



October/November 2014

Explorer

adventures in nature

THE
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ISSUE



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ON THE COVER

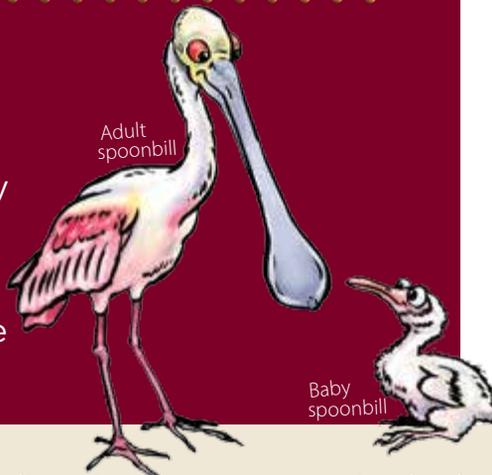


Black-and-Yellow Garden Spider

- 6 **Skulls**
You can learn lots about a critter by looking at its skull.
- 10 **Spook-tacular Spiders**
Spiders are scary, hairy, and quite helpful.

DEPARTMENTS

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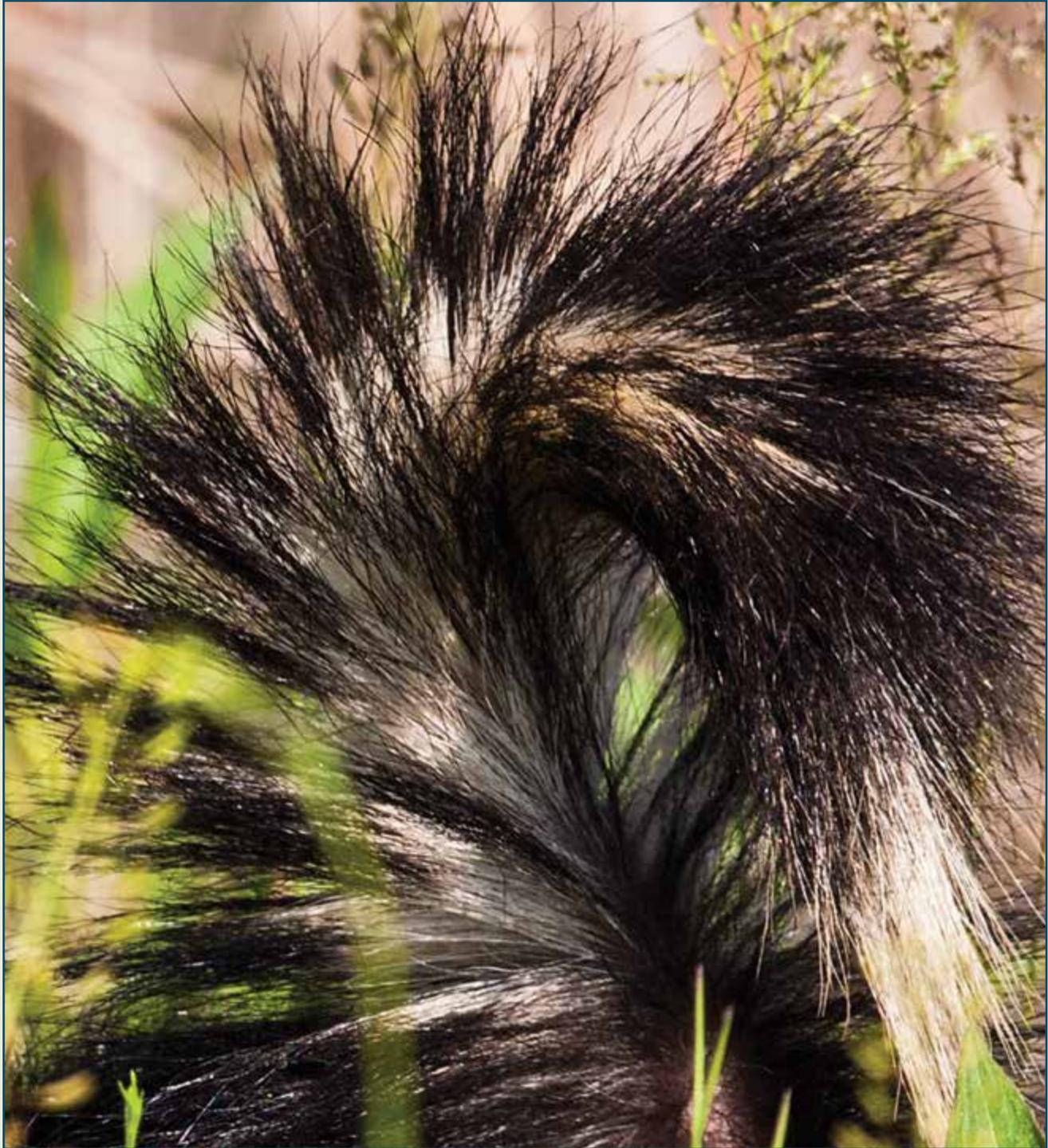


ON THE WEB

Visit xplormo.org for cool videos, sounds, photos, fun facts, and more!

WHAT IS IT?

DON'T KNOW?
Jump to Page 16 to find out.



- ① For me, life is mostly black and white.
- ② The stripes on my back prevent most attacks.

