The background of the cover is a photograph of a natural landscape. On the left side, there is a tall, dark, and craggy rock formation, possibly a cliff face, with some small green plants growing from its crevices. To the right and in the foreground, there are several trees with vibrant green leaves, suggesting a forest or park setting. The sky is a clear, bright blue. The title 'Missouri Conservationist' is overlaid on the top half of the image. 'Missouri.' is in a white, serif font, and 'Conservationist' is in a larger, yellow, serif font with a slight shadow effect.

Missouri. Conservationist

VOLUME 76, ISSUE 5, MAY 2015 • SERVING NATURE & YOU

[NOTE TO OUR READERS]

Investing in Conservation: For Today and Tomorrow

Spring is here and more people are heading outside to enjoy nature. For some, it's solitary time in the woods looking for mushrooms or turkeys, while others are busy gathering the whole family for fishing

or hiking new trails. Whatever the adventure, there are many options to discover nature.

Aldo Leopold once said, "We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect." Thankfully, Missourians recognize the value of the natural resources in our state and have made investments to carry that into the future. It is that citizen-led support and passion for conservation that has made Missouri a national leader in sustaining healthy forests, fish, and wildlife.

But as with any great investment, we must continue to put energy, resources, attention, and time into ensuring success for future decades. Today's work is often focused on improvements for tomorrow, especially when it comes to conservation. All the Department's priorities are focused on conserving forests, fish, and wildlife while providing opportunities for the public to enjoy these resources. We continue to do this by reinvesting, renovating, and reworking some key areas to meet those future goals.

One area of ongoing renovations is at our fish hatcheries across the state. There are four warm-water hatcheries and five cold-water hatcheries where Department staff rear fish year-round to stock public waters for the state's more than 1 million anglers to enjoy. They also play a vital role in restoring state and federally endangered species. Upgrades to these hatcheries helps the Department ensure the health of the 10 million fish stocked annually.

Hatcheries aren't the only resource getting upgrades for future sustainability. The Department is currently renovating select managed wetland areas across the state. Wetland complexes continue to be a priority because they serve as essential habitat for resident wildlife and migrating waterfowl and shorebirds. While these wetland improvements continue to increase the wildlife population, Missourians also flock to these sites by the thousands for spectacular wildlife viewing and hunting opportunities.

The Department also has 10 conservation nature centers, education centers, and visitor centers that provide a place to



Springfield Conservation Nature Center offers visitors many opportunities to learn about and enjoy nature. Several facilities around the state are getting much-needed updates on exhibits.

educate children and families about the outdoors. Exhibits and naturalist-led programs, as well as hiking trails, offer almost 1 million annual visitors a variety of opportunities to learn about nature. Some of these aging facilities are getting much-needed updates on exhibits.

While these are just a few examples, and there are many others on the priority list, it gives a glimpse of the importance of continuing to invest in conservation. Although it is a long-term investment achieved with daily diligence and hard work, it pays off when it really matters — decades down the road when our great-grandchildren are also enjoying the Missouri outdoors.

Thank you for continuing to support conservation. Because of your investment, the future looks bright for Missouri's forests, fish, and wildlife.

A handwritten signature in black ink, appearing to read "Robert L. Ziehmer".

Robert L. Ziehmer, director

FEATURES

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by Loring Bullard, photographs by David Stonner
Defining Ozark streams through fish and fossil

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story and photographs by Larry R. Beckett
Provoke strikes in shallow water with homemade foam spiders

20 **No Dumping**

by Francis Skalicky
Missouri waterways are troubled by illegal aquarium dumping

24 **Smokepole Squirrels**

by Darren Haverstick, photographs by Noppadol Paothong
For more joy in the field, try hunting Mr. Bushytail with a traditional muzzleloader

Cover: Massive bluffs along the upper Jacks Fork River are often composed of dolomite. For more about dolomite and Ozark streams, read *Viva le Dolemieu* starting on Page 10. Photograph by David Stonner

📷 16–35mm lens • f/4.5 • 1/320 sec • ISO 800

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WHAT IS IT?

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



TALKING TURKEY

The March issue had a good article by Jake Hindman about turkey hunting. I have just one question: How can I recognize "Turkey Talk" if I have never heard it? Is there an audiotape available for this?

William Ensley, via email

Conservation Department: The Web address mdc.mo.gov/node/29704 listed on Page 27 of the March issue takes you to the National Wild Turkey Federation's recordings of turkey calls.

Third year is a charm. This year my 10-year-old son harvested his first turkey. I will remember this for the rest of my life. This is only the start of many more years of wildlife management.

Todd-Melissa Deppe, via Facebook

Conservation Department: Congratulations! Conservation makes Missouri a great place to hunt, and it's great that you are carrying on that tradition with your son. Make him a First Turkey certificate at mdc.mo.gov/sites/default/files/resources/2010/10/turkeykids2013.pdf.

LURED BY TRAPPING

The Lure of Trapping in the January issue failed to answer some of the questions I have about this sport: How is the animal killed before it is removed from the trap to avoid damage to the pelt? Also, the beavers were skinned to avoid overloading the boat. Could this meat have been donated to a local food pantry rather than left to decay on the spot?

Rosalyn Pursley, New Haven

Conservation Department: Beaver, mink, otter, and muskrat are typically caught in Conibear-style traps that kill them quickly. Others are humanely dispatched with a .22 caliber firearm. Many trappers sell meat from raccoons and beavers; however, we are not aware of any food pantries that accept wild game, other than venison.

NATURAL BEAUTIES

Just wanted to say how much I enjoyed the articles and photos on birding and turkey banding in the April issue. And the lovely serviceberry blossom on the Letters page was an extra treat. We don't hunt, but love Missouri's natural beauty. Although my eyesight has dimmed and my legs can't hike anymore, we still enjoy trips to Riverlands and environs to see ducks, waterfowl, and eagles. Your magazine is second to none when it comes to photography. Thanks for many years of enjoyment.

Suzanne Hagan, via email

CONTROLLING INVASIVES

I have a marimo moss ball from a fish aquarium. Is there a preferred way to dispose of it? The guy at the pet store said I could throw it in the trash or lake. Is this safe?

Shanna Ramirez, via Facebook

Conservation Department: Please dispose of it in the trash. Never dispose of aquarium pets or plants in a lake or other body of water as that may spread disease or unwanted species. For more information on this topic, turn to Page 20 in this issue or visit mdc.mo.gov/node/4086.

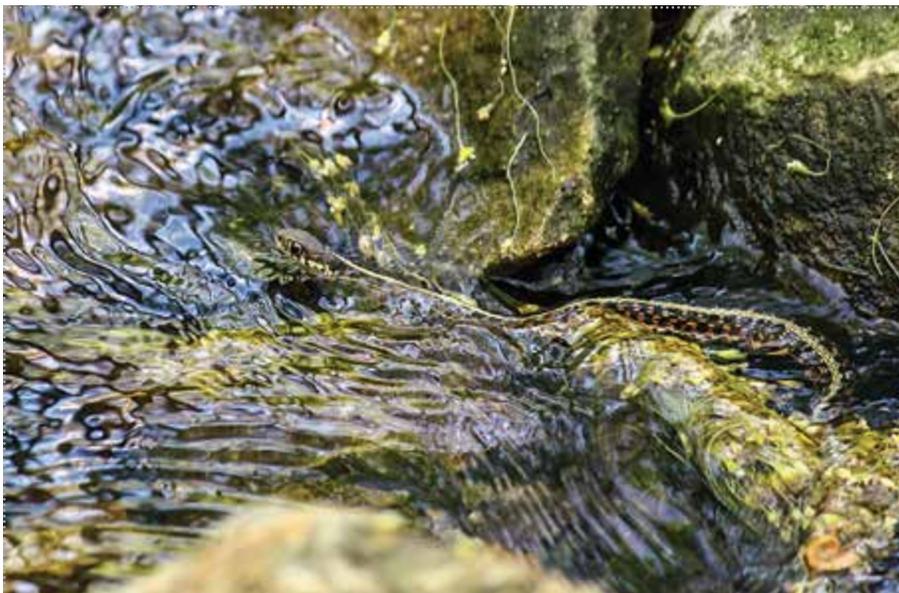
CORRECTION

In *Birds Are Awe-some* [Page 22; April], we misidentified a white-crowned sparrow in first-winter plumage as a field sparrow. Note how these two birds' field markings are different in the photos below. —Sarah Kendrick



White-crowned sparrow

Field sparrow



Reader Photo

SLITHERING THROUGH THE WATER

Scott Garland of Kirkwood, Missouri, shot this photo of a red-sided garter-snake, which is a subspecies of the eastern gartersnake, swimming in a creek at Powder Valley Conservation Nature Center in Kirkwood. Eastern gartersnakes live in a variety of habitats, but favor areas near water, and they are one of the most common and widely distributed species of snakes in North America. Garland said he and his wife visit Powder Valley and nearby Rockwoods Reservation often to walk and view wildlife. "Having my wife along with me is great," said Garland, "because she seems to be the one who spots the deer or turkey or, in this case, the 'water snake,' so I can take the picture."

