouri communities and throughout the Midwest and Midsouth.

Dey was key in developing a statewide shared stewardship agreement among state and federal agencies to create opportunities for collaboration on landscape-scale activities to address forest health, diversity, productivity, sustainability, and rural employment.

Dey co-authored the 600-page textbook, *The Ecology and Silviculture of Oaks*, considered the definitive text on oak ecology and silviculture in the country. He has also published more than 300 scientific and technical papers on forestry, silviculture, ecology, and related subjects and made more than 400 presentations to share research findings and forest management recommendations.

Through the course of his career, Dey has received acknowledgements for his scientific accomplishments and his service to the forestry profession, including the Karkhagne Award from the Missouri Chapter of the Society of American Foresters and lifetime recognition as a Fellow in the Society of American Foresters.

"Thanks to his decades of research, outreach, and education in the fields of forestry and conservation, Dr. Daniel Dey is an excellent example of a Master Conservationist Award recipient," said MDC Director Jason Summers. "The relevance and broad geographic scope of his research, his outgoing personality, his communication skills, and his decades of work have resulted in Dan being very well known, very well respected, and embraced by Missouri's forestry community."

The MDC Master Conservationist Award was created in 1941 to honor living or deceased citizen conservationists, former commissioners of the department, and employees of conservation-related agencies, universities, or organizations who have made substantial and lasting contributions to fisheries, forests, or wildlife resources, including conservation law enforcement and conservation education activities in the state.



Congratulations to Daniel Dey on receiving a Master Conservationist Award for his lifetime commitment to forestry and conservation. Pictured with Dey (center) are his wife Mavis and son Cabe.



## WHAT IS IT?

### DUCKS AT FOUNTAIN GROVE

Fountain Grove Conservation Area was the first wetland developed by the Conservation Commission. Established in the 1940s, the area has grown to 7,906 acres and includes marshes, bottomland forests, grain fields, oxbow lakes, and sloughs. Flights of birds, including wood ducks, are common on the area. It sits in the floodplain of the Grand River and serves as an important migration stop for a variety of wildlife and wintering habitat for Canada geese.

# MYSTERIOUS AND MAGNIFICENT



# BIRDS OF LEGEND AND MYTH

by Jan Wiese-Fales



**F**ew birds are as mysterious as owls. Their mystique dates back centuries and is deeply rooted in cultural reverence, folklore, myth, and sometimes fear.

Greeks, in awe of owls' incredible nighttime hunting skills, believed they served as a perfect symbol for Athena, the Greek goddess of wisdom and war. Therefore, a Greek coin, the tetradrachm, was minted with the helmeted goddess depicted on one side and the owl on the flipside. Similarly, ancient Romans believed

owls had the ability to gaze into the future, making the screech owl a suitable symbolic companion for Minerva, the Roman goddess of wisdom and prophecy.

Owl myths also abounded amongst Native Americans. Revered as messengers from the spirit world, they were considered both sacred and supernatural. Owl feathers were carried into battle as symbols of power to see in the darkness and to move with stealth.

Others associated owls and their preference for hunting at night with misfortune. Gaelic settlers in North America brought the folklore of the Cailleach — as being associated with hardship, sometimes personified by an owl — to the Appalachians. Mountain legend held that an owl hooting at midnight foretold death.

At the root of these many legends and myths is an owl's spectacularly evolved hunting prowess.

### Hearing in 3-D

Owls have uncanny visual acuity. Their eyes take up a lot of real estate in their skulls and account for 5 percent of their entire body weight. Compare that to a human's eyeballs, which tip the scale at just 0.0003 percent.

Owls — like most birds of prey — have forward facing, binocular vision. Owls' eyes are tubular, supported by bony structures, called sclerotic rings, that hold them in place. Humans can roll their eyes, but owls' eyes are forward fixed, boosting depth perception. However, an owl can rotate its head 270 degrees while remaining fully stationary.

Both human and owl retinas contain two types of light-sensitive cells. Rods detect movement and light, and cones detect color variations. Human eyes have a 20-to-one rod to cone ratio; owls have a 30-to-one ratio.

An owl's ears, nestled within feathers on each side of its head, are positioned asymmetrically, allowing them to triangulate sound. When noise reaches one ear before the other, by tipping its head until the sound reaches both ears, an owl can pinpoint the location of scurrying prey.

"Owls can hear in 3-D," said MDC Private Land Conservationist Meagan Duffee-Yates, a long-time falconer.

Additionally, an owl's iconic ring of face feathers, called a facial disk, captures and channels sound to its ears.

"It's like a human cupping their hands behind their ears," she said.

Wing structure also adds to an owl's hunting abilities. A large surface area provides a quiet glide instead of a noisy flap. The leading edges of an owl's wing feathers are softly serrated, muffling the sound of rapid air flow. Secondary trailing feathers are fringed, breaking sound waves. Down feathers on an owl's wings and legs absorb remaining sound frequencies.

Other distinct features that contribute to the bird's hunting prowess are its formidable sharp claws, or talons. They not only assist with hunting but are used as defensive weapons. Its toes — two that point forward, one that points backward, and one that can point either way — allow for greater dexterity. With two pointed forward and two pointed back, an owl can achieve a better grasp of its prey and a broad, lethal strike. Even its perch is affected by the placement of its toes — three forward and one back make it more secure.

And while all these features combine to create an indisputable apex predator, owls make poor hunting partners, Duffee-Yates said.



American barn owl



Eastern screech-owl



Short-eared owl



Northern saw-whet owl



Barred owl chick

### Challenges Faced by Owls

“For any bird of prey, 70 to 80 percent will die before their first birthday,” said MDC Private Land Conservationist Meagan Duffee-Yates.

Habitat loss — nesting sites, hunting grounds, and shelter — is increasingly a threat to owl survival. Other hazards include the nocturnal birds’ sometimes fatal laser-focus on prey when it takes them into the path of moving vehicles, as well as their consumption of human-poisoned rodents.

Competition for diminished prey, caused by things such as increased weather extremes, also pose a risk, as does predation of owl nests by raccoons, snakes, and cats. Owls also fall victim to other birds of prey, including larger owls.

“You’d want to be as wise as a crow, not an owl,” she said, noting that owls are stubborn and hard to train as hunting companions, but on their own, they are extraordinary, winged predators.

### An Owl’s Life

According to the International Ornithological Committee, there are 254 recognized owl species in the world, 19 of which are native to North America. Missouri is home to eight species, four of which — American barn owls, barred owls, eastern screech-owls, and great horned owls — make their homes year-round in the Show-Me state. Three species — northern saw-whet owls, long-eared owls, and short-eared owls — are migratory, spending time here in the winter, but nesting farther north.

Snowy owls occasionally visit.

Courtship rituals, initiated by male vocalizations, vary among owls and some add flight antics. Males may proffer a meal to a prospective mate, which if accepted, is often followed by copulation and a preening cuddle.

Generally monogamous during a given breeding season, a lifetime bond often persists with nonmigrating species like barred owls, eastern screech-owls, and great horned owls. If food is plentiful, a female northern saw-whet owl may leave her mate to raise the couple’s owlets while she seeks another partner.

Owls do not build nests but rather take advantage of hollow trees, other natural features, and nests built by other birds. They are very territorial during breeding season and may perform flight

displays and wing clapping to ward off intruders. In some cases, mated pairs perform a warning duet.

Owl eggs are typically round and white. Depending on species, owls lay two to six eggs, though barn owls sometimes have larger clutches. Incubation lasts an average of 30 days. Barn owls lay their eggs at intervals, causing them to hatch at intervals. The time it takes owlets to fledge — or leave the nest — varies depending on species.

