Missouri Conservationist

VOLUME 75, ISSUE 8, AUGUST 2014 • SERVING NATURE & YOU

[NOTE TO OUR READERS]

Adventure and Responsibility

The early morning was cool and overcast with a mist rising through the trees, and my fishing buddies and I could hear the Vermillion River gurgling in the distance. The three of us spent most of our free time fishing and hunting, depending on the time of year. This day was no different than many others; we were off on another outdoor adventure.

This adventure had us pursuing channel catfish in the Vermillion River, whose watershed was composed of pasture and cropland. What made the Vermillion a rarity was its rock- and boulder-strewn riverbed. The adventure began well before the actual fishing. Our fishing success relied heavily on the bait we used and involved making homemade "stink bait."

We began by visiting grocery stores and begging or buying cheese that had become too old to sell; we liked the strong cheddars or other potent cheeses best. We placed the cheese in an old bucket with an airtight lid and set it in the sun to age and ripen. The night before the fishing trip, we would combine the cheese with cornstarch, American soap flakes, and garlic. This potent concoction was then mixed by hand, formed into softball-sized lumps, and placed into plastic bags. As you might expect, our friends and parents were not impressed with the residual smell that could not be washed off our hands.

As we waded into the river that misty morning, it took a while to become acclimated to the water because we wore tennis shoes and blue jeans instead of "honest-to-gosh" real waders.

The object was to find a riffle behind a rock, roll a gob of bait onto a treble hook, then toss out the line in the riffle downstream of the rock. We soon developed the ability to judge the amount of split shot needed above the hook to ensure that the bait suspended properly to melt off and entice the channel catfish to strike.

More often than not, these outdoor adventures yielded tasty fish for meals enjoyed by our friends and families. Funny, when eating these morsels, they no longer noticed the aromas emanating from our clean but smelly hands.

Outdoor adventures like these had a great influence on me. They molded me early in life and encouraged me to consider a conservation career. Now, 39 years later, the adventure and responsibility continues. As most of my colleagues will agree, a career in conservation is not a job, it's a vocation and a way of life. If successful, our efforts will ensure future generations have access to a wide variety of outdoor adventures.

Today, the world is a much smaller place. People, plants, and animals travel or are moved across the globe at an incredible pace. This mobility increases the risk of movement of diseases and invasive species, which can and do impact native forest, fish, and wildlife resources. Missouri is at a crossroads and citizens have many important issues before them. Thousand Cankers Disease is a serious threat to black walnut trees, White-Nose Syndrome may significantly affect bats in our state's cave systems, and Chronic Wasting Disease (CWD) has the potential to decimate Missouri's valuable white-tailed deer herd. (Please refer to Page 7 for additional information on CWD.)

Channel catfish

DAVID STONNER

The Department of Conservation is working hard to minimize and reduce risks posed by each of these threats. In order to protect Missouri's deer herd, the Department has proposed common sense *Wildlife Code* changes to ensure the continued health of this valuable cultural resource. Multiple venues such as email, social media, or direct mail can all help facilitate citizen involvement. Citizens can provide input by speaking directly to a Department representative, filling out a comment card available at any Department office and in this edition of the *Conservationist*, or by sharing their comments online at ***mdc.mo.gov/deerhealth***.

Many Missourians have had special adventures like mine, whether fishing or observing and pursuing other species. Given the serious threats we face, it will take a concerted effort by all of us to find the balance to ensure those adventures continue for Missourians, both today and tomorrow.

Tom Draper, deputy director

FEATURES

10 **Line Up for a Good Time**
by Mike Bayless, photographs by Noppadol Paothong
Limb lines, jug lines, trotlines, throwlines, and bank lines add variety and excitement to catfishing.

18 **Flora and Folklore**
by Gladys J. Richter
With names that describe healing properties, point to common uses, or tell fanciful stories, Missouri wildflowers bloom with a rich heritage.

26 **Tiny Hitchers**
by Eric R. Eaton
Pseudoscorpions get around in an unusual way.

Cover: Spiderwort blooms at the Wildcat Glade Conservation Area near Joplin, by Noppadol Paothong. Read about this and other Missouri wildflowers' folklore, starting on Page 18.
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WHAT IS IT?

Our photographers have been busy exploring the intricacies of the Missouri outdoors. See if you can guess this month's natural wonder. The answer is revealed on Page 7.

NOPPADOL PAOTHONG

[LETTERS] *Submissions reflect readers' opinions and might be edited for length and clarity.*

Citizens are Key

I read your article *Missouri Citizens are Key to Deer Management Success* in the June issue. The article confirms my suspicions about deer densities. I live in St. Louis County and see deer here all the time. I also own 20 acres in rural Warren County that I visit twice a week and have not seen a deer or deer tracks there in three years.

Jim Smith, via Internet

Mystery Turtle

As a long-time subscriber to the *Missouri Conservationist*, I always enjoy the identification of birds and animals found within our state. However, on Page 18 of the June issue, I could not find any identification of the turtle being held. Could you help me out?

Dreanna Vallina

Ombudsman's Note: The turtle pictured is a common snapping turtle. Learn more about them at mdc.mo.gov/node/3177 *—Tim E. Smith*

A Frog and a Smile

I really enjoy your very fine magazine with all the informative articles. The photography is top notch, but the photo of the young boy with the bullfrog on Page 33 [Discover Nature] of the July issue is "Blue Ribbon." The grin on that kid's face tells it all. Oh, does that bring back memories!

Mike Moore, Warsaw

Cartoon Moon Flip

Regarding the July Chmielniak cartoon [Page 4], the upward-facing crescent moon is not possible during the night as it is depicted in the illustration. The sun would have to be above the moon, and it would thus be daytime. This is not an uncommon mistake for illustrators and graphic artists, but since this is a nature magazine I am calling you on the minor error. Having said that, I still enjoy the cartoon and the magazine and have for many years. Keep looking up!

Grant Miller
NASA/JPL Solar System Ambassador volunteer
AstronomyGuy on Twitter & Facebook, Warrensburg

Friendly Fliers

Nice article on emerald dragonflies in the magazine [*Emeralds of the Ozarks*; July]. I'll add one more touch: We think they're friendly! It's nothing unusual to be sitting in the Current River or in a canoe and have one of those iridescent lovelies land on your knee or a cap bill and be satisfied to sit and watch you for as long as you'd like to sit and watch them. Always thinking of leaving nature unharmed when we are enjoying the outdoors, we're content to let them be and see how long they will keep us company.

Mark Ridgway, via Facebook

Managed Hunt Info

I'm new to Missouri and trying to apply for a managed hunt. Is there a convenient way to determine all managed hunts that are in my area?

Clint Rhodes, via Facebook

Conservation Department: You can find a listing of managed hunts in our 2014 Fall Deer and Turkey Hunting Regulations and Information *booklet, available on our Hunting/Trapping page at* mdc.mo.gov/node/88 *or anywhere that hunting and fishing permits are sold.*

Pond Help

What do I do with a pond covered with algae?

Jim Kennedy, via Facebook

Conservation Department: Here's a link to a document that provides advice on algae control: http://go.usa.gov/8GrH.

Correction

In the July issue of the *Conservationist*, Page 7, in *Conservation Commission Actions*, the second bullet point from the bottom says, "Approved the advertisement and sale of estimated 939,003 million board feet of timber on 331 acres on Compartment 14 of Indian Trail CA in Dent County." The word "million" should be have been deleted from that sentence.

Reader Photo Orchids

Carol Messersmith captured this photo of crested coral root orchids on her property in Rocky Mount, Missouri. "I noticed the orchid as I was taking a walk," said Messersmith. "It was along our roadside, under a cedar tree. It was a mystery plant for weeks. We consulted a number of books and asked everyone we know what they thought, but it wasn't until we sent the photo to [Morgan County] Conservation Agent Matt Smith that we learned its identity." Messersmith said she has been an avid photographer for most of her life. "The majority of my photos are taken on and around our property," she said, "but, of course, my camera is with me wherever I go."

DEPARTMENT HEADQUARTERS

Phone: 573-751-4115
Address: PO Box 180,
Jefferson City 65102-0180

REGIONAL OFFICES

Southeast/Cape Girardeau: 573-290-5730
Central/Columbia: 573-815-7900
Kansas City: 816-622-0900
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Southwest/Springfield: 417-895-6880
Northwest/St. Joseph: 816-271-3100
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Ozark/West Plains: 417-256-7161

SUBSCRIPTIONS

Phone: 573-522-4115, ext. 3856 or 3249
Address: Circulation, PO Box 180, Jefferson City 65102-0180
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OMBUDSMAN QUESTIONS

Phone: 573-522-4115, ext. 3848
Address: Ombudsman, PO Box 180,
Jefferson City 65102-0180
Email: *Ombudsman@mdc.mo.gov*

EDITORIAL COMMENTS

Phone: 573-522-4115, ext. 3847 or 3245
Address: Magazine Editor, PO Box 180,
Jefferson City 65102-0180
Email: *Magazine@mdc.mo.gov*

READER PHOTO SUBMISSIONS

Flickr: *flickr.com/groups/mdc-readerphotos-2014*
Email: *Readerphoto@mdc.mo.gov*
Address: *Missouri Conservationist*, Reader Photo,
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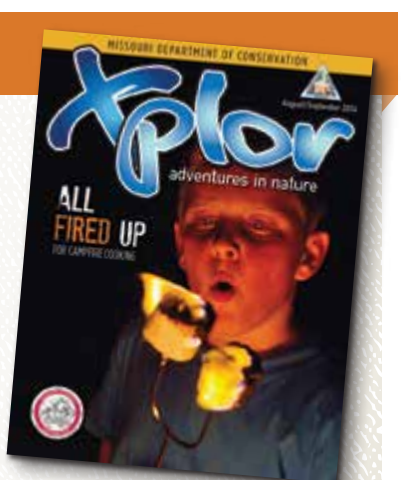
KIDS' MAGAZINE

Six times a year we'll bring you eye-popping art, photos, and stories about Missouri's coolest critters, niftiest natural places, liveliest outdoor activities, and people who've made a living in the wild. Come outside with us and XPLOR!



