

MISSOURI CONSERVATIONIST

VOLUME 85, ISSUE 1, JANUARY 2024
SERVING NATURE & YOU



Wild Jobs

Benefit nature. Join our team.



At the Missouri Department of Conservation, we believe the outdoors is for everyone. No matter the job, our enthusiastic and knowledgeable staff play a role in helping Missourians get outside in meaningful and sustainable ways. MDC is seeking team members statewide in exciting career opportunities in areas such as:

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MISSOURI
CONSERVATIONIST



ON THE COVER

Sweet gum fruits covered in fresh snow.

NOPPADOL PAOTHONG

400mm lens, f/5.6
1/640 sec, ISO 400

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Inbox



Letters to the Editor

Submissions reflect readers' opinions and may be edited for length and clarity. Email Magazine@mdc.mo.gov or write to us:

MISSOURI
CONSERVATIONIST
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LET'S BE UP FRONT
I love this magazine! I especially enjoy *Up Front*. This section is always enjoyable and makes me excited for what is inside. I've been reading it for over a year, and it is the best magazine I have ever read.

Rebecca Houghton
via email

WHAT A DARLING

My husband and I thoroughly enjoy our state's excellent magazine. In the November issue, we were delighted to read Sara Parker Pauley's comments on the efforts to save the monarchs, equating the heroic efforts by cartoonist turned conservationist Jay "Ding" Darling to save waterfowl and their habitats [*Up Front*, Page 3]. Darling was appointed U.S. Fish and Wildlife Service director in 1934. In 1935, he attended the meeting in Columbia that served as the birth of the Missouri Department of Conservation.

We would like to remind readers who may visit the Gulf Coast of southwest Florida to visit the beautiful J.N. "Ding" Darling National Wildlife Refuge on Sanibel Island, an over 6,000-acre wildlife refuge for more than 245 species of birds and an abundance of reptiles and mammals. There are hiking, biking, and car access trails and a museum to inform and entertain visitors. Darling was often called "the best friend ducks ever had." This refuge honors his efforts.

Thanks to the *Missouri Conservationist* we are reminded of the beauty of our state and our privilege to maintain and preserve these gifts of nature.

Julie Wayman Elsberry



Northern cardinal

NATURE IS FOR ALL AGES

I originally subscribed to your magazine for my grandson, but before I pass it on to him, I thoroughly enjoy it myself. Nature has always been important to me because I grew up in the city. However, once a year my father took me fishing below Bagnell Dam in the Ozarks and I loved it. I collected all the amazing colored rocks of the area and just sat and enjoyed nature.

Thanks so much for your wonderful magazine.

Kathy Gallagher Bridgeton

GOOD FROM FRONT TO BACK

Every month, as soon as I receive another fabulous edition, I look for photos by Noppadol Paotthong. The November edition has his photos on the front and back covers!

Even though I haven't hunted in many years (mainly doves, quails, and pheasants), I still love to read all the articles. The recipes I've used have been met with applause.

Annegret Royal Weatherby Lake

CORRECTION

On Page 24 of the December 2023 issue, the photo labeled Bald eagle and Canada goose should have been credited to Eric S. (Rick) Wilhoit.

Connect With Us!



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Have a Question for a Commissioner?

Send a note using our online contact form at mdc.mo.gov/commissioners.

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Ray Wagner Jr.

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.



Want to see your photos in the Missouri Conservationist?

Share your photos on Flickr at [flickr.com/groups/mdcreaderphotos-2024](https://www.flickr.com/groups/mdcreaderphotos-2024) or email Readerphoto@mdc.mo.gov.



1

1 | Coyote by Michael Woods, via Flickr



2

2 | Wild turkey by Cherly Sloan, via Flickr

3 | Downy woodpeckers by cindy48, via Flickr



3



Want another chance to see your photos in the magazine?

➔ In the December issue, we plan to feature even more great reader photos. Use the submission methods above to send us 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.



Up Front

with Sara Parker Pauley

✘ The morning's thick gray sky looked as though it could unleash buckets of snow or frigid-cold rain at any moment. Such a sky looks very different against winter's palette of browns than it does against spring's exquisite shades of green — its heaviness looming over me like a dense wool blanket.

On these wintery weekend days as the New Year approaches, I have a reclusive yearning to carve out time for quiet reflection — time away from devices and others' voices, so that I can hear my own thoughts and find perspective on the year's last chapter as it closes and consider the one that is to come.

Writer Pico Lyer speaks of this need for stillness when he says, "It isn't about turning your back on the world: it's about stepping away now and then so that you can see the world more clearly and love it more deeply."

As we do with each January issue, we pause to reflect on the conservation work we've accomplished with partners during the previous year in our effort "to protect and manage the fish, forest, and wildlife resources of the state; and to facilitate and provide opportunity for all citizens to use, enjoy, and learn about these resources." (See *Annual Review* on Page 10.)

There is clarity and restoration in the pause. It gives us space to account for and appreciate our journey, to recharge our batteries and contemplate the path ahead. And then with renewed focus, energy, and commitment, we begin again.

SARA PARKER PAULEY, DIRECTOR
SARA.PAULEY@MDC.MO.GOV

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Nature LAB

by Dianne Van Dien

Each month, we highlight research MDC uses to improve fish, forest, and wildlife management.

WILDLIFE MANAGEMENT

Tracking River Otters

✳ Many animals can be radio tracked with GPS collars or backpack transmitters with signals detected by satellites. But otters present a special challenge.

“Otters are extremely flexible and are always cleaning and pulling at anything and everything on their body,” explains Furbearer Biologist Nate Bowersock. “And if they’re with other otters, the other otters help them remove those devices.”

The solution? Insert a small transmitter under the skin of the otter’s abdomen. This method has been successful with traditional VHF transmitters, but those transmitters come with a time-consuming drawback.

“With standard radio telemetry,” Bowersock says, “you have to go out and physically track the animal. You’re sending people out every day or every few days to find them.”

So, MDC is testing a newly developed transmitter for tracking otters that uses Global System for Mobile Communication (GSM). GSM transmitters are the part of a cell phone that connects to cell towers. Ideally, when an otter ventures within a few miles of a cell tower, the tower will detect the transmitter signal, and a message will be sent to researchers.



Although once nearly extirpated from Missouri, today North American river otters are found throughout the state.

Pilot study tests new device for tracking otters

“These new transmitters, if they work, would reduce a lot of time spent going out and tracking these animals,” says Bowersock.

As a pilot study, 10 otters will be captured around Boone County, and a veterinarian will surgically implant the transmitters. The transmitters will function as both GSM and VHF, so staff can also track the otters the traditional way and compare their findings to determine the accuracy of the GSM detections.

If the new transmitters prove accurate, 50 more otters around the state will be fitted with them. Survival information gained through tracking will be added to data gathered from otters harvested by trappers to improve population estimates used for management decisions.

At a Glance

Before embarking on a larger study to track otter survival, MDC researchers are testing a new transmitter that could prove both timesaving and cost effective. Radio tracking otters will provide the survival information needed to improve estimates of how many otters live in the state.

Signal from a tracking device in the otter is detected by a cell phone tower.



The cell tower then connects to a program that sends a message to the researcher.



OTTER: TOM TROUGHTON

In Brief

News and updates from MDC



ZOO-REARED EASTERN HELLBENDER FOUND WITH EGGS ON GASCONADE RIVER

MDC AND PARTNERS REACH ANOTHER MILESTONE IN THE RECOVERY OF MISSOURI'S ENDANGERED HELLBENDER

➔ Roughly a year after a zoo-reared Ozark hellbender successfully fathered a clutch of eggs in the wild, an eastern hellbender has followed suit. MDC confirmed the first known case of an eastern hellbender raised at the Saint Louis Zoo to reproduce in the wild.

The news shows MDC's partnership with the Saint Louis Zoo to recover hellbender populations is creating a bright future for the endangered Ozark and eastern hellbender in Missouri.

"We couldn't be more thrilled to confirm this news about the eastern hellbender," said Missouri State Herpetologist Jeff Briggler. "Seeing successful reproduction of zoo-reared animals in the wild has been our ultimate goal and our hope is this event becomes more common."

In Missouri, the eastern hellbender subspecies occurs in the northern Ozark highlands in spring-fed rivers. Missouri is the only place in the world where both the eastern and Ozark hellbender are found. Both subspecies are listed as endangered by the State of Missouri and the U.S. Fish and Wildlife Service.

Primary threats facing hellbenders are habitat alteration and degradation, over-collecting, disease, predation, and degraded water quality. Hellbenders are long-lived (with a 30-year lifespan), slow-to-mature amphibians that seldom venture far within the river.

MDC partnered with the Saint Louis Zoo Wild Care Institute Ron and Karen Goellner Center for Hellbender Conservation and other agencies in the early 2000s to breed hellbenders in human care and rear eggs collected from the wild to reverse population declines. Once the zoo-bred larvae reached between 3-8 years old, they are released in their native Ozark aquatic ecosystem. Biologists began releasing a few zoo-reared hellbenders in Missouri in 2008, later increasing the number of released animals to 1,000 or more per year beginning in 2012. Since the conception of the breeding and raising of this animal in human care, more than 12,000 Ozark and eastern hellbenders reared at the Saint Louis Zoo and MDC hatchery have been released into their native rivers.

continued on Page 6 »

Top: Missouri State Herpetologist Jeff Briggler, working at the Gasconade River, holds the first zoo-reared eastern hellbender to reproduce in Missouri.

Middle: The eastern hellbender originated from eggs collected in the wild. It was raised at the Saint Louis Zoo and released on the Gasconade River in 2018.

Bottom: The zoo-reared eastern hellbender fathered a clutch of 86 eggs, all well-developed with prominent head and tail buds.

HELLBENDER *(continued from Page 5)*

This released, male eastern hellbender originated from the collection of eggs in the fall of 2015 on the Gasconade River by MDC, then transported to the Saint Louis Zoo where the eggs were hatched and reared.

"Rarely are hellbender nests found on the Gasconade River," noted Briggler. "Therefore, it was a pleasant surprise to even find a nest, but an overwhelming surprise to learn the father was a released animal."

This male was released into the Gasconade River in June 2018. At the time of his release, he weighed 3.3 ounces (93 grams) and measured 9.3 inches (23.5 cm). At the time he was found guarding a nest in September 2023, he weighed 11.5 ounces (326 grams) and measured 14.7 inches (37.4 cm) in length.

"It's always exciting to know the history and health of an animal after its release," said Briggler.

The 8-year-old animal was a father to a clutch of 86 eggs. Upon a nest check in early October, all of the eggs had well-developed embryos with prominent head and tail buds.

The news comes roughly a year after an Ozark hellbender fathered a clutch of eggs on the Current River.

To learn more about hellbenders, visit MDC's online *Field Guide* at short.mdc.mo.gov/4M9.

