

MISSOURI CONSERVATIONIST

VOLUME 82, ISSUE 10, OCTOBER 2021
SERVING NATURE & YOU



Xplor



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Looking for a way to coax your kids to unplug, climb off the couch, and get outside? Then check out *Xplor*, the Conservation Department's free magazine for kids and kids at heart.

Six times a year, *Xplor* serves up eye-popping art, photos, and stories about Missouri's coolest critters, niftiest natural places, and liveliest outdoor activities. The magazine is free to Missouri residents (one subscription per household, please). Out-of-state subscribers pay \$5 per year; out-of-country subscribers pay \$8.



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White
heath aster



MISSOURI
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ON THE COVER

American white pelican

DANNY BROWN

500mm lens +1.4 teleconverter
f/6.3, 1/1600 sec, ISO 200

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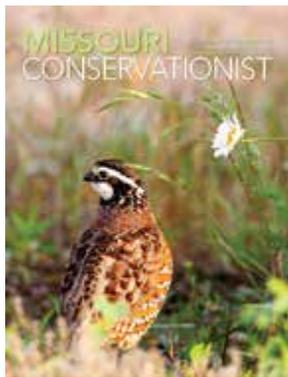
Inbox



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:

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MARVELOUS MAG
I've been reading your magazine for years, and I still marvel at a free magazine that beats any magazine I've ever paid for. Stories, photos, knowledge ... You excel in all areas.

Wm. Forster
via email

SCHWARTZ MURALS

Thank you for the article on the artwork of Charles Walsh Schwartz in the August issue [*The Art of Missouri's Conservation*, Page 10]. His keen interest in nature and considerable artistic talents were recognized at a young age by his uncle and mentor John Kennedy Walsh, my grandfather. Our family has always been quite proud of C.W. Schwartz's accomplished career. We encourage all Missourians to visit the Commission Headquarters to view the pictorial history of conservation in the Show-Me State as depicted in the murals.

James Walsh Baxendale Webster Groves

Thank you for the eight beautiful, informative Missouri murals in the August issue. They were an awesome treat for my 80-year-old eyes. Your dedication to Missouri wildlife and native grasslands over 200 years is simply awesome!

Joyce Zesch via email

Your article on the murals reminded me of the friendship we had with Charles and Libby Schwartz and the wonderful memories I had growing up as part of the department's "family."

Years ago, my father, Earl Coleman, worked at headquarters, first as an agent training officer and ultimately as superintendent of Protection. When the second printing of *The Wild Mammals of Missouri* by Charles and Libby Schwartz came out, he bought a copy and asked Mr. Schwartz to sign it. He took the book but didn't return it for a few weeks. When my dad got the book back, Mr. Schwartz had done a watercolor of a bison from the mural, with the inscription, "I drew this old bison because, somehow or other, he personifies the character of rugged individuals like you, Earl, of which there are so few left." Then he and Mrs. Schwartz signed the book.

Janet (Coleman) Downey Clarkston, MI



The Art of Missouri's Conservation in the August issue of *Missouri Conservationist*.

I thought the art and story of Missouri's conservation, past, present, and future, were great. Coming from South Dakota (pheasant capital of the world) in 1957, I have been able to take advantage of most of the wonderful things MDC has done over the years. As an avid hunter of quail, deer, ducks, and Canada geese, I have enjoyed all of the foresight and improvements MDC has done and thank you for it.

Dean Hurlbut St. Joseph

WHAT LIES BENEATH

August's *Beneath the Water's Surface* by Doug Novinger [Page 16] brought back fond memories on the Jack's Fork River some 50 years ago. As ferocious as the crayfish appeared through a face mask, they were our favorite. It is simply amazing what can be observed beneath the surface with a face mask on and crystal-clear water like that of the Jack's Fork.

Dan Sullivan Linn Creek

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1

1 | Ketcherside Mountain Conservation Area by Greg Noelken, via Flickr

2 | Rough greensnake by Bob Hamm, via email

3 | Farm pond fishing by Brooke Laird, via email



2



3

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TAYLOR LYNN PHOTOGRAPHY



Up Front

with Sara Parker Pauley

✳ Dressed in khaki trousers, a nicely pressed shirt, and sometimes with his clip-on tie affixed to his collar, my grandfather would wade into his favorite Ozark streams in his full Sunday attire, as if he were engaging in a baptism of sorts. He didn't own a pair of jeans and the sportswear of today was nonexistent in his rural Missouri hometown. But in reflection, I love this vision of him, so nicely dressed, as if he were courting the stream and its abundant life as one would a beloved.

This vision came to mind as I read the fabulous article by Tim Kjellesvik (see *Fish, Float, Fall Color* on Page 22). If Tim's article does not rouse you from your summer doldrums and remind you that fall is afoot with all its possibilities, then I'm not sure what will! This issue is your wake-up call, a reminder that summer's heat has retreated, and the cooler mornings bring with it an awakening. Hopefully, it's new fall energy breaking forth with possibilities — from floating an Ozark stream, fishing your favorite farm pond, hiking a trail laced with autumn color, chasing deer and turkey with a bow, relaxing in your hammock, or numerous other possibilities.

"I'm so glad I live in a world where there are Octobers," said renowned author L.M. Montgomery. And right she is. October offers something for everyone. So come as you are and immerse yourself in all things outdoors this month. Clip-on tie or tie dye, all are welcome!

Sara Parker Pauley

SARA PARKER PAULEY, DIRECTOR
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Nature LAB

by Bonnie Chasteen

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

ECOSYSTEM MANAGEMENT

MOFEP and IPT

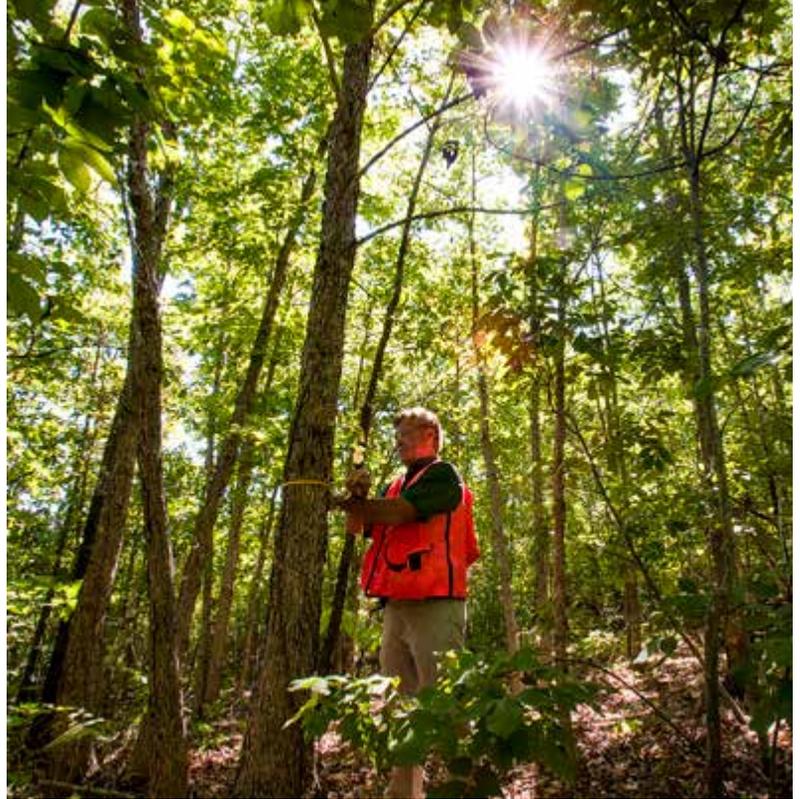
✳ Missouri's forests are complex ecosystems that provide many benefits. They also face many threats — climate change, invasive species, and habitat loss, to name a few. These threats, combined with competing values and objectives, make managing forests an ever-increasing challenge.

Since 1991, the Missouri Ozark Forest Ecosystem Project (MOFEP) has been studying ecosystem functions and threats with an eye to testing management practices that will sustain forests far into the future.