WHITE-CROWNED SPARROW: JOY VIOLA, NORTHEASTERN UNIVERSITY, BUGWOOD.ORG; FIELD SPARROW: JIM RATHER



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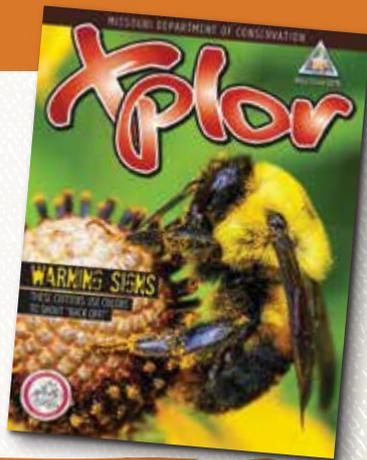
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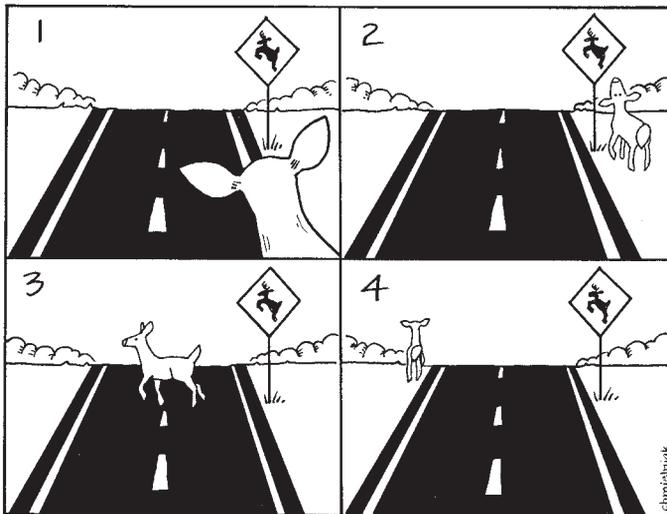
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HUNTING & FISHING CALENDAR



Agent Notes

Missouri's Float Streams: A Relaxing Getaway



AS THE DAYS get longer and the temperatures begin to rise, more and more folks are looking for a relaxing getaway. With dozens of float streams and hundreds of miles of cool, spring-fed water in Missouri, a float trip is a great option. Floating on any of Missouri's many streams offers fishing, wildlife watching, and the serenity of listening to the water as it flows downstream.

As with any fun outdoor activity, there are things you must do to ensure a safe and enjoyable floating experience. Here are a few things to consider. Take time to learn about the stretch of water you plan to float. Make sure that you don't overdo it. As conservation agents, we regularly patrol waterways throughout the year, and one thing we commonly encounter is people who take on a longer float than they expected. If solitude is what you're after, try to go on a weekday. Make sure to take hats, sunglasses, and, most importantly, sunscreen. Pack your essentials in a dry bag and take a life jacket. There are plenty of businesses along Missouri's streams that provide canoes, transportation to and from the water, and other essentials.

For more information on Missouri's float streams, visit mdc.mo.gov/node/17947.

Darren Killian is the conservation agent for Ripley County. If you would like to contact the agent for your county, phone your regional conservation office listed on Page 3.

FISHING	OPEN	CLOSE
Black Bass from Ozark Streams	05/23/15	02/29/16
Bullfrogs and Green Frogs	Sunset	Midnight
	06/30/15	10/31/15
Nongame Fish Giggling		
Impounded Waters	02/01/15	01/31/16
Streams	09/15/15	01/31/16
Paddlefish on the Mississippi River	03/15/15	05/15/15
	09/15/15	12/15/15
Trout Parks		
Catch-and-Keep	03/01/15	10/31/15
HUNTING	OPEN	CLOSE
Coyote (restrictions apply during April, spring turkey season, and firearms deer season)	All year	None
Deer		
Archery	09/15/15	11/13/15
	11/25/15	01/15/16
Firearms		
Urban Zones Portion	10/09/15	10/12/15
Early Youth Portion	10/31/15	11/01/15
November Portion	11/14/15	11/24/15
Antlerless Portion (open areas only)	11/25/15	12/06/15
Alternative Methods Portion	12/19/15	12/29/15
Late Youth Portion	01/02/16	01/03/16
Groundhog (woodchuck)	05/11/15	12/15/15
Pheasant		
Youth	10/24/15	10/25/15
Regular	11/01/15	01/15/16
Quail		
Youth	10/24/15	10/25/15
Regular	11/01/15	01/15/16
Rabbit	10/01/15	02/15/16
Squirrel	05/23/15	02/15/16
Turkey		
Archery	09/15/15	11/13/15
	11/25/15	01/15/16
Firearms		
Youth	04/11/15	04/12/15
Spring	04/20/15	05/10/15
Fall	10/01/15	10/31/15
Waterfowl	see the <i>Waterfowl Hunting Digest</i> or mdc.mo.gov/node/3830	

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 MDC

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Cottontail nest

My dog found a nest of baby rabbits in our yard, but I don't see the mother. What can I do to help them?

There was an article in the first issue of the *Missouri Conservationist*, July 1938, that answered this question perfectly. Here's a short excerpt: "Leave the wildlife babies in their cradles. With many of the outdoor areas over the state being used by picnickers and fishing parties, some persons almost without any effort on their part find young birds or animals. Some of these people may believe they are doing a kindness in capturing the creatures because they appear to have been abandoned. ... The parents will return and take much better care of them than could any human. The outdoors is a day nursery for these wildlife babies — leave them there." Sound advice that still rings true today. For more information, visit mdc.mo.gov/node/4706.

What kind of permits do I need to take my grandchildren fishing? Do you have any suggestions on good fishing activities for kids?

Everyone who fishes must have the appropriate lifetime, annual, or daily fishing permit, or qualify for an exemption. Any Missouri resident 65 or older, or any person 15 years or younger, doesn't need a permit. Youth who are fishing without a permit are limited to the following methods: pole and line, gig, bow, crossbow, snaring, grabbing, and snagging. Adults without a fishing permit cannot actively assist with fishing. Since younger kids are unpredictable around fish and fishing, it's often best for adults to have a fishing permit as well. There are several special events coming up that offer great opportunities for kids and families to fish and have fun, including the Spring Kids Fishing Days May 2

(Bennett Springs and Montauk) and May 16 (Maramec and Roaring River) at the state trout parks. Everyone in the state can fish without a permit during the Department's annual Free Fishing Days June 6–7. Requirements for special permits may still apply at some county, city, or private areas. For more information about upcoming fishing events, permits, or the free "Find MO Fish" mobile app, visit mdc.mo.gov/node/89.

When I was fishing in another state, I noticed a weird-looking slime covering the bottom of the stream. How do we keep that out of Missouri streams?

The weird-looking slime you saw also has a weird-sounding name. It's called rock snot. Didymo, or rock snot, is a single-celled algae that can take over a stream, making it impossible to fish. To keep rock snot out of Missouri, use wader wash stations at trout park areas before entering a stream. Also, be sure to check your waders and fishing gear for algae. Clean all gear in a 2 percent bleach solution or with dishwashing detergent, or dry any item that's been in the water by exposing it to sunlight for 48 hours. These simple precautions can make a huge difference in keeping our Missouri streams healthy. Learn more about preventing the spread of rock snot at mdc.mo.gov/node/15265.



Didymo



Get Hooked With the Department's Free Fishing Days June 6–7

Get hooked on fishing with the Missouri Department of Conservation's Free Fishing Days June 6–7. During Free Fishing Days, anyone can fish in the Show-Me State without buying a fishing permit, trout permit, or trout park daily tag. Normal regulations remain in effect, such as limits on size and number of fish an angler can keep. Special permits may still be required at some county, city, or private fishing areas, and trespass laws remain in effect on private property.

Conservation makes Missouri a great place to fish, and Free Fishing Days encourages people to sample the state's abundant fishing opportunities. Missouri is blessed with more than 1 million acres of surface water, and most of it provides great fishing for Missouri's 1.1 million-plus anglers. More than 200 different fish species, including 20 game fish, are found in Missouri.

For information on Missouri fishing regulations, permit requirements, fish identification, and more, get a copy of the Department's *2015 Summary of Missouri Fishing Regulations* at your local Department office, online at mdc.mo.gov/node/6108, or wherever permits are sold.

Anglers can also get weekly fishing reports, annual prospects, and more through the Department's "Find MO Fish" free app for mobile phones and other mobile devices. Find MO Fish has a geo-location feature to guide boats to fish-attractor locations. Anglers can also view regulations for specific fish species and locations, and get detailed information on various species through the included fish guide. The free app will even show you how to obtain fishing permits. Learn more and download Find MO Fish at mdc.mo.gov/node/15421.

Volunteer to Help the Department With Breeding Bird Survey

Calling all bird lovers and nature enthusiasts. Are you someone who can tell the difference between a Baltimore oriole, indigo bunting, and a scissor-tailed flycatcher? Do you know what a cerulean warbler sounds like? The Department of

Conservation is in need of experienced birders to assist with the 2015 North American Breeding Bird Survey (BBS).

The BBS is a long-term, large-scale, international bird-monitoring program that started in 1966. According to Janet Haslerig, resource scientist with the Department, the purpose of the BBS is to track the status and trends of North American bird populations.

“Bird populations are subjected to numerous, widespread threats, including habitat loss, habitat fragmentation, land-use changes, and chemical contaminants,” said Haslerig. “If significant declines are detected, their causes can then be identified and appropriate actions taken to reverse them before populations reach critically low levels.”