- ③ Animals bail when I raise my tail.
- ④ I'll make you pay if you don't go away.

You discover

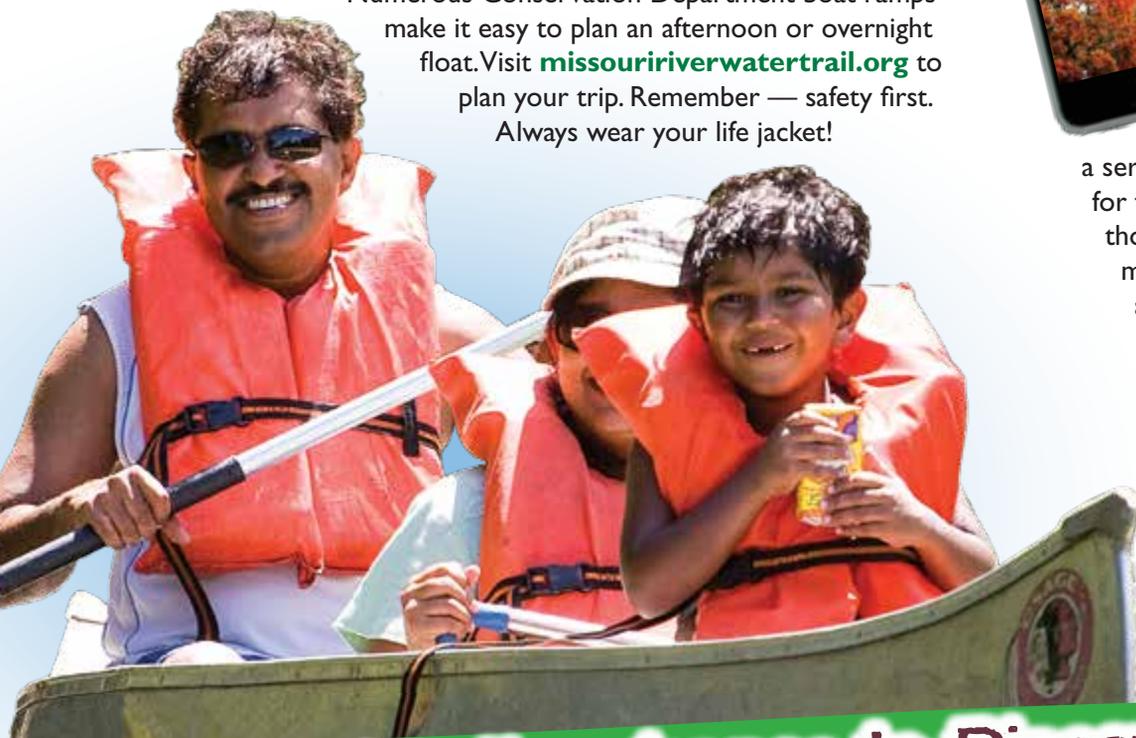
Sugar maple leaf

With birds flying south, leaves changing color, and hunting seasons gearing up, there's plenty to discover in October and November. Here are a few ideas to get you started.

Float the BIG MUDDY

Fall is a great time to float the Missouri River to enjoy soaring eagles and great fall colors. The Big Muddy may be closer than you think — it flows for more than 550 miles along and through our state! Fall river levels are generally low, which means plenty of sandbars for camping.

Numerous Conservation Department boat ramps make it easy to plan an afternoon or overnight float. Visit missouririverwatertrail.org to plan your trip. Remember — safety first. Always wear your life jacket!



Create a TREE-MENDOUS movie



This fall, make a stop-motion movie of your favorite tree as it turns to eye-popping crimson reds and oranges. First, take a series of photos every few days for four to six weeks. Then turn those images into a stop-motion movie using free software available online (ask an adult for help). Try to shoot similar lighting each day, or take a few around dawn or dusk to make the movie more dramatic. Make your movie more gripping by adding tree tidbits from mdc.mo.gov/node/4564.

Don't miss the chance to Discover Nature at



Bobwhite quail

Hunt quail during **YOUTH-ONLY QUAIL SEASON.**

October 25 and 26.

Find conservation areas managed for quail near you at

mdc.mo.gov/node/3333. Ages 6–15.

Improve your shotgun skills at the **FAMILY TRAP SHOOTING WORKSHOP.**

Lake City Range, Buckner; October 18, 9–11:30 a.m.

Register at 816-249-3194.

Ages 12 and older.



Learn **DUCK DECOY CARVING.**



Cape Girardeau Conservation Nature Center; November 7–8. For information, call 573-290-5218.

© Pryzmat
Dreamstime.com



Share a SNACK-O'-LANTERN

Wondering what to do with those pumpkins after Halloween? Put your carved pumpkin on a stump outside your favorite window and put a few inches of birdseed inside it. Enlarge the openings to make it easier for the birds to eat. Then enjoy the antics of the many different birds (and probably a few squirrels) that will delight in your easy-to-make snack-o'-lantern!

W-elk-ome home the ELK

See some of Missouri's first free-ranging elk in nearly 150 years at Peck Ranch Conservation Area. Take the area's elk driving tour through remote and rugged Ozark country. Increase your chances of elk-spotting success by driving through right after sunrise or before sunset. Watch a video, check for tour closures, and print out a map at mdc.mo.gov/node/15985.