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Photographer *Noppadol Paothong*
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Circulation *Laura Scheuler*

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Printed with soy ink

"Whaddya say this time we take the boat, too?"

Agent Notes

Successful Wing Shooting Takes Practice

WITH SUMMER WINDING down, thoughts turn to the fall hunting seasons. The opening day of dove season on Sept. 1 marks the start of hunting for another year. Hunters all over the state will go afield to hunt these small, erratic-flying birds. But before you head to your favorite field, it is a good idea to head to the range.

According to data collected by the Conservation Department at conservation areas that manage fields for doves, the average hunter shoots five shells for every dove harvested. Spend a little more time at one of the Department's shotgun ranges, and you could easily earn bragging rights.

A quick search of the Department Atlas, available from the home page at *mdc.mo.gov*, reveals 34 ranges that allow shotgun shooting around the state. Some of these ranges are managed by the Department and some are managed cooperatively with other organizations. There may be a range fee associated with certain staffed locations. Unstaffed ranges are free. Unstaffed ranges require shooters to bring their own equipment and targets. All ranges require shooters to remove their own trash, including empty shot shells. Alcohol is not allowed on any ranges or in the adjoining parking lots.

We are fortunate to have so many shooting opportunities in Missouri. Following the rules and keeping these ranges clean will ensure these opportunities remain. Safety should be everyone's top priority. Whether preparing for doves or just enjoying a day of shooting, head to the range, sharpen your skills, and earn the right to brag this season.

Aaron Post is the conservation agent for Platte County. If you would like to contact the agent for your county, phone your regional conservation office listed on Page 3.

HUNTING AND FISHING CALENDAR

FISHING	OPEN	CLOSE
Black Bass from Ozark Streams	05/24/14	02/28/15
Bullfrogs and Green Frogs	Sunset	Midnight
	06/30/14	10/31/14
Nongame Fish Gigging	09/15/14	01/31/15
Paddlefish on the Mississippi River	09/15/14	12/15/14
Trout Parks	03/01/14	10/31/14

HUNTING	OPEN	CLOSE
Coyote	05/12/14	03/31/15
Crow	11/01/14	03/03/15
Deer		
Archery	09/15/14	11/14/14
	11/26/14	01/15/15
Firearms		
Urban Portion	10/10/14	10/13/14
Early Youth Portion	11/01/14	11/02/14
November Portion	11/15/14	11/25/14
Antlerless Portion (open areas only)	11/26/14	12/07/14
Alternative Methods Portion	12/20/14	12/30/14
Late Youth Portion	01/03/15	01/04/15
Doves	09/01/14	11/09/14
Groundhog (woodchuck)	05/12/14	12/15/14
Pheasant		
Youth	10/25/14	10/26/14
North Zone	11/01/14	01/15/15
Southeast Zone	12/01/14	12/12/14
Quail		
Youth	10/25/14	10/26/14
Regular	11/01/14	01/15/15
Rabbit	10/01/14	02/15/15
Sora and Virginia rails	09/01/14	11/09/14
Squirrel	05/24/14	02/15/15
Turkey		
Archery	09/15/14	11/14/14
	11/26/14	01/15/15
Firearms	10/01/14	10/31/14
Waterfowl	see the *Waterfowl Hunting Digest* or ***mdc.mo.gov/node/3830***	
Wilson's (common) snipe	09/01/14	12/16/14
Woodcock	10/15/14	11/28/14

TRAPPING	OPEN	CLOSE
Beaver and Nutria	11/15/14	03/31/15
Furbearers	11/15/14	01/31/15
Otters and Muskrats	11/15/14	02/20/15

For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code* and the current summaries of *Missouri Hunting and Trapping Regulations* and *Missouri Fishing Regulations*, *The Spring Turkey Hunting Regulations and Information*, the *Fall Deer and Turkey Hunting Regulations and Information*, the *Waterfowl Hunting Digest*, and the *Migratory Bird Hunting Digest*. For more information visit ***mdc.mo.gov/node/130*** or permit vendors.

ASK THE Ombudsman

Red velvet ant

Q. In an area of dry soil in my yard, I have seen a few large, hairy, rusty-red-colored ants. Should I be concerned about them?

A. I expect that you are seeing an insect called the red velvet ant (sometimes also called a "cow killer"). It's not actually an ant but the wingless female of a species of solitary, as opposed to social, wasp (*Dasymutilla occidentalis*). The males have wings and fly rather than crawl on the ground. Both sexes eat nectar from plants. The females enter bumblebee nests in the ground and lay their eggs on the bees' larvae. After hatching, the velvet ant larva feed on the bumblebee larva, so they are parasites of bumblebees. They are not aggressive, and they don't kill cows, but you shouldn't try to handle velvet ants because they can inflict a painful sting. I would advise against anyone walking barefoot in the area where the velvet ants have been observed. As long as you don't handle them or step on them barefooted, you should have no problems from them. The adults are observed mostly during the warm, summer months.

Q. Is it possible that I saw a roadrunner in Springfield? It surely looked like one.

A. Yes, we receive a few reports of roadrunners in Springfield most years. The species in Missouri is the greater roadrunner, and it is found in the southwestern quarter of the state. Although the heart of their range is in the southwestern U.S., the species has been documented in Missouri since 1956. Roadrunners prefer areas with open forest or glade habitats such as are common in Barry, Stone, Taney, Ozark, and Douglas counties. While uncommon in central Missouri, roadrunners have been observed in Jefferson City on several occasions in recent years. They eat a variety of insects, lizards, snakes, birds, rodents, bats, and young rabbits. Like some hawks, roadrunners have learned that bird-feeding stations are good sites to find small birds to eat.

Q. I saw something hovering in front of the blooming flowers in my yard. At first I thought it was a hummingbird, but it was not. Can you tell me what it may have been?

A. There are several species of moths called sphinx moths or hawk moths that will hover in front of flowers and use their long tongues to sip nectar. The hummingbird clearwing moth has transparent sections of its wings and may remind you of a bee but the body shape is somewhat different. It visits a variety of flowers during the day. Missouri has many species of sphinx moths that are larger, thick-bodied moths that do not have clear wings. Although some species will feed during the day, others feed at night and are usually observed just after sundown, while there is just enough light to see them hovering at night-blooming flowers, such as petunias and evening primroses. The larval stage of one common Missouri moth, the five-spotted hawk moth, is the familiar tomato hornworm that can devour the foliage of tomato plants.

Clearwing moth

Ombudsman Tim Smith will respond to your questions, suggestions, or complaints concerning the Conservation Department or conservation topics.

Address: PO Box 180, Jefferson City, 65102-0180
Phone: 573-522-4115, ext. 3848
Email: Ombudsman@mdc.mo.gov

PHOTOGRAPHS BY NOPPADOL PAOTHONG

by Jim Low

Mentored dove-hunting opportunities for first-time hunters of any age will be offered, provided in partnership with the National Wild Turkey Federation and Quail Forever.

DOVE HUNT: DAVID STONNER

Life-Changing Experiences Offered Here

When you become a hunter you aren't just participating in a wonderful activity that binds friends and family, provides heart-smart locally grown food, gives you a greater, deeper appreciation of wild things and wild places — you are conservation. You provide the funding for more than a third of the cost of conservation in Missouri through your license fees and excise taxes on firearms and ammunition. The state of Missouri is a national leader in hunter recruitment and retention at 1.16 hunters gained for every one lost. But we can do better!

The National Wild Turkey Federation (NWTF) in partnership with Quail Forever (QF) and the Missouri Department of Conservation will provide mentored dove hunting opportunities for first-time hunters of any age on six fields located on private land across the state.

The NWTF initiated this effort as part of its "Save the Habitat. Save the Hunt." program. Over the next 10 years, nationally, the NWTF will conserve and enhance 4 million acres, create 1.5 million new hunters, and provide access to an additional 500,000 acres.

There will be three hunts offered on each field on opening day, Sept. 1. Two more dates will be determined by participating landowners of the individual fields but will likely be Saturdays, including Sept. 6. Each field will be limited to 16-20 hunter/mentor pairs per hunt to maximize safety and provide a quality experience. In order to participate in a hunt you must first attend a hunter orientation workshop where you will learn about dove biology and management, the importance of hunters and hunting, and hunter safety. You will also have the opportunity to practice shooting a shotgun.

You can attend any workshop offered, but the field you will hunt on will be determined by applications received and availability. Workshops will be provided in:

Meadville, Aug. 10, 1–5 p.m.,
Fountain Grove Conservation Area
Kirksville, Aug. 17, 1–5 p.m., Department of Conservation Northeast Regional Office
High Ridge, Aug. 21, 5:30–9 p.m.,
Jay Henges Shooting Range

Parkville, Aug. 27, 28, 29, 5:30–8:30 p.m., Parma Woods Range
Williamsburg, Aug. 30, 1–5 p.m., Prairie Fork Conservation Area
Ash Grove, Aug. 30, 8:30–2:30 p.m., Andy Dalton Range
Cape Girardeau, Aug. 30, 4–8:15 p.m., Apple Creek Trap and Skeet Range

For application information, visit NWTF's home page at ***www.monwtf.org***, or contact John Burk at 573-676-5994 or *jburk@nwtf.*

Join the CWD Conversation

Help protect Missouri's white-tailed deer and our hunting heritage for your children, grandchildren, and future generations. The Conservation Department is working with hunters, landowners, businesses, and partner organizations to limit the spread of Chronic Wasting Disease (CWD) in free-ranging deer.