Owl parents tear up larger prey but eventually feed owlets whole smaller rodents, birds, insects, and reptiles. Digestible tissues pass through owl gizzards and indigestible bones, feathers, teeth, and fur are regurgitated as brown or gray cylindrical “pellets” by both owlets and adult owls.

## Studying Owls

Largely illusive nocturnal creatures, owls have remained a creature of mystery, heightening their allure. But recent technologies, such as nest cams, infrared cameras, radio tagging, and satellite telemetry, have started to illuminate owl behavior.

MDC, with help from Master Naturalists and Missouri State University (MSU) students, have been able to shed light on nesting habits of barn owls.

In 2014, nest boxes were installed in barns to attract voracious predators for rodent control. Noting the program's success, boxes were again built and given away. MDC Natural History Biologist Rhonda Rimer has played a key role in recent nest box surveys.

"We could tell by the layers of pellets in the older boxes that quite a few had been in use for a long time," Rimer said.

"When placing boxes, we install them pretty high up in barns to protect them from weather and to give the occupants a defensible space," she said of the propensity of other owls, raccoons, cats, snakes, and hawks to plunder nests. "If barn owls were nearby when new boxes were installed, colonization occurred in as little as 30 days."

Before constructing a device from a cell phone, a rubber glove, duct tape, and PVC pipe to peek inside the small square entrance to the boxes, Rimer said they climbed ladders and knocked on them before visually checking for occupation.

"Without conclusive data, barn owls had long been presumed to be the only owl that nest year-round in Missouri," Rimer said. "Over the past 10 years, we've documented nest activity in every month but December."



AM. BARN OWL: MARK SULLIVAN; E. SCREECH OWL: JIM BATHER; GREAT HORNED OWL & SNOWY OWL: NOPPADOL PAOTHONG

## SNOWY OWLS

Snowy owls (*Bubo scandiacus*) spend their breeding season in the Arctic Circle. While most owls are nocturnal hunters, these splendid white birds — 20- to 25-inches tall with wingspans up to 5 feet — are diurnal, which means they hunt during the day. Small mammals — primarily lemmings but also Arctic hares — and other birds are on the menu.

Most snowy owls have some black barring on their feathers, which is more substantial in younger and female birds. A surfeit of insulating feathers, which makes them one of the heaviest of all owls, includes plumage on their legs and feet. Bristles on snowy owls' beaks aid in sensing close range objects, and fluffy facial discs make their golden eyes look almost human. Vocalizations range from screeching or barking to courtship hooting and cooing.

With a historical winter range that dips down to the Great Lakes, snowy owls are sometimes sighted as far south as Georgia.

Increased southern migrations occur every three to five years in what is known as an irruption.

"We recently had a question about snowy owl irruptions," said Missouri State Ornithologist Kristen Heath-Acre. "There is a larger dispersal of snowy owls from the arctic when there is an excess population."

A food surplus results in higher nest success — and a subsequent increase in snowy owlets — causing migration to stretch farther south due to competition for food and space. In Missouri, snowy owls dine on squirrels, muskrats, other rodents, rabbits, mink, and birds.

"People generally think of owls as forest birds," Heath-Acre said. "But some owls, like barn, short-eared, and long-eared owls, may hunt on prairies or open fields."

Migratory snowy owls also hunt Missouri's grasslands, flying at more than 50 miles per hour in pursuit of prey.

In December 2024, results of a multi-year international status assessment of snowy owls by researchers with Project SNOWstorm and the International Snowy Owl Working Group in Norway were published in Bird Conservation International.

Twenty years ago, scientists estimated snowy owl numbers at 290,000, an inflated approximation due to over-counting caused by the birds' nomadic tendencies. SNOWstorm's revised estimation predicts 14,000 to 28,000 mated pairs worldwide. Indicators point to a one-third decline in population in the past 25 to 30 years.

U.S. Fish and Wildlife Service now lists snowy owls as a species of conservation concern.



Want to learn more about snowy owls? Tune into the latest episode of Nature Boost at [short.mdc.mo.gov/o3F](https://short.mdc.mo.gov/o3F).

An injured nestling owl discovered in mid-January 2025, proved year-round nesting.

Under the direction of now-emeritus MSU Biology Professor Janice Greene, students completed a diet study, monitoring pellets in a subset of the owl boxes. They discovered that over 70 percent of barn owls' diets in the study area consisted of prairie and woodland voles.

Once a Missouri species of conservation concern, barn owls have been removed from that list. Owl distribution and history are important to understand for ecological considerations and conservation efforts.

Historically, few northern saw-whet owl migratory records existed with roadkill being the most frequent source of confirmation.

Suspecting that northern saw-whet owls frequently migrated into — and farther south from — their breeding grounds in the Great Lakes area than documented, Dana Ripper and Ethan Duke, co-directors of the Missouri River Bird Observatory (MRBO), and Mitchell Pruitt, an ecologist with the University of Arkansas and founder of the Ozark Bird Conservancy (OBC), have conducted migratory banding of northern saw-whet owls during the birds' fall migration.

MRBO bandings were conducted in central Missouri — near Marshall — and MRBO headquarters in Arrow Rock. OBC bandings took place in the interior highlands of Missouri and Arkansas.

Because northern saw-whets do not breed in the fall and winter when in Missouri, they have no need to vocalize, making them more difficult to detect.

Tracking and banding these small owls is part of a national effort by Project OwlNet, a cooperative initiative of hundreds of owl-migration researchers.

Fine mist nets are set up and alluring male owl vocalization recordings are played to lure the little owls. Before being banded, captured owls are weighed and sexed using a measurement of mass to wing length as females are larger. Because owls don't annually molt all their feathers, UV lights shown on the undersides of their wings that reveal the presence of fluorescent porphyrin pigments — seen as bright pink by humans — are used to determine age. Younger owls have more pigmentation.

Between 2010 and 2022, MRBO caught and banded 224 owls, at first with weeks-long dedicated events, and beginning in 2014, as part of their broad educational programming.

Over the last 10 years, OBC has captured and banded 150 saw-whets.

In the fall of 2024, Pruitt fitted five saw-whets with transmission devices that would “ping” on Motus Wildlife Tracking System's automated radio towers, an international array of bird migration tracking stations. His effort yielded initial northern migration information the following spring. ▲

---

*Jan Wiese-Fales is a freelance writer who gardens in Howard County and enjoys camping, hiking, floating, and photographing Missouri's wild outdoors.*

**American barn owl**



**Northern saw-whet owl**



AM. BARN OWL: JIM RATHERY; SAWWHET OWL: MARK SULLIVAN

## YEAR-ROUND RESIDENT OWLS

**American barn owls** (*Tyto furcata*) nest in farm structures and hollow trees near open fields, including cropland, throughout the state. They have light-colored, heart-shaped faces and dark eyes with light-colored breasts. Gray- and cinnamon-colored feathers feature black markings and white specks. Medium-sized barn owls have a wingspan of up to 4 feet and a length of 16 inches. Their voices are harsh and screeching, reminiscent of red-tailed hawks, and they dine on small rodents, birds, insects, bats, and reptiles.

**Barred owls** (*Strix varia*) occur throughout Missouri. Though rarely seen, their series of hoots — *hoo hoo h' hoo, hoo hoo h' hoo-ahh* — is one of the most familiar and is interpreted as, "Who cooks for you, who cooks for you all?" Large owls at 21 inches, they have a wingspan of 4 feet. Brown feathers are streaked with white and facial discs feature darker concentric rings of feathers surrounding dark eyes. Barred owls prefer forested areas near water, and make homes in tree hollows, using the same space year after year. They prey on small rodents, rabbits, squirrels, opossums, frogs, snakes, insects, crayfish, and fish.