Elk



CATCH THE ECLIPSE

See a total lunar eclipse October 8 between 4 and 7 a.m. The moon, while fully in Earth's shadow, takes on a reddish hue due to the light filtering through the atmosphere. This is the second in a series of four total lunar eclipses, an event called a tetrad. The next blood moons are in April and September of 2015.

HUNT with the WOLVES



Wolf spider

Well, OK ... wolf spiders. After dark, put on a headlight and scout out your backyard — you might find the sparkling eyes of thousands of hunting wolf spiders peering back at you — and that's just from the spiders facing you! Or, aim your flashlight at the ground or toward low vegetation about 15 feet in front of you. Move the beam very slowly until you see a small shining spot resembling a tiny star — a spider's eyes.

these fun events.

Go RABBIT HUNTING.

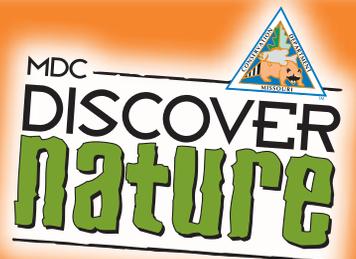
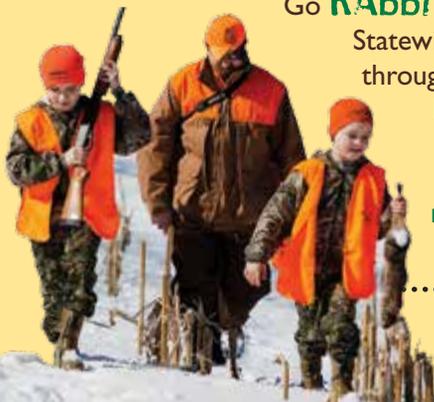
Statewide, October 1 through February 15.

Look for good prospects in your area at

mdc.mo.gov/node/28837.

Practice SURVIVAL TACTICS FOR THE OUTDOORSMAN.

August A. Busch Shooting Range and Outdoor Education Center; October 22 and 23, 6–9 p.m. Register at 636-441-4554. Ages 11 and older.



Looking for more ways to have fun outside? Find out about Discover Nature programs in your area at xplormo.org/node/2616.

PREDATOR

VS.

PREY

The struggle to survive isn't always a fair fight. Here's what separates nature's winners from its losers.

Illustration by David Besenger



Grasshopper

Loggerhead shrike



Killer Bill

The loggerhead shrike is a black-masked bandit. This predatory songbird, about the size of a robin, hovers and then attacks from behind. In a flash, its falcon-like beak can sever its prey's spinal cord.