Each year during June — the height of the bird-breeding season for most of the U.S. — vol-

unteers collect bird population data along roadside survey routes. Each survey route is 24.5 miles long with stops at half-mile intervals. At each stop, a three-minute point count is conducted. During the count, every bird seen or heard within a quarter-mile radius is recorded. Surveys start one-half hour before local sunrise and take about five hours to complete.

There are currently 17 vacant routes (pwrc.usgs.gov/bbs/RouteMap/Map.cfm) in Missouri that need volunteers.

To volunteer, a person needs access to suitable transportation, must possess good hearing and eyesight, and have the ability to identify all breeding birds in the area. Haslerig stressed that knowing bird songs is extremely important. Most birds counted on these surveys are singing males, she said.

All new BBS volunteers must also success-

fully complete an online training program before their data can be used in any BBS analysis. For more information or to volunteer, contact Janet Haslerig at Janet.Haslerig@mdc.mo.gov or 573-522-4115, ext. 3198.

The Department to Hold Vehicle and Equipment Auction June 6 in Salem

The Department of Conservation will hold a public auction of various used vehicles and equipment Saturday, June 6, starting at 10 a.m. at its Salem Maintenance Center, located at the junction of Highway 72 and Highway 32. The auction will feature nearly 200 items, including dozens of boats, vehicles, and trailers, along with outboard motors, tractors, dozers, farm equipment, and more.

Those interested can view auction items Friday, June 5, at the Salem Maintenance Center



WHAT IS IT?

Western Kingbird

Tyrannus verticalis

Western kingbirds forage from power lines or large trees for flying insects. The name *kingbird* is derived from a small, bright-orange patch of feathers atop the bird's head. This “crown” is only flashed on occasion, often in a display of aggression. The western kingbird is most common on the western side of the state. It occurs in semi-open country, roadsides, fields, and agricultural land wherever there are enough scattered trees to provide hunting perches and nesting sites. Nests are often located on the cross arms of power poles or on stadium lights. Pairs mate monogamously, staying together to feed their young for up to three weeks after the young have fledged. Each brood contains three to seven eggs, and one to two broods may be laid each year. Western kingbirds are summer residents, and they spend their winter on the Pacific side of southern Mexico, southward to Costa Rica.

—*photograph by Noppadol Paothong*



Richwoods Angler Catches State-Record Paddlefish

Andy Belobraydic III will remember his first paddlefish-snagging trip for the rest of his life. The 33-year-old Richwoods resident turned an already successful day on Table Rock Lake into an unforgettable one by snagging a state-record paddlefish March 21. Belobraydic's behemoth weighed 140 pounds, 9 ounces; breaking the old record of 139 pounds, 4 ounces caught in 2002 at Table Rock. The fish, which was caught on the James River arm of the lake in Stone County, measured 56¾ inches in length (measured eye to fork of tail) and had a girth of 43¾ inches.

Belobraydic had previously snagged nongame fish, but had never snagged paddlefish. Before he hooked the state record on that red-letter day, Belobraydic had already snagged two paddlefish. He released the second one because it was too small (Missouri fishing regulations allow anglers to keep two paddlefish). As soon as he hooked his third paddlefish of the day, he knew lack of size wasn't going to be a problem.

"I told my buddies to take a picture of it in the water because I knew if I couldn't get it in the boat, no one was ever going to believe this," Belobraydic said.

Thirty minutes after initially hooking it, Belobraydic finally boated the fish. It was then taken to the Missouri Department of Conservation's Shepherd of the Hills Fish Hatchery near Branson where it was weighed on a certified scale. The catch was officially certified as a state record Monday morning.

Belobraydic's state-record catch is a product of the Department's paddlefish management. Because of the changes man-made impoundments have brought to Missouri's waterways, the state's paddlefish population is no longer self-sustaining. Today, the Department maintains the population through artificial means. Each spring, a small number of egg-bearing females are collected from Table Rock Lake, and the eggs are removed and incubated at the Department's Blind Pony Hatchery. The resulting fry are reared in the hatchery, and the young paddlefish are then released into the Lake of the Ozarks, Table Rock Lake, and Truman Lake later in the summer. This is an example of how the Department works with and for the state's citizens to sustain healthy forests, fish, and wildlife.

Beginning this year, the Department is conducting a five-year tagging project. This will help biologists learn more about the habits of the state's paddlefish and how anglers are enjoying this unique fishing opportunity. Tags and catch information from harvested paddlefish must be sent in for reward. Sublegal paddlefish are not eligible for reward, and tags should not be removed. Information from all tagged paddlefish is valuable to the Department, and anglers should report all tagged paddlefish they catch. For more information about the state's tagging project, visit mdc.mo.gov/node/17769. —Francis Skalicky

(continued from Page 7)

from 8 a.m. to 5 p.m. Preregistration June 5 is from 10 a.m. to 5 p.m. Registration the day of the sale begins at 7:30 a.m.

The list of auction items and procedures will be online the second week of May at mdc.mo.gov/node/5585. A complete lot listing and terms of sale will be available at the registration desk the day of the auction. For more information, call the Department at 573-522-4115, ext. 3283.

Celebrating 15 Years for Grow Native!

No turkeys. No monarchs. No quail, no deer, and no black walnut or oak barrel industry — what a dismal life we would have in Missouri without our native plants. The vegetation of our prairies, wetlands, forests, and other natural communities make Missouri distinct and beautiful. The plants native to our state are also the driving force behind all other wildlife that we could not do without, are critical to the protection of our streams, air, and soil resources, and are the essential raw materials of many industries.

All plants — described in the words of the native plant advocate and entomologist Dr. Doug Tallamy — allow us, and nearly every other species, "to eat sunlight." Plants are converting the rays of the sun into black walnuts, acorns, big bluestem grass, and myriad other plant products readily consumed by wildlife and humans.

But even our native plants that don't want to be eaten are critically important: their leaf tissue is laden with natural chemicals to keep most insects and other animals from eating them. Over thousands of years of adaptation, however, certain insects native to Missouri have developed tolerance to the leaves of oak, milkweed, cherry, pawpaw, or other plants — and they will eat nothing else. While these insects — many of them caterpillars of moths and butterflies — are "eating sunlight," they are next in line to become food for baby birds, amphibians, and many other animals.

In recent years, Missourians' recognition of all the values of native plants has soared. This is due in part to the efforts of the Grow Native! program and the work of other conservation partners. Begun in 2000 as a program of the Missouri

DID YOU KNOW?

We help you discover nature.



Dickcissel

The leaves of native plants provide food for caterpillars, which in turn are critical food for baby birds and other animals.

departments of Conservation and Agriculture, Grow Native! was transferred to the nonprofit, 49-year-old Missouri Prairie Foundation (MPF) in 2012. Since then, this program, the goals of which are to increase the demand for and supply of native plants for use in the built environment and altered landscapes, has been carried out by a committee of native plant nursery owners, educators, garden center managers, and other native plant professionals.

Grow Native! promotes the use of native plants by organizing native landscaping workshops, holding a Grow Native! professional member annual conference, producing monthly articles for several gardening and farm publications, creating native plant tags as a marketing tool for native plant growers, and maintaining the extensive Grow Native! website, which includes a native plant database.

"MPF validated the worth of Grow Native!'s accomplishments with its gutsy commitment to adopt the program in 2012," said Betty Grace, the Grow Native! Committee chair. "Since then, MPF's dynamic leadership and steadfast volunteers drive the program. They act from conviction about the essential role native plants play in the overall vitality of the environment, and commit their time and sustained efforts to Grow Native!'s mission."

The Grow Native! program of the Missouri Prairie Foundation has organized many events in 2015 to recognize this anniversary and the vital importance of choosing to plant native plants in rural, suburban, and urban areas. For more information, visit grownative.org or send a message to grownative@moprairie.com. —Carol Davit, executive director of the Missouri Prairie Foundation