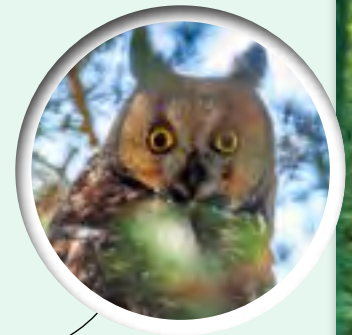
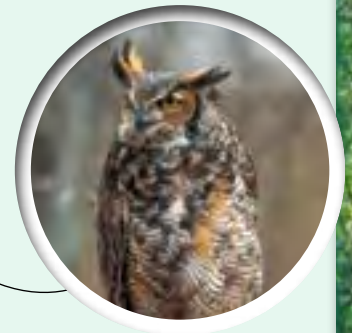
**Eastern screech-owls** (*Megascops asio*) are small owls measuring 8.5 inches with 20- to 22-inch wingspans. Rather than a screech, their calls are described as a whinny trill, or tremolo, which is likened to the sound of mating toads. They can occur in three color "morphs" — gray, brown, or red — all with golden eyes and ear tufts, which are not always erect and visible. Screech owls prefer tree hollows in a wide variety of habitats, including urban areas, often taking advantage of abandoned woodpecker nests, favoring cedars and pines. Because of their small size, they occupy a rare niche among nighttime predators, dining on insects and small rodents.

**Great horned owls** (*Bubo virginianus*) are the largest North American owl. Identifiable by wide-set ear tufts, they measure 22 inches with 5-foot wingspans. Feathers are mottled brown in color with brown barred underparts and white throats. Gold eyes are set in rust-colored facial disks. Great horned owls reuse hawk and squirrel nests, or seek large tree hollows close to open fields for hunting. Calls are a series of three to eight loud and low-pitched hoots. Though they eat small mammals and birds, they can go after larger prey such as muskrats, rabbits, geese, groundhogs, and, because owls have a poor sense of smell, even skunks.

## MIGRATORY OWLS

**Northern saw-whet owls** (*Aegolius acadicus*) get their name from their calls, which sounds like a saw being sharpened on a whetstone. Their more common call is *too-too-too*. Missouri's smallest owls, they are only 8 inches in length with 17- to 18-inch wingspans. Thought to mostly occupy the northern two-thirds of the state during migration, tagging efforts show they occur much farther south. Saw-whets are reddish brown with white striped breasts and round heads that looks too large for their short-legged little bodies. They seclude themselves in dense evergreens or ground covers, hunting mostly at dusk and dawn.

**Long-eared owls** (*Asio otus*) are slender with tall ear tufts and golden yellow eyes set in rust-colored facial disks. Medium-sized owls, they measure 15 inches with wingspans of 3 feet. Their coloring is buff and brown with dark mottling. They are known to roost communally in dense woods and thickets but need open space to hunt, hovering low above the ground in search of small mammals, snakes, lizards, small birds, and insects. Their flight is described as buoyant and mothlike. Calls are long repeated *who*, with additional calls described as squeals and dog barks in between. Long-ear owls occur statewide but are rare and a species of conservation concern in Missouri.





# sk

## BEYOND THE SMELL

by Angie Daly Morfeld

Skunks get a bad rap. Known for their pungent perfume, these cat-sized mammals are often smelled long before they are seen. But there is far more to skunks than meets the eye ... or the nose.

# skunks

## earning their stripes

Young skunks are born nearly naked, but hints of the distinctive black and white markings they will possess as adults are already evident.

Their signature stripes, which usually run down their head and divide to become two stripes on each side of the body, are unique to each individual skunk. Some skunks have stripes that are almost nonexistent while others have stripes that cover the entire back.

“You could say skunks are just like us,” said Nate Bowersock, MDC’s black bear/furbearer biologist. “Just like we have our own characteristics and features that make us unique, so do skunks. And that uniqueness shows up in their markings.”

Striped skunks begin breeding in February, and litters, typically of four to six young, soon follow in May or June. As adults, they will grow up to 11½ pounds and reach 20–30 inches.

In late autumn as it gets colder, more time is spent in dens. When it’s near freezing, skunks become drowsy and sleep intermittently, but they do not truly hibernate.

## home sweet home

Striped skunks are found statewide in a variety of habitats. They prefer forest borders, brushy field corners, fencerows, and open grassy fields broken up by wooded ravines and rocky outcrops, where permanent water is nearby.

A skunk’s den is usually in the ground. But a skunk can make its home just about anywhere,

including in a stump, refuse dump, cave, rock pile, crevice in a cliff, farm building, wood pile, or haystack.

A skunk might even make a home near your home.

“Skunks like to end up in some sort of structure and burrow,” Bowersock said. “So, underneath decks, porches, and sheds are perfect because with little excavation, suddenly they have a fairly solid burrow to hide or make a nest for their young.”

If you find a skunk taking up residence near your residence, Bowersock says don’t panic.

“It’s best to just leave them alone,” Bowersock said. “If you confront them, that’s when you could have issues. If you leave them alone, by summertime, they likely will leave, and you can cover up the space so they will not return.”

## nature’s pest control

Striped skunks forage most of the night and are omnivorous, eating both plants and animals.

In spring and summer, insects are their preferred food, so you might consider them nature’s pest control. They dine on some of the insects that bug us when we are trying to enjoy the outdoors. Some of their favorite menu items include bees, wasps, and larvae. They also enjoy hives and honey.

There are steps you can take to deter a skunk from frequenting your front door and other places near your home. Make sure items that attract skunks — like pet food, garbage, and animal feed — is unavailable to them. If you need assistance with a nuisance skunk, visit [short.mdc.mo.gov/4Fn](http://short.mdc.mo.gov/4Fn).





# FUNKY

## facts about skunks

“They will break open logs and get into beehives,” Bowersock said. “So, on a simple level, they are almost like a miniature bear.”

Their pursuit of insects causes them to dig, which in turn breaks up woody debris and turns up the soil.

“They are helping break up materials so they can get at insects,” Bowersock said. “By digging, they are helping with soil cycles and plant growth.”

Skunks are also useful in the removal of mammals that can be considered a nuisance, including moles, shrews, mice, and rats. They also have an appetite for ground squirrels, young rabbits, and chipmunks.

Skunks are part of nature’s clean-up crew, as well. As scavengers, skunks feed on larger mammals as carrion, which in turn keeps the forests clean.

“They also eat fruits throughout the summer and fall, and that helps with seed distribution across the landscape,” Bowersock added.

### to spray or not to spray

Skunks have a not-so-secret weapon lurking in glands located in the base of their tail. When

provoked, a very pungent spray is secreted through these glands. This is a very effective defense mechanism, as the spray can be aimed and sprayed at will.

However, spraying is not the skunk’s first go-to method of protection.

“It seems to be a running fear that you’re going to get sprayed by a skunk immediately, but that really is not true,” Bowersock said. “Skunks are very non-confrontational and really don’t want anything to do with people. In most cases, skunks will try to just run away.”

Prior to spraying, skunks usually warn intruders by stamping their feet and holding their tail high in the air. If intruders don’t take heed, the next step will be a smelly one.