To help managers optimize limited resources and balance diverse conservation objectives, MDC Research Forester Brad Graham is helping a team of researchers develop a new integrated planning tool (IPT) using 30 years' worth of MOFEP field data.

"The IPT combines simulated outputs from a forest landscape model known as LANDIS PRO with conservation- and planning-optimization models," Graham said. "The combined power of the integrated models will allow management teams to predict outcomes with greater precision and confidence," he said.

Currently in the pilot phase, the IPT project focuses on the Current River Hills Conservation Opportunity



Previous MOFEP Coordinator Randy Jensen measures the diameter at breast height (DBH) of an overstory tree.

Missouri Ozark Forest Ecosystem Project helps develop new integrated planning tool

Area. Covering more than 1 million acres of mostly public land, this landscape allows the team to simulate management effects on such values as wildlife populations, recreational opportunities, forest products, natural climate solutions, and invasive species and diseases.

So far, the team has "calibrated the forest landscape model, which can now be used to predict how forests will respond to different management and climate scenarios," Graham said.

"This is the first phase of a multi-phase project," he said. During the next phase, the team will integrate the conservation and optimization models into the tool's framework and will work with managers to test it in the pilot landscape.

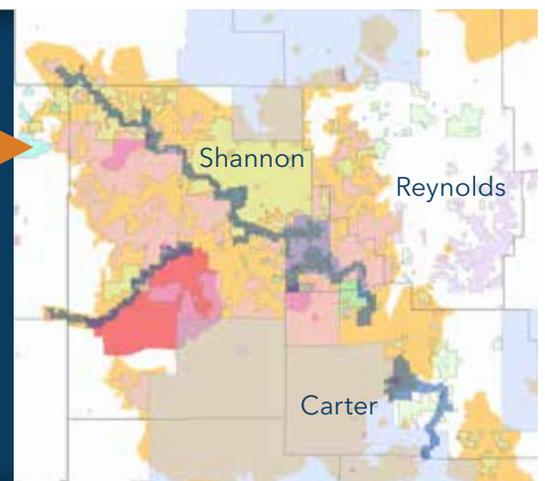
MOFEP and IPT at a Glance

Integrated planning tool

- Identify management units
- Simulate management strategies and assess outcomes
- Develop management plan
- ID and evaluate indicators
- Set baselines, thresholds, and targets
- Develop monitoring program and plan

Current River Hills COA

- Mahan's Creek priority geography
- MDC
- L-A-D Foundation
- National Park Service
- Nature Conservancy



DAVID STONNER

In Brief

News and updates from MDC



JOIN US FOR POOSEY CONSERVATION AREA FALL TOUR

THE 35TH ANNUAL
DRIVING TOUR IS
SUNDAY, OCT. 17, FROM
NOON TO 4 P.M.

➔ Enjoy autumn color as you drive slowly through Poosey Conservation Area's (CA) winding gravel roads of scenic forests and woodlands. Visitors will receive a tour brochure at the entrance. Nature interpretive stops will be placed along the route, and a portable sawmill will be cutting lumber from logs at a demonstration site.

This popular event allows people to ride or drive on area service roads that are normally closed to public vehicle traffic. The tour traverses shallow creeks and rugged terrain with some steep climbs and descents, so a vehicle with high clearance is recommended.

The tour begins at Pike's Lake off Route W and County Road 502. Gates open at noon, and the last vehicle will be allowed to begin at 4 p.m.

MDC requests that visitors observe COVID-19 precautions such as physical distancing when exiting vehicles to view exhibits or when hiking near others, such as at the trail to the limestone outcropping called the Panther's Den.

Poosey CA is located in Livingston County 6 miles southeast of Jamesport, 9 miles northeast of Lock Springs, 12 miles southwest of Trenton, and 13 miles northwest of Chillicothe.

For tour information, contact MDC Resource Forester Samantha Anderson at 660-646-6122. Get maps and information about Poosey CA at short.mdc.mo.gov/ZSS. For other fall color tour opportunities, check out the fall color forecast at mdc.mo.gov/fallcolor.

Ask MDC

Got a Question for Ask MDC?

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



Q: What caused this unusual antler formation?

→ The unusual formation on this deer's right antler is commonly referred to as "palmation." Although palmation is typically a genetic trait passed to offspring, it also can be caused by injury. Palmation is relatively rare but can be found in some populations of white-tailed deer with this recessive trait.

However, it's possible this antler formation may be due to a previous injury and not genetics.

"Genetic abnormalities typically occur in both antlers instead of having one typical antler and one atypical," MDC Deer Biologist Kevyn Wiskirchen explained. "For that reason, I'm inclined to think this is a result of injury to the body of the deer or to the antler itself while it was growing during the summer. In either case, injury can disrupt blood flow to growing antlers, causing a whole host of abnormal growth patterns."

For more information, visit short.mdc.mo.gov/Z9E.

Q: I have an American toad near my home. He seems to live under my deck when it is warm. What does he do to survive the winter? Could I house him in a terrarium and feed him insects?

→ When cold weather comes, most American toads (*Anaxyrus americanus*) dig backwards and bury themselves in the dirt below the frostline of their summer homes. With no ability to tolerate frigid temperatures, overwintering usually begins in October.

Found statewide, these toads tolerate humans well and are common in gardens, fields, and lawns. During the day, they hide under rocks where there is loose, moist dirt or burrow into depressions where dead leaves have accumulated. Toads have knobs on their back feet that they use to shove dirt aside. With a few firm kicks of their hind legs and by wriggling their torsos, they carefully scooch themselves into loose soil.

There's no need to keep one as a pet; they live several years in the same location. You'll probably see the toad again in the spring. For more information, visit short.mdc.mo.gov/Z9a.



American toad



Walking sticks



Northern walkingstick

Q: Last October while backpacking along the Ozark Trail through the St. Francois Mountains, we were overwhelmed by a swarming number of walkingstick insects. Why were their numbers so high?

➔ "We have this happen in Missouri every now and then — maybe every few years — somewhere in the state," said MDC Forest Entomologist Robbie Doerhoff.

Walkingsticks are like any other insect population: They go through cycles of high and low numbers, influenced by weather, predators,

parasites, and food sources.

Since many insects, including walkingsticks, reach maturity in the late summer and fall, they become more noticeable around that time. It's not uncommon to see high populations in locations where suitable habitat is plentiful.

All walkingsticks are herbivores. They use their strong mandibles to consume leaves, the primary food in their diet. Walkingsticks can cause noticeable defoliation on trees and forests during years of population explosions. However, since the defoliation occurs late in the season, it usually isn't a concern for tree health.



Jacob Plunkett

WAYNE COUNTY
CONSERVATION AGENT

offers this month's

AGENT ADVICE

Don't store your kayaks and canoes just yet. Fall is a great time to discover an Ozark stream. The temperatures are great, the fall foliage is beautiful, and the smallmouth fishing is exceptional. Before you head out, pack a life jacket for each person. Grab a bag for all your litter. If you're packing a cooler, leave the glass containers at home. Secure the cooler to your vessel in case you flip. Carry a dry bag with a complete change of clothes in case you get wet, and the temperatures drop. If you're fishing, purchase the proper permits and understand the pertinent regulations. For more information, visit short.mdc.mo.gov/Z9n.

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.

Wintercreeper

First introduced from China in 1907 as an ornamental ground-cover plant, wintercreeper (*Euonymus fortunei*) is an aggressive perennial woody vine. It climbs rocks and trees, reaching heights of 40 to 70 feet. Birds, small mammals, and water disperse wintercreeper seeds.

Why It's Bad

Due to wintercreeper's aggressiveness, it can form a dense ground cover that reduces or eliminates native species in woodlands and forests. As it outcompetes native plants for space and sunlight, it also hinders them by depleting nutrients and moisture in the soil. The dense ground cover can also restrict tree seedling establishment. Climbing wintercreeper can smother and kill shrubs and small trees.

How to Control It

Small areas of wintercreeper

Pull individual vines by the roots and remove. This method requires that the entire plant, including all roots, runners, and seeds, be removed or resprouting will occur.