Hummingbirds Are Back — Time to Hang Feeders

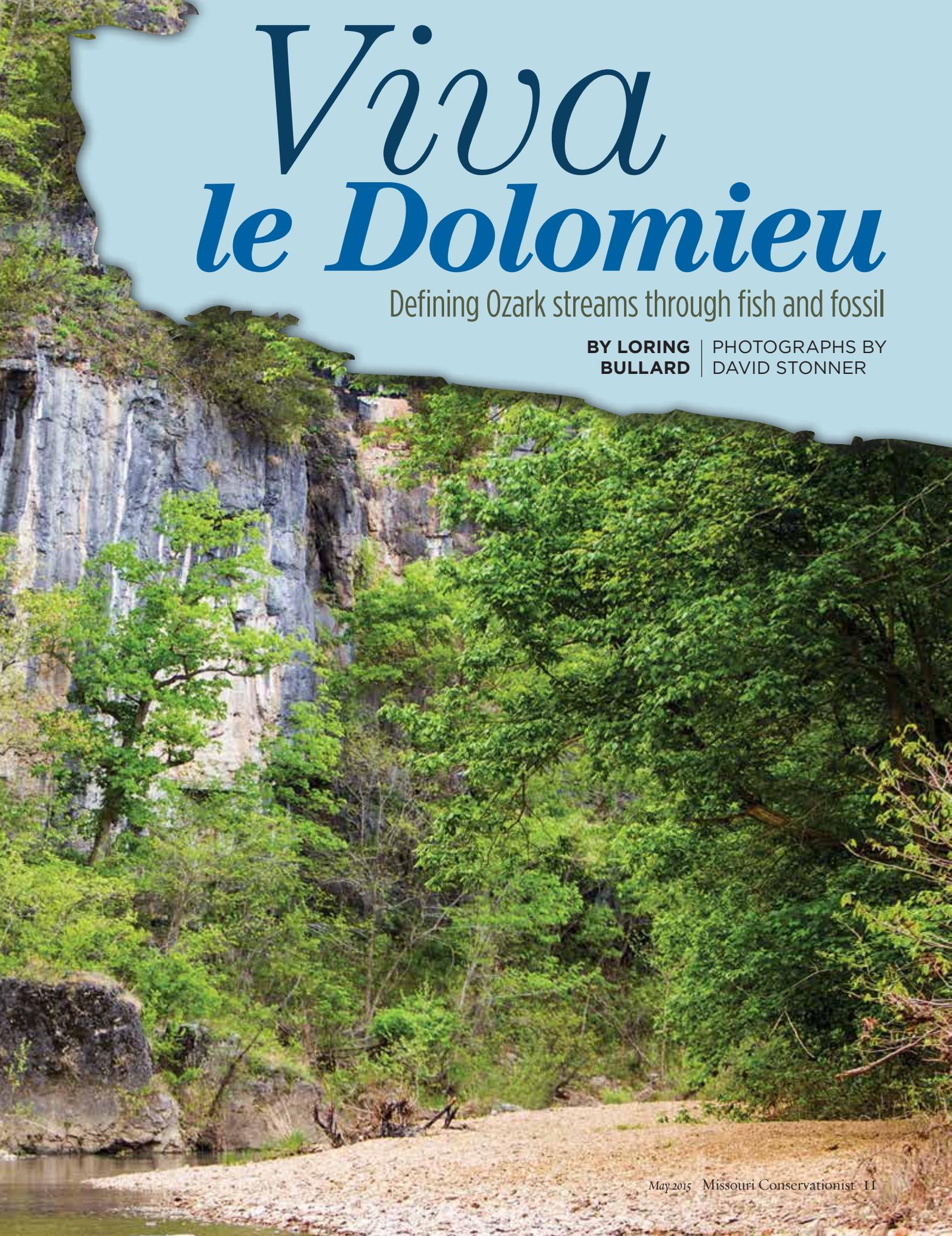
- » Ruby-throated hummingbirds migrate from their nesting range in the eastern half of the United States and southern Canada to their winter range along the Gulf Coast from Texas and Florida south to Mexico. Many individuals fly nonstop over the Gulf of Mexico to winter in Central America all the way to Panama. The first arrivals return in late March to southern Missouri, and by late April they are statewide. Fall migration begins in August and most hummingbirds will leave Missouri by early October.
- » You can encourage these fascinating summer visitors to visit your yard or garden by hanging nectar feeders and planting nectar-producing plants.
- » The best food sources are Missouri's native plants, which supply hummingbirds with the nutrient-rich nectar that can provide up to 90 percent of their diet. Ruby-throated hummingbirds especially frequent red or orange tubular flowers, such as trumpet creeper, native honeysuckles, and red buckeye.
- » For immediate gratification (yours and the birds'), fill nectar feeders with a sugar solution, and hang them where you can see them from inside your house.
- » Choose feeders with bee or wasp guards, which are plastic mesh covers that prevent insects from reaching the nectar.
- » Make nectar from a mixture of 1 part white table sugar dissolved in 3 or 4 parts water. **Never use honey or artificial sweeteners.** White table sugar, or sucrose, is crystalized cane or beet sugar.
- » Most hummingbirds know what nectar feeders are because people from Quebec to Panama feed them throughout the year. Red food coloring is not needed to attract hummingbirds.
- » **Be sure to clean the feeder with only hot water to reduce the growth of bacteria, which can sicken hummingbirds.** Change the nectar weekly or more often if it becomes cloudy.
- » For more information about attracting hummingbirds, including the kinds of hummingbirds that visit our state and the list of native plants they prefer, visit mdc.mo.gov/node/4624.

Ruby-throated hummingbird





Bluffs along the upper Jacks Fork River are often made up of dolomite, a rough, gray rock named for the 18th century French naturalist Deodat de Dolomieu.



Viva le Dolomieu

Defining Ozark streams through fish and fossil

BY LORING BULLARD | PHOTOGRAPHS BY
DAVID STONNER

Towering bluffs, crystal clear water, feisty fish — this combination sets Ozark streams apart. The massive bluffs admired by floaters are often composed of dolomite, the rough, gray rock that makes up a major portion of the Ozark landscape. Streams in the Ozarks run cool and clear because of the many springs that sustain them, and as for the fish — well, the smallmouth bass may be one of the scrappiest around.

Fish Fossils in the Alps, the Origins of Dolomite

Dolomite gets its name from Deodat de Dolomieu, an 18th century French naturalist who hiked and investigated the Alps. High on the mountainsides, Dolomieu saw fossils of marine animals and wondered how they got there. One rock in particular — a dense stone used by ancient Greeks and Romans for columns and statues — caught his attention. He described it in a scientific paper, and in 1792 a colleague at the Academy of Sciences named it “dolomite” in his honor.

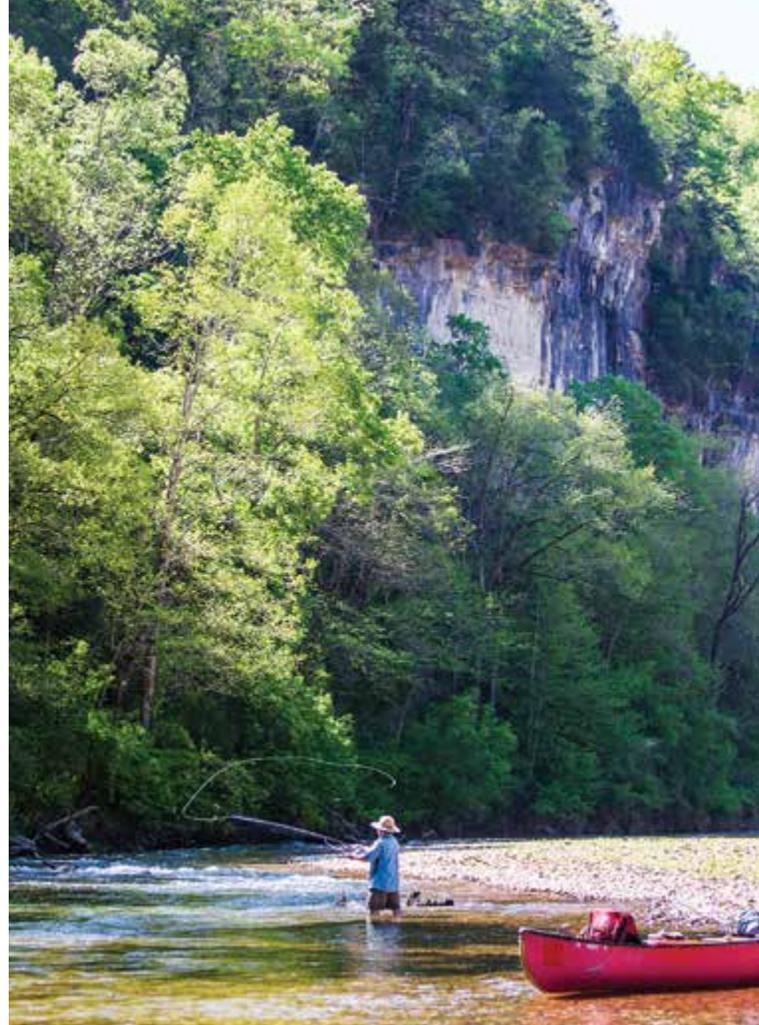
Dolomieu demonstrated that dolomie (now called dolomite or dolostone) was a carbonate rock similar to limestone but more difficult to dissolve in weak acid. The fossils he saw high in the Alps were clues to this rock’s origins. It formed from bits and pieces of marine animals (containing carbon) and limy mud that settled to the bottom of a warm and shallow ocean and, over millions of years, turned to solid rock.

Where the Water Runs so Cool and Clear

In the Ozarks, slightly acidic rainwater percolating through the soil has dissolved and widened cracks in the underlying carbonate bedrock to form a porous terrain called karst. Dolomite not only rises in scenic bluffs, it

Get Involved

Missouri has 110,000 miles of streams that provide recreation, water, and serenity, but they need your help. Join a Stream Team today and do your part. Stream Teams are made up of people with an interest and a passion for Missouri streams. Exploring the Stream Team website, mostreamteam.org, will show you how citizens have adopted a stream, volunteered their own time and effort to improve it, and have banded together with other Stream Teams to help improve Missouri’s streams.



Dolomite not only rises in scenic bluffs, it also hosts the large caves and springs that are hallmarks of karst topography.

also hosts the large caves and springs that are hallmarks of karst topography. Springs are the primary source of flow to Ozark streams during dry weather and the main reason the water stays so cool and clear.

Clear streams provide exciting recreational opportunities. Floaters often bring along two pieces of equipment: a fishing pole and a diving mask. With one, they try to catch fish. With the other, they go below the surface and see the fish they aren’t catching. On hot afternoons, when fishing slows, anglers can simply wade into the spring-fed streams to cool off. With masks on, however, they can fully submerge and explore the underwater world. They can swim through the transparent water and pass over gravel studded here and there with dark chunks of dolomite, fallen from the bluffs above.