So, the next time you see a skunk, take a minute to appreciate all it does for the ecosystem — at a respectable distance, of course. ▲

*Angie Daly Morfeld is the editor of the Missouri Conservationist. She had a dachshund, named Baxter, who seemed to love to tangle with skunks. He often came home doused in their musky scent. She misses Baxter, but not the skunky smell.*



A skunk’s sulfuric spray has a range of up to 10 feet, and its odor can be detected up to 1.5 miles.

Skunks eat wasps and honeybees and will often attack beehives.

Immune to snake venom, skunks are known to eat venomous snakes.

Skunks do not have great eyesight, struggling to see objects just 10 feet away.

They make up for their poor eyesight with powerful hearing and a strong sense of smell.

Although skunks can live as long as 10 years, they are more likely to survive for just 1 year in the wild.

Newborn skunks are called kits.

A group of skunks is called a surfeit.

## A SKUNK OF A DIFFERENT STRIPE

Missouri is also home to a lesser-known skunk — the plains spotted skunk. At one time, this species was distributed throughout the state, but today populations are scattered and rare. In fact, it is listed as endangered in Missouri and is considered a species of conservation concern.

“They’ve been up for the federal endangered species listing,” explained Nate Bowersock, MDC’s black bear/furbearer biologist. “But the thing that’s slowing or limiting that is the fact that we just don’t know much about them. It’s something a lot of us furbearer biologists are trying to learn more about.”

The spotted skunk is smaller than its striped cousin. Its overall color is black with white stripes and spots. There is a white spot on the forehead and in front of each ear. Four white stripes along the neck, back, and sides extend from the head to about the middle of the body. Behind these, more white stripes and spots occur. The tail is usually all black, sometimes with a white tip.

Spotted skunks mate in late winter, and young are born from April to July. Like striped skunks, spotted skunks are also born nearly naked but possess the beginnings of the adult’s characteristic black and white markings.

Their habitat is similar to that of their striped cousins, but spotted skunks require extensive cover between their foraging areas and their dens. In the Ozark Highlands, they are found more commonly in woodland habitats with leaf litter and downed logs.

Some believe their decline is potentially due to farming practices that eliminated the brushy cover this species prefers.

“When we had a lot of smaller farms across the state, the fields provided a good source of food for these skunks, including small mammals and insects, and natural fencerow cover,” Bowersock said. “But when we started switching to larger farms, a lot of that cover disappeared.”

These two species of skunks definitely dine at the same places. Also considered omnivores, spotted skunks eat both plant and animals. Like striped skunks, they are considered an asset for both rodent and insect control. They also do their part to clean up the outdoors by feeding on carrion.

Their defense mechanism is also a noxious spray, but like striped skunks, it is not their go-to, as it takes time to replenish that fuel. Instead, they will try to buy time to get away by stamping their feet or doing a handstand, with their hind feet and tail in the air.



# Missouri River Hills



IMPROVING PROPERTY FOR  
NATURE AND OWNERS IN  
PRIORITY GEOGRAPHIES

by Maddie Est

Some of Missouri's greatest assets can be found within our diverse ecological communities. From the expansive cropland north of the Missouri River to the densely wooded Ozarks, outdoor enthusiasts can find a vast variety of wildlife and plant species to explore.

MDC and private landowners across the state work together to manage the land that Missourians cherish. In fact, MDC has designated 11 priority geographies statewide that are now receiving focused attention for habitat enhancement. Each of the 11 areas include varying amounts of privately and publicly owned lands and contain one or more MDC-managed conservation areas.

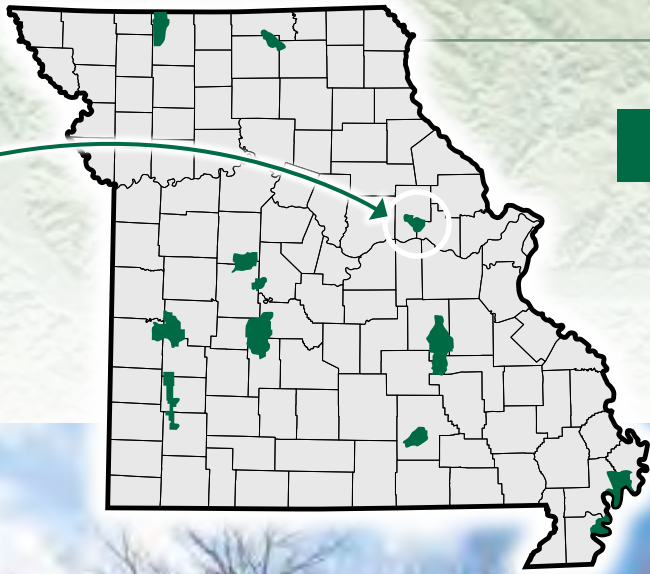
One such priority geography, called the Missouri River Hills, is located in central Missouri. MDC and many other conservation partners have determined that this area holds high potential for preserving woodland habitat.

---

MDC has designated  
11 priority geographies  
statewide that are now  
receiving focused attention  
for habitat enhancement.