The Department is proposing common-sense regulation changes for deer breeding facilities and big-game hunting preserves to help limit the spread of CWD. Changes involve more effective fencing to separate captive and free-ranging deer, restricting the importation of live deer into Misosuri, and mandatory disease testing.

Get involved by sharing your opinions on the comment card attached to this magazine and by becoming informed about CWD. For more information, and to comment online, go to ***mdc.mo.gov/deerhealth***.

Antlerless Permit Adjustments Address Deer Population Changes

Deer hunters will find changes to antlerless permits this year, and more changes could lie ahead.

The Conservation Commission voted in April to reduce the number of firearms antlerless deer permits that a hunter may fill in all or part of 59 counties. It also reduced the availability of antlerless permits to two in all or part of another 19 counties. In previous years, hunters could buy any number of antlerless permits in most of the affected counties. Hunters still can fill multiple firearms antlerless tags as long as they do not fill more than is allowed in a particular county.

These changes are a response to declines in deer numbers. A severe outbreak of hemorrhagic diseases in 2012 contributed to this decrease, but that isn't the main reason for the decline in deer numbers. To understand the current situation, it helps to remember the deer-management challenges that Missouri faced 20 years ago. Back then, the state's deer herd was growing rapidly. This led to an upswing in deer-vehicle collisions, crop damage, and other nuisance-deer problems.

The Conservation Department responded by increasing the availability of firearms antlerless permits and instituting an antler-point restriction (APR), which was intended to shift harvest pressure from bucks to does in some counties.

Those changes worked, as deer numbers — and the problems associated with too many deer — decreased. That's when Missouri and neighboring states experienced the historic hemorrhagic disease outbreak. Losses to hemorrhagic diseases tipped the balance, and deer numbers decreased below the desired levels.

Adjusting the availability of antlerless permits is a way of reducing doe harvest without limiting when, where, and how Missourians hunt deer. It also is a gradual way to begin changing doe harvest to allow the deer population to be maintained at desirable levels. Decreasing the availability of

WHITE-TAILED DEER: DAVID STONNER

WHAT IS IT?

Wheel Bug | *Arilus cristatus*

This insect is easily identified by the coglike "wheel" on its back. As with other members of the assassin bug family, the wheel bug has a clawlike beak with three segments that can fold into a groove beneath the insect's body. Adult wheel bugs are usually gray or brownish; the immature nymphs are red with black legs, and can look rather spiderlike. Only the adults possess the crest or wheel-like structure on the back. Wheel bugs are North America's largest assassin bug, growing up to 1½ inches in length. They prowl around flowers, gardens, trees, and grassy areas, hunting other insects. Most people consider them beneficial, as they help control many insect pests, including caterpillars. A wheel bug bites its prey, delivering a subduing venom that causes the prey insect's tissues to liquify. Assassin bugs are top predators in the world of insects. But in the world of vertebrates, they are prey, and their jagged body armor is one way they avoid being eaten. —*photograph by Noppadol Paothong*

(continued from Page 7)

firearms antlerless permits will allow deer numbers to stabilize, and in some areas rebuild.

Don't Be a Bait-Bucket Abuser!

Have you ever finished a fishing trip and "liberated" your bait, thinking you were doing it or the fish in the lake a favor? If so, STOP! You could be doing serious damage to your favorite fishing hole. The trouble is that a dozen minnows, a box of worms, or a bucket of store-bought crayfish might contain an exotic critter that could change the ecology of a stream or lake with devastating effects for native fish populations. When you finish a fishing trip, put leftover bait in a sturdy trash bag and send it to the landfill. You will be doing yourself and Missouri's multi-billion-dollar sportfishing industry a big favor.

Find a Public Dove Hunting Area Near You

Dove hunting season opens Sept. 1. To provide quality hunting opportunities, the Conservation Department plants sunflowers, wheat, millet, and other crops on dozens of conservation areas (CAs) statewide. Dove-field locator maps are available at ***mdc.mo.gov/18183***. Crops grow better on some areas than others, so advance scouting is important. Heavy rains and flooding this spring affected some dove management fields, but significant opportunities remain.

Dove season opener falls on Labor Day this year, ensuring large numbers of participants. This makes safety consciousness particularly important on public hunting areas. Hunters should space themselves at safe intervals. Don't shoot at birds lower than 45 degrees above the horizon. Politely call attention to safety issues the first time they arise. If you plan to introduce a new hunter to doves, leave your own shotgun at home, so you can devote your full attention to your protégé.

Two More Fishing Records Set

Two Missouri state fishing records fell in April and May, one on rod and reel and one with archery tackle.

Tyler Goodale, of Poplar Bluff, reeled in a 3-pound, 10-ounce spotted sucker measuring 18.2 inches long at Duck Creek Conservation Area on April 3. It is Missouri's first state-record spotted sucker in the pole-and-line category. The current state-record spotted sucker taken by alternative methods was caught by snagging at Lake Wappapello in 1992 and weighed 2 pounds. Spotted sucker are slender, coarse-scaled fish with short dorsal fins. It is distinguished from other Missouri suckers by the presence of several parallel rows of prominent dark spots along the flanks. Adults are commonly 9 to 16 inches long and weigh up to 2 pounds. They are common in the lowlands of southeast Missouri and adjacent sections of the Ozarks.

Evan Miller, of Indianapolis, Indiana, shot a 6-pound, 10-ounce quillback while bowfishing at Bull Shoals Lake on May 1. Both the weight and length (23.5 inches) of Miller's fish were unusual. *The Fishes of Missouri* says this species seldom exceeds 19.2 inches or 3.7 pounds. Quillbacks are most common in northeastern Missouri. They inhabit clear rivers and creeks with large permanent pools. The previous alternative-methods record for quillback was 1 pound, 14 ounces. The current pole-and-line record is 2 pounds, 12 ounces.

For more information about Missouri record fish, visit ***mdc.mo.gov/node/2476***.

Taking Applications for Agent Trainees

The Conservation Department is accepting applications for the next class of conservation agent trainees. Selected candidates will undergo 26 weeks of intense training in all facets of law enforcement and resource management. Those who make the grade will receive county assignments

Peanut the Turtle will be at at the Missouri State Fair in the Conservation Kids Room with a message for NoMOre Trash.

State Fair Events Celebrate the Harvest

One of the ways the Conservation Department helps people discover nature is through exhibits, live programs, and hands-on activities at the Missouri State Fair. This year's fair runs from Aug. 7 through 17. Attractions at the Conservation Pavilion near the south end of the fairgrounds will include appearances by a live bald eagle and great-horned owl on opening day, fish cooking and cleaning demonstrations using Asian carp, examples of the wild edible harvest, a working portable sawmill, tips for tree stand and firearm safety, tree health information, and learning about angling equipment. Perennial favorites, such as the air-conditioned Conservation Kids Room and aquariums and terrariums with Missouri fish, amphibians, and reptiles (including the popular Peanut the Turtle with a message for No MOre Trash), will be back, along with a few surprises. The Conservation Pavilion is open from 9 a.m. to 9 p.m. daily. The Kids Room hours are from 10 a.m. to 6 p.m.

and become the face of conservation in their assigned communities — enforcing the *Wildlife Code of Missouri* and helping the public with such issues as nuisance wildlife and land management.

To qualify, applicants must have a bachelor's degree in a field related to the natural sciences or criminal justice. For more information, including salary range, duties and responsibilities, degree requirements, qualifications, and special-ability requirements, and to apply, visit the Job Openings section at ***mdc.mo.gov/about-us/careers***. The application deadline is Aug. 18. Contact MDC Protection Programs Supervisor Cheryl Fey at 573-751-4115, ext. 3819, or *Cheryl.Fey@mdc.mo.gov* with questions.

Cable-Restraint Classes Offered

The Conservation Department is offering classes at locations around the state for trappers who want to be certified to use cable-restraint devices. Classes will teach participants to use cable restraints safely and legally. Material covered includes regulations, proper set selection, and cable restraint construction. Pre-registration is required, and class sizes are limited. Classes are available at:

St. Joseph, Aug. 16. Call 816-271-3100.
Cape Girardeau, Aug. 23. Call 573-290-5730.
Clinton, Aug. 23. Call 660-885-6981.
Columbia, Aug. 23. Call 573-815-7900.
Hannibal, Aug. 27. Call 573-248-2530.
Kirksville, Sept. 6. Call 660-785-2420.
West Plains, Sept. 12. Call 417-256-7161.
Eminence, Sept. 12. Call 573-226-3616.
Camdenton, Sept. 13. Call 573-774-3490.
Salem, Sept. 13. Call 573-815-7900.
Sedalia, Sept. 13. Call 660-530-5500.
Springfield, Oct. 4. Call 417-895-6880.
Blue Springs, Oct. 11. Call 816-655-6263.
Ted Shanks Conservation Area, Oct. 11. Call 573-248-2530.
Lake City Shooting Range, Buckner, Oct. 17 and Nov. 5. Call 816-249-3194.
Bennett Spring State Park, Oct. 18. Call 417-532-7612 or 417-718-1111.