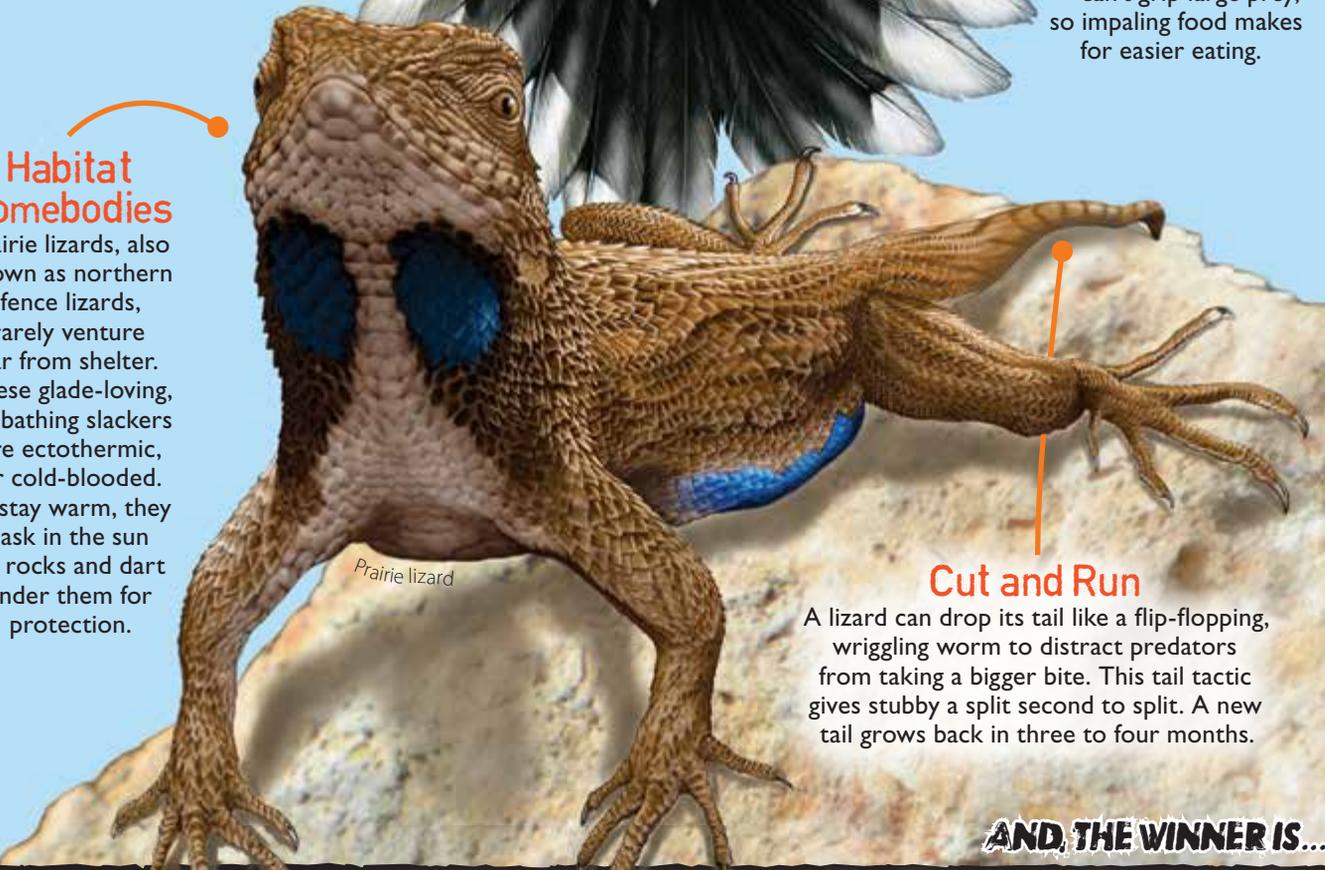
Shrike-Spiked Snacks

Often called the "butcher bird," the shrike skewers grasshoppers and other prey on thorns or barbed wire for when hunting is lean. A shrike's small feet can't grip large prey, so impaling food makes for easier eating.

Habitat Homebodies

Prairie lizards, also known as northern fence lizards, rarely venture far from shelter. These glade-loving, sunbathing slackers are ectothermic, or cold-blooded. To stay warm, they bask in the sun on rocks and dart under them for protection.

Prairie lizard



Cut and Run

A lizard can drop its tail like a flip-flopping, wriggling worm to distract predators from taking a bigger bite. This tail tactic gives stubby a split second to split. A new tail grows back in three to four months.

AND THE WINNER IS...

The prairie lizard's camo scales make it all but disappear to predators. However, this male lizard — busy flashing his brilliant blue patches while doing push-ups to attract a mate — soon became lizard lunch.

HOW TO

Shoot Straight

To be a good hunter, you must be a straight shooter. Once your rifle has been sighted in, follow these tips to get better at hitting the bull's-eye.

SAFETY FIRST!

Always treat every gun as if it were loaded. **Always** keep the gun pointed in a safe direction. **Always** keep the safety clicked on until you're ready to fire. And, **always** wear eye and ear protection when shooting.

1 Find a knowledgeable adult to help you learn how to shoot. Ask them to take you to a shooting range — it's the best place to practice. Locate a nearby range at mdc.mo.gov/node/6209.

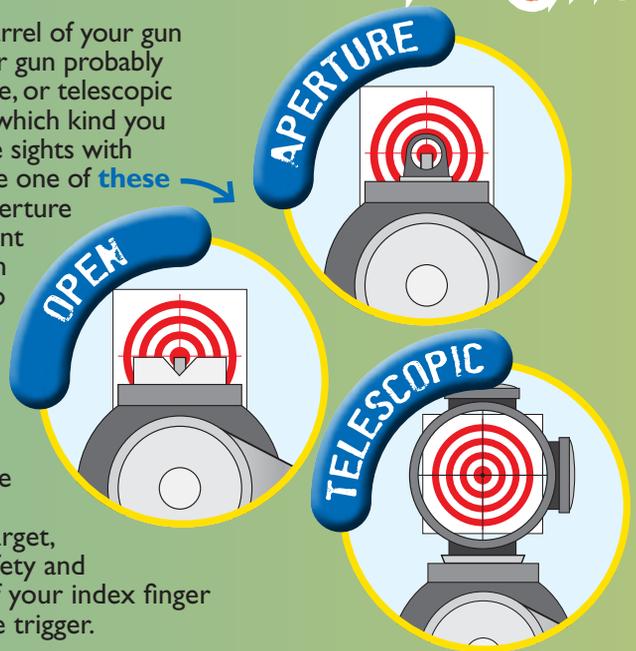
2 Hold the gun steady. Sit at a shooting bench with your feet flat on the ground. Prop your elbows on the bench, place the butt of the gun firmly against your shoulder, and press your cheek tightly against the gun's stock.

3 Look down the barrel of your gun at the target. Your gun probably has open, aperture, or telescopic sights. Figure out which kind you have and line up the sights with the target so it looks like one of **these** pictures. For open or aperture sights, make sure the front sight is centered — both up and down and side to side — in the rear sight.

4 Once your sights are lined up with the target, click off the safety and place the tip of your index finger carefully on the trigger.

5 Take a deep breath and hold it for just a second. Slowly let out your breath while gently squeezing the trigger. As the gun fires, keep your cheek on the stock and your focus on the target and sights.

6 Practice, practice, practice! The more you shoot, the better you'll become.





Make no bones about it, you can learn a skele-ton about an animal by examining its skull. The size, shape, and parts of a skull offer clues to an animal's identity and how it lives. Let's play detective and see what we can learn from these skulls. Ready, Sherlock *Bones*?

words by Matt Seek  photos by David Stonner

SHORT-TAILED SHREW

This tiny skull belongs to one of Missouri's smallest — but deadliest — mammals. Shrews use their front teeth, which stick straight out from their skulls, like tweezers, plucking up insects with ninja-like speed. The teeth look red because they contain iron, a rust-colored element. Iron makes the teeth stronger so the shrew can chomp through crunchy insect shells.