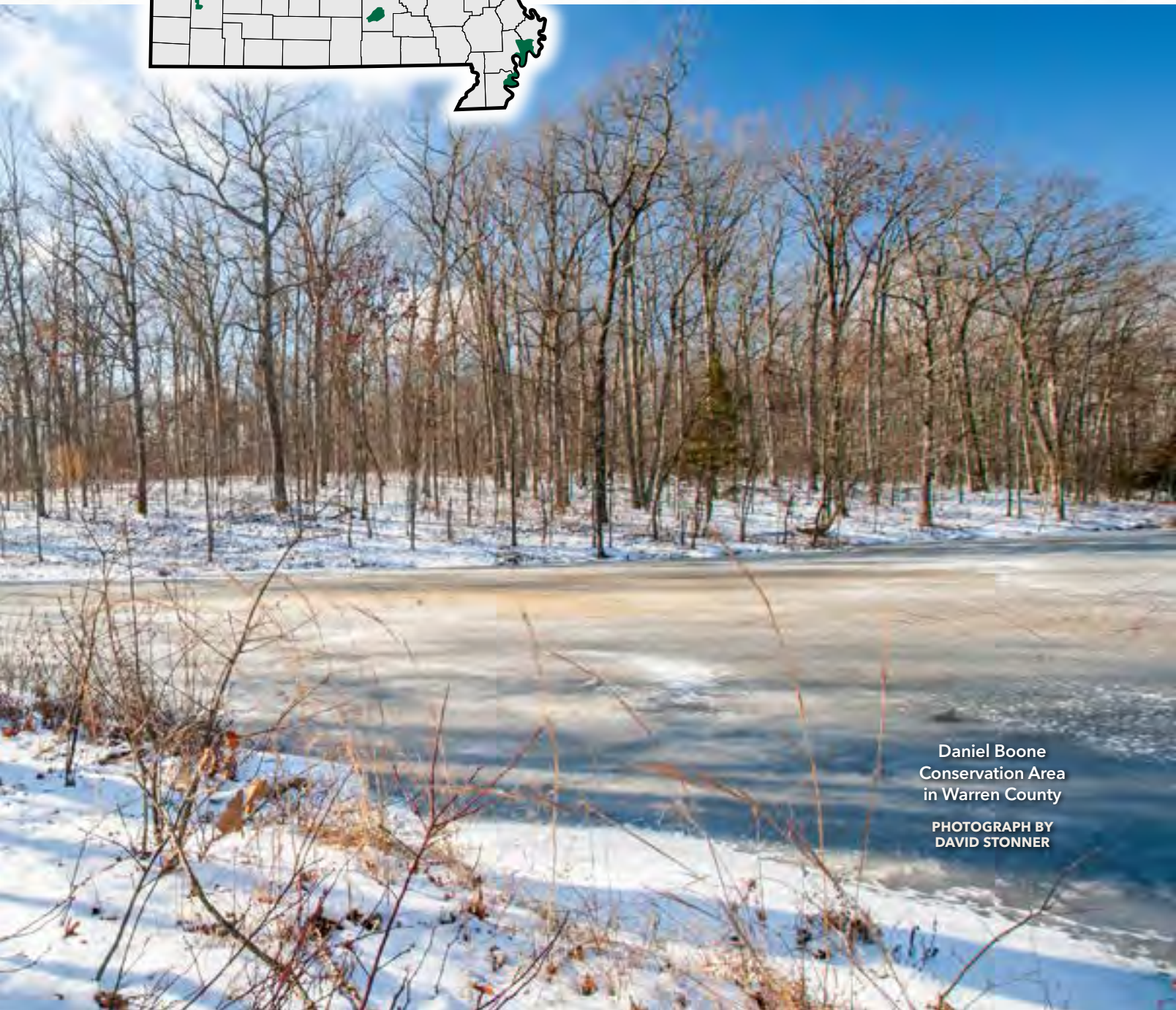
---





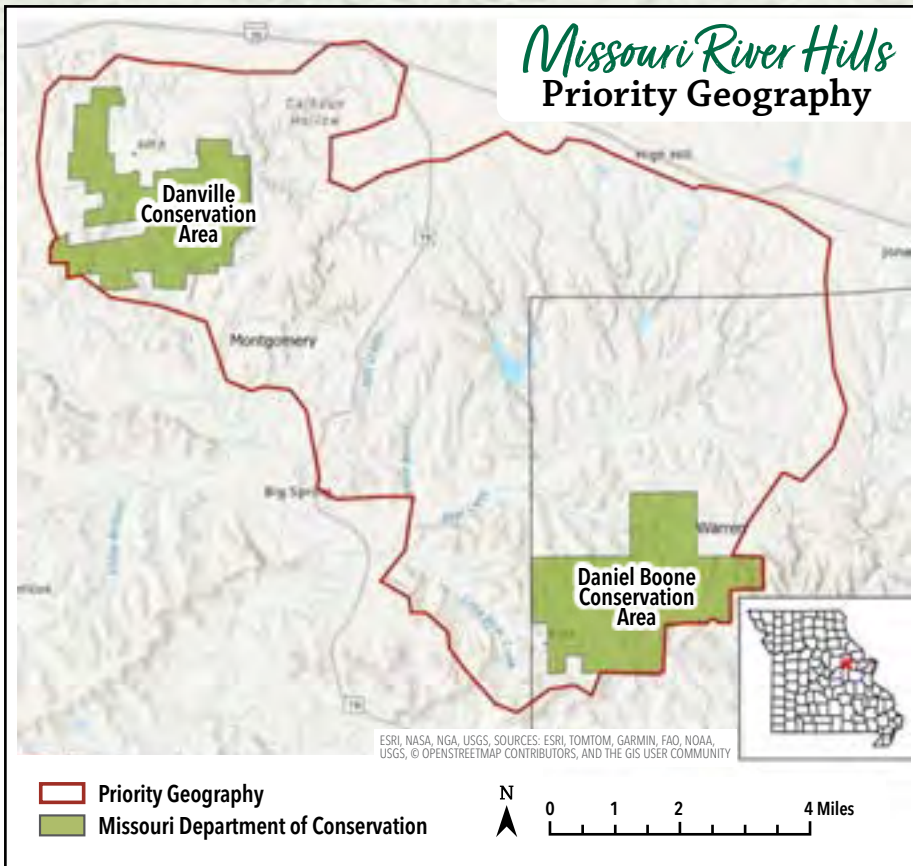
**PRIORITY GEOGRAPHIES** are key landscapes in Missouri that hold high potential for conserving our state's diverse habitats and the plants and animals that depend on them. [short.mdc.mo.gov/4Wb](https://short.mdc.mo.gov/4Wb)

TOPOGRAPHIC MAP (BACKGROUND); ADOBE STOCK | #483291326



Daniel Boone  
Conservation Area  
in Warren County

PHOTOGRAPH BY  
DAVID STONNER



about 38,000 acres are privately owned. While MDC intensively manages the land it owns within the geography, including on Danville Conservation Area and Daniel Boone Conservation Area, there is also an emphasis on coordination among landowners for management on private property, contributing to landscape-scale conservation goals across the priority geography.

Since the region's designation as a priority geography, MDC has worked with over 100 cooperating landowners. One such landowner, Andy Ley, has been involved in a management partnership with MDC for many years.

Nestled in a quiet area just south of Interstate 70, the 130-acre Ley property is an oasis from the bustling highway. Originally, he purchased this property with the intention of finding land close to where he lives full time that allowed him to enjoy a sense of relaxation when he wished to immerse himself in nature. Little did he know he had stumbled into an ecological haven that would respond well to management practices he wanted to implement. Ley just needed to determine the best avenue for maintaining and improving his property. It was through other landowners as well as the *Missouri Conservationist* magazine that Ley learned that MDC could provide not only expertise, but also financial assistance for managing his property.

Ley decided just over four years ago that he was committed to the idea of improving his land for wildlife. After speaking with MDC's private land conservation staff, he decided to focus his initial management efforts on improving the portion of his land — nearly 80 percent — that was covered in timber. His land is primarily comprised of oak hickory forest and woodland acres, and when he purchased the property, there were issues with old fields encroaching on areas that were better suited as wooded habitat.

## Meet the Priority Geography

Missouri River Hills consists of Missouri's largest block of high-quality woodland and forest habitat north of the Missouri River. Within this 45,510-acre swath of land that makes up the priority geography, an incredible diversity of native species exist on both private and public ground.

Woodland habitat is one of the four main types of habitats in Missouri where trees play a major role. Forests have the highest density of trees, then woodlands, open woodlands, and finally savannas, which have the lowest density of trees. Each of these habitats play a key role in the local ecosystems, and they require varied management techniques.

In the case of Missouri River Hills, this area contains habitat and noted populations of many species of conservation concern and endangered species, such as the wood frog, ringed salamander, Indiana bat, fir clubmoss, yellow false marrow, and more. Because of the opportunity that this land offers, MDC



designated this region as a priority geography and has a dedicated team focused on working with landowners to support habitat restoration and land management in ways that align with landowners' goals and other needs for their property, while still benefiting nature.

## Public and Private Partnerships

Missouri River Hills hosts a mix of private and public land. In this region, nearly 7,000 acres are public land while

Management at Daniel Boone Conservation Area focuses on restoring and maintaining healthy natural communities, which support the area's rich diversity of plants and animals.



“Andy approached me with an interest in both wildlife habitat and the productivity of his woods,” recalls MDC Private Land Conservationist Jordon Beshears, who initially consulted with Ley about his property. “MDC provided him with a forest management plan, which broke his woods into several management units, each with its own detailed prescription for management.”

From that plan, Ley began prescribed burning and timber stand improvement practices. He worked with a local contractor to complete the work, and MDC provided cost-share to help offset his expenses.

This forest management project influenced the way Ley thought about his property. At face value, improving the timber on his property included prescribed burning, tree thinning, and removing invasive species. These practices were aimed at improving the

habitat for the turkey population on his property.

He quickly learned that this management effort influenced other species as well. As his work led to better quality, more marketable trees, Ley began to note a marked improvement in the number of deer traveling his property. The trees were producing ample acorn crops, enough to sustain the deer and draw them away from nearby agricultural cropland.

“An acorn crop is another benefit for the deer as opposed to a food plot that may or not come up based on drought conditions that year,” Ley said.