When used correctly, cable restraint devices hold animals alive and allow trappers to release nontarget animals unharmed. The devices can be used to take furbearers during the trapping season by trappers who successfully complete a Department-approved training course.

DID YOU KNOW?

Conservation makes Missouri a great place to fish.

Missouri Trout Hatcheries

» *Why are trout hatcheries needed in Missouri?*
Natural reproduction does not keep up with the demand for harvest-sized trout.

» *How many trout are stocked?*
Each year, almost 1.6 million rainbow trout are stocked in Missouri. Trout are stocked at 37 locations, including four trout parks and Lake Taneycomo.

» *Who pays for Missouri's trout production?*
All Missouri citizens help pay for the trout program through the Design for Conservation Sales Tax. Trout anglers help to further offset production costs by purchasing fishing permits, trout permits, and daily tags.

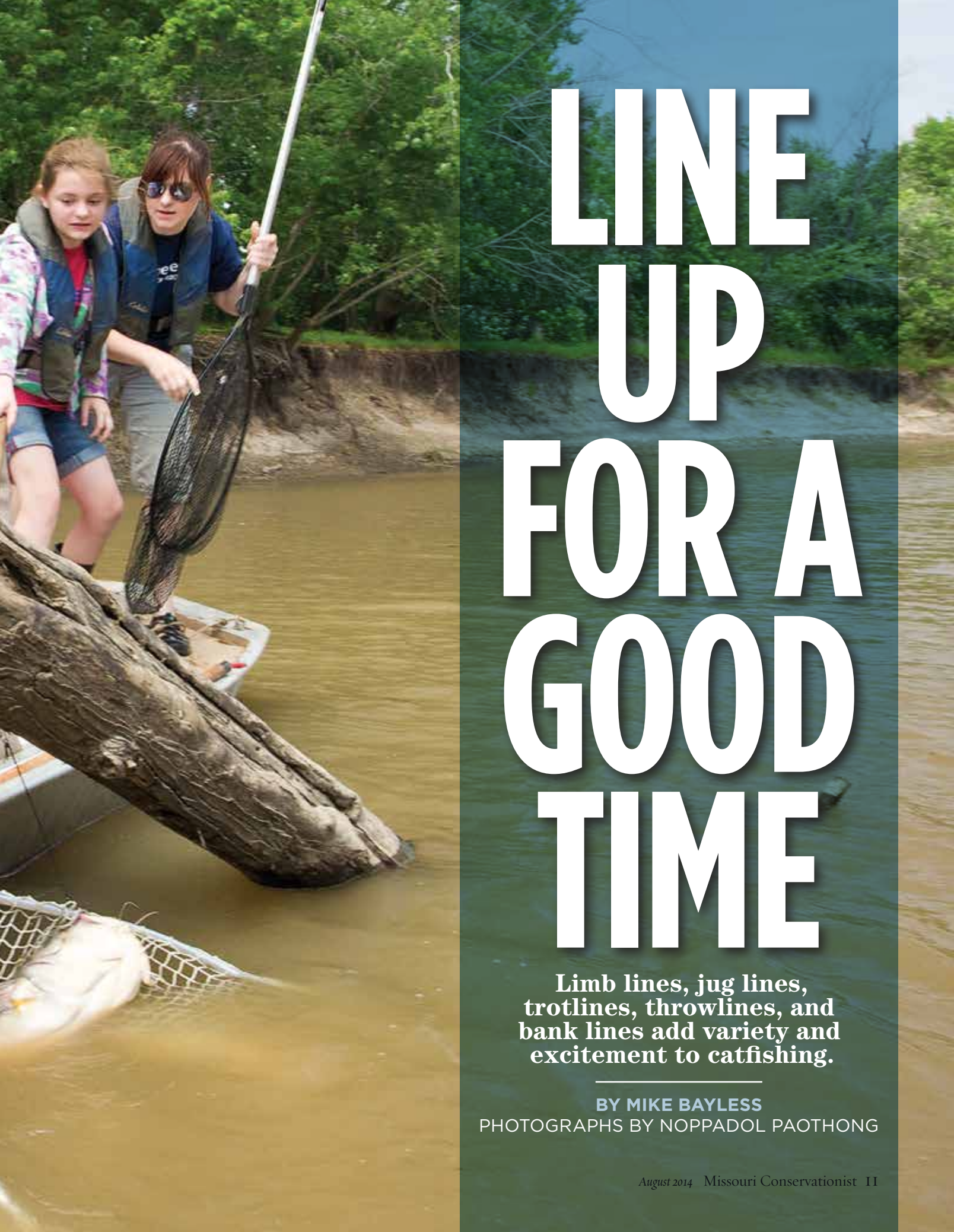
» *Cutting-edge hatcheries*
Recent improvements to the Department of Conservation's trout hatcheries are boosting production and efficiency. These improvements are made with Federal Aid in Sport Fish Restoration funds, which are generated by your purchase of fishing equipment and motorboat fuels.

» *A century of trout*
Trout fishing in Missouri dates back to 1910. Trout production in the state began in the 1920s at Bennett Spring Hatchery. Today there are five trout hatcheries in Missouri, including Bennett Spring, Roaring River, Maramec Spring, Montauk, and Shepherd of the Hills.

» *Trout Fishing Regulations* | *mdc.mo.gov/node/6108*
For information on permits, fish ID, and more. Also, view or download a copy of the Department's *2014 Summary of Missouri Fishing Regulations* (or pick up a copy where permits are sold or at Department offices).

Shepherd of the Hills trout hatchery

TROUT HATCHERY: DAVID STONNER



LINE UP FOR A GOOD TIME

Limb lines, jug lines, trotlines, throwlines, and bank lines add variety and excitement to catfishing.

BY MIKE BAYLESS
PHOTOGRAPHS BY NOPPADOL PAOTHONG

HAVE YOU EVER RUN A TROTLINE, OR CHASED A JUG AS IT dips and dances from the pull of a big fish? If not, you are missing out on a great way to introduce kids to fishing, have fun with family and friends, and enjoy a great meal of fresh catfish, too.

When most people talk fishing, they talk rods, reels, jigs, and plugs. But there's another style of catfishing, by alternative methods, that is unlike any other. In regard to catching catfish, this means limb lines, jug lines, trotlines, throwlines, and bank lines. (See fishing methods in Chapter 6 of the *Wildlife Code*). With these methods, the line and hooks are attached or fixed in place and left overnight or fished in one area for an extended period of time. The only exception is jug lines that can either be anchored or free floating. You should take note that in all of these methods, gear must be attended at least once every 24 hours with the exception of floating jug lines, which must be attended at all times on streams and at least once per hour on lakes. All gear must also be labeled with your full name and address or Conservation ID number.

Getting Started

TROTLINES Trotlines come in many forms. Trotlines have one or both ends tied to a fixed object. They can be tied between two trees, or with one end attached to a tree or large rock on the bank and the far end weighted in the water.

A trotline is made up of one main line and a series of dropper lines with hooks. The main line needs to be heavy enough to handle more than one fish. The dropper lines, sometimes called stagings, hold the hooks. Braided nylon line works best and won't unravel like other lines. Main lines in the range of #24 (210-pound test) and dropper lines around line #18 (165-pound test) are heavy enough for multiple large catfish.

The main line is stretched horizontal and the dropper lines hang vertical from the main line. Dropper lines are required to be spaced no less than two feet apart from each other along the main line. You'll want to keep droppers this far apart, otherwise two fish next to each other can make a real tangled mess. It's best to attach the dropper line to the main line with a heavy barrel swivel. Some catfish, especially blues, will twist and roll once they are hooked. Trotlines can be marked using a 2-liter soda bottle, or something similar, tied to the main line.

JUG LINES Jug lines are another great method to catch catfish. You'll need to start with some type of large float or "jug."

Floats are commonly made from swim noodles or large bottles, like a 2-liter soda bottle. You'll want to use a jug large enough to provide resistance when a fish bites. This increases the odds of a good hook set. Brightly colored jugs are easier to see. Road-construction orange, bright yellow, and white work well.

Standard swim noodles can be cut into two or three sections. Most noodles are hollow in the middle. You can use a length of ½- or ¾-inch PVC pipe through the center of the noodle. This will make the jug sturdier and makes a good place to tie your dropper and weight lines. Leave a couple inches of pipe sticking out each end of the noodle. Glue caps to each end of the pipe. Caps keep the line from slipping off and keep the pipe from filling with water. This also greatly limits the chance of moving invasive species like zebra mussel larvae to other bodies of water you might fish.

A bank line is set on the South Grand River near Clinton, Missouri. Bank lines can be made from a variety of poles stuck into the mud and angled over the water.

Floats for jug lines should be large enough to provide resistance when a fish bites. This increases the odds of a good hook set.

CIRCLE HOOKS ARE DESIGNED TO HOOK FISH IN THE CORNER OF THE MOUTH. THEY ARE AN EFFECTIVE CHOICE WITH THESE FISHING METHODS.

Clear 2-liter soda bottles also work well as jugs. Spray the inside with brightly colored spray paint. When using bottles, you'll want to glue on the caps to keep water out.

You can put heavy-duty reflective tape around jugs, making them visible in low light or in the dark. A spotlight or flashlight may help you retrieve your jugs when lighting is poor.

Now you're ready to attach lines, hooks, and weights. On one end of the pipe, or around the neck of the bottle, attach your hook line. Make lines long enough to adjust the bait to the depth you plan to fish. Generally, the bait is suspended off the bottom. About 20 feet of line will work, but you may want to use longer if you fish deeper water areas. At the end of the hook line, put on an egg sinker large enough to keep the bait down. On the other end of the barrel swivel tie a shorter length of line, somewhere between 18 to 24 inches, and attach the hook on the other end.