GIVE A GIFT BACK TO NATURE

MDC's forestry staff reminds you to not throw that cut Christmas tree into the trash after the holidays. Recycle it! Many communities have a Christmas tree recycling program. If not, there are several creative ways to make further use of your tree.

Place the tree in your backyard to offer cover for wildlife or under bird feeders to provide nesting locations in the branches. Add some post-holiday treats as ornaments by coating pinecones with peanut butter and adding birdseed.

Have your tree shredded or chipped for mulch or place cut branches over dormant plants to provide a bit of insulation during the winter and to add organic matter as the needles fall.

You can also sink the tree in a pond, providing fish a place to rest, nest, and escape predators. Multiple live trees make the best cover, so work with friends, family, and neighbors to combine efforts. Anchor the trees with concrete blocks and sink them at a depth of about 8 feet with the trees placed in a row.

If you used a balled live evergreen and your ground is still soft enough to dig, add it to your home landscape for years of enjoyment and wildlife cover.

Ask MDC

Got a Question for Ask MDC?

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

Q: Why does this buck still have fawn-like spots?

→ As they transition from summer to winter fur, whitetail fawns typically lose their white spots completely during their first molt at three to four months of age, thus acquiring a gray uniform coloration.

In the case of this deer, it already has experienced a few molting cycles. So, it likely has a genetic trait that causes it to continue growing hair with white spots as it replaces its fur, said MDC Private Lands Deer Biologist Kevyn Wiskirchen.

"I've heard of this only a few times, so I believe it is very rare," Wiskirchen said. "We have seen pictures of this deer as an adult for two consecutive years now, each time with the same spot pattern, so I would expect this deer to continue to have visible spots throughout its life."

Q: What are the best practices for handling leaf litter and garden debris?

→ More and more conservationists are encouraging homeowners to keep leaf litter and plant debris in place for pollinators to use as shelter throughout the winter. If you are looking to support insect life, an untidy yard is best. Beneficial insects — such as beetles, roly-polies, grasshoppers, and



crickets — use the thick layer of leaf litter to overwinter.

The insects that survive winter awaken in the spring and become a valuable source of food for ground-foraging birds, amphibians, reptiles, and small mammals. Without a healthy supply of bugs, many species of native wildlife struggle to survive.

Homeowners can help by allowing leaves to decompose naturally in a less-used corner of their yards. As an added benefit, allowing a discrete pile of leaves to compost naturally can improve the quality of the soil over time, thus making it easier for flower gardens and lawns to flourish. The slow decomposition amends the soil with rich organic matter, which provides food for invertebrates.

A garden that supports life is going to look messier than a sterile garden. One place where it makes sense to clear away

autumn leaves and plant debris is in vegetable gardens.

"These crops can be easily overwhelmed by pest species, so treatment is warranted," said MDC Natural History Biologist Steve Buback. "Overall, we are finding that pollinator diversity in urban areas can easily equal or exceed that of natural systems, and these home plantings can play a large part in supporting that diversity."

Q: My son harvested this buck, and we are curious about its mane. From the picture, you can see how far down its back it extends, standing approximately 1½ inches tall. We have never seen this, and we haven't found any taxidermist that has, either. Is there any information from MDC about this?

➔ According to Private Lands Deer Biologist Kevyn Wiskirchen, MDC has received reports of deer with manes like this several times before. So, while this trait is still considered rare, it is more common than the



genetic trait of the spotted buck featured in the previous question.

"Just like with the spotted buck, it likely also is genetically linked, perhaps a recessive trait that surfaces every so often," Wiskirchen said. "It could be a gene that was expressed in a common ancestor of whitetails and elk, for example, and elk still express this characteristic, but whitetails typically do not."

Not much is known about this trait, Wiskirchen said, but in online forums taxidermists report encountering deer with manes on occasion.



Lt. Jason Braunecker

CONSERVATION AGENT *for*
GENTRY, WORTH, HARRISON,
DAVISS, DEKALB, CALDWELL,
CLINTON, AND RAY COUNTIES

offers this month's

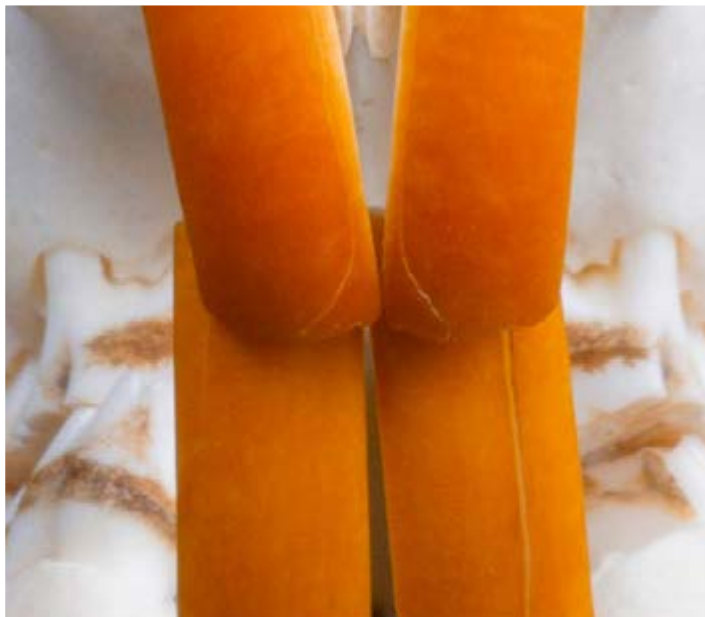
AGENT ADVICE

Winter presents unique outdoor adventures, like ice fishing. To take advantage of this opportunity, keep some important safety measures in mind. Check each day to ensure there is at least 4 inches of clear solid ice. To do this, go out on a dock and drill a hole with an ice auger. Always go out with another person, pack a throw bag, ice picks, and put grips on your shoes to prevent falls. Be sure to have your permit on waters of the state and fishing supplies, including poles, a dipper to remove floating ice, and live bait or jigs. Sleds are great for packing supplies, and blinds are often used to help stay warm. Have fun and don't find yourself on thin ice!

What IS it?

Can you guess this month's natural wonder?

The answer is on Page 9.





SPECIES OF CONSERVATION CONCERN

Swamp Rabbit

by Shelby Timm

Swamp rabbits (*Sylvilagus aquaticus*) are the largest member of the cottontail genus, which includes the more common eastern cottontail. Swamp rabbits are found only in areas with bottomland hardwood forests, which are restricted to southeast Missouri. There are three main populations in Missouri: Coon Island Conservation Area (CA), the Mingo National Wildlife Refuge and Duck Creek CA, and Donaldson Point CA.

WHY IT'S IMPERILED

Like so many of the imperiled species in our state, swamp rabbit populations have declined due to habitat loss, largely through conversion to agriculture. Outside of public land, much of the remaining bottomland hardwood forests within Missouri persists in small, isolated patches.

Southeast Missouri is the northern edge of swamp rabbits' geographic range. Populations at range edges often experience more stress than populations within the core of the range. Populations appear to be more secure in the southern states.

MDC RESTORATION EFFORTS

MDC private lands biologists in southeast Missouri identify parcels with high conservation potential and help connect landowners with federal programs to restore native bottomland habitat. These restoration efforts often consider swamp rabbit habitat connections. MDC, in cooperation with university researchers, systematically monitors swamp rabbit presence in habitat patches every 10 years.

WHAT CAN YOU DO?

Protect remaining habitat, wetlands, and riparian corridors on your property. There are options available to landowners interested in protecting and restoring habitats via Farm Bill programs and other cost share or grant programs.

Questions regarding these programs can be directed to the private lands conservationist in your county or at local USDA Service Centers.

BUY YOUR 2024 HUNTING AND FISHING PERMITS

MDC reminds Missouri hunters and anglers that related annual permits expire at the end of February, including 2023 permits for small game, fishing, trout fishing, and combination hunting and fishing.

Buy Missouri hunting and fishing permits from one of many vendors around the state, online at mdc.mo.gov/buypermits, or through MDC's free mobile apps, MO Hunting and MO Fishing, available for download through Google Play for Android devices or the App Store for Apple devices.

Save time by buying hunting and fishing permits for multiple people in a single transaction. Select the *Additional Customer* option during the permit purchase.

Commercial and lifetime permits can be purchased only through the MDC Permit Services Unit by calling 573-522-0107 for an application.

MDC SETS 2024-2025 DEER AND TURKEY HUNTING SEASONS

2024 Spring and Fall Turkey Season

- Spring Youth Portion: April 6-7
- Regular Spring Turkey Season: April 15-May 5
- Fall Firearms Turkey Season: Oct. 1-31

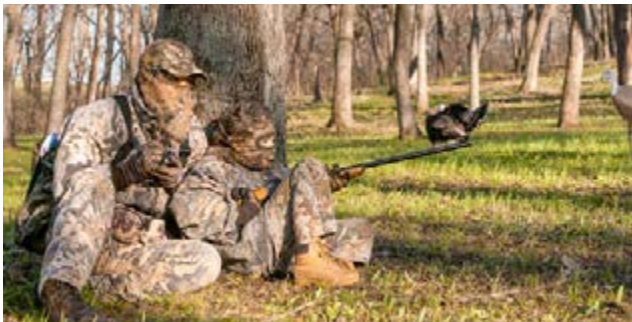
2024-2025 Archery Deer and Turkey Season

- Sept. 15-Nov. 15 and Nov. 27-Jan. 15, 2025

2024-2025 Firearms Deer Season

- Firearms Early Antlerless Portion: Oct. 11-13 (in open counties)
- Firearms Early Youth Portion: Nov. 2-3
- Firearms November Portion: Nov. 16-26
- Firearms CWD Portion: Nov. 27-Dec. 1 (in open counties)
- Firearms Late Youth Portion: Nov. 29-Dec. 1
- Firearms Late Antlerless Portion: Dec. 7-15 (in open counties)
- Firearms Alternative Methods Portion: Dec. 28-Jan. 7, 2025

Detailed information on the upcoming seasons and portions will be included in the MDC *2024 Spring Turkey Hunting and Regulations* booklet and the MDC *2024 Fall Deer & Turkey Regulations and Information* booklet, available closer to the seasons. The booklets will be available where permits are sold and online at mdc.mo.gov.



Spring turkey hunting is just a few months away.



WHAT IS IT? AMERICAN BEAVER'S INCISORS

The American beaver, a large rodent associated with waterways and wetlands, has long incisors that continuously grow throughout their lifetime. Through daily use and a consistent diet of woody vegetation — including trees and vines ranging from willows and cottonwoods to oaks, hickories, sycamores, and wild grapevines — their incisors stay trimmed. An iron-rich protective coating of enamel causes the teeth to turn orange.

APPLY ONLINE FOR MDC MANAGED SPRING TURKEY HUNTS

Missouri youth, archery, and firearms turkey hunters can apply online for 2024 managed spring turkey hunts during February at mdc.mo.gov/springturkeyhunts. Managed hunt details and application procedures are outlined on the webpage. Drawing results will be posted starting March 15.