In a year like this past one, food plots may not be reliable due to lack of precipitation that hinders their growth. Come fall, this leaves hunters and wildlife watchers frustrated without the aid of the food plot to help draw in deer. Having a secondary draw, such as a booming acorn crop, can help encourage deer to visit your land.



White-tailed deer



Pileated woodpecker

Red-headed woodpecker

A ruby-throated hummingbird perches beside foxglove beardtongue at Danville Conservation Area.



A recently managed forest stand at Danville Conservation Area where active forest management has promoted healthy oak regeneration and a diverse shrub layer important for many wildlife species.



It is not uncommon for land management to have a broader impact on the ecosystem than for what it was originally intended, as Ley saw with his acorn crop. Often, proper land management creates positive feedback loops on a property. For instance, managing a wooded property for deer and turkey may also improve the habitat for songbirds and small game. This is because thinning trees and prescribed burning create a diversity of habitats. This includes snags that provide nesting habitat for woodpeckers and other birds, as well as stimulating ground vegetation that provides cover and food resources for many species of birds and wildlife. Den trees, or live trees with a natural hollow in the trunk or limbs, also provide shelter for squirrels and other small mammals. Even in areas where row crop farming dominates the land, small management changes can improve production.

Implementing a transitional zone between habitat types can offer critical

Ben Diekmann (MDC private land conservationist) and Andy Ley (landowner) assess how the Ley property has responded to land management efforts to date.



wildlife food and cover. A high-quality woodland edge will allow a crop field border to revert naturally to native plants. It can also be supplemented with other plants when needed. Some farmers even prefer to utilize prairie strips to break up their crop fields. These small areas provide pollinator habitat while also maintaining soil integrity by preventing erosion.

## Working Together

When it comes to habitat management, small changes can create big outcomes. It can be difficult to know where to begin when considering how to improve your property, and that is where MDC's expert staff can help. Not only do they listen to the landowner's end goals and provide them with a step-by-step guide on how to achieve those goals, but they also can provide them with information on how to obtain cost-share funding for their management projects.

"The money helps," Ley said. "Being able to reap some of the financial

benefits that are there for the people during a time when costs for gas and insurance are high allows not only us, but those around us, to benefit from the land improvement."

Managing property will feed back into the local economy. Purchasing the materials needed for management goals as well as working with contractors directly influences local businesses.

"If you hire a contractor, that money goes toward contractors feeding their families," said MDC Private Land Conservationist Ben Diekmann, who is currently assisting the Ley family.

Just one landowner who decides to manage their property can impact the businesses around them as well as neighboring properties.

"It spreads when your neighbor catches on, and it grows to a landscape-scale management," said Diekmann.

This landscape-scale management is what the focus of the priority geographies is all about; Missourians using the resources provided by local businesses

and governmental agencies like MDC to manage their property in a way that benefits not only themselves, but the natural communities that depend on that land.

For those interested in managing their property, the first step is to determine what the end goals are. Whether the desired outcome is improved wildlife habitat, more robust crop yields, increased livestock production, or something else entirely, choosing your end goal allows you to determine the best steps toward that goal. Once a landowner knows what they hope to accomplish, they can reach out to their local MDC private land conservationist to see how MDC can aid the project. MDC staff are local resources who can provide landowners with best management practices along with guidance on how best to fund their management goals.

Find local private land conservationists on MDC's website and start a land management project this year. ▲

*Maddie Est is MDC's media specialist for the Central and Northeast Regions.*

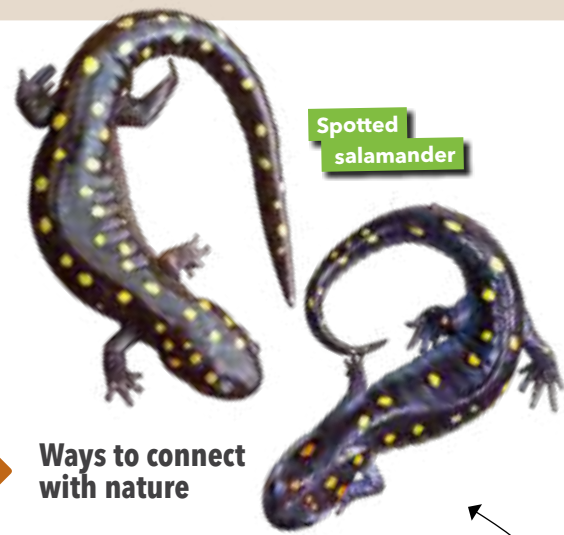
Common eastern bumblebee on aster



# Get Outside

in

# FEBRUARY



Spotted salamander

→ Ways to connect with nature

## Missouri Maples

February is when the tree sap starts flowing! You can tap almost any deciduous tree in late winter to collect sap for making syrup. However, sugar maple tree sap has the highest sugar content, around 3 percent. While this seems low, most other trees have only 1 percent or even less. While humans enjoy sap for syrup atop a stack of warm, fluffy pancakes, squirrels also enjoy the sweet stuff, just in another form. Red maple flower buds are swelling and may start to open up on warm days in late February. Squirrels nip off buds and lick the sweet sap that oozes out of the twigs.



## Woodchuck Weatherman

Woodchucks — also known as groundhogs — start to emerge from hibernation in Missouri as early as the first week of February, but severe cold weather may delay them. Today's legend says if the groundhog sees its shadow on Feb. 2, we'll have six more weeks of winter. No shadow means an early spring. The gist of this is, if it's sunny on this day, we'll have six more weeks of winter.

Did you know old-time Ozarkers had Feb. 14 as the magical day, not Feb. 2. I wonder if they were just trying to avoid getting their Valentine a sweet treat or a bouquet of roses?



## Love is in the Air ... and in the Ponds

With Valentine's Day in the middle of the month, February is all about love. But not just for humans. Plenty of animals look for their mates this month, including these herps:

- **Spotted salamanders** congregate in fishless ponds to breed starting in late February. This activity is triggered by the first warm rains, and temperatures at or above 50 degrees.
- **Small-mouthed salamanders** breed from late February to early April. Large numbers congregate at ponds, sloughs, or flooded ditches.
- **Tiger salamanders** engage in courtship and egg-laying from February through April.
- **Long-tailed salamanders** breed November through early March in or near springs or cool, rocky creeks.



Long-tailed salamander

### Natural Events to See This Month

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



Dark-eyed juncos start migrating north.



Eastern cottontails begin breeding.



Grass pickerel, our most common pike, spawn in late February.

BOREAL CHORUS FROG: SIMON JACKSON; STOCK.ADOBE.COM

SOUTHEAST REGION

## Missouri Trappers 2026 Fur Auction

Saturday • Feb. 29 • 7:30 a.m.

Montgomery County Fairgrounds,  
700 S. Sturgeon St., Montgomery City, MO 63361

Registration is not required. For more information,  
call Jim Love, auction chairman, at 636-359-2203 or  
visit [missouritrappers.com/fur-auction](https://missouritrappers.com/fur-auction).

All ages

The Missouri Trappers Association will hold its annual fur auction, featuring both green and finished fur. Everyone is welcome to attend, even if you are not selling fur. To get a complete set of rules, visit the website above or call Jim Love.

VIRTUAL

## Virtual Vises: Fly Tying at Home

Thursday • Feb. 26 • 6-7 p.m.

Registration required by Feb. 26. For more information,  
call 888-283-0364 or visit [short.mdc.mo.gov/oJL](https://short.mdc.mo.gov/oJL).