Mature stands of wintercreeper

Cut vines by hand and spray each cut stem with 25 percent glyphosate or triclopyr solution. Cut stump treatment is best applied after the last killing frost and prior to spring wildflower emergence to prevent harm to non-target species. Cutting without the application of herbicides is not recommended because this will lead to root sprouting.

Alternative Native Plants

- ✓ Cross vine
- ✓ Trumpet vine
- ✓ American strawberry bush
- ✓ Creeping mahonia



Wintercreeper quickly smothers and replaces our native plants that provide food and habitat for wildlife.



For more information on wintercreeper and control, visit short.mdc.mo.gov/Zjj.

CONSERVATION COMMISSION GIVES INITIAL APPROVAL TO FISHING, BICYCLE USE REGULATIONS

The Missouri Conservation Commission gave initial approval during its Aug. 27 open meeting to several proposed regulations related to fishing and the use of bicycles on MDC conservation areas.

MDC invites public comments during October online at short.mdc.mo.gov/Z49. Comments received will be considered and final proposals will go to the commission for further action at its Dec. 10 meeting.

Minimum Length Catfish on Mark Twain Lake

The proposed regulation sets a minimum length limit of 26 inches for blue catfish and flathead catfish on Mark Twain Lake but will not apply to channel catfish.

Under the regulation amendment, blue catfish and flathead catfish caught from Mark Twain Lake that are less than 26 inches in length must be returned to the water unharmed immediately after being caught. There is a current daily limit on Mark Twain Lake of five blue catfish and five flathead catfish with no size limit.

A minimum length limit could improve catfish numbers in Mark Twain by increasing the abundance of preferred sized catfish (30-inch) and memorable sized catfish (35-inch) with minimal or no reductions in the yield, or pounds harvested by anglers.



MDC has proposed regulations that would allow the expanded use of bicycles and electric bicycles on most department-area service roads and multi-use trails.

Expanding Bicycle Use on Conservation Areas

The proposed regulation changes would allow the expanded use of bicycles and electric bicycles on most department area service roads and multi-use trails. The commission also gave initial approval to MDC definitions of bicycles and electric bicycles.

Bicycle use on MDC's approximately 1,100 conservation areas is currently restricted to roads open to public vehicle traffic and some multi-use trails. Bicycle use is currently not allowed on conservation area service roads.

The regulation change will affect approximately 300 MDC areas. Approximately 30 of these areas will be closed to bicycle and electric bicycle use during all portions of the firearms deer hunting season and the spring turkey hunting seasons.

Exceptions would also include service roads used by staff at fish hatcheries and other heavily used MDC areas or where bicycle use could damage sensitive habitats, such as designated natural areas.

continued on Page 10 »

WHAT IS IT?

RED-SIDED EASTERN GARTERSNAKE

The red-sided eastern gartersnake, a subspecies of the eastern gartersnake, varies in color — from blackish, dark brown, greenish, or olive — and its back scales are keeled. They live in a variety of habitats, but favor areas near water, such as ponds, marshes, or swamps and damp woods or forested areas along creeks and rivers. Gartersnakes are active through early November but may stay active during a mild winter.



PROPOSED REGULATION CHANGES

(continued from Page 9)

Changes at Lost Valley Hatchery

The proposed regulation permits free fishing at Lost Valley Fish Hatchery, near Warsaw, by reservation for educational and other organized groups.

Currently, Lost Valley Fish Hatchery offers catch-and-release fishing for kids ages 15 and under from 9 a.m. to 4 p.m. Tuesday through Saturday from March through November on designated waters. Due to staffing limitations, it was necessary to change fishing at the hatchery to by reservation only for educational and other organized groups, such as school classes.

Learn more about Lost Valley Fish Hatchery online at short.mdc.mo.gov/Z9X.

Changes to Fishing, Paddlefish Regulations

The proposed regulation changes update the *Wildlife Code of Missouri* concerning paddlefish, snagging, and commercial fishing.

SNAGGING DEFINITION

A proposed regulation change establishes a definition of snagging, which is currently undefined in the *Code*. Snagging is a popular method for taking fish, such as paddlefish, that do not go after baited hooks because they “filter feed” on tiny crustaceans and insects by swimming through the water with their large mouths open. Snagging uses a heavy-duty fishing pole with a large, three-pronged hook on a line to snag a fish along its body as it swims.

With the change, snagging would be defined in the *Code* as: “Hooking or attempting to hook a fish in a part of the body other than the mouth or jaw by means of a pole, line, and hook. Snagging is characterized by a repeated drawing or jerking motion of the pole, line, and hook or by trolling with an unbaited hook rather than enticement by bait or lure.”

STATEWIDE MINIMUM LENGTH

A proposed regulation amendment establishes a statewide minimum length limit of 32 inches for sport/recreational taking of paddlefish, up from the current minimum length of 24 inches for most areas of the state. The existing minimum length limit of 34 inches will remain in effect for Lake of the Ozarks, Table Rock Lake, Truman Lake, and their tributaries. All paddlefish under the legal minimum length must be returned to the water unharmed immediately after being caught.

Paddlefish can grow to a length of 7 feet and weigh more than 100 pounds. The increased length limit will allow female paddlefish to reach sexual maturity before being harvested. This will help make paddlefish waters more sustainable for natural reproduction and result in larger fish available for harvest.

15 MORE DAYS ADDED TO SEASON

Another proposed regulation amendment adds 15 days to the fall/winter snagging, snaring, or grabbing season for taking fish — except paddlefish — by extending the season end from Jan. 31 to Feb. 15. It also prohibits snagging for all species of fish on Table Rock Lake after taking the daily limit of two paddlefish.



Learn more about paddlefish and related fishing regulations online at short.mdc.mo.gov/Z9B.

The paddlefish snagging season for the state’s major paddlefish snagging waters — Lake of the Ozarks, Truman Lake, and Table Rock Lake — and most other waters in the state remains March 15 through April 30. The paddlefish season for the Mississippi River remains March 15 through May 15 with a fall season of Sept. 15 through Dec. 15.

The proposed amendment extending the fall snagging, snaring, or grabbing season provides additional opportunities for anglers. It also aligns the snagging, snaring, or grabbing season with the season allowing some fish to be taken by gig or atlatl.

COMMERCIAL FISHING SEASON

A proposed amendment establishes a commercial paddlefish fishing season of Nov. 1 through April 15 on the Mississippi River to limit the commercial harvest of paddlefish only during cooler water temperatures. It also sets a minimum length limit of 32 inches for taking paddlefish on the Mississippi River.

The primary justification for the season is to prevent paddlefish mortality. Paddlefish captured in nets during warm-water temperatures (late April through October) are more likely to perish, causing the waste of fish that would have otherwise been harvested and the unnecessary death of paddlefish under the legal length. Establishing a paddlefish commercial season will also better align Missouri regulations with those of other states along the Mississippi River.

To read these proposed regulations in their entirety, visit short.mdc.mo.gov/Z49.