The Eye of the Smallmouth

Sometimes smallmouth bass can be found lurking in the shadows of the dolomite. They sit quietly around and





under the dolomite boulders with their mouths gaping and gill covers flaring. Occasionally, these fish allow people to get surprisingly close — enough for one to look into their eyes, which, although expressionless, also seem ancient and knowing, as though they could see into some dim recess of the past. These large eyes, however, serve practical purposes. Smallmouth bass are primarily sight-feeders. Clear water, like that found in Ozark streams, is their preferred habitat.

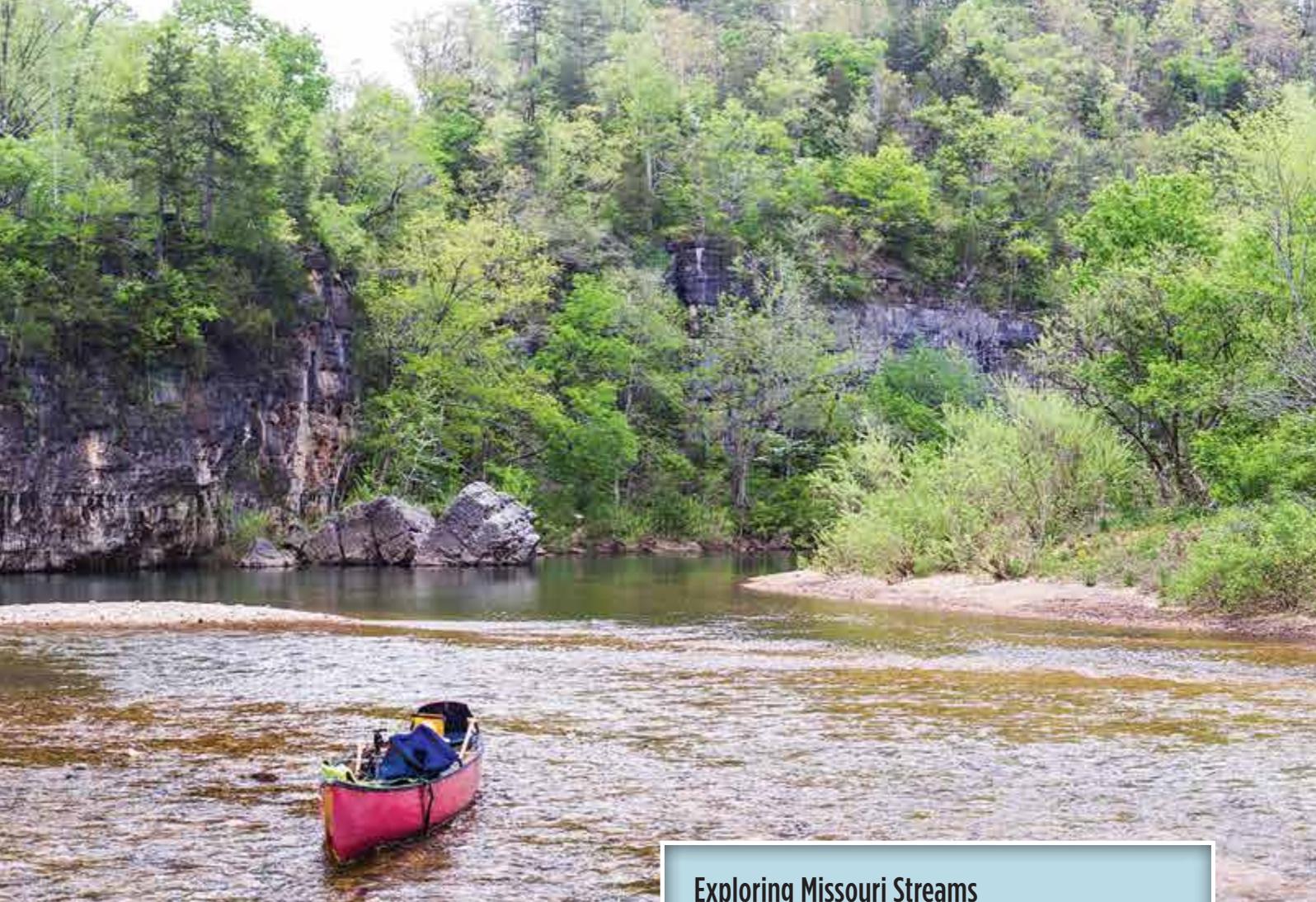
Surprisingly, this fish, whose scientific name is *Micropterus dolomieu*, is also named for Monsieur Dolomieu. It is a fitting tribute since both man and fish are (or were) tenacious and scrappy. At the age of 18, Dolomieu killed another young man in a sword duel, which landed him in prison for several months. In 1798, he served as a scientist on Napoleon's military expedition to Egypt. His ship sank off the coast of Italy, and he struggled to shore only to be captured and imprisoned again, this time in Naples. Other scientists, even from countries at war with France, protested this rough treatment of a distinguished naturalist. Dolomieu's friends



Ozark streams are the preferred habitat of smallmouth bass (*Micropterus dolomieu*), which are also named for Deodat de Dolomieu.

at the Academy of Sciences finally came to the rescue and secured his release.

In 1802, another Frenchman, Bernard Germain de Lapepe, examined a fish specimen brought overseas



Exploring Missouri Streams

Floating Missouri's streams is a fantastic way to enjoy our state's great outdoors. Whether your passion is angling for smallmouth or rock bass, keeping an eye out for elusive wildlife, or simply drifting downstream with the current, a day on the river will lift your spirit. Visit mdc.mo.gov/node/17947 for a map of boat ramps in Missouri, floating events, and much more. The Department also offers an online field guide at mdc.mo.gov/node/73 to help you identify Missouri's plants, animals, and mushrooms along the way.

from America. Lacepede worked at a biological institute in Paris, where he described and classified newly discovered species of fish and reptiles. From its long travels and rough handling, the American specimen's dorsal fin arrived damaged. Lacepede mistakenly applied the generic name *Micropterus* (meaning "small fin") and affixed the specific name *dolomieu*, most likely to honor his fellow countryman and colleague who had died the year before of a lung disease probably contracted during his two years spent in the dank Naples prison.

Putting It Into Ecological Context

Because of their vigor and fighting spirit, smallmouth bass have since been introduced to environments around the world. Ozark streams, however, are part of their original North American range, their ancestral home. Smallmouth and dolomite, although named for the same man, are largely opposites. One is lifeless, the other zestful; one is hard and immobile, the other a sleek study in motion. What they share, however, is greater than a namesake: both have been around for millions of years and

contributed to the formation of a stable ecological context for Ozark streams. In significant ways, they define the Ozark streams. Though he is not alive to appreciate it, Dolomieu's name is attached, to this day, to important and durable parts of nature. ▲

Loring Bullard is a freelance writer and former executive director of the Watershed Committee of the Ozarks. He is currently teaching biology and environmental science at Drury University in Springfield. Loring enjoys canoeing, camping, fishing, biking, and writing.

HOW TO BUG A BLUEGILL

PROVOKE STRIKES IN SHALLOW WATER WITH
HOMEMADE FOAM SPIDERS

STORY AND
PHOTOGRAPHS
BY LARRY R.
BECKETT



The bluegill

is undoubtedly one of Missouri's most popular game fish. They are found throughout the state, usually bite willingly, and put up a decent fight for their body size and shape. Chances are, your first experience chasing underwater game involved pursuing bluegill with a bobber and a hook adorned with a wiggly creature. Earthworms, crickets, and mealworms all become quickly engulfed when strung on a hook and dangled in front of a bluegill. In addition, bluegill's willingness to eat small bugs opens the door to tempting them with different bait — a foam spider.

INEXPENSIVE AND EASY TO MAKE

Foam spiders are simple in design. Most consist of a hook, a piece of foam, and something to represent legs. More complicated designs can include tails, eyes, and multiple segments, but the simple designs are often just as effective on the water. You can get pre-made foam spiders at most sporting goods stores, but catching a bluegill on a lure that you designed and created is a great deal more rewarding. Best of all, they can be made in a few simple steps.



HERE'S WHAT YOU NEED:

Creating foam spiders requires only a few materials:

- » Foam bodies
- » Legs
- » Thread
- » #10 Hooks
- » Glue

Foam bodies can be purchased at most sporting goods stores or online. ❶

For the body, consider using closed-cell craft foam, which works just as well, is far less expensive, and can yield hundreds of bodies of your own design from a single sheet. ❷

If using craft foam, make sure to get the closed-cell type if you want the lure to float. Cut a piece of foam into a rectangular strip about $\frac{3}{8}$ inch wide by about one-and-a-half times the length of the hook. Trim the corners off one end of the foam. ❸



HERE'S WHAT YOU DO

1



Place the hook in the vice. Starting toward the front of hook, wrap the thread forward five turns, and then wrap toward the bend to lock the thread in place.

2



Once the thread is locked in place, wrap forward to the hook eye, and then continue wrapping to the bend of the hook. The shank of the hook should have a solid thread base.

3



5



Wrap the thread around the body and hook several times to secure it in place. Pull the thread tight with each wrap.

6



Wrap the thread to the front of the hook and stop about one hook-eye length behind the eye.

7



9



Trim the head of the foam spider just beyond the eye of the hook.