GREAT BLUE HERON

A heron's eye sockets occupy the sides of its skull. This helps the heron see in many directions at once, making it nearly impossible for a pesky predator to sneak up on it. The eye sockets also point slightly downward, which makes it easy for a heron to spot yummy fish as the bird wades through the marsh.

THESE SKULLS ARE ACTUAL SIZE!



CANINE

INCISOR

MOLAR

BLACK BEAR

The large size of this skull is a huge tip-off. Black bears are one of Missouri's most massive mammals. They eat both plants and meat, so their mouths are like Swiss Army knives — equipped with a variety of tools to tackle any eating job. Pointy canines hold prey, sharp incisors snip plants or flesh, and flat molars grind up nuts and stems.



ALLIGATOR SNAPPING TURTLE

Turtles don't have teeth, but they do have sharp, bony beaks. And no turtle has a bigger beak than an alligator snapping turtle. Missouri's most massive reptile wields a wedge-shaped snapper that's capable of chopping through bones like a meat cleaver.



LONGNOSE GAR

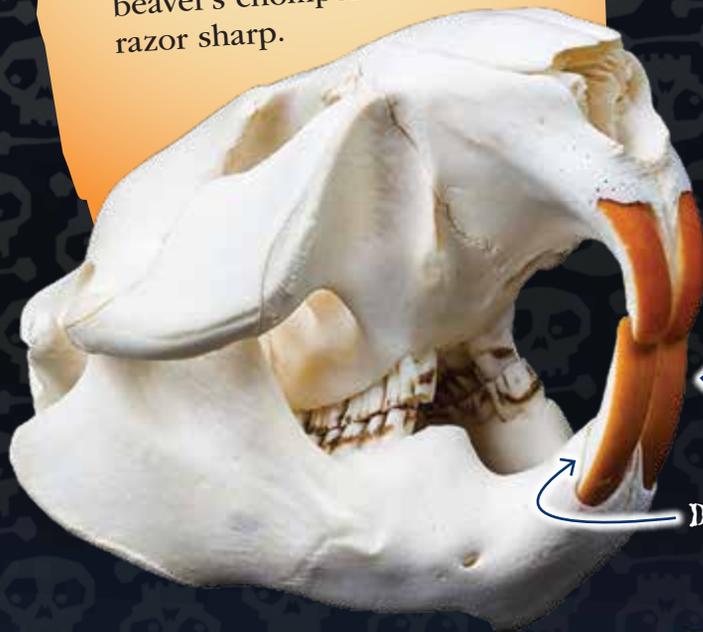
The long beak on this skull may make you think it belongs to a bird. It doesn't. The tip-off is the teeth. Birds don't have teeth — teeth are too heavy. This skull belongs to a longnose gar, a kind of fish. Gar gobble their meals whole, so their dagger-like teeth are made to hold onto prey, not rip it apart.



WE'RE ALL A BUNCH OF BONEHEADS

BEAVER

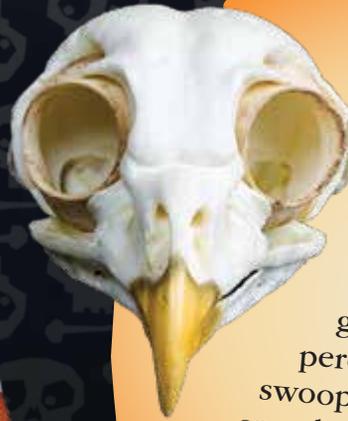
A beaver's skull is thick and burly, made to support huge cheek muscles beavers need to gnaw through trees. You may be thinking, "Somebody get this critter a toothbrush!" But the orange on its teeth isn't plaque. It's a super-hard substance called enamel (*ee-nam-uhl*). The white substance behind it is called dentine (*den-teen*). When the beaver chews, the dentine wears away faster, keeping the beaver's chompers razor sharp.



A skull is like a built-in helmet that protects an animal's delicate, squishy brain. But that's not the only thing skulls are good for. Skulls hold in place an animal's eyes, ears, and the organs that help it smell and taste. Skulls — and the teeth attached to them — help critters capture and tear apart food. Skulls provide an anchor point for muscles to connect to. Without a skull, animals wouldn't be able to open their pie holes, sing a song, or smile. So, if anyone ever calls you a big bonehead, just say, "Thanks."

BARRED OWL

Owls work nature's night shift, so they need large eye sockets to hold their huge, light-gathering eyes. The eye sockets face forward, giving owls excellent depth perception — a big bonus when swooping after prey at breakneck speeds. If you were to hold an owl's skull, it would feel light. Bird bones are thin-walled and filled with air to lighten the load for flying.