Spring turkey hunting youth weekend will be April 6-7 with the regular spring season running April 15 through May 5.

Detailed information on spring turkey hunting will be available in MDC's *2024 Spring Turkey Hunting Regulations and Information* booklet, available where permits are sold beginning in March. Learn more about turkey hunting in Missouri at short.mdc.mo.gov/Ztu.



Director Sara Parker Pauley

Annual Review:

Fiscal Year 2023

(July 1, 2022 – June 30, 2023)



AS THE NINTH DIRECTOR IN MDC'S 86-year history, I often think of my predecessors and try to envision the conservation landscape that each one faced. Sometimes in observing the complexities of conservation today — climate change, species and habitat loss, new wildlife diseases, societal disconnect from nature, among others — I long for a simpler time, a narrower focus if you will. Most often then I think of I.T. Bode, MDC's first director. His

charge, in retrospect, seemed clear — bring back the game species that had been lost to the challenges of his time, namely market hunting, meager law enforcement, and political constraints. But I know his task was no simpler, as his charge also included standing up an agency born out of a constitutional referendum and public directive. And over time, each director, and the commissions that provided oversight and strategic direction, have lived their own journey of shepherding efforts to move conservation forward amid the challenges and opportunities of their day.

As we do each year, in this our January issue, we highlight some of the work the department is currently undertaking to carry out the mission — namely to take care of nature, connect people with nature, and maintain the public trust. And just as my predecessors knew, I know the success of our journey is only possible with a skilled and passionate staff, robust partnerships, and an engaged and supportive public. I imagine they believed what I know today — that our mission has never been more important.

Sara Parker Pauley, Director

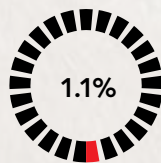
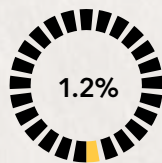
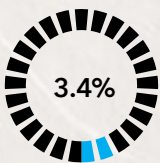
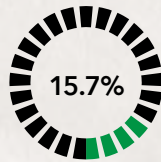
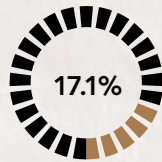
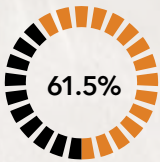
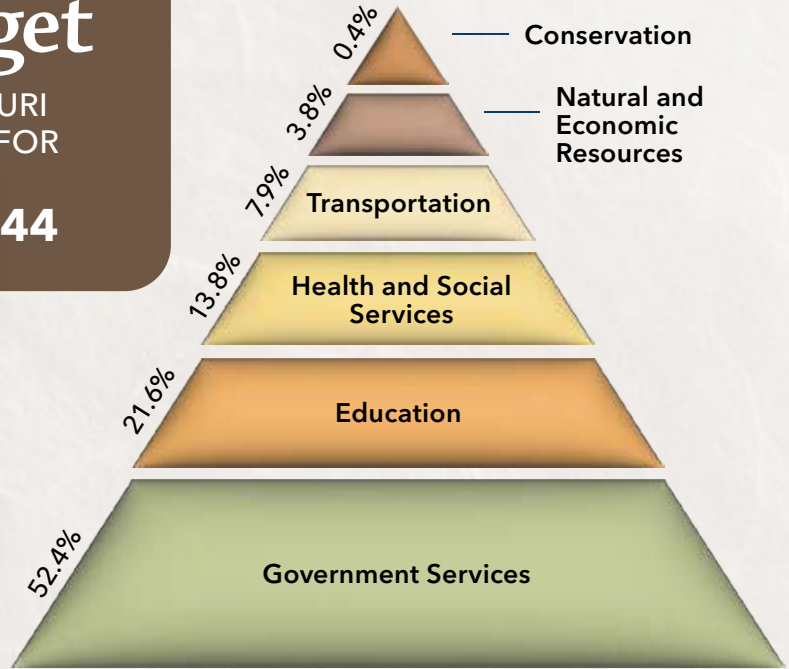
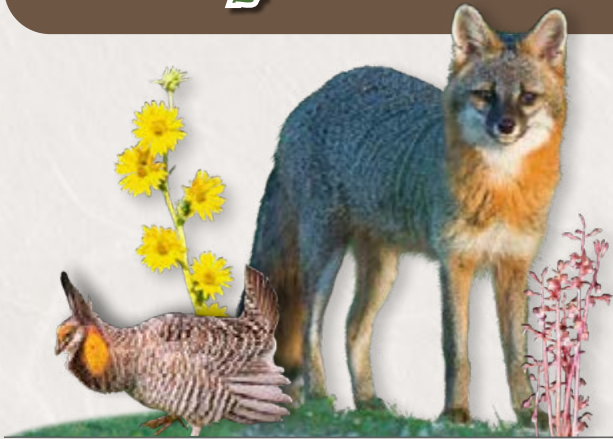


State of Missouri Operating Budget



TOTAL STATE OF MISSOURI OPERATING BUDGET FOR FISCAL YEAR 2023
\$51,846,462,544

MDC represents **less than 1 percent** of the total state budget and **receives no state general revenue.**



MDC FY 23 Actual Receipts

MDC gets the majority of its funding through the **conservation sales tax**. For every \$8 spent on taxable items, one penny goes to conservation.

Conservation Sales Tax	\$163,663,924
Federal Reimbursements	\$45,456,241
Permit Sales	\$41,798,597
Sales and Rentals	\$9,039,743
Other Sources	\$3,114,864
Interest	\$2,875,260

MDC FY 23 Actual Disbursements

Funds are distributed throughout MDC to accomplish the **state's top conservation priorities**.

Conservation Business Services	\$54,715,118
Habitat Management	\$53,170,617
Fish and Wildlife Management	\$51,771,013
Education and Communication	\$30,017,688
Recreation Management	\$23,189,891
Capital Improvements	\$19,622,033
Land Conservation and Partnerships	\$11,836,252
Staff Development and Benefits	\$10,655,806
County Assistance Payments	\$3,075,259



NOTE: Disbursements include all operating, other agency, and capital improvements from the Conservation Commission Fund. Other agency disbursements are appropriated outside the Department of Conservation operating budget. Fuel, benefits, and other disbursements were allocated to the appropriate branches.

SOURCE: Missouri Office of Administration

MDC Takes Care of Nature

MDC Fish Hatcheries

MDC fish hatcheries include five coldwater facilities (Bennett Spring, Maramec Spring, Montauk, Roaring River, and Shepherd of the Hills) and four warmwater facilities (Blind Pony, Chesapeake, Hunnewell, and Lost Valley). Most of these hatcheries were built 60 to 100 years ago and have aging infrastructure. There are numerous repair and renovation projects scheduled for the next several years at these facilities to improve production capabilities, increase staff safety, and ensure the health of the fish being raised. Hatchery renovations will protect the resources that provide fish to waterbodies for years to come. A major renovation project was recently completed at Roaring River to increase water intake efficiency while removing harmful debris. A Bennett Spring renovation project is currently under contract.

Bennett Spring Hatchery has been rearing trout for nearly 100 years, with most of the production infrastructure being built in the 1960s. The current renovation project will incorporate new technologies that will improve fish production and repair or replace sections of the hatchery that either are no longer functioning or functioning poorly due to age. This project will also improve staff safety during all seasons and weather events. Completion of this project will take some time; however, the park will still maintain nightly stockings during the catch-and-keep seasons.

Annually, MDC fish hatcheries contribute nearly 5 million fish of various species to lakes, ponds, and streams throughout the state. Fish raised at the nine hatcheries enhance and diversify fishing opportunities, provide specialty sportfishing opportunities, sustain fish populations through supplemental stockings, and provide positive economic impacts. Improving these facilities through repair and renovation projects will ensure future fishing opportunities for everyone to enjoy.

State Record Fish Program

Missouri is blessed with many lakes and streams that are managed to provide world-class angling opportunities. MDC developed the State Record Fish Program to recognize anglers who have caught the largest recorded fish from a list of recognized species found in Missouri waters.

STATE RECORD FISH CAUGHT IN FY 23

BLUE SUCKER

- **Angler:** Travis Uebinger, Auxvasse
- **Date:** Jan. 15, 2023
- **Weight:** 11 lbs., 5 oz.
- **Caught from:** Osage River
- **Method:** Pole and line
- **Previous record:** 9 lbs., 14 oz., Missouri River, April 12, 1997



BROWN BULLHEAD

- **Angler:** Mitchell L. Dering
- **Date:** March 14, 2023
- **Weight:** 4 lbs.
- **Caught from:** Duck Creek CA
- **Method:** Bow
- **Previous record:** 2 lbs., 7 oz., Wappapello Lake, May 8, 1994

* This also beats the current bowfishing world record.



FLIER

- **Angler:** Tyler Goodale, Doniphan
- **Date:** March 26, 2023
- **Weight:** 11 oz.
- **Caught from:** Duck Creek CA
- **Method:** Pole and line
- **Previous record:** 10 oz., private pond, March 15, 1991



LONGEAR SUNFISH

- **Angler:** John F. Goad
- **Date:** May 8, 2023
- **Weight:** 5 oz. (Ties current state record)
- **Caught from:** Frieda Lake in Crawford County
- **Method:** Throwline
- **Previous record:** 5 oz., Wappapello Lake, May 8, 1994



George O. White State Forest Nursery Provides Outstanding Customer Service

The George O. White State Forest Nursery continues to provide superior customer service as reported in an ongoing customer satisfaction survey. Missourians reported being extremely satisfied with the ease of the online ordering system, value for price, and overall experience.

The nursery's commitment to providing high-quality seedlings resulted in over 2 million trees distributed to over 13,300 customers in FY 23.

Over 80,000 bald cypress seedling trees were distributed to Missouri fourth grade students for Arbor Day. As part of this effort, teachers were encouraged to talk about the importance of trees in our lives.



Bald cypress

Feral Hog Elimination

During 2022, the Missouri Feral Hog Elimination Partnership removed a total of 6,289 feral hogs from Missouri's landscape. The highest number of feral hogs was removed from Iron County at 893 hogs, followed by Shannon County at 759 hogs, and Wayne County at 692 hogs. The partnership conducted 305 hours of aerial elimination efforts in 2022, resulting in the removal of 1,612 feral hogs. Staff used systematic baiting to determine hog presence on 3.7 million acres. Staff also assisted 709 private landowners. Anecdotal field reports from trappers indicate fewer feral hogs and smaller sounder sizes, suggesting that elimination efforts have been successful.