10



Place one leg on one side of the foam body with the midpoint being at the thread location. Wrap and pull the thread tight two times.

11



13



Tie several half-hitch knots behind the eye of the hook.

14



Place a small amount of waterproof glue on the knots and trim the thread.

15



Trim the loose end of the thread.



Place the trimmed end of the body on top of the hook, and pinch the body around the hook.

Bend the foam forward so that it lies along the shank of the hook.



Hold the foam and wrap the thread around the body and hook several times. Pull the thread tight with each wrap.

Place the other leg on the other side of the foam body and wrap twice.



Lift the head slightly and wrap the thread forward around the hook shank several times just behind the eye of the hook.

Trim the legs so they are even and the desired length.



The foam spider is ready to fish.



PRESENT YOUR NEW SPIDER AND GET READY FOR ACTION

Fishing a foam spider is simple and exciting. Since most foam spiders are made to float, the bite will be on top of the water. Watching a bluegill pop your bait can quickly get your heart pumping. The foam-spider method is most effective when bluegills are in shallow water. This can be anytime during the spring or summer. Warm autumn days can also lure bluegill out of deeper water. To fish a foam spider, all you need to do is put it over the top of a bluegill. You can present the lure with a simple cane pole or with a lightweight fly rod. Drop the spider into the area where bluegill are feeding and let it sit for a few seconds. If nothing hits the lure, then twitch it a couple of inches by moving the end of the cane pole or pulling quickly on the fly line. Let it sit again and repeat until a strike occurs. It usually won't take long if bluegill are feeding in the area.

Pursuing Missouri's fish doesn't have to involve a truckload of expensive gear to be enjoyable. A cane pole, a piece of fishing line, and a foam spider can provide a day of fast-paced, fish-catching action and a renewed childhood appreciation for the joy of bug-ging a bluegill. ▲

Larry Beckett is a writer, photographer, and videographer. He grew up in southwest Missouri, where he spent much of his time checking every waterhole for hungry bluegill.



NO DUMPING

BY FRANCIS SKALICKY

Missouri waterways are troubled by illegal aquarium dumping

I imagine casting your fishing line into one of Missouri's streams or reservoirs and coming up with something ... unexpected. In 2007, anglers hooked piranhas at two different locations at the Lake of the Ozarks. A woman fishing at Troost Lake, Kansas City, in 2011, reeled in a large, brightly colored goldfish. And in 2013, anglers caught one alligator and saw two others while fishing at Pomme de Terre Lake in Hickory County.

Though separated by dates and geography, these events have one thing in common: aquarium dumping. Pouring the contents of aquariums into close-to-home waterways may seem like an inconsequential and humane option for those overwhelmed by caring for aquarium-bound pets, but it can threaten aquatic habitats and make life difficult for native aquatic species.

"Missouri's native fish and wildlife have developed through a long history of diversity and natural selection," said Andrew Branson, a fisheries program specialist for the Missouri Department of Conservation. "Invasive species can quickly disrupt the entire ecosystem by creating changes that native wildlife are not designed to combat."

There Goes the Neighborhood

In Missouri, the preferred habitat of piranhas, goldfish, alligators, and other nonnative exotic pet fish, reptiles, and amphibians is aquariums. Some species are bred to be hardy and highly adaptive to ensure longevity inside an aquarium. These survival traits, which are beneficial in captivity, can create problems if the animals are released from a residence into local waters.

"Some aquarium species are among the hardiest fish and plants in the world," said Kenda Flores, an aquatic habitat specialist for the Department of Conservation. "Aquarium owners and importers who dump them are introducing tough, nonnative species into our state waters.

"These species compete with native fish populations and local aquatic plant communities and threaten their diversity and abundance. They can change whole ecosystem processes by upsetting the natural balance. This lowers the ecosystem's ability to cope with different pressures and impacts. All of this can result in lower biodiversity and an unhealthy ecosystem."

What's in Your Water

Judging from what's been netted in biologists' surveys and anglers' fishing trips, the species entering the state's waters from aquarium dumping are diverse.

"I've managed the St. Louis Urban Fishing Program for 28 years, and I can recall a variety of nonnative species that were likely introduced from aquariums," said Kevin Meneau, a Department of Conservation fisheries management biologist. "These include pacu (a relative of the piranha), piranha, plecostomus (a South American catfish), koi, Chinese mystery snails, a red-tailed shark, and caiman."



Dumping: Not Just for Fish

When the contents of an aquarium are transferred to the nearest pond or stream, exotic aquatic animals aren't the only problem. Hydrilla (*Hydrilla verticillata*), a once-popular aquarium plant now hated for its aggressive growth, has been found in several ponds in Greene County and elsewhere around Missouri. In other states where hydrilla has become established, this herbaceous perennial has severely impacted sport fishing and other water-based recreation. Because the plant's reproductive parts can be transported by wildlife, it's unclear how it arrived in Missouri. However, there's no doubt that the hydrilla plants discovered in Missouri — like those in other states where it's more prevalent — have a lineage that can be traced to plants that once adorned aquariums. Elodea, giant elodea, and Eurasian watermilfoil are other aquarium plants that often end up as freshwater problems.

Spreading Disease

Aquariums can be a cocktail of parasites and exotic diseases that can pose serious problems for native species. For example, African clawed frogs are popular aquarium pets that can carry the Chytrid fungus. This can be fatal to hellbenders, a Missouri amphibian that's already in trouble. Chinese mystery snails, goldfish, arrowanas, and pengasius catfish are among a long list of other exotic



Plecostomus, a South American catfish

aquarium species that potentially harbor diseases and parasites that can be harmful to other fish and, in some cases, humans.

A Nationwide Issue

Aquarium dumping isn't limited to Missouri. Pam Fuller, a research biologist for the U.S. Geological Survey, says studies show that 30 percent of all the nonnative fish in the nation's waterways get there from aquarium dumps. The state of Florida has given up trying to eradicate hydrilla and has spent millions on merely trying to keep this fast-spreading plant under control.

Misplaced good intentions are at the heart of this problem. Public attitude surveys have repeatedly shown that Missourians care about conserving forests, fish, and wildlife, which indicates that no one is dumping an aquarium into a lake or stream with the intention of ruining bass and crappie fishing in the area. Nor are they hoping the exotic plants leaving their fish bowl will grow to the extent that they interfere with the operation of recreational boat motors and clog municipal water intake devices for nearby communities. They simply view their action as a kindhearted solution to unforeseen fish-care problems.

"People want to get rid of fish because they outgrow their tank, they want to go back to smaller fish, or a fish becomes troublesome for its tank mates and they want to get rid of it so it doesn't hurt or kill other fish," said Karl W. Keller, II, vice president of Petsway, Inc. in Springfield. "Before purchasing a fish, buyers need to consider how big the



Hydrilla caught on a boat trailer, pulled from a pond in Greene County. Once a popular aquarium plant, hydrilla is now hated for its aggressive growth.

30 PERCENT OF ALL THE NONNATIVE FISH IN THE NATION'S WATERWAYS GET THERE FROM AQUARIUM DUMPS.

fish will eventually become, the cost of properly housing and maintaining the fish, and also the temperament and compatibility of new fish with their potential tank mates.”

Do Your Homework

“You should always research what you plan to purchase prior to buying,” said David Whitcraft, the president of the Heart of America Aquarium Society, an aquarium club based in Kansas City. “What type of water does it prefer? Where in the world did it come from? What does it eat? How large does it get? How aggressive is it? These are all questions that need answers.”

Whitcraft said some people have false perceptions about the growth potential of captive pets and this can lead to post-purchase problems.

“The main thing people need to look at is the maximum adult size of the aquatic creature in question,” he said. “There is a myth in this hobby that the size of the tank will limit growth or that the animal won’t outgrow the tank. This is like saying if you put a puppy in a pen and never let it leave, it will never grow to be a full-sized dog. Of course it will grow, but it won’t be happy.”

Another misconception is that exotic fish accustomed to tropical climates — or, in the case of aquariums, artificially produced tropical climates — won’t survive Missouri’s winters if dumped. Flores said that’s not always the case. Sometimes they find “refugia,” a biological term for pockets of habitat that provide ideal living conditions for certain species.

“For exotic fish, it might be a spring that keeps them warm in winter and cool in summer,” she said. “Sometimes they are dumped in a body of water that they can easily adapt to and survive from one season to the next.”



Northern snakehead fish

And sometimes the species show adaptive abilities they weren’t known to have.

“The northern snakehead fish (*Channa argus*) is a good example of that,” Branson said. “These fish have been found to reproduce in waters of the northern United States that were thought to have been too cold for it.”

Alternatives to Dumping

Though the nearest pond or lake is not a viable alternative for a domestic fish situation that’s gone awry, there are alternatives.

Keller said, in most cases, his store will take back a problem fish. But even if a fish can’t be returned to a store, there are other options.

“The first place to look is the local aquarium club,” Whitcraft said, adding there are several quality clubs in the Midwest. “People are looking to buy, sell, trade, and give away fish and aquarium products all the time. They have regular events, monthly meetings, auctions, and swap meets. Outside of that, there are many people looking to purchase or give fish away on Craigslist.”

Against the Law, Against Nature

There are state wildlife regulations prohibiting the release of nonnative species into the wild, but the reasons not to dump an aquarium go far beyond violating laws in a codebook.