If you plan on anchoring your jug lines, you'll need to attach a weight line and weight large enough to keep the jug stationary even with a large fish on the line. As a general rule, you'll need a weight 2 pounds or larger.

Other gear

- Large landing net
- Casting net to catch bait
- Sharp knife and a board to cut lines and bait
- Bait tank and aerator for live bait
  Note: Live bighead and silver carp may not be used as bait
- Extra hooks, line, and weights
- Sturdy labels and waterproof marker. Duct tape wrapped around the line or jug works well
- Broomstick with a large hook on the end or a notched paddle to retrieve lines and jugs
- Cooler with ice to keep bait and fish you plan to harvest fresh

First, tie a short line on the end of your jug opposite the hook line and make a small loop in it with an overhand knot. Use heavier line similar to the size you use for a main line on a trotline. Small concrete weights work well as anchors. Water or sport drink bottles can be used as molds. Bend heavy wire to form a loop and put it into the wet concrete. Attach your weight line to the loop once the concrete hardens. Eye bolts also work well. Weight lines need to be longer than the deepest water you will be fishing. Attach the line to the weight, and tie a heavy trotline clip to the other end. Rubber bands can be slipped inside the trotline clip to hold line on the weights when storing them.

BANK OR LIMB LINES Bank or limb lines come in a wide variety. Single lines can be attached to trees overhanging the water or brush piles sticking above the water in lakes or rivers. They can also be made from a variety of poles stuck into the mud and angled over the water. Some anglers put rubber bungee cords or strips of heavy inner tubes in a section of their bank lines. This allows enough give to keep a big catfish from breaking the line.

Hooks

There are a variety of hooks on the market today, but some of the most widely used and effective hooks are circle hooks. Circle hooks are designed to hook fish in the corner of the mouth and fish are less likely to swallow them deep, compared to traditional hooks. Circle hooks are

Brightly colored jugs are easy to see when using jug lines. Make lines long enough to adjust the bait to the depth you plan to fish.

also designed to turn and hook the fish when they swim away with the bait, making it unnecessary to set the hook. They are an effective choice with these methods.

Hook size varies based on the bait type and size, the size of fish you might expect to catch, etc. Use a hook large enough that a big fish can't straighten it. There's nothing worse than finding one of your hooks straightened with no fish. When catfish are biting aggressively, relatively small fish can still be caught on large hooks. Hooks in the neighborhood of 6/O up to 10/O will cover most situations.

Bait

Talking bait with seasoned catfish anglers is truly "opening a can of worms." Catfish have evolved in mostly muddy, moving water. All species use their sense of smell and are triggered by vibrations from small fish or other prey, such as crayfish. Flathead catfish prefer live bait. Try live green sunfish, bullheads, bluegill, or crayfish. Blue and channel catfish will take live bait, but you will usually have better luck with fresh cut bait like gizzard shad, silver carp, or sunfish. On small waters you can't go wrong with worms, chicken livers or gizzards, or the wide variety of prepared

To anchor your jug lines, attach a weight line 2 pounds or larger.

Fishing for flathead catfish can be good any time the water temperatures are in the 50s or higher. Flatheads relate to tree lines and areas with large rocks in lakes.

baits that are available. Make sure live bait is fresh and lively, scent is key, and the longer the bait holds scent the better. Also, baits that are tough and stay on the hook longer will catch more fish.

Where to Fish

Fishing for channel and flathead catfish can be good any time the water temperatures are in the 50s or higher, and blue catfish can be caught nearly year round.

Flathead catfish—Since flathead catfish feed on live fish and crayfish, you should target areas that hold these types of prey. Flathead catfish relate to tree lines and areas with large rocks in lakes. Old fence rows and areas with standing timber along creek channels are great places to start. On rivers, look to set trotlines and bank lines near wing dikes or in the brush piles in the slack water downstream of wing dikes against the bank.

Blue catfish—Blue catfish are a schooling fish and can be found many times in open water or along a channel near open water. Set jug lines along the channel break (the area where shallow water drops into the channel). Blue catfish can also be caught on wide open flats in lakes. This is a great place to drift or anchor jug lines. They can be caught in both rivers and lakes in very

Blue Catfish Management on Truman Reservoir and Lake of the Ozarks

In 2009, a group of Department of Conservation employees from Protection, Resource Science, and Fisheries divisions came together to discuss the history of blue catfish and the anglers who pursued them on both lakes. Some anglers and professionals alike had concerns with the decline in the numbers of large blue catfish. The Department looked at past angler surveys and harvest evaluations with an eye toward regaining the fame these lakes once held for producing big catfish.

In 2010, staff began gathering blue catfish population data and continued the effort for three years ending in 2012. During the same time period, the Department held three stakeholder meetings, three public open houses, and gathered public opinion in several other ways. With the combination of sound science and public input that showed angler support, the Department implemented the following regulations, effective March 1, 2014:

- Blue catfish between 26 and 34 inches in total length must be returned to the water unharmed immediately after being caught on Lake of the Ozarks, Truman Lake, and their tributaries.
- ANY stream, creek, or river entering these lakes is a tributary. These waters cease being tributaries ONLY where a major dam (Pomme de Terre, Stockton Lake, Montrose, and Tunnel Dam) interrupts them, or where they reach the state line.

DAILY AND POSSESSION LIMITS

- Ten blue catfish total (both daily and possession).
- The daily limit may not contain more than two blue catfish longer than 34 inches.

With teamwork from engaged citizens, the Department will:

- Protect medium-size blue catfish and increase the number of larger blue catfish.
- Increase harvest of smaller blue catfish below the protected slot with the goal of improving growth across the remaining population.
- Retain catfish angler participation on all waters affected.
- Maintain good relations with all stakeholders, while continuing to promote a local catfish-based economy.
- Provide a sustainable, quality, blue catfish fishery for present and future generations to enjoy.

shallow water. When the water rises into newly flooded vegetation, don't hesitate to fish in areas that could have been dry land before. Big catfish love to forage in these newly flooded areas. Once water cools, set lines in deeper holes in both rivers and lakes. Another key area in lakes is where the old stream channel meets areas of standing timber. This can be a great place to run a trotline from an old tree toward the channel.

Channel catfish—Channel catfish can be found in a wide variety of locations. On lakes, set lines near timber. Channel catfish congregate to spawn near rocky areas around mid-May. Like other catfish, they will move to newly flooded areas and anywhere small tributaries feed into rivers or lakes.

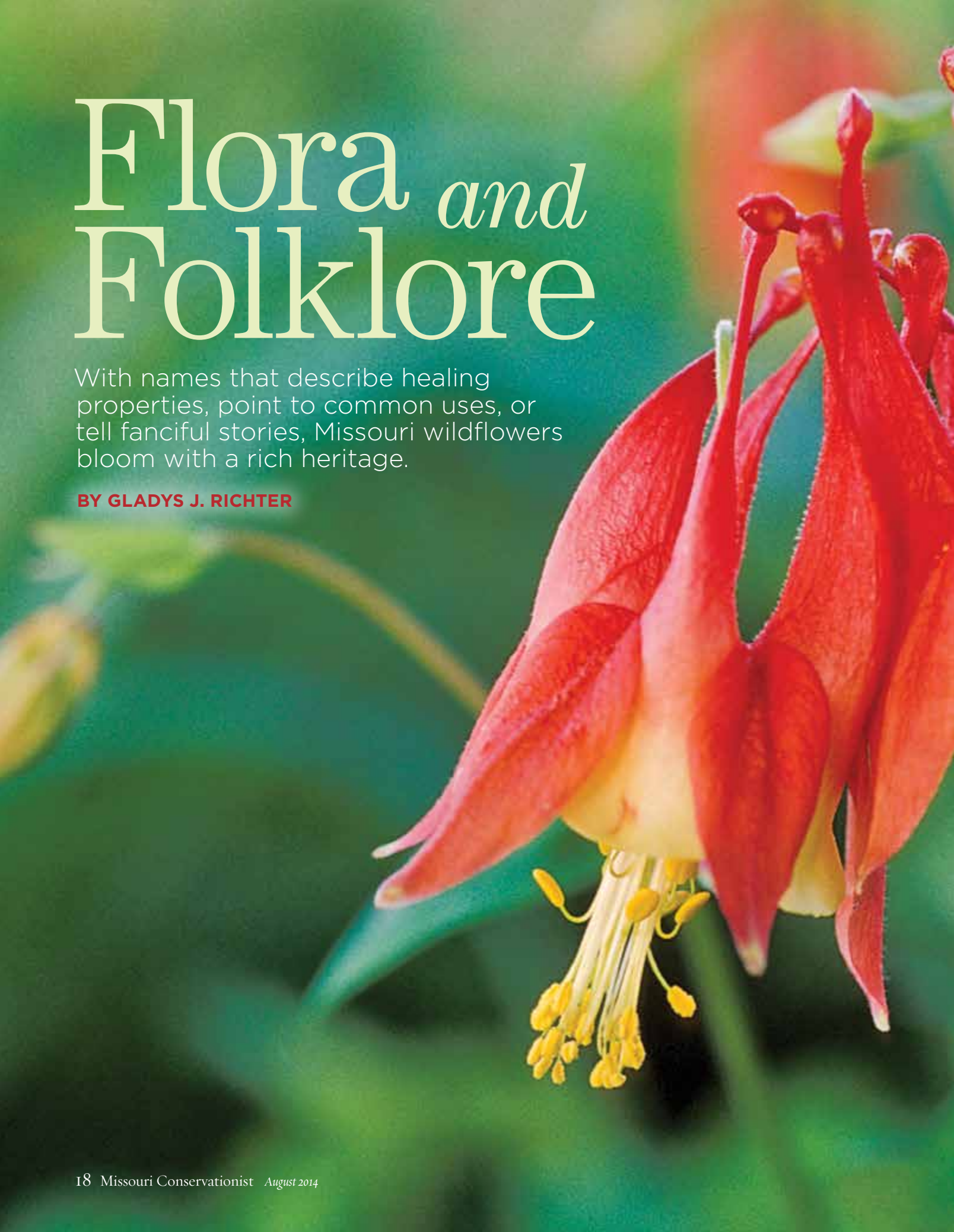
These methods are simple and fun for the whole family. So, gather some supplies, bait, and the kids, and follow your line to excitement. ▲

__Mike Bayless__ is a Department fisheries management biologist working out of the Clinton office. He enjoys what he calls the best job in the world working with nature and good people. In his free time he likes being on the water and following his kids in their sports.