At full staff, a total of 48 full-time trappers are deployed across the state. Four feral hog outreach specialists were hired as part of the University of Missouri's Extension Program to act as partnership liaisons. Outreach specialists work in counties affected by feral hogs. They are stationed in Ironton, Ava, Salem, and Poplar Bluff. The outreach specialists establish

relationships with landowners in strategic locations, publish a quarterly newsletter, engage local organizations (county Farm Bureaus, local Cattleman's Associations, county commissions, soil and water conservation districts, etc.), conduct surveys, and collect data associated with feral hog damage, connect landowners with trappers, and organize landowner meetings and workshops.

Since 2022, the outreach specialists assisted in signing up 66,778 acres of private land for aerial operations.

The partnership is made up of agencies and organizations that are committed to total elimination of feral hogs from Missouri's landscape. In 2020, the partnership established a unified incident command system to manage feral hog elimination efforts in the state. Since 2016, the partnership has eliminated feral hogs from 279 watersheds in the state. These watersheds encompass approximately 6.9 million acres of land, a decrease of 61 percent of the land previously occupied by feral hogs in Missouri.

FERAL HOGS COUNTY MAP AND NUMBERS

6,289

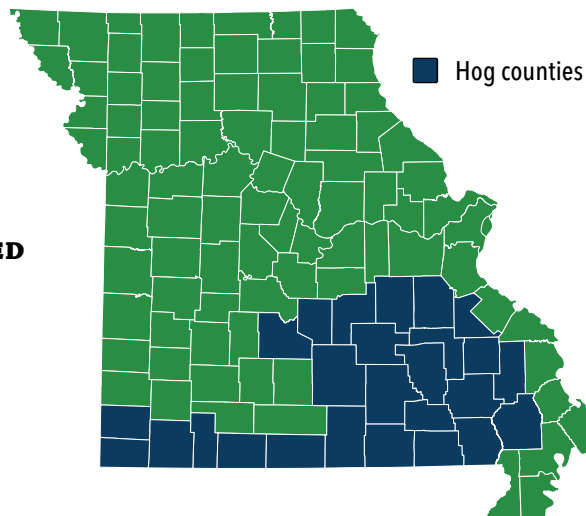
FERAL HOGS REMOVED

3.7

MILLION ACRES INFLUENCED

709

PRIVATE LANDOWNERS ASSISTED



Since 2016

↑ 279

WATERSHEDS WITH HOGS REMOVED

↓ 61%

DECREASE IN HOG OCCUPIED WATERSHEDS

Schell-Osage Conservation Area Wetland Renovation

MDC held a groundbreaking ceremony April 24 for a \$6.4 million pump station project at Schell-Osage Conservation Area (CA) in northeastern Vernon County. This is the first phase of three in a long-planned wetland and lake renovation. The project will improve the area's wetlands for a wide variety of waterfowl, shorebirds, and wading birds, and it will improve Schell Lake for fishing. These changes will enhance opportunities for waterfowl hunters, birders, wildlife watchers, and anglers.

Schell-Osage CA was developed along the Osage River and is one of MDC's oldest wetland and upland conservation areas. Much has changed since wetland development began in 1962, and wetland pools were opened to managed waterfowl hunting in 1964. Schell-Osage CA lowlands are now in the upper end of Truman Lake. Extreme weather and high-water levels within Truman Lake have caused repetitive and expensive flood damage to area levees. Not all the change has been negative, though, because being adjacent to Truman Lake provides access to a much larger water source than when the area was first developed.

The permanent concrete pump station will draw water from the Osage River arm of Truman Lake. This source replaces water from Schell and Atkinson lakes as well as portable pumps in Truman Lake, which were less efficient, safe, and reliable. The pump station will give area managers better control to fill wetland pools during autumn and spring waterfowl migrations, and it will reduce water level fluctuations in Schell and Atkinson lakes.

In coming phases, a redesign and rebuild of wetland levees will be at angles more in line with natural hydrology. They will use natural high points as anchors and be built with natural contours less prone to damage from flowing floodwater. The number of waterfowl hunting positions will be retained, and the new concrete hunting blinds will be built into mounds that will blend better into the landscape and can also function as habitat for wildlife.



Schell-Osage Conservation Area

Schell Lake will be renovated. The project will create more water depth diversity to enhance fishery habitat. An improved boat ramp and new jetties around the perimeter will increase access for anglers.

The Schell-Osage CA project is the final one in MDC's Golden Anniversary Wetlands Initiative to improve the state's five oldest wetland management areas. Other conservation areas improved include Fountain Grove, Duck Creek, Montrose, and Ted Shanks conservation areas. Renovations at Schell-Osage CA are moving forward with help from a \$1 million match grant from the federal North American Wetlands Conservation Act. MDC and Ducks Unlimited are using the grant to match the \$3.5 million that has been dedicated from a diverse group of conservation partners to make the area better for waterfowl, wildlife watchers, hunters, and anglers.



Northern pintail

2023 Missouri Wetlands Summit

The first Missouri Wetlands Summit, co-hosted by MDC and the Conservation Federation of Missouri, was held Feb. 1–3 at The Lodge of the Four Seasons at Lake Ozark. The objective for the summit was to increase participants' knowledge of wetlands, build relationships, and continue building partnerships to advance wetland conservation for a diverse fish and wildlife resource. This summit was for state and federal agency staff, public and private wetland researchers, engineers, managers, not-for-profit and non-governmental organizations, hunters, birders, and any conservationist interested in helping shape the future of wetland conservation in Missouri. Over 330 attendees from 15 states heard presentations and discussions from a wide variety of experts, professionals, and other interested parties on the state of wetland conservation in Missouri.

A Missouri Grasslands Summit is being planned for April 2024 with the same objective as the wetlands summit.



MDC, along with the Conservation Federation of Missouri, hosted the first Missouri Wetland Summit to increase knowledge of wetlands and build partnerships needed to continue conserving these natural habitats and the plants and animals that call them home.

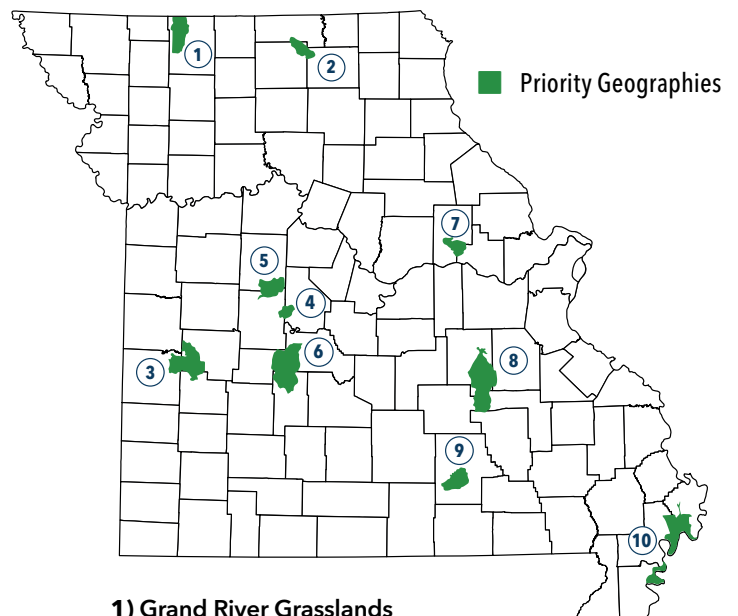
Missouri Comprehensive Conservation Strategy

During this past year, 19 regional Comprehensive Conservation Strategy (CCS) trainings were provided to over 350 managers, technicians, and supervisors. This in-person training helps MDC staff prioritize budgets and staff time for habitat work and planning. These trainings also give staff the opportunity to provide feedback on the CCS.

Through the past year, partners have continued to engage in promoting and implementing the CCS through focused resource investment, including communications, financial contributions, and the use of habitat strike teams. This has primarily included other state and federal agencies and nongovernmental organizations.

Missouri now has 10 priority geographies (PGs), adding Hi Lonesome to the list this year. Within each of the 10 PGs, dedicated interdisciplinary teams continue to work with partner organizations and private landowners to implement landscape scale conservation. Hi Lonesome, located a few miles south of Sedalia, is within the eastern half of the Cole Camp Prairies conservation opportunity area. This PG contains many critically imperiled remnant prairies. Looking ahead to FY 24, the PG teams will work with habitat systems managers and other experts to develop strategic measurable desired future conditions for each geography. This effort will assist PG teams and partners in determining where and what types of activities to focus on to improve the habitat quality.

MISSOURI PRIORITY GEOGRAPHIES



- 1) Grand River Grasslands
- 2) Spring Creek Watershed
- 3) Upper Osage Grasslands
- 4) Big Buffalo Creek
- 5) Hi Lonesome
- 6) Little Niangua River
- 7) Missouri River Hills
- 8) Shoal Creek Woodlands
- 9) Mahan's Creek
- 10) River Bends

Missouri Natural Areas System and Natural Community Management Evaluation

Missouri continues to manage a strong natural areas program under the guidance of the Missouri Natural Areas Committee (MoNAC). This year, MoNAC approved the expansion of the Niangua River Hills Natural Area at Lead Mine CA, resulting from ongoing natural community restoration from MDC staff and partnership work from The Nature Conservancy. This area is a crown jewel of woodland and glade restoration in this Upper Niangua River conservation opportunity area.

MDC staff organized two glade and woodland restoration workshops and a Natural Communities 101 workshop with over 90 MDC staff and partners (Missouri Department of Natural Resources — State Parks, Pioneer Forest, Mark Twain National Forest, Pheasants Forever, and Quail Forever) participating.

In cooperation with Mark Twain National Forest (MTNF), University of Missouri (MU), and MDC natural history

biologists, community health index models (CHI) were completed for Ozark oak, pine-oak, and glade natural community groups. A report on ecological monitoring for the MTNF Collaborative Forest Landscape Restoration Project utilizing CHIs was expected to be out in late summer 2023.

Staff from MDC, MU, and MTNF traveled to the Hoosier National Forest in Indiana to meet with foresters, ecologists, and wildlife biologists from across U.S. Forest Service (USFS) Region 8 to develop CHIs for oak ecosystems on USFS lands in its eastern region.

Top: MDC staff took part in a Natural Communities 101 workshop.

Bottom: MDC staff learned about fish health and disease during a partnership workshop with Auburn University's Southeastern Cooperative Fish Parasite and Disease Cooperative.



Resource Management Training

The Resource Management Training Program provides learning opportunities to increase professional development for MDC employees on aquatic and terrestrial natural communities, fisheries, forestry, wildlife, and fire management. In FY 23, 1,607 MDC employees and 99 partner staff attended over 98 classes on topics such as stream management, water quality monitoring, forest soils, glade and woodland management, fire management, GIS for resource managers, implementation of our tiered approach to habitat management, working with wildlife conflicts, and many more. These trainings provide the tools to effectively manage our fish, forest, and wildlife resources. MDC also has a multidisciplinary Training and Development Working Group responsible for providing guidance and direction for continuous employee development to staff statewide.