Online only

Ages 14 and older

Come and tie flies with us as we pick a new theme each month. Each month will have a new MDC tyer from around the state. Tonight's session will feature TJ and Mike, and the theme is "Picking the Right Hook." Our book for the night will be the Mustad catalog. We will tie some old favorites on an appropriate hook and an inappropriate hook to show the difference in proportion and how it should swim or be retrieved.

## The Spring Chorus

The boreal chorus frog's call is a rasping, vibrating *prrrreep* that sounds like running a fingernail over the teeth of a pocket comb. Listen for their unique calls on mild evenings in late February. Joining the concert are spring peepers, upland chorus frogs, and Illinois chorus frogs. If they were to make an album, it would surely be called *The Early Sounds of Spring*.



Boreal chorus frog



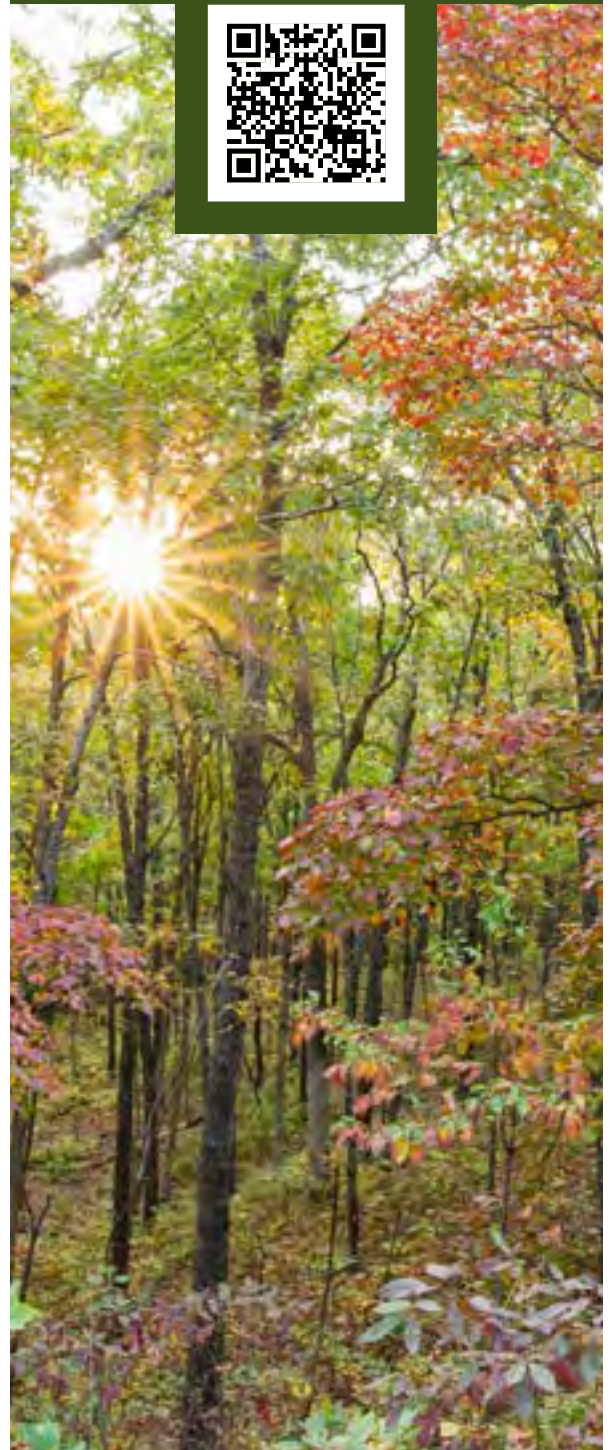
Harbinger of spring is one of Missouri's earliest blooming wildflowers.



Looks for mosses and lichens on winter walks.

## Buy native tree and shrub seedlings from MDC's George O. White State Forest Nursery

Place orders before April 15 for spring delivery. Scan the QR code or visit [mdc.mo.gov/seedlings](https://mdc.mo.gov/seedlings) to learn more.



# Places to Go

## NORTHEAST REGION

### Fox Valley Lake Conservation Area

Away from – and in the middle of – it all

by Larry Archer

✦ Located in Missouri's northeasternmost county, Fox Valley Lake Conservation Area (CA) isn't really on the way to anywhere, but once you're there, you're in the middle of a lot.

With three distinct parcels totaling 2,158.5 acres in Clark County, Fox Valley Lake CA has a 108-acre fishing lake, firearms and archery ranges, and nearly 10 miles of service roads for hiking and biking, but another attractive feature is its proximity to other nearby conservation areas, said MDC Wildlife Biologist Matthew Schwend.

"That area is close to other areas, which is nice," Schwend said. "And it's close to a town, Kahoka, so you have Charlie Heath to the north, you have Frost Island to the east, and you have Deer Ridge to the south, so you're not too far from anywhere else."

In addition to the area's namesake lake, it also has three smaller fishing ponds, six fishless ponds, and 13 acres of wetlands, which make it attractive to migrating waterfowl, he said.

"You'll see your snow geese and you'll see a lot of swans," he said. "It kind of depends on what our temperatures down south and north of us look like. You'll have all those migratory birds coming through."



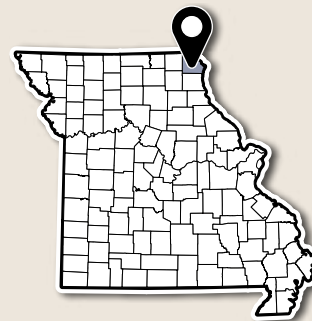
"The lake does get some ice fishermen, but it kind of depends on what the ice is looking like in February."

—Wildlife Biologist  
Matthew Schwend

DAVID STONNER



February frequently finds parts of the 108-acre Fox Valley Lake frozen over. Whether it's ice fishing or open water fishing, the lake offers plenty of opportunity for hardy anglers looking to wet a line.









## FOX VALLEY LAKE CONSERVATION AREA

consists of 2,158.5 acres in Clark County. From Kahoka, take Highway 81 north 4.75 miles, then Route NN west 2.5 miles to the area.

40.5126, -91.7824

[short.mdc.mo.gov/oJM](http://short.mdc.mo.gov/oJM) 573-248-2530

### WHAT TO DO WHEN YOU VISIT

-  **Bicycling** Nearly 10 miles of service and unimproved roads open to bicycling year-round.
-  **Birdwatching** The eBird list of birds recorded at Fox Valley Lake CA is available at [short.mdc.mo.gov/oJY](http://short.mdc.mo.gov/oJY).
-  **Camping** Individual campsites. Open camping (walk/float/backpack) except during deer and turkey seasons.
-  **Fishing** Four ponds with fish, including 108-acre Fox Valley Lake. **Black bass, catfish, crappie, and sunfish.**
-  **Hunting Deer and turkey** Regulations are subject to annual changes. Refer to MDC's regulation page online at [short.mdc.mo.gov/Zjw](http://short.mdc.mo.gov/Zjw). Also **dove, quail, rabbit, and squirrel.**
-  **Waterfowl Hunting** Open hunting. Regulations are subject to annual changes. Refer to MDC's *Migratory Bird and Waterfowl Hunting Digest 2025-2026* online at [short.mdc.mo.gov/4SZ](http://short.mdc.mo.gov/4SZ).

### WHAT TO LOOK FOR WHEN YOU VISIT



Snow goose



Bald eagle



Rough-legged hawk



Cedar waxwing



## Eastern Tiger Salamander

*Ambystoma tigrinum*

### Status

Species of conservation concern

### Size

Length: 7-8¼ inches, but occasionally to 13 inches

### Distribution

Statewide



**T**he eastern tiger salamander is a dark, medium to large salamander with yellow or olive blotches over the head, body, and tail.