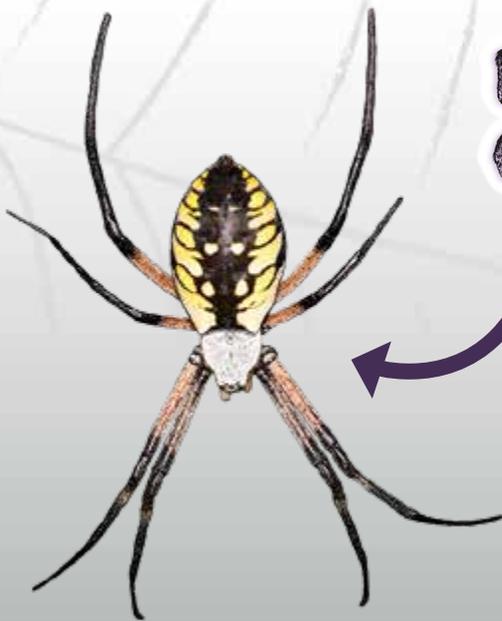


SPOOK-TACULAR SPIDERS

by Brett Dufur

It's creepy. It's crawly. It lives in the shadows and spins webs in impossible places. Then it waits ... Suddenly, a bee crashes into the spider's sticky strands. The bee struggles and tries to escape. From

the darkness, our spider reappears. The drama crescendos. Ready, aim, bite. In less time than it takes our spider to wrap up its midnight snack, you'll see how spiders are more than just creepy and crawly — they're *spook-tacular!*



Black-and-Yellow Garden Spider

These large, harmless spiders spin orb-shaped webs with a zigzag up the center, called a stabilimentum. This might lure in insects, keep birds away, or strengthen the web. Most garden spiders build new webs each night. They eat the old web at dusk and start all over. In spring, look for spiderlings “ballooning” by on strands of silk that catch the breeze. Below, a garden spider wraps a bee in silk after using its fangs to inject fast-acting venom to paralyze it.

Garden spider photos by Noppadol Paothong



Fishing spider photos by Jim Rathert



Fishing Spider

Fishing spiders are easy to spot near lakes and ponds. They hunt on land, water, and deep below. Their eight eyes and an array of vibration-detecting organs and sensitive hairs make sure nothing slips by. Fishing spiders often rest their front legs on the water's surface so that vibrations alert them to possible prey nearby. They walk on water and can sail by raising a few of their legs into a gentle breeze. By trapping air bubbles on their legs, fishing spiders can breathe underwater for up to half an hour.





photo by Jim Bahert

Jumping Spider

Jumping spiders, though perfectly harmless, can be intimidating with their habit of jumping — sometimes even at you! Generally this is all in the name of escape. Jumping spiders don't stay put on a web like most spiders. Instead, jumping spiders stalk their prey. They use silk as an anchor, attaching a strand before leaping on their next meal, so they can climb back to their original spot if they miss. Considering all the insects they consume, jumping spiders are quite beneficial to humans.

Marbled Orb Weaver



photo by Noppadol Paothong

Marbled orb weavers are common in Missouri and are one of the prettiest spiders to observe. They are generally bright yellow but also can be pale yellow, orange, beige, or white. Female marbled orb weavers build wheel-shaped webs among trees and tall weeds in moist woods and near streams. Marbled orb weavers perform a great service to us by consuming many insects that we often find a nuisance, especially moths and flies.

Tarantula

These hairy brutes are Missouri's largest spiders. Despite their terrible reputation (thanks Hollywood), tarantulas are actually shy by nature and try to avoid humans. Found in southern Missouri, tarantulas live in old rodent dens and other cavities instead of spinning webs. At night, they pursue crickets and grasshoppers, and also feed on young mice, amphibians, and baby birds. Like other spiders, they have fangs that deliver venom that subdues and helps digest their prey.



photo by Noppadol Paothong



Crab Spider

Crab spiders are master hunters. Instead of building webs, they rely on stalking skills to ambush flies, butterflies, and other tasty morsels. Some crab spiders even change colors to match the flowers they are hunting from. These spiders are easy to identify because their extended front legs give them a crab-like appearance. Crab spiders are easy to find, they come in many different colors, and they are fun to watch.



Wolf Spider

Wolf spiders are big enough to give you the heebie jeebies, growing as large as 3 inches across. Fortunately, they're harmless and hugely beneficial. Wolf spiders work hard to rid us of unwanted insects like grasshoppers, moths, and flies. They can be found hunting at night in your backyard or local park, and even in your basement or garage. When the babies hatch, they ride around on mom's back until they're ready to be on their own.

BEWARE



Brown Recluse

Few spiders pose a threat to you, but a brown recluse or black widow bite is serious. Recluses are found in many homes, but they're shy and rarely seen. They only bite when trapped against your skin. For ID, look for the fiddle shape on their back.



Black Widow

Look for the red hourglass on a black widow's abdomen. If you see one in nature, consider yourself lucky and study it. They are not aggressive — their first instinct is to flee. If a black widow or brown recluse bites you, see a doctor.

WILD JOBS

STURGEON
SURGEON
TRAVIS MOORE
EQUIPS
SLIPPERY
PATIENTS
WITH HIGH-TECH
TRACKING
DEVICES.



Q: WHAT'S A LAKE STURGEON?

A: Lake sturgeons are Missouri's largest and longest-living fish. They can weigh more than 200 pounds and live more than 100 years. They have whiskers, rubbery snouts, and toothless, tube-shaped mouths that they use to suck insects off the bottom of big rivers.

Q: HOW DO YOU OPERATE ON A STURGEON?

A: We place the sturgeon on its back, strap it down, and put a hose in its mouth to pump water over its gills. I use a scalpel to make a tiny cut in the fish's belly so I can put a transmitter inside. Then I stitch the sturgeon up. The whole thing takes less than 5 minutes.

Q: DOES IT HURT THE FISH?