HOLDING THE LINE AGAINST CWD

LIMITING CHRONIC WASTING
DISEASE IN MISSOURI DEER

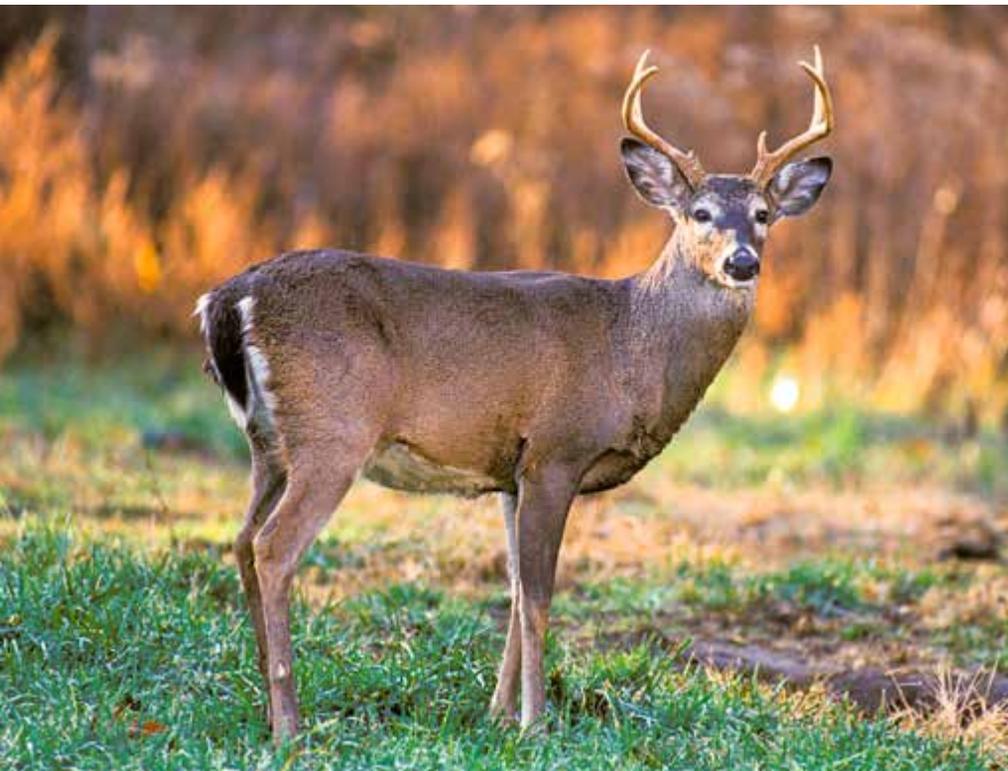
by Bill Graham

CHRONIC WASTING DISEASE (CWD), a fatal illness for white-tailed deer, continues to linger in pockets in Missouri and appear in new places. But detected cases remain limited. An epic nine-year effort by MDC staff, hunters, landowners, taxidermists, locker plants, and other partners has slowed CWD's spread and kept the state's overall deer herd healthy. The disease has been detected in only 18 of the state's 114 counties, and CWD case numbers are limited in counties with detections.



CWD management helps keep
the state's deer herd healthy.

PHOTOGRAPH BY
DAVID STONNER



Missouri's campaign against CWD will continue this fall through the deer hunting seasons and the late winter of 2022. Fortunately, there is evidence that MDC's extensive testing to detect the disease before it is widely established, and reducing deer numbers in an infected area, will keep the state's overall deer herd healthy for wildlife watching and hunting.

"When you compare our deer herd to other states where CWD is widely established, most of our deer are not yet affected by the disease," said Jasmine Batten, MDC wildlife health program supervisor. "But we certainly need to continue to effectively manage CWD because we're not out of the woods yet."

RESEARCH BRINGS NEW HOPES

CWD management will be a long-term process, but biologists and scientists are hopeful that new developments and analysis of gathered data can help.

"We're evaluating our data from the last nine years," Batten said. "We're asking how effective our methods have been, especially post-season targeted culling, to see if there are things we could or should be doing differently going forward."

One of the biggest challenges to CWD research has been limitations in current testing technology. Current testing is reliable but requires the lymph nodes from a dead deer, and standard methods to detect prions in the environment are not readily available. MDC is partnering with University of Missouri (MU) researchers in the College of Engineering and College of Veterinary Medicine Diagnostic Laboratory to develop more efficient methods of detecting prions.

There are two key components to the project. Both involve sophisticated science. One is launching an in-vitro amplification technology called real-time quaking conversion (RT-QuIC), which amplifies prion presence to improve detection. A second path being developed at MU is a novel biosensor device that can detect prions in an entirely new way. These new developments could lead to better access to testing, faster test results for

"We're determined to protect Missouri's white-tailed deer for wildlife watchers and hunters, both for today and the future."

— Sara Parker Pauley,
MDC Director

"We're determined to protect Missouri's white-tailed deer for wildlife watchers and hunters, both for today and the future," said MDC Director Sara Parker Pauley. "Healthy deer signify healthy ecosystems, and deer hunting is important to families for food and family traditions."

Conservation brought Missouri's deer herd back from the brink of extinction starting in the 1930s. Today, deer hunting contributes \$1 billion annually to the state's economy and deer are part of what makes wild Missouri valuable to tourism.

Yet, CWD remains a long-term threat to white-tailed deer. The transmissible brain-degenerative disease is caused by misshapen cell proteins called prions and is fatal to cervids, such as deer and elk. Scientists have learned a lot in the 40 years since CWD was first discovered in wild deer in Colorado; however, there are many mysteries yet to unravel. Researchers are working to discover better ways to prevent, detect, and control the disease, a task difficult because it involves free-roaming wild animals. MDC is contributing to that research.



hunters, and easier and more reliable methods for testing environmental samples and blood or other tissues. Ultimately, testing advancements will give researchers tools to better understand how CWD is spreading in the environment and more efficient controls.

These methods are not yet advanced enough for field use. But there's hope.

MDC is also reaching out to landowners in CWD core areas that are within 2 miles of confirmed CWD detections. A two-year focus group project with landowners will start this year to see how CWD efforts can better serve their needs as well as wildlife.

"We're looking for new and better ways to engage with landowners and help them participate in CWD management," Batten said.

PROACTIVE DETECTION AND PREVENTION

MDC collects samples of deer lymph nodes to test for CWD. If CWD is detected, special regulations for that area are implemented. They include additional deer harvest allowances,

mandatory sampling during the opening weekend of firearms deer season, carcass movement restrictions, and year-round prohibition of feed and minerals for deer that can concentrate them in one area. After hunting seasons conclude, MDC staff and property owners also use targeted culling in core areas to remove potentially infected deer and slow disease spread to new areas. Venison from deer with a "not detected" CWD test result is used by landowners or donated to the Share the Harvest program that provides food for needy families.

Some states with significant CWD cases have not implemented similar practices. Studies in infected states without controls have found a rise in CWD prevalence among deer, more older deer and larger bucks dying from the disease, and sometimes an overall deer population drop. CWD can eventually take a toll on deer numbers and quality of bucks harvested.

"We definitely value where we are in Missouri at this point," Batten said. "Our agency is still committed to limiting the

presence of CWD on the landscape. The majority of our hunters are concerned about CWD and support actions to slow its spread. What we do know is that without intervention, the disease will continue to spread and spread."

MDC has used various monitoring methods throughout the state prior to and after the first CWD detection in free-ranging deer in Macon County in 2012. That includes mandatory sampling of hunter-harvested deer during the first weekend of firearms deer season in CWD management zone counties, voluntary sampling by hunters submitting deer statewide, and tissues provided for testing by partners such as taxidermists and meat processing businesses.

COVID-19 precautions precluded mandatory sampling during the opening weekend of the 2020 firearms deer season. That caused the number of deer tested to drop by 16,000 compared to more than 32,000 during the 2019–2020 surveillance year. But voluntary testing and samples provided by partners still provided a good overview for 2020–2021.