Ozark and Eastern Hellbenders

Great strides have occurred with the propagation and restoration efforts for the Ozark hellbender and eastern hellbender in Missouri. MDC, the Saint Louis Zoo's Ron and Karen Goellner Center for Hellbender Conservation, and the U.S. Fish and Wildlife Service, with support from other agencies and private citizens, work together to keep Missouri's largest aquatic salamander from extinction. Due to drastic declines in hellbender numbers, captive propagation became a priority in the long-term recovery of the species, especially augmenting populations into their natural habitat, the Ozark aquatic ecosystem.

Continued breeding of Ozark hellbenders in artificial streams occurred at the zoo, resulting in 468 hatchling hellbenders in the autumn of 2022. Zoo-breeding of the Ozark hellbender has been successful in 11 of the past 12 years. In addition, MDC staff collected hellbender eggs from two Ozark rivers, resulting in 173 hatchlings that are being raised at the zoo. The zoo is rearing approximately 2,000 larvae and juvenile hellbenders obtained from eggs collected in the wild and eggs obtained from zoo breeding in previous years.

During the summer of 2022, 811 Ozark hellbenders and eastern hellbenders raised at the zoo were released in their native Ozark rivers. These hellbenders are being monitored to determine the success of zoo-reared hellbenders in the wild. Two historic conservation milestones were achieved in 2022. The 10,000th hellbender reared at the zoo was released into the wild, and researchers documented the first released zoo-reared individual successfully reproducing in the wild. These achievements are one step closer in conserving this unique, native salamander of the cold-water rivers of the Ozark Highlands.



10,000

HELLBENDERS REARED AND RELEASED INTO THE WILD

11/12 Years

OF SUCCESSFUL OZARK HELLBENDER BREEDING

2,000

HELLBENDERS RAISED IN 2022 (ESTIMATED)



Hydrilla

MDC wrapped a Springfield city bus with a message about preventing the spread of invasive aquatic hydrilla plants.

Invasive Species

In the past year, the Invasive Species Program has been reactivated with the placement of the invasive species coordinator position and the reestablishment of the Invasive Species Working Group. The Invasive Species Program provides coordination and strategic guidance to MDC's branches, collaboration with partners, and communications and education to the public.

The Invasive Species Working Group was formed to assemble agency specialists representing a diversity of invasive species science and management expertise. The group provides strategic guidance within MDC and addresses invasive species related needs and challenges. The group maintains a prioritized invasive species list, assesses research and monitoring needs, and develops trainings, best management practices, and strategies to improve conservation work within the agency.

The Invasive Species Program collaborates with partners — including Missouri Invasive Plant Council, Missouri Invasive Forest Pest Council, Invasive Species Strike Teams, Scenic Rivers Invasive Species Partnership, Mississippi River Basin Panel, and others — across the state and regions to promote awareness and implement effective management and conservation efforts that protect healthy land, water, and forests on public and private lands in Missouri.

Public communications and education on an array of invasive species topics were provided this year through a variety of formats and outlets, including quarterly articles in the *Missouri Conservationist*, presentations to volunteer groups including Master Naturalists and nature center volunteers, a live Wild Webcast, social media posts, and the annual Invasive Species Day Event at the Missouri State Fair.

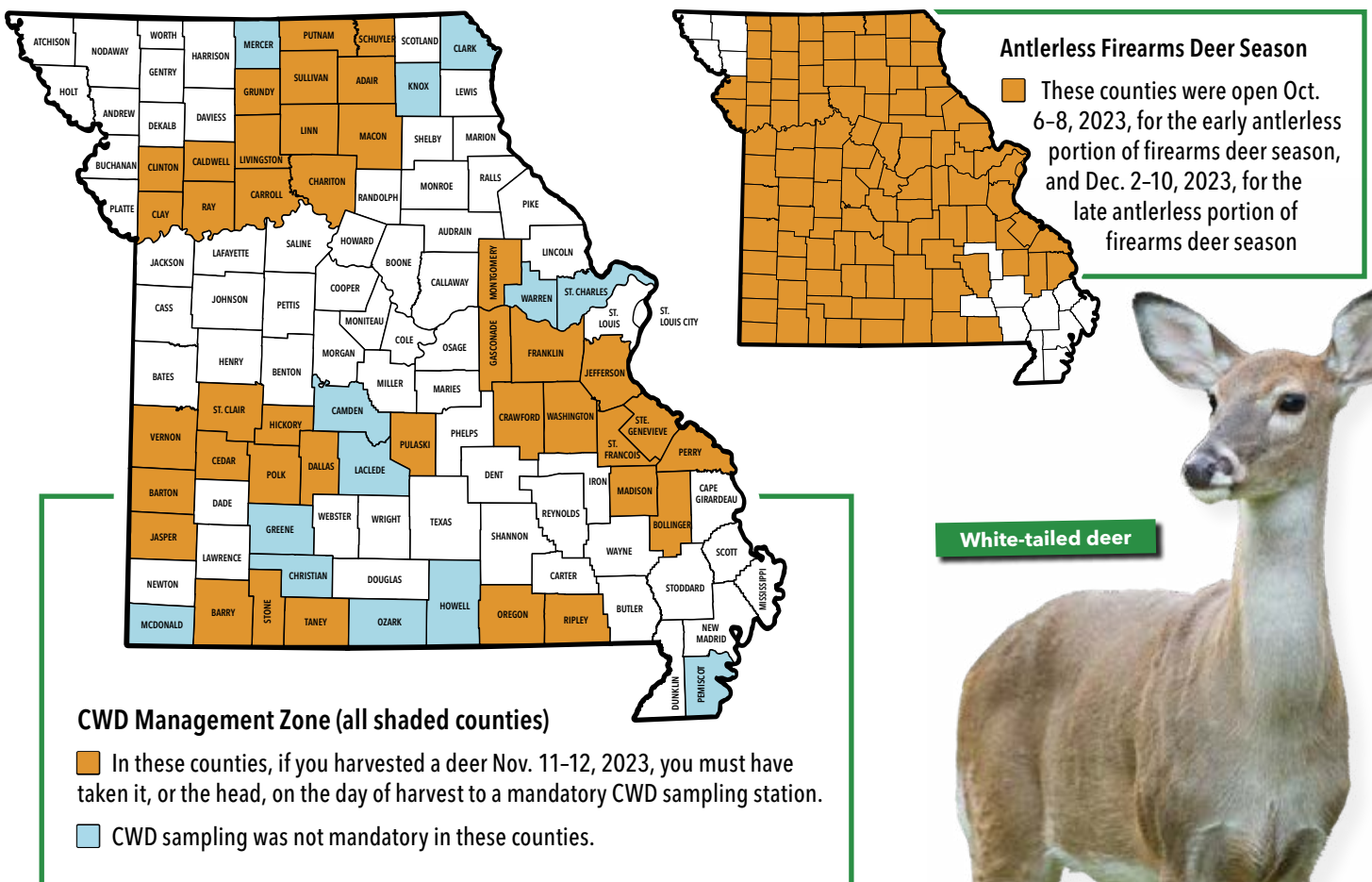
CWD Management, Deer Season Regulation Changes

To adapt to the changing status of chronic wasting disease (CWD) in Missouri, MDC's CWD Surveillance and Management Plan was revised in 2022. The original plan was developed after detecting the first case of the disease in the state in 2010, then revised in 2015. Since then, CWD has been detected in new areas of the state, and distribution of the disease has expanded in some areas where it was previously detected. Revision of the plan ensures that MDC's surveillance and management efforts adapt to changing disease dynamics. During the plan revision, MDC solicited input from hunters and other stakeholders about the plan's goals and objectives and

about proposed changes to deer hunting regulations. The updated plan illustrates the multifaceted approach to conducting surveillance, monitoring, and management of CWD in Missouri. Main areas of focus within the plan call for enhanced disease surveillance, ensuring hunter service testing demands are met, communication, conducting applied research, monitoring disease distribution in affected areas, and applying management actions to limit further spread of the disease.

When revising the plan, MDC assessed the need for deer hunting regulation changes within the CWD Management Zone. Because deer numbers are increasing in most counties in the CWD Management Zone and deer density can affect CWD spread, additional deer harvest is needed to prevent further increases in deer numbers and help minimize the spread of CWD. Deer numbers are also increasing in most counties outside of the CWD Management Zone. To keep deer numbers at desirable levels, additional antlerless harvest is needed in these counties to help stabilize the growing population. Changes to deer hunting regulations for the 2023–2024 deer season increased hunting opportunities in the CWD Management Zone and gave hunters more opportunity to harvest antlerless deer in most counties outside of the zone. Notable regulation changes for the 2023–2024 deer season included a new early antlerless portion of firearms deer season (Oct. 6–8) in select counties, a new CWD portion of firearms deer season (Nov. 22–26) in CWD Management Zone counties, and an increase in the number of firearms antlerless permits in most counties.

2023-2024 REGULATIONS INCREASE HARVEST OPPORTUNITIES





K-9 Unit

Since the start of the MDC K-9 Unit in 2021, the dogs and their handlers have provided 496 programs, reaching a total of 27,211 people, and have been involved in 271 deployments. K-9 handlers are county conservation agents, with the added tool of a highly trained canine. All MDC canines are hunting breeds (Labrador retrievers and German shorthaired pointers), trained as “single purpose” dogs in illegal/hidden wildlife scent detection, article searches, and human tracking. Four new handlers/dogs were added to the team this year, bringing it to full strength at nine K-9 teams, which are evenly distributed around the state. The K-9 teams have been successful in helping find evidence from numerous poaching incidents around the state, including cases for taking turkey and deer in closed seasons, shooting from the roadway, and trespassing.

Front row, left to right: Crystal Poole and K-9 Cedar, Nick Bommarito and K-9 Bertie, Andrew Feistel and K-9 Titan.

Back, clockwise from bottom left: Matt Wheaton and K-9 Chuck, Caleb Pryor and K-9 Waylon, Don Clever and K-9 Penny, Alan Lamb and K-9 Tex, Susan Swem and K-9 Astro, Justin Pyburn and K-9 Korra.

MDC Connects People with Nature

Community Assistance Program

MDC created the Community Assistance Program (CAP) in 1980 to provide close-to-home fishing opportunities in communities across Missouri. Through this program and the closely related Corporate and Agency Partnership Program, MDC enters into agreements with businesses, foundations, schools and colleges, and city, county, state, and federal agencies to provide fisheries management at existing lakes and ponds and develop facilities for anglers and boaters at lakes and streams.

The program consists of 114 CAP partners with 183 public lakes, 30 stream accesses, two lake accesses, and eight aquatic resource education ponds. MDC biologists manage 11,263 acres of CAP-enrolled lakes.