Flora *and* Folklore

With names that describe healing properties, point to common uses, or tell fanciful stories, Missouri wildflowers bloom with a rich heritage.

BY GLADYS J. RICHTER



In the past, Native Americans used columbine plants (*Aquilegia canadensis*) for various medicinal purposes. Some used them as a love potion, rubbing the ground seeds on their palms before grasping the hands of their beloved or of people they wished to persuade.
Photograph by Noppadol Paothong.

Dew droplets glistened like tiny jewels on the blades of grass at the Diamond Grove Prairie Conservation Area. Walking quietly with binoculars in hand, I surveyed the horizon for birds. What caught my eye instead was a patch of brilliant blue.

Dancing on their tall, slender stems, blossoms of the spiderwort, a plant with many names and a wealth of folklore, drew me to a brushy edge in a wet swale of the prairie. I decided that this morning was perfect for more than just bird watching, and I retrieved a well-worn copy of *Missouri Wildflowers* from my car.

Feeling scientific and a bit poetic, I looked up the spiderwort and then information on a few other spring wildflowers. As I thumbed through my field guide, the names fascinated me: soapwort, rattlesnake master, Dutchman's breeches, and Jacob's ladder. I was inspired to investigate their legendary personalities.

Missouri's woodlands, glades, wetlands, forests, bluffs, and prairies are filled with an abundance of plant life. Some flowers are easy to recognize and identify by common name. Others are lesser known and depend on Latin scientific names for accurate reference. Of course, there are those that stand out from the crowd both in form and identity.

The name Flora itself refers to the Roman goddess of spring and flowers. Today we use the term *flora* to refer to plants of a particular region or period. Native plants have long been revered for their reported medicinal or magical properties, both in folklore and in modern practice. A number of Missouri species were used as remedies for chronic ailments or as antidotes for venomous spider and snake bites. Others were believed to bring good luck or love at first sight or to be useful in casting spells. To this day many plants carry names that remain a part of Missouri's legends. How did they get these names?

Ragwort

Spiderwort

Wort's in a Name

Many wildflowers found in Missouri have "wort" as an ending to their names: toothwort, bellwort, spiderwort, spleenwort, St. John's wort, and ragwort. While it sounds like the word "wart," it has nothing to do with bumps on the skin. Wort is a very old reference to plants that were used for medicine or food.

In Missouri, there are eight different species of spiderwort (*Tradescantia*), which also go by the names widow's tears, blue jacket, and cow

RAGWORT: JIM RATHERT; SPIDERWORT: NOPPADOL PAOTHONG

Diamond Grove Prairie Conservation Area

Spleenwort

St. John's wort

Many wildflowers have "wort" as an ending to their names. It is an old reference to plants that were used for medicine or food.

slobbers. Depending on whom you ask, the name spiderwort refers to the jointed stems, which resemble the legs of a spider, the web-like hairs found on the flower, or the belief that the plant had the ability to treat venomous spider bites. The name blue jacket is in reference to the bright blue-violet to blue flowers that this plant often displays.

Depending on the species, the beautiful three-petal flowers come in a variety of other colors, including purple and, rarely, rose or white, but blue is the most common. They are best viewed in early morning or on an overcast day. By noon, most blossoms will have withered in the heat of the sun until they resemble liquefied jelly droplets, hence the name widow's tears. The tall stems contain a thick, mucus-like sap that has led

DIAMOND GROVE PRAIRIE CA: NOPPADOL PAOTHONG;
SPLEENWORT: TROY EVANS, GREAT SMOKY MOUNTAINS NATIONAL PARK, BUGWOOD.ORG;
ST. JOHN'S WORT: ROBERT VIDÉKI, DORONICUM KFT., BUGWOOD.ORG

some to call the plant by the rather unflattering name of cow slobbers.

Pharmacy Flora

Many plants have been used to treat human ailments. Names such as spleenwort (*Asplenium*) and liverleaf (*Hepatica*) have reference to such. It was widely believed that the shape of certain plants or their parts gave a clue to their medicinal powers. If a plant's leaves were shaped like a liver, it was believed to hold the remedy for diseases affecting the liver. If it resembled a tooth, then it was good for toothache. If it was shaped like a kidney, then it somehow affected the function of the kidneys.

If you find yourself among the bluestem and brambles of a native Missouri prairie in summer, you may come across a hardy wildflower with a very tough-sounding name — the rattlesnake master (*Eryngium yuccifolium*), or button snakeroot. Just as its name implies, parts of the plant were historically used to make an antidote for snakebites, especially those of rattlesnakes. At first glance, this plant, with its saw-toothed leaves, closely resembles the yucca even though the plants are from two distinctly different plant families.

Rattlesnake master

Native plants have long been revered for their reported medicinal or magical properties, both in folklore and in modern practice.

Many other wildflowers have names that refer to treatment of venomous snakebites. These include species of blazing star (*Liatris*) and native coneflowers (*Echinacea*), both of which were known as snakeroot.

Color Me Wild

Color doesn't just appear in the blossoms of wildflowers, but in their stems and roots as well. Native Americans and pioneers used many native plants as a source of dyes. One plant whose name tells of such use is the bloodroot (*Sanguinaria canadensis*). Often found at the base of bluffs in rich, woodland soils, bloodroot plants send up a snow-white flower alongside a light green, curled leaf. After flowering, the blossom soon withers as the leaf unfolds. Deep beneath the soil lie the slender roots, or tubers, of this plant which are filled with a reddish-orange sap that easily stains both skin and cloth fibers.

In the same humus-rich soils as the bloodroot, one may find the light blue wildflower Jacob's ladder (*Polemonium reptans*). Like many wildflowers, the source of this

Bloodroot

BLOODROOT: JIM RATHERT; RATTLESNAKE MASTER: NOPPADOL PAOTHONG

Sweet william, or blue phlox

Dog tooth violet

Jacob's ladder

Dutchman's breeches

plant's name is unclear. It may be a reference to the Biblical character Jacob who dreamed of a ladder that spanned between Heaven and earth, or it may be named after a flexible rope ladder that was used on the sides of ships. With its sky blue flowers and ladder-like leaf structure, it is a favorite in the native garden and is often a companion of wild geraniums and columbines.

My Dear, Sweet William

As spring continues its gentle saunter into summer, other famous flowers appear. In the Ozarks, spring wouldn't be spring without the lavender blossoms of wild sweet william, also known as blue phlox (*Phlox divaricata*).

Phlox is a shade-loving species that can be found in rich woodlands and along stream bluffs throughout the state. There are various fanciful stories surrounding how this plant received its name. Some say that it is related to centuries-old references to English ballads that spoke of young, love-struck men named William or even perhaps William Shakespeare. No matter the origin of its name, in a native garden wild sweet william is a striking gem that

SWEET WILLIAM, DOG TOOTH VIOLET, AND JACOB'S LADDER: JIM RATHERT; DUTCHMAN'S BREECHES: NOPPADOL PAOTHONG

Jack-in-the-pulpit

pairs well with other wildflowers to attract a variety of butterflies.

All About Looks

Other plants were named based upon their similarity to other everyday items. Some examples are Dutchman's breeches, cardinal flower, and soapwort.

Dutchman's breeches (*Dicentra cucullaria*), which are small, white flowers growing around wooded bluff areas in the spring, appear to be tiny pairs of breeches or pants that have been hung out to dry. Cardinal flowers (*Lobelia cardinalis*) are bright red, streamside wildflowers that are colored like the red cloaks worn by Catholic cardinals. Soapwort (*Saponaria*) gets its name from the soap-like sap in its stem that lathers when rubbed vigorously with water.

There are a great number of Missouri's plants that carry names such as hound's tongue and adder's tongue due to their basal leaves. Adder's tongue (*Erythronium americanum*) also goes by at least three other common names: dogtooth violet, fawn lily, and trout lily. It is said that the adder's tongue name is derived from its early, emerging tongue-shaped leaves. As those same leaves unfold, they often have a mottled or spotted appearance like the spots on a brook trout or on a fawn. Its underground bulb is shaped like a dog's canine tooth. Since Missouri does not have any adder snakes or native brook trout, and this plant is not related to violets, perhaps the name fawn lily fits it best.