“Most people probably think they’re doing their fish a favor by releasing it,” Branson said. “However, people don’t realize their fish could create problems for native fish.”

Sometimes, these problems have long-term consequences.

“The damage done by invasive species can take many years for native wildlife and the environment to recover from, if they can recover at all,” he said.

Learn more about problem plants and animals at mdc.mo.gov/node/4086. ▲

Francis Skalicky is the southwest regional media specialist for the Missouri Department of Conservation. He lives in Springfield where he enjoys the Missouri outdoors with his family.





For more joy in the field, try hunting Mr. Bushytail with a traditional muzzleloader

SMOKEPOLE SQUIRRELS

BY DARREN HAVERSTICK
PHOTOGRAPHS BY NOPPADOL PAOTHONG

Of all the kinds of animals I have hunted over the years, the ubiquitous gray squirrel and his cousin, the fox squirrel, still rank toward the top of my list of critters I like to pursue. Maybe it's because of all the fond memories I have of pursuing them as a boy growing up in the Ozarks. Maybe it's because I really like eating fried young squirrel accompanied by fried 'taters, biscuits, and gravy. Or maybe it's because squirrels are, well, really fun to hunt! Whatever the reasons, you can bet I have the calendar marked for the opening of Missouri's season the Saturday of Memorial Day weekend.



Eastern gray squirrel

For the past couple of years, I have combined my love of hunting *Sciurus carolinensis* with another hobby of mine: traditional muzzleloaders. Armed with a flintlock scattergun that I had made for hunting spring gobblers, I stalk Mr. Bushytail just like Daniel Boone did back in the 1700s. This change in weaponry has added even more enjoyment to an already enjoyable pastime and has helped me become a better hunter in the process.

Perfect for Novice and Seasoned Hunters Alike

Why chase squirrels with a traditional smoke-pole? I think the match is ideal because each half of the pairing has characteristics that work well with the other. Squirrels are the perfect animal for novice hunters to start out on and seasoned hunters to practice on. They are usually plentiful, they do not require ghost-like stealth or Annie Oakley marksmanship to kill, and the bag limits are generally liberal. They also tolerate field errors that would scare off other creatures. Hunting them successfully isn't easy, but it's not so difficult as to discourage someone new to the sport. Plus, the Show-Me State's long season gives a person ample opportunity to hone their skills and learn from their mistakes.

An archaic firearm like my flintlock is the perfect gun to practice your woodcraft with because its limitations force you to strengthen your ability to move unseen and unheard through the woods. Most likely it will be loaded with a single round, and have a shortened range, so you will need to get in close to your target to increase your chance of success. I like to be 25 yards or less from the squirrels I shoot in order to ensure a clean kill. And I feel that all this sneaking practice sure pays off in the fall when I'm after more unforgiving game like whitetails with my longbow.

Hunting Methods are the Same

As far as hunting methods are concerned, going after squirrels with a muzzleloader is no different than going after them with anything else. Figure out what they're eating at that time of the year, find that food source, slip in, and be patient. During the early months of our season, these animals are drawn to the new buds and

Squirrel season begins May 23 and runs through mid-February.

flowers on the vegetation around them. You can find them zipping about the treetops in search of these tender morsels just after daylight and just before dark. Prime squirrel hunting time, however, is when the mast crop ripens in the early fall. Find yourself a hickory tree laden with nuts, get comfortable on a stump nearby, and wait for the action. I have never met a squirrel yet who could resist those tasty treats! In fact, an old-timer's way of calling in a squirrel is to take two hickory nuts and bang them together. You'll know you're in the right spot by the piles of nut hulls on the forest floor. Several times I've killed my daily limit of bushytails out of a single hickory tree in this fashion.

Gun Choice is a Matter of Personal Preference

Is there a special type of blackpowder gun to use for this kind of hunting? No, not really. Like with

modern firearms, the type of muzzleloader you use, rifle or shotgun, is a matter of personal preference. I own both and I choose my shotgun for squirrel outings because I think a person wastes too much meat if he shoots small game with a blackpowder rifle. Even the smaller calibers like .36 and .32 are too big for my taste, and I can't shoot well enough to hit a head shot every time. Rumor has it that our forefathers' way around this issue was to "bark" the squirrel instead. Barking is where you shoot the tree limb underneath where the critter is sitting. The combination of the percussive shock and wooden shrapnel will kill the squirrel and leave the majority of the meat unharmed.

My 12-gauge flintlock smoothbore, however, gives me the versatility to shoot any game, big or small, in North America. From turkeys down to quail, I just decrease the amount of black pow-



For a traditional muzzleloading shotgun, a typical load can be broken down into four basic parts — the gunpowder, the wad, the shot, and then some sort of stopper to hold it all in place.

der and shot I put down the barrel. For coyotes up to moose, I increase the powder charge and switch from shot to round ball ammunition. With no rifling in the barrel, my accuracy is only good out to 75 yards or so, but I know this ahead of time and pick my shots accordingly. Besides, I'm limited more by my sight than by my weapon. The front bead on my barrel will completely cover the vitals of an average white-tail at that distance.

Loading is Way Different

Whatever type of smokepole you choose to use, you will first need to work up a load before heading to the squirrel woods. This is a front-stuffer term for determining the precise combination of all the items you shove down your

barrel in order to get the best performance for a particular situation. A piece of modern ammunition already has this combination prepackaged for your convenience. Here, you will have to do it the hard way. For a traditional muzzle-loading shotgun, a typical load can be broken down into four basic parts. In the order they are placed in the barrel, there is the gunpowder, the wad, the shot, and then some sort of stopper to hold all that stuff in place. Each of these components can vary widely in size and material type, so the combinations for you to try are practically infinite. But don't worry, there are some general rules of thumb to use that will give you a good starting point, and you should have a load figured out with only one or two trips to the firing range.



For a shotgun, one of these guidelines is to use an equal amount, by volume, of powder and shot in your load. My typical squirrel load is 65 grains of real 3F Goex blackpowder (not the Pyrodex or Triple Seven used in modern muzzleloaders), an overpowder card, a ¼-inch lubed wad, a homemade paper shot cup holding one ounce of #6 chilled lead shot, and an overshot card to keep everything in the barrel. I imagine a lot of this may sound foreign to you, so I suggest you do some research on the subject ahead of time. There are many good books about traditional muzzleloaders that cover these loading guidelines and definitions of the terminology. The information can also be found on the Internet. Just search for “Traditional Muzzleloading Association,” “The Muzzleloading Forum,” or “Ol’ Buffalo Muzzleloading Guide” to retrieve several days’ worth of reading.

It’s Worth the Trouble

You may be asking yourself, “Why on earth would anyone go to all this trouble to hunt anything, let alone squirrels, if they didn’t have to? Why not just use a modern firearm and be done with it?” Well, if you are asking that question, then traditional muzzleloader hunting is probably not for you. But I’m going to try to answer it anyway, in hopes of persuading you otherwise.

To me, hunting is not about killing an animal — it’s about the challenge of killing an animal. With today’s technology, anyone with a minimal amount of practice can become proficient with the modern weapon of their choice. But I don’t want to be known as a good shot, I want to be known as a good hunter. So I use more primitive equipment that, in turn, forces me to sharpen my woodcraft skills to achieve my goal. Unlike famous U.S. frontiersman Simon Kenton, who could load his flintlock rifle on the run, it takes me a while to reload after a shot, and this slow, methodical process only improves my patience, the number-one attribute all good hunters have.

Keep in Touch With the Legacy — and Pass It on

Another reason I hunt using primitive methods is that it makes me feel more in touch with hunting’s history. Hunting is a legacy that we pass on from generation to generation. You learned how from your elders, and you will (hopefully) pass your knowledge on to some youngster. By using



BY USING THE WEAPONS MY ANCESTORS USED, I FEEL LIKE I AM HONORING THEM AND THEIR SKILLS, AND I CAN APPRECIATE MORE THE STRUGGLE THEY HAD TO GO THROUGH JUST TO SURVIVE.

the weapons my ancestors used, I feel like I am honoring them and their skills, and I can appreciate more the struggle they had to go through just to survive. More and more folks are losing touch with hunting’s past, and I never cease to be amazed when someone asks me if I can really kill an animal with my longbow or flintlock gun. Humans have only been hunting with bows for something like 30,000 years, and the flintlock was the weapon of choice for two centuries. With that kind of track record, I’d say they are both pretty effective tools.

So if you want to give yourself an extra challenge during squirrel season and have a whole lot of fun in the process, go out and get yourself a traditional muzzleloader. You’ll learn some new skills, a little history, and that it doesn’t take modern science and technology to be successful in the field. ▲

When he’s not writing software or solving some high-tech computer problems, Darren Haverstick can be found hunting game with primitive weapons at his family farm in northern Shannon County. He currently resides near Fair Grove with his family and a pack of hounds.

Black Bear

WHEN MY COLLEAGUES told me about recent black bear sightings in southwest Missouri, I was intrigued, but I wasn't optimistic about capturing the notoriously shy and wary animal on camera.

Black bears were considered nonexistent in Missouri by the mid-1900s due to unregulated hunting and habitat destruction by the state's early settlers. In fact, sightings were considered rare up until the early 2000s when black bears slowly started a comeback, migrating north from Arkansas where populations had increased.