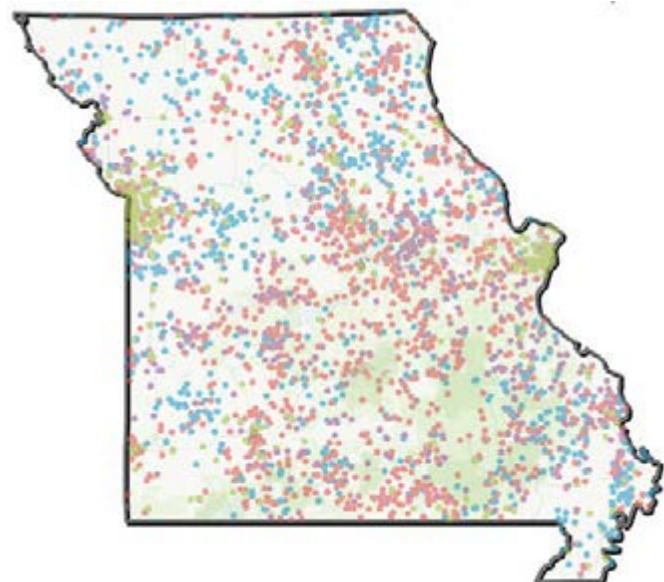
Expanded Boating Opportunities

Two popular urban conservation areas now allow carry-in, hand-launched watercraft on several area lakes. James A. Reed Memorial Wildlife Area in Lee's Summit and August A. Busch Memorial CA in St. Charles previously prohibited personal canoes and kayaks. Responding to public feedback, a regulation change went into effect Feb. 28 that would allow visitors to bring their own canoes and kayaks for use on certain area lakes. Busch CA requires a no-cost daily boating tag to be able to use your canoe or kayak from April 1 through Sept. 30. These tags are available at the onsite concessioner, All In Bait Tackle Shop, and are available on a first-come, first-served basis. No tag is required at James A. Reed Memorial Wildlife Area.



In response to public feedback, MDC now allows hand-launched watercraft, like canoes, on several area lakes, including two urban area lakes. As a result, residents, like these two young girls, can enjoy a day on the water close to home.

COMMUNITY AND PRIVATE LAND CONSERVATION SITE VISITS



Community and Private Land Assistance

More than 14,000 Missourians received technical and financial support for the benefit of fish, forests, wildlife, and people. MDC staff performed over 3,000 on-site visits with communities and private landowners. Approximately \$2.7 million was provided to private landowners for habitat improvement through MDC's Landowner and Community Assistance cost-share program while an additional \$1 million was provided for communities in FY 23.

This map pinpoints statewide community and private land conservation site visits for FY 23.

Site Visits

- Farm Bill
- Cooperator
- Community Conservation
- Landowner and Community Assistance Cost-share Program



One Health

Through a partnership with the Missouri Chapter of the American Academy of Pediatrics and the Missouri Child Psychiatry Access Project, MDC hosted the first One Health seminar at The Anita B. Gorman Conservation Discovery Center in Kansas City in June. This seminar offered physicians an opportunity to fulfill continuing medical education requirements and connect with nature. Presentation material was developed to focus on the benefits of One Health, an approach that recognizes the connection between healthy humans, healthy animals, and a healthy environment. To encourage place-based learning, MDC naturalists provided binoculars and led participants on a guided walk along the nature center trail. This seminar series will be repeated at MDC nature centers in Springfield, St. Louis, and Jefferson City to help physicians ease into nature and provide them with the knowledge, resources, and comfort they need to encourage their patients to do the same.

Green Schoolyard Program

St. Louis Public Schools have partnered with MDC, The Nature Conservancy, and other local stakeholders to convert the current blacktop schoolyard at Froebel Literacy Academy to a green space with park-like features for recreation and STEAM (science, technology, engineering, arts, and math) learning. This project, relying on a grant from the Metropolitan St. Louis Sewer District, was approved by the Board of Education of the City of St. Louis and will be the first-ever green schoolyard in the state.

Green spaces improve students' well-being (see graphic below) while contributing to the ecological health and resilience of St. Louis. The new schoolyard will divert stormwater runoff from entering the sewer system and manage stormwater in a more sustainable way, mimicking natural water systems.

BENEFITS OF NATURE FOR EDUCATION

BETTER ACADEMIC PERFORMANCE
Learning in natural environments can:

- BOOST PERFORMANCE** in reading, writing, math, science, and social studies
- ENHANCE** creativity, critical thinking, and problem solving

Seeing nature from school buildings can foster academic success

ENHANCED ATTENTION
Spending time in nature can help children focus their attention:

- ↑ FOCUS AND ATTENTION**
- ↓ ADHD SYMPTOMS**

The greener the setting, the better the focus

INCREASED ENGAGEMENT & ENTHUSIASM
Exploration and discovery through outdoor experiences can promote motivation to learn:

- INCREASED ENTHUSIASM FOR LEARNING**
- GREATER ENGAGEMENT WITH LEARNING**

IMPROVED BEHAVIOR
Nature-based learning is associated with reduced aggression and fewer discipline problems:

- +** MORE IMPULSE CONTROL
- LESS DISRUPTIVE BEHAVIOR



Recent studies indicate that one of the top five outdoor activities for Missourians includes planting a garden or plants to attract bees, birds, and other wildlife.

Remaining Relevant to All Missourians

For the past several years, state fish and wildlife agencies throughout the U.S. have begun focusing on ways to ensure that conservation and the outdoors are relevant to all citizens. With the number of hunters and anglers on the decline in both the U.S. and here in Missouri, methods to engage new audiences and to retain existing ones are more important than ever before.

Recent studies of Missourians indicate that the top five outdoor activities for the state's residents are walking or hiking outdoors; having a picnic at a park; planting a garden or plants to attract bees, birds, and other wildlife; camping; and fishing. Additionally, Missourians have indicated they most want to connect with nature in their own backyard or at parks and natural areas that are within walking distance of their home.

MDC staff are using data from these surveys to design programming and events that appeal to all Missourians, whether they like to hunt, fish, ride a bicycle, or take a hike at one of our 1,100 conservation areas around the state.

Educating the Public about Nature and the Outdoors

MDC provided 5,473 nature-based education programs to approximately 340,000 attendees last year. Programs are offered at nature centers, interpretive centers, ranges, virtually, and in partnership with communities. The topics of these programs vary significantly, including native plants, archery, fishing, habitat management, kayaking, hunting, shooting sports, and much more. Last year an interactive hunter education course was launched. This immersive, scenario-based offering allows hunter education participants to have game-like experiences by creating avatars and selecting the preferred game species and geographies. Since the launch last year, more than 5,000 Missourians have earned their hunter education certification through the interactive method.



MDC offers events and classes to get people excited about fishing. In addition, hunter safety courses – whether taken online or in-person – will get you ready for the field and that next hunting season.

Providing Learning Opportunities for Missouri's Youth

MDC's partnership with Missouri's public and private schools has grown to 1,091 schools, or approximately 36 percent of Missouri schools. MDC provides a suite of nature-based curriculum, teaching supplies, and transportation grants, allowing schools to connect students to nature while addressing academic standards. The recently revised kindergarten, first, and second grade Discover Nature Schools curriculums were designed to meet state and national science standards in physical, Earth and space, life, and engineering sciences while exploring Missouri-focused conservation topics.

The Missouri Archery in the Schools Program (MoNASP) has been adopted by 529 schools, with the most recent state tournament drawing approximately 5,000 student archers from more than 200 schools. MoNASP helps build stronger, more confident, and accomplished kids while teaching young people the basics of archery in school. In the past year, 12 Missouri archers received a combined \$40,000 in scholarships from the Missouri Conservation Heritage Foundation and MoNASP. Many went on to compete at the national level for Missouri, and a number of seniors are being recruited with additional scholarships to schools that have or are creating collegiate archery teams.

Last year more than 7,000 students earned their Hunter Education certification in one of the 230 schools using the curriculum in their classroom. Hunter Education focuses on ensuring students are responsible and safe hunters, while also helping students understand the fundamentals of wildlife management.

Discover Nature — Fishing (DNF) provides curriculum, teaching supplies, and transportation grants to participating schools. Currently 95 schools are using the DNF curriculum. MDC strives to get students hooked on fishing so they can enjoy this life skill with family and friends for years to come.

The Missouri Stream Team program creates an opportunity for students to practice science close to home. Participating schools are provided the tools



Discover Nature Schools moves the classroom outdoors so kids can learn about nature by using their senses, doing activities, and getting their hands dirty.

and resources necessary to conduct water-quality monitoring. The data collected by students helps monitor the health of Missouri streams.

Mapping a Hunter's or Angler's "Journey"

To address the continued decline in hunters and anglers, MDC completed a Recruitment, Retention, and Reactivation (R3) Journey Mapping Project along with DJ Case and Associates. The goal of the project was to gain a better understanding of our current hunters

and anglers, who they are, and what barriers exist that may prevent them from hunting and fishing. MDC will use this information to develop program offerings, marketing strategies, and an R3 plan designed to create new hunters and anglers, retain existing hunters and anglers, or bring back those who hunted and fished in the past. Part of the agency's R3 strategies include conducting multiple hunting and fishing programs. In the past year, MDC conducted 650 R3 programs for 16,500 participants.

Missouri's Citizen Scientists: Volunteering to Protect the State's Natural Resources

Missouri Master Naturalist

The Missouri Master Naturalist program is sponsored and jointly administered by MDC and University of Missouri Extension. As a partnership program, Master Naturalist is committed to growing and sustaining an equitable, diverse, and inclusive learning and working environment to engage Missourians in the stewardship of our state's natural resources through science-based education and volunteer community service.

The program aims to improve public understanding of natural resources ecology and management by developing a pool of local knowledge that can be used to enhance education efforts within local communities. A second goal is to enhance existing natural resources education and outreach activities by providing natural resources training at the local level, thereby developing a team of dedicated and informed volunteers.

With 12 chapters and 800 volunteers statewide, Missouri Master Naturalist Program participants partnered with 130 local organizations and provided 50,000 hours of volunteer community service during the past year.

Missouri Stream Team

The Missouri Stream Team program educates Missourians on the nature and quality of the state's streams and how to take care of them through volunteerism. Stream Team volunteers serve as stewards for Missouri's 110,000 miles of flowing water and do hands-on projects, such as litter pickups, water-quality monitoring, storm drain stenciling, and streamside tree planting. The program is a partnership between MDC, the Conservation Federation of Missouri, and the Missouri Department of Natural Resources.

This past year, teams throughout the state dedicated 51,430 service hours for a variety of activities. These service hours included 50 habitat improvement projects, the planting of 7,555 trees for water-quality improvement,



A master naturalist takes a group on a hike, teaching them about vegetation along the way.

309 water-quality monitoring trips, and the removal of 203 tons of trash from Missouri waterways.

During the past year, the Stream Team program partnered with the Metropolitan St. Louis Sewer District, St. Louis Economic Development Partnership, National Guard, Urban League of Metro St. Louis, St. Louis City Police Department, and many others to clean up trash and debris in the communities of Mount Pleasant and Baden in St. Louis. Over 3.6 tons of trash, metal, and tires were removed from watersheds in these communities.