One of the most interesting wildflowers in the state goes by the name jack-in-the-pulpit (*Arisaema triphyllum*). Somewhere in history, it was decided that the striped spathe, a deep, tubular, light-green structure with an over-laying flap, looked like an old-style pulpit. Inside the spathe, "stood" a little preacher, whom they named Jack. Scientifically "Jack" is a spadix, on which grow the actual flowers of the plant. The flowers may be either male or female. Alongside the flowering structure, there is usually one or two leaves, each divided into three leaflets. After flowering, the "pulpit" withers, and pollinated female flowers develop bright red, poisonous berries.

Another name for jack-in-the-pulpit is Indian turnip. Some Native American tribes would dry the roots (corms) of the plant for medicinal purposes. The corms are poisonous and can cause pain to the tongue and lips by producing a severe needle-like, stinging sensation. The red berries are also toxic and are best left alone.

Missouri's landscape is full of plants with lively names of interesting origins. While it is fun to learn about them, the folklore presented here regarding purported medicinal uses is for historical note only and is not to be taken as any sort of medical advice. Many plants have poisonous properties and should not be ingested.

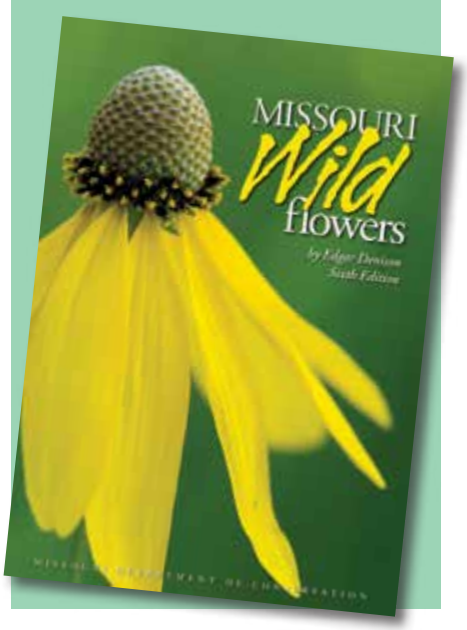
Missouri's native wildflowers are also protected on public lands from digging or disturbance. Some species are threatened by unlawful root digging, which can disrupt entire ecosystems. Wildflowers are best left in their natural setting for future generations to ponder and enjoy. Many popular species that are used for landscaping can be acquired as seeds or potted plants from nurseries that specialize in Missouri natives.

To learn more about these plants and others, explore our online Field Guide. The illustrated database contains information about the plants, where they grow, and their uses at ***mdc.mo.gov/node/73***. ▲

Cardinal flowers

Missouri Wildflowers

If you are a devotee of the state's native plants, you'll love the revised, sixth edition of *Missouri Wildflowers*. Descriptions cover plant characteristics, habitat, and range. No new species have been included in this edition, but the taxonomy has been updated in accordance with the most current naming conventions. Softcover, 296 pages. Available at MDC Nature Shops for $14. You can also order this book from MDC Nature Shop online at ***mdcnatureshop.com*** or by phone at 877-521-8632. Additional shipping and handling charges will apply.



Gladys J. Richter *is an interpretive freelance writer from Richland, Missouri. She and her family enjoy many outdoor activities, including fishing, hiking, and gardening with native wildflowers.*

JACK-IN-THE-PULPIT AND CARDINAL FLOWERS: JIM RATHERT

H

Intimidating creatures, until you find out how tiny they are — smaller than a gnat. The claws make the little arachnids easier to identify, and they move in a predatory, seeking manner.

ASHLEY BRADFORD

Tiny itchers

Pseudoscorpions get around in an unusual way.

BY ERIC R. EATON

Actual Size

AMONG THE STRANGEST CREATURES you are likely to encounter in Missouri are tiny arachnids called pseudoscorpions. (Spiders, scorpions, mites, and ticks also belong to the class Arachnida.) They look like miniature scorpions, but without tails. Most species are 5 millimeters in length or less, but they can travel far and wide. They are common under bark on trees and logs, in leaf litter and humus, in caves, and in the nests of birds and small mammals. Sometimes they even show up indoors. How they get there is fascinating.

Pseudoscorpions don't have wings, but they take advantage of beetles and other insects that do by hitching rides. Using another animal for transportation is called phoresy, a fancy scientific term for hitchhiking. A pseudoscorpion uses its chelae, or pincerlike claws, to grab onto a leg or other body part of an insect. They have quite a grip and are not easily dislodged as the insect walks and flies. Once the little arachnid arrives at a destination it likes, it releases its hold and goes on its way.

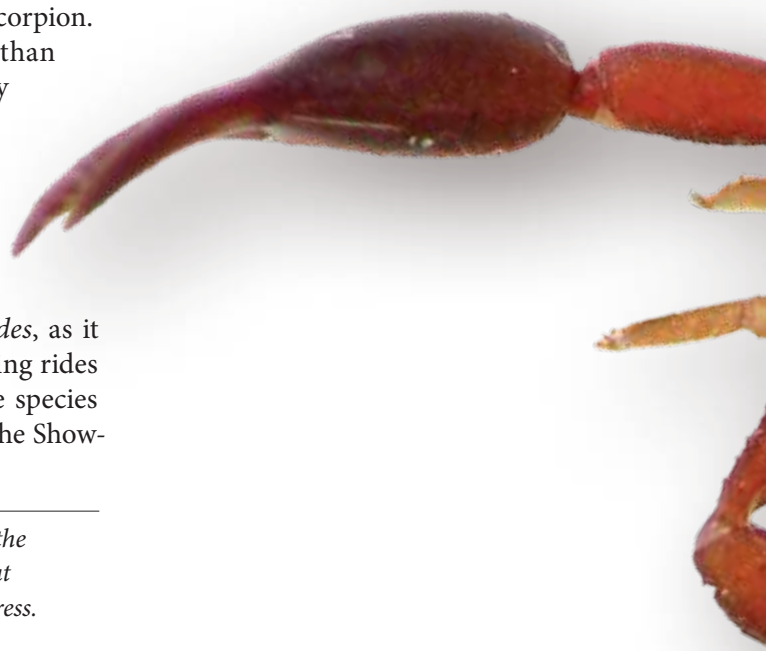
Those claws also have another trick: they contain venom glands that help subdue prey. They are harmless to humans, yet eat many pests, such as the larvae of clothes moths and carpet beetles, plus ants, dust mites, barklice, springtails, small flies, and booklice, so they are considered beneficial. They also have jaws (chelicerae) that do more than just chew up a meal. Many species of pseudoscorpions have silk glands in their jaws. They use that silk to construct sack-like shelters in which to molt, hide from bad weather and protect their young.

Male pseudoscorpions deposit their genetic material, or spermatophore, on a stalk on the ground, tree bark, or other surface. Most of time, the female is present and determines whether to accept the material. In the more advanced families of pseudoscorpions, the male may perform an elaborate dance and lead his prospective mate to his offering.

The female produces a small number of embryos that emerge into a brood sac beneath her abdomen. The young hatch and stay with their mother for a short time before dispersing. Young pseudoscorpions grow and molt and progress from protonymph, to deutonymph, to tritonymph, and then, finally, they become an adult pseudoscorpion.

A conservative estimate is that there are probably more than 20 species of pseudoscorpions in Missouri. Many are very particular in their habitat requirements, and a few are found only in caves (some species are restricted to only one particular cave each). This makes them highly vulnerable to extirpation, or loss. No pseudoscorpion is currently on the Missouri state list of threatened and endangered species.

The species you are most likely to see is *Chelifer cancroides*, as it has found its way to virtually all corners of the world, hitching rides not only on insects, but global commerce, too. Many more species undoubtedly remain undiscovered, or at least unknown in the Show-Me State. Maybe you will be the person to find one. ▲



Eric R. Eaton *is a natural history writer and the principal author of the* Kaufman Field Guide to Insects of North America. *He is currently at work on a field guide to spiders of the U.S. for Princeton University Press.*

This pseudoscorpion is hitching a ride on a wasp. Once the tiny arachnid arrives at a destination it likes, it will release its hold and go on its way.

Discover more unusual Missouri flora and fauna through the Department's online Field Guide at *mdc.mo.gov/node/73*.

HITCHHIKING PSEUDOSCORPION: ERIC R. EATON

The largest of these tiny creatures only reach about ¼ inch long. The body is flattened and teardrop- or pear-shaped. The tip of the abdomen is rounded (not elongated into a stinger like that of a true scorpion). There are eight walking legs, plus two long, armlike pedipalps ending in pincers, much like the pincers of a scorpion. Body color varies but is usually black, brown, tan, yellowish, or other muted colors. Some species lack eyes.

PSEUDOSCORPION PAIR: ASHLEY BRADFORD

White-Lined Sphynx

I APPROACHED SLOWLY as the hummingbird hovered from flower to flower. I'd been looking for a decent shot all morning, and it appeared my luck was about to change. As I closed in on the tiny bird, something wasn't right. It was the way its body vibrated awkwardly with its wing beats. A few steps later, I realized the hummingbird wasn't a hummingbird at all. It was a moth—a white-lined sphinx to be exact. I had to get a shot of this fascinating creature!

The white-lined sphinx (*Hyles lineata*) is common to abundant throughout Missouri and can be found in woodlands, fields, and gardens. It is distinguished from other sphinx moths by its olive-brown wings, each with a light tan center line and tan streaks. The hind wings, which immediately caught my eye, are black with a beautiful rose-colored center band. The white-lined sphinx has an impressive wingspan of up to 3.5 inches. A quick check of the literature revealed that I was not the first person to mistake one for a hummingbird.

Adults fly at night and can often be found near lights, but they also fly during the day. Larvae, which are bright yellow-green or bluish-black, feed on a variety of herbaceous plants, but purslane is a favorite in Missouri. Adults visit honeysuckle, columbine, lilac, petunia, and a variety of other plants.