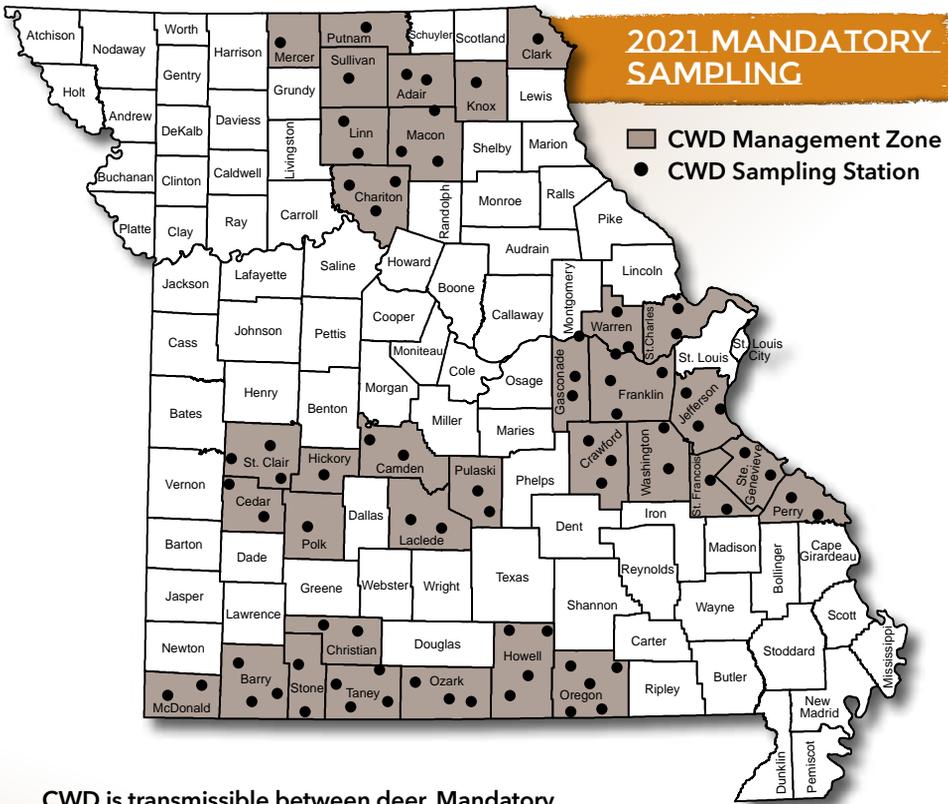
TOTAL MISSOURI CASES BY COUNTY

Cedar	1
Cole	1
Crawford	1
Mercer	1
Pulaski	1
Putnam	2
Perry	3
Stone	4
Taney	4
Polk	8
Jefferson	9
St. Clair	9
Oregon	10
Adair	21
Franklin	24
Linn	25
Ste. Genevieve	35
Macon	47
TOTAL	206



Testing lymph nodes from deer is currently the most reliable way to test for CWD. Hunter cooperation has helped make that effort a success.





CWD is transmissible between deer. Mandatory sampling in areas with detections helps MDC gauge how prevalent the disease is and what management steps are needed to limit the spread.

MDC collected and tested more than 15,300 tissue samples, confirming 44 new cases. Meanwhile, hunters harvested 300,000 deer statewide.

“We’re sustaining our surveillance,” Batten said. “We can’t detect every case. But we are reasonably confident we know where it is in the state. When we do detect the disease in a new area, it is a low prevalence, showing we are detecting the spread early.”

CURRENT DEER SEASONS

Mandatory sampling will resume for hunters who harvest deer from the CWD management zone on Nov. 13–14 the opening weekend of the fall firearms deer season. MDC is monitoring the COVID-19 surge in the state and contingency plans are in place if health precautions prompt changes. Management zones include counties where CWD has been detected and counties within 10 miles of a detection site.

Currently, hunters who harvest a deer Nov. 13–14 in the CWD management zone must take the deer to one of the MDC sampling stations on the





day of the harvest. MDC will notify the public if COVID-19 health precautions prompt a change. Management zones cover 34 counties in the north central, east central, west central, and southwest corners of the state. Hunters can later find out for free if the deer tested positive or negative for CWD. Science has found no cases of transfer of CWD from deer to people, but as a precaution, the Centers for Disease Control recommends that hunters in areas known to have CWD test their deer and that people not eat meat from an animal that tests positive for the disease.

Voluntary sampling is also available for deer harvested during other firearm, archery, youth, and alternative methods hunting seasons. Hunters harvesting a deer from a CWD management zone county are encouraged to do voluntary testing. Testing opportunities include partnering taxidermists and meat processors, designated MDC offices, and self-serve freezers where hunters can leave deer heads.

STATEWIDE TEAM EFFORT

MDC coordinates CWD management in Missouri. But partners such as landowners are essential to success.

“We are so grateful for all their help,” Pauley said. “They’ve made it possible to limit CWD and protect deer for the future.”

Special deer hunting regulations for CWD are designed to help control the disease in the state’s deer herd, and they’re doing that, Batten said.

“But we’re especially grateful for the partnerships with hunters, taxidermists, landowners, and others to help fight this disease,” she said. “We’re really in this for the long haul, and there are a lot of people working on it.” ▲

Bill Graham is the MDC media specialist for the Kansas City and Northwest regions. He’s a lifelong hunter, angler, and camper. He also enjoys hiking and photographing Missouri’s best wild places.

Important CWD Info for Deer Hunters

- Mandatory sampling is required for deer harvested Nov. 13-14 from CWD management zone counties. The sampling must be done on the day of harvest at an MDC sampling station.
- Voluntary CWD sampling is available for deer harvested by hunters throughout the various deer hunting seasons.
- Whole carcasses, heads, and certain other parts of a deer harvested in a CWD management zone can be removed from the county of harvest only if they are delivered within 48 hours to a licensed taxidermist or meat processor. The exception is that deer harvested during the mandatory sampling period Nov. 13-14 are taken to an MDC sampling station. This restriction is designed to limit accidental movement of CWD from one region of the state to another via carcass transport.
- CWD test results for hunter-harvested and sampled deer will be available online at mdc.mo.gov/cwdtestresults. Results time may vary, but results are typically available within three weeks from the time samples are submitted to MDC.
- The use of grain, salt products, minerals, and other consumable products to attract deer is prohibited year-round within CWD management zone counties.
- Deer harvested in CWD management zone counties may be donated to Share the Harvest only if they are tested for CWD and taken to a processor participating in the CWD Share the Harvest testing program.
- For more information, visit mdc.mo.gov/cwd.





Pelicans in flight are reminiscent
of prehistoric flying reptiles.



Missouri's Visiting **PELICANS**

PHOTOGRAPHS, OBSERVATIONS,
AND REMINISCENCES

story and photographs by Danny Brown

It was still dark when I unloaded my camera gear at B.K. Leach Memorial Conservation Area (CA) on a cold October morning in Lincoln County. My friend Bill Fritz was already glassing the north end of Pool 8, a wetland about a half-mile away.

"I see them," Bill whispered.

"How can you see them; it's pitch dark?" I asked. "Trust me," he said, "They're there."

Earlier in the week, I had learned from my friends Andrew Reago and Christina McClarren that up to 10,000 American white pelicans had been roosting each evening at Leach CA. Andy and Chrissy are a preeminent St. Louis birding duo, so I knew the tip was golden. Although I had photographed Missouri's migrating white pelicans before, I couldn't resist an opportunity to witness such an aggregation of one of the largest birds in North America.

When Bill and I settled into our hide near the wetland, it was an hour before sunrise. The waiting would be easy as the sky was full of stars and an unexpected meteor shower was underway. Although we were confident the pelicans were roosting on the shallow pool, we couldn't make them out in the dark or hear a sound. I told Bill all I could see was a triangle of land out in the water. My confidence waning, I suspected we'd been shut out, but Bill insisted he had seen the pelicans earlier under the light of the setting moon. Finally, I saw movement, a wing flap perhaps, then another. A moment later, we could hardly control our excitement as we realized the triangle of land was instead a mirage emanating from countless American white pelicans.

Our hide was facing east, directly into the warm glow of the burgeoning sunrise. It wasn't long before we could make out individual pelicans preening and squabbling, their typical morning routine. Soon most of them would depart for breakfast in nearby pools and sloughs packed with forage fish from a Mississippi River flood earlier in the year.



^ Roosting pelicans at sunrise at B.K. Leach Memorial Conservation Area.

Pelicans in silhouette against the morning sky.

I began photographing the pelicans as they stirred to life, already wishing I had opted for a hide on the east side of the wetland with the sun behind me. My regret was short-lived as small groups of pelicans began to rise from the wetland in stunning silhouette against the orange sky. I didn't know how long the opportunity would last so I frantically twisted my camera loose from my 500 mm lens, locked it onto a wider 300 mm lens, and continued shooting as more and more pelicans rose into the radiance, each silhouette kinetic and unique.



Natural History

The American white pelican (*Pelecanus erythrorhynchos*), with its 9-foot wingspan, yellow-orange pouted bill, and bright orange legs and feet, is a massive and striking bird, especially when aloft. Clad in white with black wing tips and a neck that is permanently fixed in an S-shape, pelicans in flight are reminiscent of prehistoric flying reptiles. Breeding adults are even more impressive as they display a patch of yellow feathers on their chests and grow a vertical plate near the end of their bills that distinguishes them during the courtship season.