Eastern tiger salamanders live in a wide variety of habitats, including woodlands, savannas, swamps, prairies, and old fields near farm ponds. Sometimes they occur in and around croplands. Most Missourians see them in grassland habitats or in wells, basements, and root cellars. These salamanders spend most of their time in burrows or under logs and are active only at night.



### HUMAN CONNECTIONS

Eastern tiger salamanders are threatened by loss and fragmentation of native prairies and savanna habitat, loss of wetlands, patchy distribution, and small population size. Habitat conservation is important for keeping this species present in Missouri. Constructing and maintaining shallow, fishless wetlands for breeding is vital to their long-term persistence.



### LIFE CYCLE

During autumn rains, individuals migrate to fishless ponds where they will later breed. Courtship and egg-laying occur in the water between February and April, peaking in March. Females may lay up to 1,000 eggs, deposited in small clumps of 23-110. Eggs hatch within several weeks, or up to 40-50 days if water temperatures are cold. The aquatic, gilled larvae develop in summer and transform into land-dwelling subadults in late summer, June through August.

# Outdoor Calendar

MISSOURI DEPARTMENT OF CONSERVATION

For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code of Missouri* at [short.mdc.mo.gov/Zib](http://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](http://short.mdc.mo.gov/ZZf).

## FISHING

### Black Bass

Impounded waters and non-Ozark streams:  
Open all year

Most streams south of the Missouri River:

- ▶ Catch-and-Keep:  
May 24, 2025–Feb. 28, 2026
- ▶ Catch-and-Release:  
March 1–May 22, 2026

### Nongame Fish Giggling

Streams and impounded waters,  
sunrise to midnight:

Sept. 15, 2025–Feb. 15, 2026

Impounded waters, sunrise to sunset:

Feb. 16–Sept. 14, 2026

### Paddlefish

Statewide:

March 15–April 30, 2026

On the Mississippi River:

March 15–May 15, 2026

Sept. 15–Dec. 15, 2026

### Trout Parks

During the catch-and-release season,  
*Maramec Spring Park* is open daily; other  
trout parks are open Friday–Monday.

Catch-and-Release:

Nov. 14, 2025–Feb. 9, 2026

Catch-and-Keep:

March 1–Oct. 31, 2026

## Free MO Hunting and MO Fishing Apps

MO Hunting makes it easy to view permits, electronically notch them, and Telecheck your harvest. MO Fishing lets you view permits, find great places to fish, and ID your catch. Get both in Android or iPhone platforms at [short.mdc.mo.gov/Zi2](http://short.mdc.mo.gov/Zi2).



## HUNTING

### Bobcat, Opossum, Raccoon, Striped Skunk

Nov. 15, 2025–Feb. 28, 2026

### Coyote

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

Open all year

### Crows

Nov. 1, 2025–March 3, 2026

### 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

### Rabbits

Oct. 1, 2025–Feb. 15, 2026

### Squirrels

May 24, 2025–Feb. 15, 2026

### Turkey

Spring:

- ▶ Youth (ages 6–15):  
April 11–12, 2026
- ▶ Spring:  
April 20–May 10, 2026

Fall:

- ▶ Archery:  
Sept. 15–Nov. 13, 2026  
Nov. 25, 2026–Jan. 15, 2027
- ▶ Firearms (open areas only):  
Oct. 1–31, 2026

### Waterfowl

See the Migratory Bird and Waterfowl Hunting  
Digest or visit [short.mdc.mo.gov/ZZx](http://short.mdc.mo.gov/ZZx) for more  
information.

## TRAPPING

### Beaver, Nutria

Nov. 15, 2025–March 31, 2026

### Bobcat, Coyote, Mink, Muskrat, Opossum, Raccoon, River Otter, Striped Skunk

Nov. 15, 2025–Feb. 28, 2026

### Special Trapping Season for Private Lands Only: Coyote, Opossum, Raccoon, Striped Skunk

March 1–April 14, 2026

## United States Postal Service Statement of Ownership, Management, and Circulation

(PS Form 3526, July 2014) Published annually  
in the February edition of this magazine as  
required by the United States Postal Service.

1. Publication Title: *Missouri Conservationist*
2. Publication Number: 0026-6515
3. Filing Date: 9/18/25
4. Issue Frequency: Monthly
5. Number of Issues Published Annually: 12
6. Annual Subscription Price: Free in-state
7. Complete Mailing Address of Known Office of Publication: Missouri Department of Conservation; PO Box 180, Jefferson City, MO 65102-0180; Contact Person: Tony Samson; Telephone: 573-522-4115
8. Complete Mailing Address of Headquarters or General Business Office of Publisher: Same as above
9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor: Publisher:

Missouri Department of Conservation; PO Box 180;  
Jefferson City, MO 65102-0180; Editor: Angela Morfeld;  
PO Box 180; Jefferson City, MO, 65102-0180

10. Owner: Missouri Department of Conservation;  
PO Box 180; Jefferson City, MO 65102-0180

11. Known Bondholders, Mortgagees, and  
Other Security Holders Owning or Holding  
1 Percent or More of Total Amount of Bonds,  
Mortgages, or Other Securities: None

12. Tax Status: The purpose, function, and  
nonprofit status of this organization and the  
exempt status for federal income tax purposes  
has not changed during preceding 12 months.

14. Issue Date for Circulation Data  
Below: September 2025

15. Extent and Nature of Circulation:

- a. Total Number of Copies (Net press run): 463,851

b. Paid Circulation (by Mail and Outside the Mail):

(1) Mailed Outside-County Paid Subscriptions  
Stated on PS Form 3541: 0

(2) Mailed In-County Paid Subscriptions  
Stated on PS Form 3541: 0

(3) Paid Distribution Outside the Mails  
Including Sales Through Dealers and Carriers,  
Street Vendors, Counter Sales, and Other  
Paid Distribution Outside USPS: 0

(4) Paid Distribution by Other Classes  
of Mail Through the USPS: 4,767

c. Total Paid Distribution: 4,767

d. Free or Nominal Rate Distribution:

(1) Free or Nominal Rate Outside-County  
Copies Included on PS Form 3541: 425,254

(2) Free or Nominal Rate In-County Copies  
Included on PS Form 3541: 0

(3) Free or Nominal Rate Copies Mailed at

Other Classes Through the USPS: 0

(4) Free or Nominal Rate Distribution Outside  
the Mail (Carriers or other means): 0

e. Total Free or Nominal Rate Distribution: 425,254

f. Total Distribution: 430,021

g. Copies not Distributed: 1,233

h. Total: 431,254

i. Percent Paid: 1.11%

16. Electronic Copy Circulation

a. Paid Electronic Copies: 0

b. Total Paid Print Copies: 4,767

c. Total Print Distribution: 430,021

d. Percent Paid: 1.11%

18. Signature and Title of Editor, Publisher, Business  
Manager, or Owner: I certify that all information  
furnished on this form is true and complete: Anthony  
Samson, Distribution Center Manager, 9/23/25



**Follow us  
on Instagram**

@moconservation

Because of our big rivers and many lakes, reservoirs, and wetlands, Missouri is one of the leading wintering states for bald eagles. Get out in the early morning hours and see these magnificent birds perched in large trees or flying and feeding along the water's edge. What will you discover?

📷 by **Noppadol Paothong**

**Free to Missouri households**

To subscribe, cancel your subscription, or update your address, visit [mdc.mo.gov/conmag](https://mdc.mo.gov/conmag).