The Show-Me Snails project kicked off its fourth year of volunteer monitoring to collect aquatic snails for identification. This ongoing project will help expand existing snail distribution records and inform future water-quality criteria for the state of Missouri. Last year, 95 Stream Team volunteers registered to help with Show-Me Snails, and 186 aquatic snail samples were submitted for identification by MDC's Science Branch staff.

Forestkeepers

Members of the Missouri Forestkeepers Network contributed over 10,000 hours of service caring for and monitoring trees across the state in FY 23. Missouri Forestkeepers Network is a forest monitoring program free to any Missourian with an interest in trees.

In the past fiscal year, participants learned about the value of white oak and the challenges associated with growing more of this important tree at the annual meeting held in central Missouri. This meeting featured a workshop on the identification of white oak, overview of restoration at Rudolf Bennitt CA, a presentation from the White Oak Initiative, and a field trip to learn about white oak's use in aging spirits and whiskey.

Members also participated in the Redbud Phenology Project, worked locally to remove invasive plants, and cared for trees in their backyard or farm. Members' efforts assure Missouri's forests continue to grow and stay healthy.

VOLUNTEER EFFORTS

800

**MASTER NATURALIST
VOLUNTEERS**

110,000

**MILES OF FLOWING WATER
STEWARDS**

7,555

**TREES PLANTED FOR WATER
QUALITY IMPROVEMENT**

203

**TONS OF TRASH REMOVED
FROM WATERWAYS**

130

**LOCAL ORGANIZATION
PARTNERS**

50

**HABITAT IMPROVEMENT
PROJECTS**

309

**WATER-QUALITY
MONITORING TRIPS**

3.6

**TONS OF TRASH AND DEBRIS
REMOVED FROM WATERSHEDS**

156,930+

TOTAL HOURS OF VOLUNTEERING TIME



A volunteer removes trash from our streams and forested areas.



A volunteer teaches an inquisitive youngster about a turtle.

MDC Staff Volunteers

Volunteers at the MDC's interpretive sites, nature centers, and staffed shooting ranges contributed nearly 36,000 hours of service to conservation. These volunteers provided enormously important assistance with special events, school and public programs, visitor relations, animal care, and area maintenance. Volunteers work with MDC staff to make the visitors' experience at these facilities educational, enjoyable, and memorable. Volunteer hunting and fishing education instructors contributed over 9,500 hours of service connecting Missourians to the outdoor pursuits of hunting and fishing. In addition to teaching people new skills, these volunteers help instill a conservation ethic and an understanding of natural resource management in their students.



MDC cut the ribbon for a new office in the heart of St. Louis, the Howard Wood Urban Outreach Office.

Expanding Conservation Opportunities

Reaching New Audiences in St. Louis

MDC opened a public outreach office in the heart of St. Louis in May. The MDC Howard Wood Urban Outreach Office, located at 4640 Shenandoah Ave., is a collaboration space that will serve as a central hub for MDC staff with expertise in urban wildlife, fish, forestry, and conservation education. It will provide opportunities for urban residents to enjoy and conserve nature close to where they live, including access to new communities who may not have a lot of conservation exposure or a connection to nature.

The office serves as the main work location for six staff members as well as drop-in space for staff with work in the area. It welcomes the public with 25 hours a week of walk-in service during which office staff can provide conservation-related information, free publications, hunting and fishing permits for sale, and sell MDC *Natural Events Calendars*. There are also plans to host future programs at this location and in the adjacent demonstration garden.

The Howard Wood Urban Outreach Office marks MDC's return to St. Louis after eight years. The last time MDC had an office in St. Louis was 2015 at the Dennis & Judith Jones Visitor Center in Forest Park. Previously MDC also had an office in the city from 1994–2015. The new office will make it easier to bring urban community conservation best practices, resources, and information to city and inner-ring St. Louis County residents, schools, and partner organizations. The urban location will enable MDC staff to work with our many nearby partners, including Brightside-St. Louis, Tower Grove Park (where MDC also has staff), Missouri Botanical Garden, Saint Louis Zoo, Forest Park, Great Rivers Greenway, Forest ReLeaf, St. Louis

Public Schools, Beyond Housing, St. Louis Public Library, and City of St. Louis.

Howard Wood served a six-year term on the Missouri Conservation Commission, appointed by Gov. Mel Carnahan in 1997. Wood is also a past president of the Conservation Federation of Missouri. He helped establish Missouri's conservation program as one of the best in the nation.

Honoring a Former Missouri Conservation Commissioner

MDC honored former Commissioner Don Bedell during a dedication ceremony for the Don C. Bedell Unit of Peck Ranch CA last year. During his time serving on the Conservation Commission, Bedell saw MDC accomplish numerous feats, including the historic restoration of once-native elk at Peck Ranch CA in the Missouri Ozarks. Designating nearly 6,000 newly acquired acres of biologically significant forestland along the Current River as the "Don C. Bedell Unit" of Peck Ranch CA is a way to honor former Commissioner Don Bedell's long-lasting contributions to conservation.

Enhancing Sport Shooting Programs

MDC owns or partners with over 70 shooting ranges in Missouri. To ensure our ranges meet high safety, environmental, and user standards, MDC has begun a process of evaluating and repairing or replacing shooting ranges throughout the state. In FY 23, projects at the Ralph and Martha Perry Memorial CA and the Andy Dalton Shooting Range and Outdoor Education Center were completed, while a project at Pleasant Hope CA was started. This is a long-term effort that will ensure quality recreational shooting opportunities are available to Missourians well into the future.

MDC Maintains Public Trust

Telematics

Installation of over 1,400 telematics units on all MDC-owned vehicles and heavy equipment was completed in March. This essential fleet management tool allows staff to use engine diagnostic information to decrease maintenance costs, integrate with the department's fleet management software to provide accurate engine hours and mileage readings to assist with maintenance notifications, monitor fuel usage through idle time analysis, better monitor usage to maximize efficiency, assist with determining more appropriate replacement criteria and schedules, and provide additional safety for employees.

Infrastructure Renewal

MDC continued efforts to take care of existing infrastructure and sustain conservation services across Missouri. Nineteen major construction projects were completed, including work at intensively managed wetlands, communication towers, and public use facilities. In addition, design was completed and contracts awarded on the Bennett Spring Fish Hatchery Renovation project, the Shepherd of the Hills Conservation Center Replacement project, and the Schell-Osage Pump Station Development project. Construction for all three of these multi-year projects will begin in FY 24.

MDC staff love interacting and passing along knowledge to the youth of our state. They are our future stewards and will carry on the conservation of our fish, forest, and wildlife resources.

Infrastructure Asset Management & Planning Policy

In December, the commission approved the Infrastructure Asset Management & Planning Policy. As stated in the new policy, the infrastructure portfolio will be managed to sustain services in a cost-effective manner over the entire life of individual assets. The management will include a comprehensive inventory with geospatial location information, recurring condition assessments, establishment of target condition ratings, and implementation of a capital plan. This policy will ensure a continued focus on infrastructure asset management and planning to improve MDC's ability to connect people with nature.

At Risk Infrastructure Assets and Watchlist Assets Reports

As MDC continues to advance infrastructure asset management efforts, it is important to evaluate asset conditions and life expectancy to focus attention on construction projects that will renew infrastructure providing important conservation services. The Watchlist and At Risk Infrastructure Asset Reports identify infrastructure assets by condition ratings and/or life expectancy and can be viewed by region, conservation area, or asset type. These reports encourage short-term data-driven decision making, while also providing an overview of MDC's infrastructure portfolio for long-term planning. ▲



Get Outside

in JANUARY



Horned lark

→ Ways to connect with nature

VIRTUAL

Trees: Missouri Oak ID

Wednesday • Jan. 24 • 12-1 p.m.

Online only

Registration required by Jan. 24. To register, call 888-283-0364 or visit short.mdc.mo.gov/Z7g.

Ages 12 and older.

Missouri is a wonderland of oaks with about 21 species found in various habitats across our state. Join us for a detailed look at these iconic forest and wetland species. This program will cover tips and tricks for figuring out which of these majestic trees you have found. We will also discuss how oaks benefit your local wildlife and which species might be the right choice for your landscape.

A Coffee Tree?

With the trees bare, look for Kentucky coffee tree pods dangling from their branches. Kentucky coffee trees drop their large, leathery, unopened seed pods in late winter. Native Americans made coffee from roasted, ground seeds, and European settlers learned from them, hence the common name.

For more information, visit short.mdc.mo.gov/Z7A.



Kentucky coffee tree pod

Question mark



Signs of Spring?

If you see a butterfly flutter by, it may not necessarily be an early sign of spring. Some butterflies — like the question mark, eastern comma, gray comma, mourning cloak, and goatweed leafwing butterfly — overwinter as adults. They may come out on warm winter days. Watch them and dream of warmer spring days to come. To learn more about butterflies of Missouri, visit short.mdc.mo.gov/Z7P.

Natural Events to See This Month

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



Deer shed their antlers in January.



Listen for owls hooting at dusk and dawn.



The morning after a snowfall, look for mammal tracks.

What a Lark!

The horned lark is one of Missouri's earliest nesting birds. Courtship songs and displays begin in January and February. The male flies up several hundred feet, giving a tinkling song at its highest ascent. Then it zooms, dartlike, to the ground, opening its wings at the last minute. Nesting can begin in February. Look for them in large open areas with extensive bare ground. They are especially common in plowed agricultural regions, nesting early before vegetation has a chance to grow tall. Their camouflaged upperparts make them inconspicuous, but they often occur in flocks, and their movement against the ground, songs, and their distinctively marked faces and feathery horns can help you see them. To learn more, visit short.mdc.mo.gov/Z8q.

ST. LOUIS REGION

How the Spirit of Gratitude Can Help You Live Your Best Life

Friday • Feb. 9 • 7:00 p.m.

Powder Valley Conservation Nature Center
11715 Cragwold Rd., Kirkwood, MO 63122

Registration not required. For more information, contact 314-301-1500.
Ages 18 and older.

It's a new year full of possibilities, expectations, and resolutions. But what if you're already exhausted and 2024 just started? Being in survival mode can often bring more stress and struggle, including sometimes snuffing out our energy and passion. How do we get our groove back and stay inspired, including letting nature rejuvenate us?

Join us for a fun and lighthearted presentation (but also meaningful, we hope!) on how the spirit of gratitude can help you live your best life. This session applies to those with an empty tank as well as those still firing on all cylinders – the learning, including personal storytelling and practical tips, will all be the same, including:

- How to rekindle your passion for life through gratitude and regain the spark and joy in living out your mission.
- Strategies to refocus your day and take back your schedule (that are often hijacked by a hundred other things).
- Tip and tricks to get your gratitude mojo back, including where to find inspiration, mentoring, energy, and maybe even a daily dose of laughter.