Pelicans are more graceful in flight than on the ground. After a fair amount of stomping and wing flapping, they take flight and join others to form a squadron that ascends in spirals, wings flashing brilliantly in the sky, a shimmering waltz of white on blue. The sight

of pelicans aloft is so captivating that travelers often pull off onto the shoulder to revel in the elegant spectacle.

Although pelicans are gregarious, rarely spotted alone, they aren't as noisy as other birds. During skirmishes for prey or the perfect loafing spot, pelicans sometimes open their bills widely in protest, only to emit a grunt similar to that of a great blue heron but more resonant than raspy. Most of the sound coming from a large group of pelicans is from wing flapping, an apparent communication technique.

The pelicans that visit Missouri each year breed in summer in Canada and several northern states. They typically nest on the ground, often on islands of remote lakes, and feed in shallow lakes, rivers, and marshes. I envy northern anglers who have stumbled across a group, or crèche, of orange pelican chicks from different nests. At the end of the

breeding season, pelicans migrate south through the Great Plains and along the Mississippi River to their wintering grounds along the Gulf Coast. Many of them stop in Missouri along the way.

During their spring and fall migrations, pelicans visit Missouri's reservoirs, large rivers, and wetlands where they feed and rest. Historically, pelican viewing in Missouri was mostly in the western part of the state, but over the past couple decades, pelicans have become much more common along the Mississippi River in eastern Missouri. I've found the best months to view pelicans are March and April in spring, and September and October in fall. Don't be surprised to find pelicans later in winter in Missouri though, especially on ice-free, flowing rivers where fish can be captured. I've photographed pelicans fishing the Mississippi River on bitterly cold January days.

Feeding

Feeding behavior of American white pelicans is as fascinating as their aerial displays. Unlike the brown pelican, a coastal species that dives for its food, white pelicans scoop fish from the water, sometimes tipping their heads down and tails up like a dabbling duck. The white pelican's diet consists mostly of minnows, shad, carp, catfish, and other fish but they are known to consume salamanders and crayfish when the opportunity arises.

Pelicans feed mostly by sight during the day, but they sometimes feed at night, using their bills to feel for prey. Typically, an individual floats in place, staring intently into the water until it spies a fish near the surface. Next, the pelican drops its pouched bill like a fish net into the water and bursts forward, catching its prey. The upper mandible of the white pelican's bill is equipped with a hook to aid in retention of its catch.

Pelicans often employ group feeding behavior by forming a semicircle, closing in on their prey, and herding them into shallow water or a cove where they are captured.

During the process, pelicans use a technique referred to as "synchronous feeding" as they simultaneously drop their bills into the water over and over as they close on their quarry. Once a fish is scooped up by an individual, the coordinated approach of the group breaks down as other pelicans move in to steal the prize. I'm often reminded of barnyard chickens as I watch pelicans tussle for a fish.

Pelicans consume about 3 pounds of fish a day, often in several meals of smaller fish but not always. Several years ago, I was photographing waterfowl on a January morning along the Upper Mississippi Conservation Area in St. Charles County when a pod of pelicans swam into the cove near my hide.

It was so cold I could see chunks of ice on their backs from previous feeding maneuvers. To my surprise, their quarry that morning turned out to be nonnative invasive carp, specifically 3- to 4-pound silver carp.

I watched as the pelicans formed a semicircle and started moving toward the shoreline, their bills partially submerged in the water. At first, I assumed they were corralling shad, but I was wrong. As the pelicans closed on the bank, an individual drew its bill from the water with its catch, an invasive carp so large that its tail end protruded from the pelican's pouch. I was astounded!

Often pelicans swim around for several minutes as they struggle to completely swallow their oversized catches.



Breakfast time! Once fish are corralled, all civility and order break down.

As the feeding frenzy continued, I observed another individual trying to swallow a large fish. When it raised its bill to the sky and swallowed, the fish's tail still bulged against the wall of the pelican's pouch. When the pod finally broke ranks and began leaving the cove, several others were in the same predicament, still attempting to swallow their catches, pouches grotesquely contorted by the tail ends of their prey.

Whether the increasing number of visiting pelicans to eastern Missouri is related to the unintended introduction of nonnative invasive carp into the Mississippi River is a subject of discussion among biologists and river scientists. Regardless, it was heartwarming to see native pelicans doing their part to control an invasive fish species.

The morning after Bill and I observed the roosting pelicans, I was back at the wetland pool again but on the opposite shore with the sun behind me. I waited for daylight in my turkey hunting chair, my tripod and 500 mm lens draped over my lap. Even though I couldn't hear a sound, I knew the pelicans were present, already stirring and preening. When the sun finally came, it cast a golden glow on the tightly packed birds, a scene I'll never forget. I watched as they started their day, flapping their wings, snapping their bills, and making false starts into the sky, sociable as always but ever-so-quiet.

American white pelicans are as compelling as trumpeter swans, or even bald eagles, and are revered by many Missourians. I doubt a young boy or girl could forget the sight of a pelican scooping a huge fish from a Missouri lake or river, water cascading from its pouch. Pelicans are not only important to a balanced aquatic ecosystem; they are grand ambassadors of the natural world.

Conservation Status of American White Pelicans

According to the North American Breeding Bird Survey, American white pelicans were in decline during the first half of the 1900s, but their numbers have significantly rebounded. The Cornell Lab of Ornithology lists



Heading off to breakfast at B.K. Leach Memorial CA.

historical threats to pelicans as human disturbance and destruction of breeding grounds, and illegal shooting due to concern that pelicans compete for fish with humans. These threats have been reduced by better habitat management and education about their life history. American white pelicans are considered of low conservation concern.

Finding Pelicans

I hope by the time you've read this you are eager to get out and see some American white pelicans yourself. Following is a list of suggested viewing locations:

1. Loess Bluffs National Wildlife Refuge
2. Big Lake State Park
3. Riverlands Environmental Demonstration Area
4. Schell-Osage Conservation Area
5. Swan Lake National Wildlife Refuge
6. Stockton Lake
7. Mark Twain Lake
8. Truman Lake
9. Eagle Bluffs Conservation Area



Danny Brown is a freelance wildlife photographer and writer. He and his wife, Joyce, live on a farm in Union.



Fish Float all color

EXPERIENCE FALL BY FLOATING AND FISHING
YOUR WAY DOWN AN OZARK STREAM

by Tim Kjellesvik | photographs by Scott Heminger

A new breathtaking view awaits the
author beyond every bend!





ay “going for a float” anywhere else in our nation, and folks will think you’re heading out for ice cream. Missouri invented the float. It’s part of our shared language. Sure, you can paddle downriver in any of the other 49 states, but suspended upon the surface of our clear blue Ozark streams, we perfected it.

Our sacred Missouri birthright has an even higher state of perfection, floating in the fall, far removed from the throngs who enjoy it during the longest and hottest days of the year. A float in the fall is like a ticker-tape parade of fiery oranges and star-bright yellows thrown just for you and your companions.

And the fishing is out of this world, too.

Heading Out

Fog concealed the morning sun as the bow of my canoe parted the glassy surface of the upper Meramec River just upstream from where the spring branch tumbles into a brooding pool of deep water. Against the mossy depths, the crimson-tinged silver of rainbow trout sparked sporadically like fireflies over a summertime field. A damp chill, the kind so subtle you know it’s temporary, eased through the bulk of my sweater and waders.

It’s a mid-October Sunday morning and with 7 river miles ahead of me, I’m torn between getting underway or stopping to fish. The fly rod won that toss-up. First, a dry fly with a dropper. Then after three short strikes, a Cerise worm under an indicator, inelegant but effective. The hookups were immediate and feisty. Five rainbows later and the nagging of my canoe, half beached on the gravelly shore, loaded with personal flotation devices, paddle, and a dry bag of supplies and extra clothes, won back my attention.

The fish were complements of my friend Damon Spurgeon who I had spoken with about this fall fishing float adventure. Damon knows these Ozark streams like the back of his hands. He graciously set me up with his favorite flies for this trip. The

boat was courtesy of another friend, long-time outdoor writer Bill Cooper, who lives nearby and never misses an opportunity to head downhill toward water. Finally, Scott Heminger, yet another friend and professional photographer, volunteered to come along and document the journey down a Red Ribbon Trout Management section of the Meramec concluding at Scott’s Ford.