I closed in on the sphinx and began shooting with my usual sense of urgency, but soon realized the moth wasn't in a hurry to move on. As I watched through my lens as the moth fed, withdrawing nectar from each thistle with its long, reddish proboscis (a long, thin, tubular mouthpart), I had the sense that it was watching me back with its oversized, brown eyes. Later, I determined that even though the furry creature had a protruding head like a mammal, and eyes as large as those of a songbird, it was virtually unaware of my presence and only interested in extracting food from the surrounding flowers. I followed the sphinx for more than a half hour, and I never once saw it rest, even for a moment.

When it became obvious there would never be a lull in the action, I took a few minutes to review the images I had made. I began scrolling through the frames on the back of my camera and was dismayed to see so many blurry shots. The moth's oscillating was apparently giving my camera fits! I made a few adjustments and began looking for the problematic insect so I could begin round two. I had a sinking feeling when I didn't find the busy moth right away. I was crestfallen when I realized it was gone for good.

I immediately plopped down on a trailside log and began reviewing the images again. After going through almost 65 frames, I found three that adequately captured my encounter with the impressive sphinx moth. This was my favorite.

—Story and photograph by Danny Brown

500mm lens + 1.4 teleconverter• f/5.6 • 1/1000 sec • ISO 400

We help people discover nature through our online field guide. Visit mdc.mo.gov/node/73 *to learn more about Missouri's plants and animals.*

Burnt Mill Cave Conservation Area

This 340-acre Camden County area boasts oak-hickory woodland and glade habitats with beautiful vistas overlooking the Little Niangua River.

16–35mm lens • f/11 • 1.0 sec • ISO 100 | by David Stonner

PURCHASED IN 2009, the area is named after the wild history tied to this land. Early settler Christopher Arnhold owned and operated the first known grist mill in this area of Camden County. In the middle of the night of the year 1864, vandals drove the Arnholds and their five children from their home and proceeded to burn the home, storehouse, and the mill. The family fled while pursued on horseback to a neighboring farm; no suspects were ever captured to answer for the violent act, and nothing remains of the early settlement. The area has since been known to locals as Burnt Mill.

Present-day Burnt Mill Cave Conservation Area is home to some of the best examples of dry, rocky Dolomite glades and woodlands in central Missouri. Glades that now support a diversity of both herbaceous and woody vegetation were once grown over with eastern red cedar. Management efforts since 2009 include cedar removal, tree thinning for woodland management, and a regimented prescribed fire interval have restored this woodland/glade complex to its near-historic appearance. These unique glade/woodland communities can be found perched high on the ridge tops and along southwest-facing slopes over the Little Niangua River.

In 2010, the 240-acre Little Niangua River Natural Area was designated, so named for the river that flows west to east through the area. Considered the primary natural community feature, this river is home to a number of aquatic species including the federally threatened Missouri endemic Niangua darter. Collectively, the aquatic habitat, riverfront forest, woodlands, glades, and karst topography add to the uniqueness of this natural area.

Visitors can access the conservation area and designated natural area by a service trail that starts at the area's only parking lot off of Kolb Hollow Road. The trail traverses across a bottomland field, over a small stream known as Kolb Branch. It then crosses a moderately steep landscape and offers visitors the choice of a vista overlooking the river at Horseshoe Glade or switchbacks leading down to the riverfront forest. The entire area supports a good population of white-tailed deer, turkey, and a variety of other game species. Burnt Mill also provides important habitat for migrant songbirds during the spring and early summer.

Burnt Mill Cave Conservation Area is approximately 3.2 miles southeast of Climax Springs, Missouri, off of Kolb Hollow Road.

—Paul Johnson, area manager

Burnt Mill Cave Conservation Area

Recreation opportunities: Hiking, wildlife viewing, and hunting under statewide regulations.

Unique features: Glades (Horseshoe Glade), managed woodlands, Kolb Branch, Little Niangua River, and the Little Niangua River Natural Area.

For More Information: Call 573-346-2210 or visit ***mdc.mo.gov/a200902.***

MDC DISCOVER nature

6 IDEAS FOR FAMILY FUN

To find more events near you, call your regional office (phone numbers on Page 3), or visit *mdc.mo.gov* and choose your region.

CREEK SURVEY

AUG. 9 • SATURDAY • 10–11:30 A.M.

Kansas City Region, Burr Oak Woods Conservation Nature Center, 1401 NW Park Road, Blue Springs, MO 64015

Registration required, call 816-228-3766

Ages 5 and older

What lives in and near Burr Oak Creek? Find out as we search for aquatic life and explore this important ecosystem. Be ready to get wet on a fun-filled adventure.

DISCOVER NATURE: FAMILY ARCHERY SHOOTING

AUG. 13 • WEDNESDAY • 6–8 P.M.

Kansas City Region, Parma Woods Shooting Range and Outdoor Education Center, 15900 NW River Road, Parkville, MO 64152

Registration required, call 816-891-9941

All ages, families

Enjoying archery shooting is a great way to spend time together as a family. With minimal equipment and knowledge your family can discover nature through archery. Let our certified archery instructors coach you through the basics of family archery shooting.

INSECT-O-RAMA

AUG. 15 • FRIDAY • 6:30–9:30 P.M.

Southwest Region, Springfield Conservation Nature Center, 4601 S. Nature Center Way, Springfield, MO 65804

No registration required, call 417-629-3423 for additional details

All ages, families

Insects — they fascinate us, they bug us, they surround us, and they bite us, but what would summer be like without them? Join insect specialists and enthusiasts for an evening devoted to celebrating insects and the important role they play in nature. Grab your entire family and participate in some creepy-crawly fun for all ages. A free shuttle will be available for overflow parking at nearby Bryan University.

FAMILIES CATFISH CAMP

AUG. 23 • SATURDAY • 1 P.M. TO AUG. 24 • SUNDAY MORNING

Northeast Region, Ted Shanks Conservation Area, near Hannibal, MO 63401

Registration required by Aug. 8, call 660-785-2420

All ages, familes

Families are invited to discover nature at this free two-day catfish camp. On the first day, participants will learn about catfish biology, regulations and fishing presentations. Saturday evening will be spent on the Mississippi River setting lines. All lines will be checked Sunday morning. Camping and pole and line fishing will be available Saturday evening for those interested.

WHETSTONE YOUTH DOVE HUNT

AUG. 30 • SATURDAY • 1–5 P.M. AND SEPT. 1 • MONDAY • SUNRISE–NOON

Central Region, Whetstone Creek Conservation Area, 3215 County Rd. 1003, Williamsburg, MO 63388

Registration required, call Nicole Walker at 573-254-3330 or email **Nicole.Walker@mdc.mo.gov**

Ages 8–15, with parent(s)

This program will consist of two sessions: a dove clinic and a hunt. At the dove clinic on Aug. 30, participants will learn the basics of dove hunting safety, firearms safety, and shooting skills. Then, Sept. 1, participants will be taken on a dove hunt at Whetstone Creek Conservation Area. Any youth age 8–15 is eligible to apply for this hunt. Youth must be hunter education certified or accompanied by a properly licensed mentor. If a mentor is not available one will be provided.

ATLANTA CA YOUTH DOVE HUNT

SEPT. 1 • MONDAY • NOON–8 P.M.

Northeast Region, Atlanta Conservation Area, Atlanta, MO 63433

Registration required, call Rob Garver at 660-785-2424 or email **Robert.Garver@mdc.mo.gov**

Ages 11–15, with parent(s)

Participate in a youth dove hunting workshop and hunt at Atlanta Conservation Area in Atlanta. The workshop will offer instruction in dove biology, hunting safety, and clay-bird shooting practice and will be followed by an afternoon dove hunt. Any youth age 11–15 is eligible to apply for this hunt. Mentors are encouraged to accompany the youth hunter.

DISCOVER NATURE PHOTO CONTEST

Show the world your idea of discovering nature in Missouri. Using your Google+, Instagram, or Twitter account, tag your Missouri nature photos with "#MDCdiscovernature." Your photos will appear on our website at ***mdc.mo.gov/node/26255***, where you can also read the contest rules. Every month, Department staff will select and post a winning photo. We'll publish all of the monthly winners in the January 2015 issue of the *Conservationist*.

Subscribe online • *mdc.mo.gov/node/9087* • Free to Missouri households

I Am Conservation

Larry and Brenda Potterfield, owners of MidwayUSA, an online retailer of shooting, reloading, gunsmithing, and hunting products near Columbia, Missouri, pose on the sporting clays course at the company's executive conference venue, Midway Farms. The Potterfields grew their business from a small retail firearms store they opened in 1977. In 1988, Larry and Brenda purchased a small recreational farm. Over the years, they've built several watershed lakes and are actively involved with timber stand improvement, habitat development, Share The Harvest, and many other conservation programs. "As MidwayUSA has grown, we've been fortunate enough to purchase a few other farms in the surrounding area, all of which are either actively participating in or scheduled to participate in one or more of the many conservation programs the Missouri Department of Conservation has to offer," said Larry. The Potterfields recognize the importance of conservation in order to preserve and improve wildlife, habitats, and resources for the use and enjoyment of future generations. "We have six grandkids who will grow up with the opportunity to hunt," said Larry. "We want to do what we can to make sure future generations have the same opportunities we've had. Dad taught me to hunt and fish, back when I was growing up on the farm in northeast Missouri. I can't imagine what my life would be like today, had I not enjoyed the benefit of my experiences in those early years." —*photograph by David Stonner*