Even though gratitude is an inside job, we hope this session will be a sweet salve to the soul and just the spark you need to keep moving onward and upward.

Call Before You Cut

5 REASONS TO CALL BEFORE YOU CUT

- ✓ Learn if harvesting is right for you and your woods
- ✓ Harvest the proper trees to ensure a healthy forest
- ✓ Find a trained logger for the job
- ✓ Maximize timber sale income and save \$\$\$ on taxes
- ✓ Ensure your overall satisfaction with the timber harvest

Request a free informational packet about working with a professional forester to take care of your woods.

**callb4ucut.com
877-564-7483**

Places to Go

SOUTHEAST REGION

University Forest Conservation Area

A place for conservation self study
by Larry Archer

✳ **Despite its name and historic connection to higher education, University Forest Conservation Area (CA) has none of the trappings of traditional university life — no quad, Saturday football, or ivy-covered buildings. But even without the trappings, it’s still a place of learning for those who want to know more about Ozark forests.**

Located on more than 7,100 acres in Butler and Wayne counties, University Forest CA was endowed to the University of Missouri as part of the Agriculture College Act of 1862, said Clearwater South District Supervisor and University Forest CA Manager Steve Orchard.

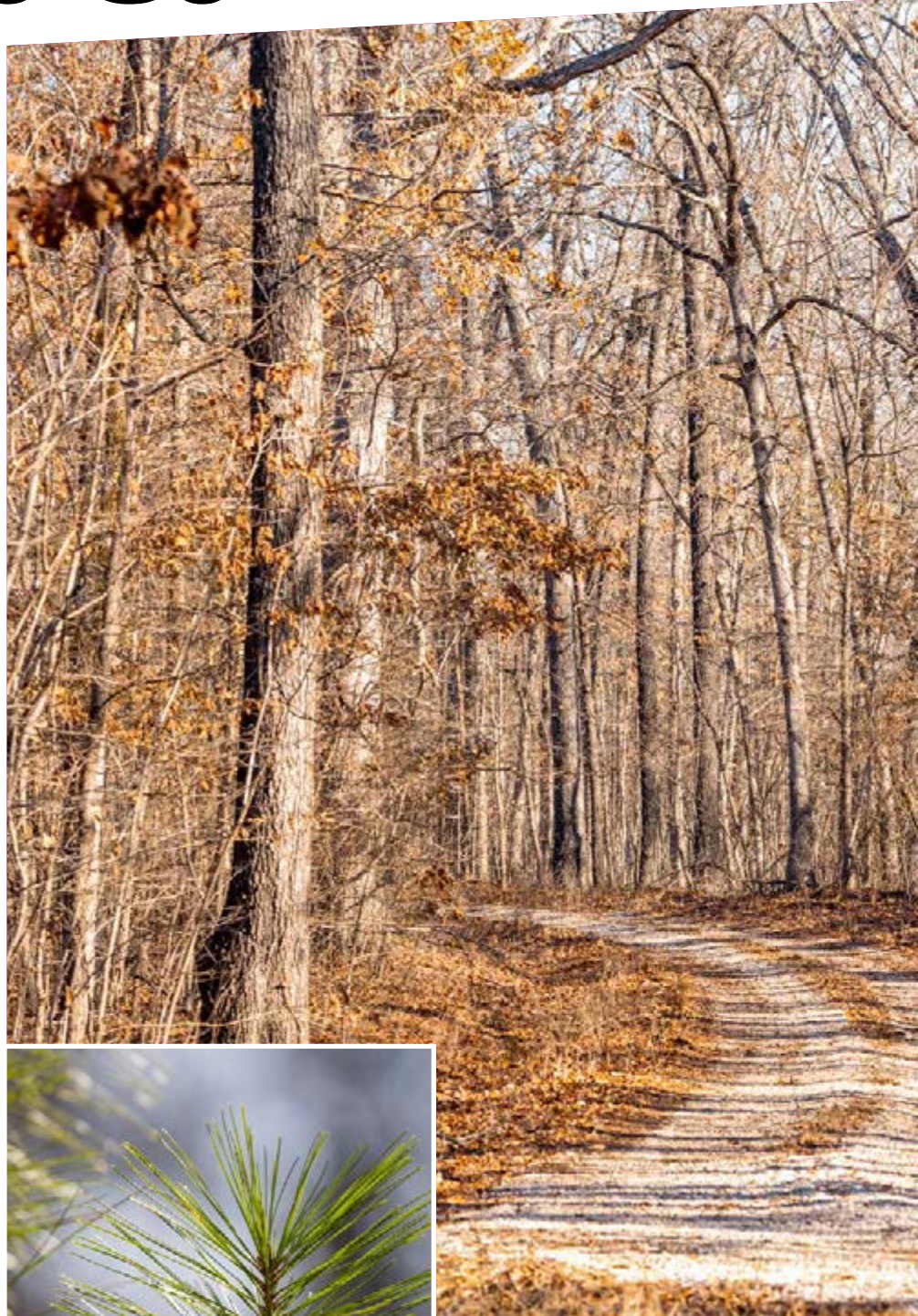
“The university took over in the 1900s, and they began managing it for forest research in 1946,” Orchard said.

Some of that post-World War II research continues, he added.

“The study began in 1949, and it was created to study the effects of repeated burning on trees,” he said. “That was back when we had wildfires all over the state annually.”

The area no longer hosts summer camps of would-be foresters, but its nearly 40 miles of multiuse trails and improved and gravel roads offer plenty of access to the area’s upland oak-hickory and shortleaf pine forests.

“It’s great terrain for recreation,” Orchard said. “It’s somewhere between gently rolling and Ozark hills.”

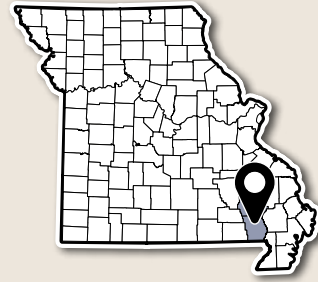


While camping is not allowed on University Forest CA, it is surrounded by other public lands – including U.S. Army Corps of Engineers, U.S. Forest Service, and Missouri State Parks – where camping is allowed.

DAVID STONNER



With nearly 40 miles of roads and trails, including 16 miles of multiuse trails open to hiking, biking, and horseback riding, University Forest CA has many options for getting around its more than 7,000 acres. In addition to oak and hickory, the area includes considerable stands of shortleaf pine (inset).







UNIVERSITY FOREST CONSERVATION AREA

consists of 7,151.5 acres in Butler and Wayne counties. From Poplar Bluff to the main tract, take Highway 67 north 15 miles, then Highway 172 east 4.5 miles, and Route W south 3 miles.

36.8951, -90.397

short.mdc.mo.gov/Z7x 573-663-7130

WHAT TO DO WHEN YOU VISIT

-  **Birdwatching** Included in the National Audubon Society's Black River Watershed Important Bird Area (short.mdc.mo.gov/Z7q). The eBird list of birds recorded at University Forest CA is available at short.mdc.mo.gov/Z7p.
-  **Hunting Deer and turkey** Regulations are subject to annual changes. Refer to MDC's regulation page online at short.mdc.mo.gov/Zjw. Also **bear, quail, rabbit, and squirrel**.
-  **Trails** Multiuse (hike/bike/horse) trails, totaling nearly 16 miles, and improved and gravel roads, totaling nearly 22 miles. Multiuse trails and service roads closed to bicycle and equestrian use during firearms deer and spring turkey seasons.
-  **Trapping** Special use permit required.

WHAT TO LOOK FOR WHEN YOU VISIT



Carolina chickadee



Coyote



Pileated woodpecker



White-tailed deer



Ross's Goose

Chen rossii

Status

Uncommon migrant

Size

Length: 23 inches

Distribution

Statewide



A pair of Ross's geese casually attempt to blend in with a group of Canada geese.

Ross's geese look a lot like snow geese and are often found near their look-alike waterfowl. The key to telling the two species apart is body size and bill shape and color. Ross's geese are the size of mallards and have short necks and rounded heads. Their pink bill is stubby and lacks a black patch. Their voice is a high-pitched honking sound, similar to the snow geese's but higher and not as shrill.

LIFE CYCLE

Ross's geese overwinter in the southern part of their range, including Missouri. In spring, they return north to the arctic tundra to breed, typically laying two to six eggs.

FOODS

Ross's geese forage for grains, roots, grasses, and aquatic vegetation in marshes, rivers, lakes, and crop fields, including cornfields and new winter wheat fields.

HUMAN CONNECTIONS

Migrating geese reassure us of the certainty of changing seasons. As Aldo Leopold wrote, "One swallow does not make a summer, but one skein of geese, cleaving the murk of a March thaw, is the spring."

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-Keep:
May 27, 2023–Feb. 29, 2024

Nongame Fish Gigging

Streams and impounded waters,
sunrise to midnight:
Sept. 15, 2023–Feb. 15, 2024

Paddlefish

On the Mississippi River:
March 15–May 15, 2024

Trout Parks

During the catch-and-release season,
state trout parks (except Maramec Spring
Park) are open only Friday–Monday.

Catch-and-Release:
Nov. 10, 2023–Feb. 12, 2024

TRAPPING

Badger, Gray Fox, Red Fox

Nov. 15, 2023–Jan. 31, 2024

Beaver, Nutria

Nov. 15, 2023–March 31, 2024

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

Nov. 15, 2023–Feb. 29, 2024

Rabbits

Nov. 15, 2023–Jan. 31, 2024

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.



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.

HUNTING

Badger, Gray Fox, Red Fox

Nov. 15, 2023–Jan. 31, 2024

Bobcat, Opossum, Raccoon, Striped Skunk

Nov. 15, 2023–Feb. 29, 2024

Coyote

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

Open all year

Crows

Nov. 1, 2023–March 3, 2024

Deer

Archery:
Nov. 22, 2023–Jan. 15, 2024

Firearms:

- ▶ Alternative Methods Portion:
Dec. 23, 2023–Jan. 2, 2024

Pheasant

Nov. 1, 2023–Jan. 15, 2024

Quail

Nov. 1, 2023–Jan. 15, 2024

Rabbits

Oct. 1, 2023–Feb. 15, 2024

Squirrels

May 27, 2023–Feb. 15, 2024

Turkey

Archery:
Nov. 22, 2023–Jan. 15, 2024

Waterfowl

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



ILLUSTRATION: MARK RAITHEL



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on Instagram**

@moconservation

Take a note from this eastern gray squirrel – grab what you need for a day in Missouri’s winter woods and seize the day. You may need a little more than a few nuts to survive a winter day, but it’s worth the adventure. Don’t let the cold keep you inside. Get out and get your nature boost!

📷 by **Noppadol Paothong**

Free to Missouri households

To subscribe, cancel your subscription, or update your address, visit mdc.mo.gov/conmag.