These expert outdoor enthusiasts were eager to collaborate on the trip because they know the all-too-often-overlooked magic of floating through the autumn colors of Missouri with a fishing rod in hand.

The River Is All Yours

While much of the civilized world is visiting apple orchards and sipping pumpkin-flavored anything, our incredible streams quietly undergo a transformation. All along their

corridors, bottomland trees begin reabsorbing chlorophyll from their leaves, making visible carotenoids that show yellow and orange and anthocyanins that display red. Turtles take their

last few basks in the sun before burying themselves into the stream bed for the winter. Previously elusive whitetail bucks begin covering more ground looking for does to breed. It’s a busy time near the water, with one exception: people.

With the bow of our canoe pointed downstream again, the boat glided over agitated rocky riffles. Those riffles gave way to deeper pools, which then transitioned into sandy shoals.

Trout-shaped shadows darted to the left and right, spooked by the rare boat traffic.

Save for three other fishermen and some hunters enjoying a riverside fall turkey camp, the water was ours. Two months earlier it would have been a different story, but for some reason, the world seems to forget about floating when cooler temperatures arrive and the days shorten. Somewhere high overhead, beyond the dissipating fog of morning, migrating snow geese called out to one another, punctuating the sounds of our dipping paddles.



Guide Damon Spurgeon stalks for hungry trout on the upper Meramec.



The river bottom woods reveal their true colors in fall. Be there to enjoy them!

Fish On!

A series of downed trees lay downstream of Dry Fork, their massive rootwads displacing the gravelly bottom, forming deep green watery depressions for big fish. This time, instead of a fly rod, I reached for a light-action spinning rod spooled with 4-pound-test monofilament and tied on a silver spoon to get down deep.

One under-handed flip and the spoon fluttered down into the roiling darkness, instigating a visible, yet short strike from a rainbow. On the second toss, the spoon descended again, but this time the trout didn't miss, nor did I.

Floating in the fall not only ensures less people traffic, but it also puts you on the water at a time when the fish are packing on weight for the long winter ahead. Much like the mad dash to the bread and dairy shelves at a grocery store when the word "snow" is uttered by the local meteorologist, trout are doing much the same, as are warm water species like smallmouth and catfish.

Keep your tackle loadout simple for a float trip, as your canoe can get cluttered with gear in short order. Damon's favorite flies and baits for this time of year are as follows:

Flies:

- Olive Woolly Buzzer size 8-10
- Rainbow Warrior size 16-18
- Pink Cerise Worm size 10-12

Baits:

- Rapala #5 Floating Rainbow Pattern
- Rooster Tail
- 1/32 oz Black & Gold Marabou Jig

Present those flies on a 4- or 5-weight rod. If you're slinging a spinning rig, consider a light action rod spooled with 2- to 6-pound test line.



This rainbow trout couldn't resist the falling flutter of a well-placed silver spoon.





The right gear and the right tackle will make the most of your time on the water.

Getting the Right Gear

Four river miles in, near Richart Springs, two juvenile bald eagles dropped from their stark white perches in a sycamore then spread their mottled wings to glide silently farther downstream. The noon sun shone unobstructed now in the sky, transforming the previously chilly day into a warm one. I paused my paddling and shed a layer to keep from sweating.

Fall floats pose a challenge due to the potential for wide fluctuations in air temperature throughout the day and the guaranteed cold water. If you plan on getting out to fish, waders are a must, with breathable waders being the best option. Layer with Merino wool base components that wick sweat and retain insulative value even if they get wet. Add a thermal layer like fleece pants for bottoms and a sweater as a top, then pack a windproof jacket to ensure you're comfortable and can adapt as the weather changes.

Bring a change of clothes in a dry bag just in case you tip. Getting wet in the fall isn't much fun and could put you at risk of hypothermia.

DON'T LEAVE HOME WITHOUT

- Charged cell phone
- River map
- Personal flotation devices for every boater
- Spare paddle
- Fishing license and identification
- Polarized sunglasses
- Brimmed hat
- Lighter
- Dry bag
- Change of clothes
- Garbage bag (for collecting your trash and any you may find along the way)
- Gloves
- First aid kit
- An itinerary filed with a friend or family member

A "Really Good" Conclusion

Our canoe slipped silently past looming dolomite bluffs as the river widened, deepened, and slowed. Pickup truck-sized chunks that had long ago broken away and tumbled into the river lay steadfast on the river bed unmoved by the current. I wondered what spectacle it might have been to witness such a massive separation when they broke away.

Admittedly, the conundrum faced by anyone float fishing their way down a fall stream in Missouri is the struggle between stopping to fish and making miles to reach your destination. Bill was running our shuttle, and we told him we'd meet him at Scott's Ford at 2:00 pm. As a result, we passed over a great number of fish without tempting them. Our time on the river was drawing to a close, and with slower current and significant headwind, we focused on solid digs with our paddles.

Nearing the end of our journey, a dog began barking ahead of us, chest deep in water at the head of a gravel bar where its owner sat enjoying the scenery in a camp chair next to her car. The dog continued barking and pacing until we reached the beach when he came closer, ostensibly inviting us to play.

I dipped my paddle as salutation at the woman in the chair and asked, "How ya doing?"

"Really good."

It's hard to have a bad day on the river. In fact, with the brilliant pallet of colors splashed across the landscape, balmy temperatures, hungry trout, and the tranquility of large stretches of water to yourself, it was indeed "really good."

Minutes later, the bow of the canoe nudged into sandy shore just upstream of the low water bridge at Scott's Ford where Bill Cooper had been waiting to shuttle us back to our vehicle.

"How was it boys?"

"Really good," we replied.

It was an understated response, but being a fellow Missourian who knows first-hand the magic of our streams, he understood implicitly. We never did keep an accurate count of the fish we caught, but it was enough. The entire float was perfection.

Taking the time for a recreational excursion like this doesn't always take top billing in our busy lives. But consider the meaning of the word "recreation." You are re-created. Made new again. Both were absolutely true for us.

In fact, the words I'm using to relay our journey simply don't do it justice. The only way you can truly discover the beauty of an autumn fishing float down one of our state's waterways is to go experience it for yourself! ▲

Tim Kjellesvik is the editor-in-chief of DeerCast and is on a mission to help more people enjoy the outdoors.



The author enjoys the fight from a feisty rainbow. Fish are bulking up at this time of year and ready to bite!

Leave the river in better condition than you found it and protect wildlife by picking up trash.

Get Outside

in **OCTOBER**



→ Ways to connect with nature

Road Trip!

Time to hit the road and get front-row seats to a spectacular show — Missouri's fall colors! The peak of fall color can be difficult to predict but is usually around mid-October. That's when sugar maples, flowering dogwoods, sweet gums, and white oaks are on full display. The progression of color change starts in north Missouri and moves southward across the state. You can enjoy the color just about anywhere, but here are some tips:

- For spectacular vistas, choose routes along rivers with views of forested bluffs, and along ridges with sweeping scenes of forested landscapes.
- On a smaller scale, drive on back roads, hike, or take a float trip under a colorful forest canopy on a clear, blue-sky day.
- Staying local? Enjoy places with mature trees, such as older neighborhoods, parks, and even cemeteries.

Guess Who's Back

Dark-eyed juncos! These snowbirds, as they are often called, arrive from Canada. Their arrival heralds the change of season and their energetic feeding throughout the winter is a joy to watch.



Dark-eyed junco

Natural Events to See This Month

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



Crayfish breed in the fall



Muskies are active



Ringed salamanders breed

VIRTUAL

Native Plants

Thursday • Oct. 21 • 12-1 p.m.

Virtual event at Anita B. Gorman Conservation Discovery Center, 4750 Troost Ave., Kansas City, MO 64110.

Registration required at the Deep Roots website at deeproots.org/native-plants-at-noon

Virtually tour the native landscape at MDC's Anita B. Gorman Conservation Discovery Center. Guided by native landscape specialists Alix Daniel and Cydney Ross, this monthly series features a live look at native plants of interest throughout the year. This program is a partnership with Deep Roots.