A: Nope. We've re-caught fish that we operated on earlier. You can't even see a scar where we put in the transmitter.

Q: WHAT DO THE TRANSMITTERS DO?

A: Each transmitter puts out a unique pattern of beeps. We use underwater microphones to listen for the beeps so we can find and follow individual sturgeons. It's like playing high-tech hide-and-seek with a bunch of great big fish.

Q: WHY DO YOU TRACK STURGEONS?

A: In the 1800s, lake sturgeons nearly disappeared from Missouri because of habitat loss, pollution, and unregulated fishing. We want to learn where sturgeons hang out, where they lay eggs, and where they travel. That way, we can protect those places and provide more places like them.

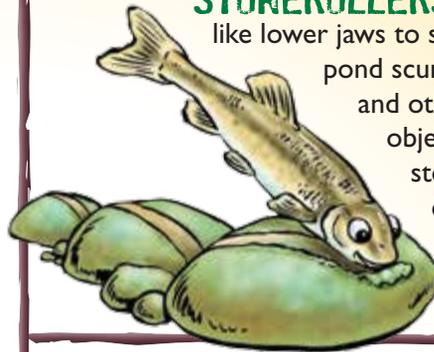
Lake sturgeon

STRANGE but TRUE!

YOUR GUIDE TO ALL THE
UNUSUAL, UNIQUE,
AND **UNBELIEVABLE**
STUFF THAT GOES ON IN NATURE

Who you
calling scum sucker?

STONEROLLERS use their chisel-like lower jaws to scrape algae — aka pond scum — off of rocks and other underwater objects. Each day, a stoneroller scarfs down enough scum to equal a third of its body weight.



SPADEFoot TOADS tunnel underground using hard, shovel-shaped bumps on their hind feet. These tough toads absorb water through their skin from the surrounding soil. During droughts, they can lose half the water in their bodies and still survive.



SLUGS slide from place to place on a slick layer of slime. The bottom part of a slug's body, called a foot, oozes mucus onto whatever it touches.

The mucus is so slick, slugs can glide over knives without getting sliced!



Quit being
so sensitive!

SENSITIVE BRIAR, a vine-like plant with pink pompom-shaped flowers and prickly thorns, has a neat trick up its stem. If you touch its leaves, they immediately wilt and fold shut.



Baby **SPITTLEBUGS** suck sap from plants and turn it into bubbly, spit-like foam. The bugs snuggle inside the slobber, safe from predators and the heat of the sun. Although the foam looks like spit, it's not. It actually comes from a spittlebug's *other* end.



An adult **SPOONBILL'S** beak looks like someone stepped on the tip and smashed it pancake flat. Baby spoonbills, however, hatch with tube-shaped beaks that look more like a duck's bill. The beaks don't begin to flatten until the chicks are 9 days old.



Ambush anglers: **SOFTSHELL TURTLES** bury themselves in sand at the bottoms of rivers, leaving only their heads exposed. When fish swim nearby, the turtles stretch out their long necks, and — **CHOMP!** — the fish disappear.



XPLOR MOR

Serpent Slumber Party



Eastern gartersnake

FOUR KINDS OF SNAKES ARE SPENDING WINTER IN THIS DEN, BUT THEY'VE GOTTEN ALL TANGLED UP.

Can you count how many of each kind there are?

Hint: Circle the head of each snake as you count it. That way you won't count it twice.

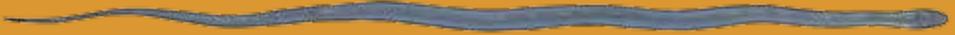
Unlike mammals and birds, which have fur and feathers to keep them toasty, snakes can't survive freezing winter weather. So when temperatures start to fall in the fall, snakes slither into caves, cracks in cliffs, and animal burrows. They stay there until spring, coiled and cozy, waiting for warmer weather. Sometimes dozens of snakes use the same winter den — sort of like a serpent slumber party.



Texas (Black) Ratsnake



Timber Rattlesnake



Eastern Yellow-Bellied Racer



Copperhead

WHAT IS IT?