In early May, a landowner spotted a large female black bear with three yearling cubs on his property and informed the Department. He mentioned that the sow appeared to be about 300 pounds. I was skeptical of his estimation since most black bears I photographed in Montana and Canada typically weighed in at 250 pounds.

I decided to set up a photo blind at the edge of a forest where they were spotted just a day earlier. Bears have an incredible sense of smell and hearing but poor eyesight, so I was hoping my blind would be the cover I'd need to get a perfect photo.

Around 5 a.m., I slowly approached my blind, careful not to spook anything. Once inside, I carefully assembled my gear and waited. When I opened my blind window, imagine my surprise when I saw bears only 150 yards away.

First, there were two cubs, and then a third one arrived soon after. Then I saw a sow walking slowly behind them, cautious of her surroundings. She was huge and probably weighed 350 pounds, more than the landowner's initial estimate. Later I learned that black bears in the south are much larger than their cousins to the north due to food availability and less competition from much larger grizzly bears.

I spent the next few weeks with this black bear family, learning their routine and habits. I also learned to recognize the bear cubs' calls.

One morning while waiting inside my blind, a sow made a beeline in my direction. Looking through my telephoto lens, I could see she was on a mission. A sow is known to be very protective and will fight any threat to her offspring. She started to chomp her teeth and look for an intruder.

My hands were shaking as I continued to photograph her. She came within 20 feet of my blind, her face filling my entire camera viewfinder. I took a few shots then paused, trying not to scare her. I could hear her fast breathing. She stared hard at my blind for what seemed like an eternity — but in reality was probably just a few seconds — before turning around and heading back into the forest.

I took a deep breath and stayed in my blind for another 30 minutes to be sure I was alone. It was an experience I will never forget.

—*Story and photograph by Noppadol Paothong*

 (main) 500mm lens + 2.0 teleconverter • f/8 • 1/125 sec • ISO 800

 (inset) 500mm lens + 2.0 teleconverter • f/10 • 1/400 sec • ISO 800

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.





Clearwater Lake

More than 12,000 Department-managed acres of forest, fields, and lakeside areas surround the 1,630-acre Clearwater Lake and provide diverse hunting, fishing, and wildlife watching opportunities.

IN MAY 1940, deep in the rugged hills of the southeastern Ozarks, the U.S. Army Corps of Engineers began construction on Clearwater Lake. The spillway was completed in 1942, but World War II delayed the project's completion until 1948. Originally, the lake was built for the purpose of flood control along the Black River drainage that stretches from Missouri into Arkansas, but shortly after construction, outdoor recreation became a popular attraction.

Clearwater Lake still serves the Corps of Engineers' purpose of flood control and recreation, while the lands surrounding the lake have been leased to the Missouri Department of Conservation for resource management for the past 28 years. The 12,659 acres of forests, fields, and water along the Black River in Reynolds and Wayne counties provide habitat for deer, turkey, squirrels, and other small game species. These varied habitats also provide opportunities to hunt, fish, hike, canoe, and watch birds and other wildlife.

Wildflowers, such as bluebells, Dutchman's breeches, and flowering dogwood, adorn the area in the spring. Hunting is permitted on most of the area and a mobility-impaired managed deer hunt is held on part of the area each year. Clearwater Lake and the Black River both provide fishing opportunities for crappie, catfish, bass, and other sunfish. The clear Ozark waters also give opportunity to snag or gig suckers. Staff annually plant 50-100 acres of food plots for supplemental wildlife feeding, and create five to 10 structures in the lake for fish habitat. Much of the forest on Clearwater Lake is composed of oak and hickory species,



70–200mm lens • f/5.6 • 1/320 sec • ISO 400 | by David Stonner

with some pine. The Department uses prescribed fires, timber stand improvements, and occasional timber harvests to promote more wildlife-friendly species, like shortleaf pine, and white, chinkapin, and scarlet oak, and suppress less desirable species, like black gum, maple, and elm.

Most of the area can be seen from the seat of a canoe floating the 15 miles of the Black River that cut through the area, but if you prefer dry land, many highways and county roads wind their way in and out of the area. The Corps of Engineers also provides campsites, hiking trails, swimming beaches, and boat launches on the area. Camping and shelters require a reservation and fee. Stop by the Conservation Department office on Highway 34 in Piedmont for maps and information.

—Mark McLain, area manager



Clearwater Lake

Recreation Opportunities: Hunting, fishing, canoeing, mushroom hunting, boating, swimming, hiking, biking, bird watching, camping, wildlife and nature viewing

Unique Features: Clear Ozark streams, mature Ozark forests, boat launches, and campsites with electric, showers, and restrooms (must call the Corps of Engineers for reservations)

For More Information: Call 573-223-4525 or visit mdc.mo.gov/a7914



MDC

DISCOVER nature



IDEAS
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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.

TENTH ANNIVERSARY CELEBRATION

MAY 2 • SATURDAY • 10 A.M.–3 P.M.

Southeast Region, Cape Girardeau

*Conservation Nature Center, 2289 County
Park Drive, Cape Girardeau, MO 63701*

No registration, call 573-290-5218

for information

All ages, families

Help us celebrate the Cape Girardeau Conservation Nature Center's 10th anniversary with an assortment of programs from outdoor skills and animal identification to native plants and nature art. Activities will be on a first-come, first-served basis. Try one activity or try them all. Youth and adult groups welcome.

DISCOVER NATURE — FAMILIES: .22 RIFLE SHOOTING BASICS

MAY 16 • SATURDAY • 8:30–11:30 A.M.

Southwest Region, Andy Dalton Shooting

*Range and Outdoor Education Center,
4897 N. Farm Road 61, Ash Grove, MO 65604*

*Registration required, call 417-742-4361 or
email daltonrange@mdc.mo.gov*

All ages, families

Join us to discover the joys of shooting a .22-caliber rifle. We will discuss various aspects of rifle shooting, including dominant eye, sight picture, sight alignment, breath

control, trigger squeeze, shooting positions, and much more. You may use our rifles or plan to use your own. Please make sure your rifle is completely unloaded before you arrive at the range.

PREPARING FILLETS FOR THE FRYING PAN

MAY 16 • SATURDAY • 10 A.M.–12:30 P.M.

St. Louis Region, Columbia Bottom

*Conservation Area, 801 Strodman Road,
St. Louis, MO 63138*

Reservations begin May 2, call 314-877-6014

Ages 10 and older, families

After a successful day of fishing, what do you do with the one that didn't get away? Join us as we practice cleaning a few different types of fish. If you have a favorite filleting knife, bring it, or you can use one of ours.

SCOPE IT OUT!

MAY 21 • THURSDAY • 10 A.M.–NOON

St. Louis Region, Forest Park Office,

5595 Grand Drive, St. Louis, MO 63112

Reservations begin May 1, call 314-877-1309

Ages 6 to 12

We'll take a short hike where grasses and wildflowers grow. Using our field scopes, we will uncover and discover the natural world at 20X magnification. All you need is a water bottle and comfortable shoes.

WHAT'S GOING ON? THINK OF A BEAVER!

MAY 23 • SATURDAY • 10 A.M.–2 P.M.

Central Region, Runge Conservation

*Nature Center, Hwy 179, Jefferson City,
MO 65102*

No registration, call 573-526-5544

for information

All ages, families

Beavers mate for life, can live up to 24 years, and have teeth that never stop growing. Want to know more about Missouri's largest rodent? Join us for activities and crafts that are all about beavers, and enjoy the PBS *Nature* video, *Leave it to Beavers*, at 11 a.m.

DUCK DECOY CARVING

MAY 29 • FRIDAY • 6–10 P.M.

MAY 30 • SATURDAY • 8 A.M.–2 P.M.

Southeast Region, Cape Girardeau

*Conservation Nature Center, 2289 County
Park Drive, Cape Girardeau, MO 63701*

Reservations begin May 1, call 573-290-5218

*Ages 8 and older, families (12 and younger
accompanied by adult)*

Make a beautiful cork decoy to use for waterfowl hunting or as unique art. Learn duck identification, duck ecology, and decoy history as you sculpt and paint your own decoy. Cost for materials is \$15.





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I Am Conservation

Representatives from the Poplar Bluff Parks and Recreation Department, from left, Horticulture Assistant Nicole Loyd, Horticulturist Angela White, and Director Clark Allen, stand amid a patch of native wildflowers on parkland. The patch, planted on several lots acquired through flood buyout, was transformed into a section of trail connecting two local parks. White said native plants are used to solve maintenance issues; create habitat for pollinators, birds and other wildlife; and provide beauty for the community. "Native plants are not only attractive but are cost effective because they require less water, fertilizer, and maintenance," said White. "Well-acclimated perennials thrive for years and can be divided for planting in other locations, and many annuals reseed themselves." The Missouri Department of Conservation provided advice and assistance on a number of projects within the parks system. Parks staff attended Department training on prescribed burns, which have been useful for removing nonnatives and spurring growth of dormant native seeds. The Department provided a plan for removing nonnative grasses from the flood buyout lots and replanting with native shrubs, wildflowers, and grasses to attract and benefit wildlife, particularly birds. The Department provided seed for wildflowers and shrubs, while the trees were provided through Forest ReLeaf's Communitree Grant. "It has taken a little time for some to appreciate a more natural park; however, including informative signage has helped people understand not only what we are doing, but why," said White. "We encourage others to look at the natural beauty of our region and incorporate native plants in their yards, too." —*photograph by David Stonner*