A Mushroom of a Different Color

In Missouri's oak woods, large numbers of purple-gilled laccaria can often be found in the fall. Though it isn't a choice edible, it's pretty good when combined with other mushrooms or strong flavors. If you don't delight in eating it, even casual naturalists can appreciate seeing this beautiful lavender mushroom. See a picture at short.mdc.mo.gov/ZjF. For help identifying mushrooms, check out *A Guide to Missouri's Edible and Poisonous Mushrooms* at short.mdc.mo.gov/ZYM.



Purple-gilled laccaria

PURPLE-GILLED LACCARIA: DAVID BRUNS



Beavers are active during the day



Fox families disperse



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Places to Go

SOUTHWEST REGION

Shawnee Trail Conservation Area

Historic crossroads returns to prairie

by Larry Archer

✘ Once a crossroads for the migration of Native American tribes, settlers moving to the southwest, and cattle drives heading from Texas to railheads in Missouri, Shawnee Trail Conservation Area (CA) is now more likely to be the crossroads of hunters, anglers, and birders.

Located on 3,635 acres in southwest Missouri's Barton County, Shawnee Trail CA is undergoing a decades-long transformation from farmland to prairie, said Shawnee Trail CA Manager Nick Burrell.

"It was mostly farmed ground when MDC got it," Burrell said. "And then in the last 20 years, it's been slowly replanted into prairie reconstruction."

With roughly half of the area returned to some level of grassland or prairie, wildlife has responded, making Shawnee Trail a great place for hunting, especially deer, turkey, quail, and small game, or for birding, including many grassland species.

The area's several small lakes and ponds, many the remnants of early 20th century strip mining, also provide opportunities for kayaking, fishing, and waterfowl hunting, he said.

"It has nine marshes on it — small marshes," he said. "They total up to 40 acres. We manage those to create some waterfowl and wading bird habitat every year. And at times, there's a lot of waterfowl."



"We also try to plant dove fields every year. We used to do wheat, but now we try to do some sunflowers every year. That's always a pretty big draw."

**—Shawnee Trail CA Manager
Nick Burrell**

DAVID STONNER



A monarch takes advantage of a fall-blooming sawtooth sunflower. Sumac and goldenrod also add color to the landscape (inset).



SHAWNEE TRAIL CONSERVATION AREA

consists of 3,635 acres in Barton County. From Mindenmines take Highway 160 east, then Route M south 1 mile to the area.

37.4351, -94.5705

short.mdc.mo.gov/ZDM 417-895-6880

WHAT TO DO WHEN YOU VISIT

-  **Birdwatching** Included in the National Audubon Society's Western Cherokee Prairies Important Bird Area (short.mdc.mo.gov/ZDg). Included in the Great Missouri Birding Trail (short.mdc.mo.gov/ZDY). The eBird list of birds recorded at Shawnee Trail CA is available at short.mdc.mo.gov/ZDf.
-  **Camping** Individual campsites.
-  **Field Trials** Special use permit required.
-  **Fishing** Black bass, catfish, sunfish.
-  **Hunting Deer and turkey** Deer and turkey regulations are subject to annual change. Please refer to the Spring Turkey and Fall Deer and Turkey booklets for current regulations. Also **dove, quail, rabbit, and squirrel**
-  **Trapping** Special use permit required.
-  **Waterfowl Hunting** Open hunting. Waterfowl regulations are subject to annual change, so check the *Migratory Bird and Waterfowl Hunting Digest 2021-2022* for current regulations.

WHAT TO LOOK FOR WHEN YOU VISIT



Blue-winged teal



Wilson's snipe



Short-eared owl



Northern bobwhite



Ground Crab Spiders

Xysticus spp.

Status	Size	Distribution
Abundant	Females: ¼ to ¾ inch; males about ⅛ inch	Statewide



Aptly named, crab spiders generally resemble their namesake crabs. Their legs extend outward from the sides, and they can walk in any direction. There are several species of crab spiders in the genus *Xysticus* in Missouri. Larger than flower crab spiders, they are usually dull gray and brown and have brown, rusty, tan, white, or yellow markings, especially on the abdomen, and they often have a midstripe on top of the head. The first pair of legs are large and powerful and covered with many tiny spines.



ECOSYSTEM CONNECTIONS

Crab spiders serve as natural, nontoxic pest exterminators, helping to control insect populations. Being small themselves, they easily fall prey to larger predators, such as birds, reptiles, and mammals.



LIFE CYCLE

Crab spiders hatch from eggs in spring and spend the growing season eating, maturing, and laying eggs. Females continue creating egg cases as long as the weather holds out. As temperatures cool in fall, their metabolism slows, and they generally die when it freezes. Egg cases overwinter, and spiderlings hatch in spring.



FOODS

Crab spiders capture prey — insects and other spiders — by sitting and waiting for a passerby. Then, they simply grab it and bite.

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 22, 2021–Feb. 28, 2022

Bullfrogs, Green Frogs

June 30 at sunset–Oct. 31, 2021

Nongame Fish Gigging

Streams and Impounded Waters,
sunrise to midnight:
Sept. 15, 2021–Feb. 15, 2022

Paddlefish

On the Mississippi River:
Sept. 15–Dec. 15, 2021

Trout Parks

Catch-and-Keep:
March 1–Oct. 31, 2021

Catch-and-Release:
Nov. 12, 2021–Feb. 14, 2022

TRAPPING

Beaver, Nutria

Nov. 15, 2021–March 31, 2022

Other Furbearers

Nov. 15, 2021–Jan. 31, 2022

Otters, Muskrats

Nov. 15, 2021–Feb. 20, 2022

Rabbits

Nov. 15, 2021–Jan. 31, 2022

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

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

HUNTING

New Black Bear Hunting Season

MDC will offer Missourians the state's first black bear-hunting season in modern history starting this fall. Learn more at short.mdc.mo.gov/ZrK.



Black Bear*

Oct. 18–27, 2021

Bullfrogs, Green Frogs

June 30 at sunset–Oct. 31, 2021

Coyote

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

Open all year

Crow

Nov. 1, 2021–March 3, 2022

Deer

Archery:
Sept. 15–Nov. 12, 2021
Nov. 24, 2021–Jan. 15, 2022

Firearms:

- ▶ Early Youth Portion (ages 6–15):
Oct. 30–31, 2021
- ▶ November Portion:
Nov. 13–23, 2021
- ▶ Late Youth Portion (ages 6–15):
Nov. 26–28, 2021
- ▶ Antlerless Portion (open areas only):
Dec. 4–12, 2021
- ▶ Alternative Methods Portion:
Dec. 25, 2021–Jan. 4, 2022

Dove

Sept. 1–Nov. 29, 2021

Elk*

Archery:
Oct. 16–24, 2021

Firearms:
Dec. 11–19, 2021

Groundhog (woodchuck)

May 10–Dec. 15, 2021

Other Furbearers

Nov. 15, 2021–Jan. 31, 2022

Pheasant

Youth (ages 6–15):
Oct. 30–31, 2021

Regular:
Nov. 1, 2021–Jan. 15, 2022

Quail

Youth (ages 6–15):
Oct. 30–31, 2021

Regular:
Nov. 1, 2021–Jan. 15, 2022

Rabbit

Oct. 1, 2021–Feb. 15, 2022

Sora, Virginia Rails

Sept. 1–Nov. 9, 2021

Squirrel

May 22, 2021–Feb. 15, 2022

Turkey

Archery:
Sept. 15–Nov. 12, 2021
Nov. 24, 2021–Jan. 15, 2022

Firearms:
▶ Fall: Oct. 1–31, 2021

Waterfowl

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

Wilson's (Common) Snipe

Sept. 1–Dec. 16, 2021

Woodcock

Oct. 15–Nov. 28, 2021



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October is alive with color — from beautiful wildflowers still dotting the landscape to the vibrant yellows, oranges, and reds sweeping across treetops. This rough greensnake is exploring some fall foliage. What will you discover when you get out this fall?

📷 by **Noppadol Paothong**