— FROM PAGE 1 —

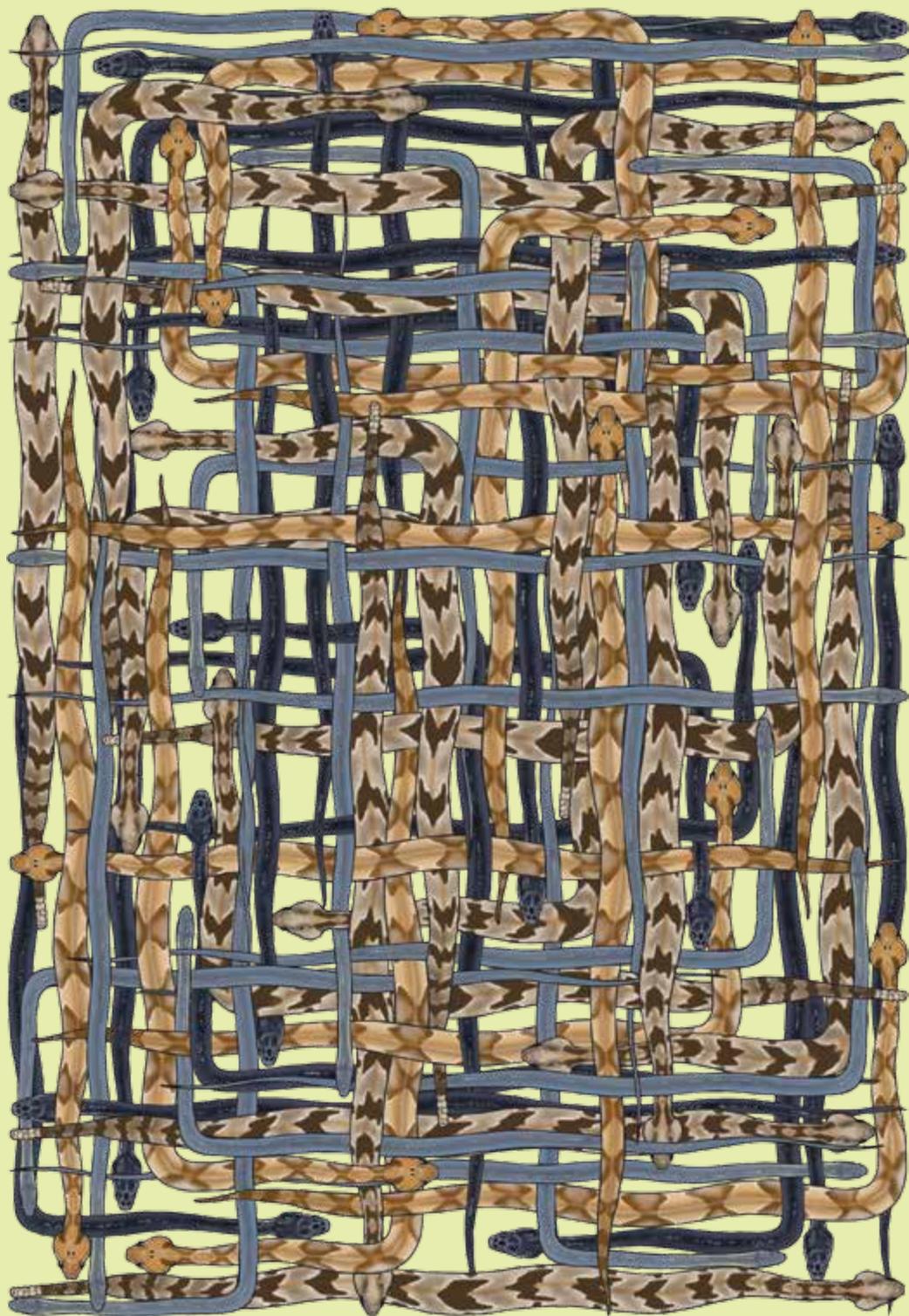
A striped skunk's bold white stripes tell other animals, "Stay away!" When critters miss the hint, a skunk may growl, stamp its feet, puff out its tail like a scared cat, or do a handstand and walk on its front legs. If these warnings don't work, the skunk points its backside at the offending creature and releases a horrible-smelling spray. The spray can squirt 20 feet, and the stink may drift more than a mile.





Page Snake

Next time you take a reading break, stake your page with a ring-necked snake. Carefully cut along the edge of the snake, fold at the dotted line so the snake's top side lines up with its bottom side, and then glue the top and bottom together. To learn more about this harmless, colorful snake, visit mdc.mo.gov/node/6538.

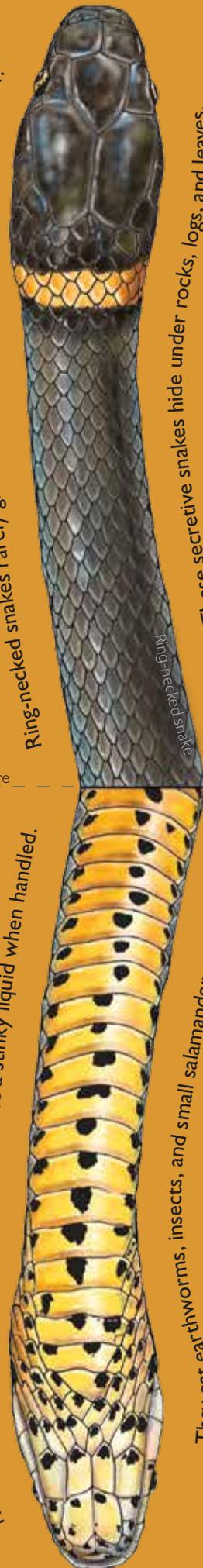


Answer: 19 Texas (black) rat snakes, 15 timber rattlesnakes, 20 eastern yellow-bellied racers, 14 copperheads

Ring-necked snakes rarely bite but often release a stinky liquid when handled.

Fold here

Ring-necked snakes rarely grow thicker than a pencil or longer than a ruler.



They eat earthworms, insects, and small salamanders.

Ring-necked snake

These secretive snakes hide under rocks, logs, and leaves.

SUBSCRIBE ONLINE

xplormo.org/node/2618

FREE TO MISSOURI HOUSEHOLDS

HEY KIDS! Keep an **eye** out for the next issue of *Xplor*. **It won't come in December like it normally does.** Instead, it will arrive in **January**. Why the delay? We're adding **four fun-filled pages** and more **awesomeness** than you can shake a tail feather at. **Hoot, hoot, hoo-ray!**

