



July/August 2017

# Xplor

## LORDS OF THE EARTH

TINY BUT MIGHTY,  
ANTS RULE





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### 6 Ants a Trillion

Bet you can't count 'em all.

### 12 Changing Channels

Drop the remote. The catfish are biting.

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Pale purple coneflowers dance under the wide blue sky at Golden Prairie Natural Area in Barton County.

📷 by Noppadol Paothong





# Xplor

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## ON THE COVER

Carpenter Ant

by Noppadol Paothong





# GET OUT!

FUN THINGS TO DO  
AND GREAT PLACES  
TO DISCOVER NATURE



**NOTICE MORE HUMMINGBIRDS AT YOUR FEEDERS?** They're fueling up for migration. To make nectar, mix one part white table sugar with four parts water.

Beat the summer heat. **TRY NIGHT FISHING FOR CRAPPIE.** All you need is a flashlight, a pole, some bait, and a grown-up to help you find a good fishing hole. Browse places to fish at [mdc.mo.gov/atlas](http://mdc.mo.gov/atlas).

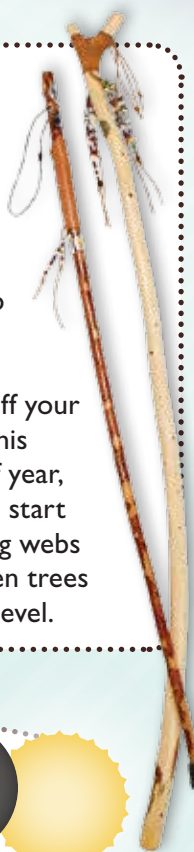


In late August, male white-tailed deer rub the velvet off their antlers. **LOOK FOR THEIR RUBS ON SMALL TREES.**

**GO FOR A HIKE,** but carry a stick to keep spider webs off your face. This time of year, spiders start spinning webs between trees at eye level.



In late July, **LISTEN FOR KATYDIDS SINGING.** "Katy did, Katy didn't," in the trees at night.

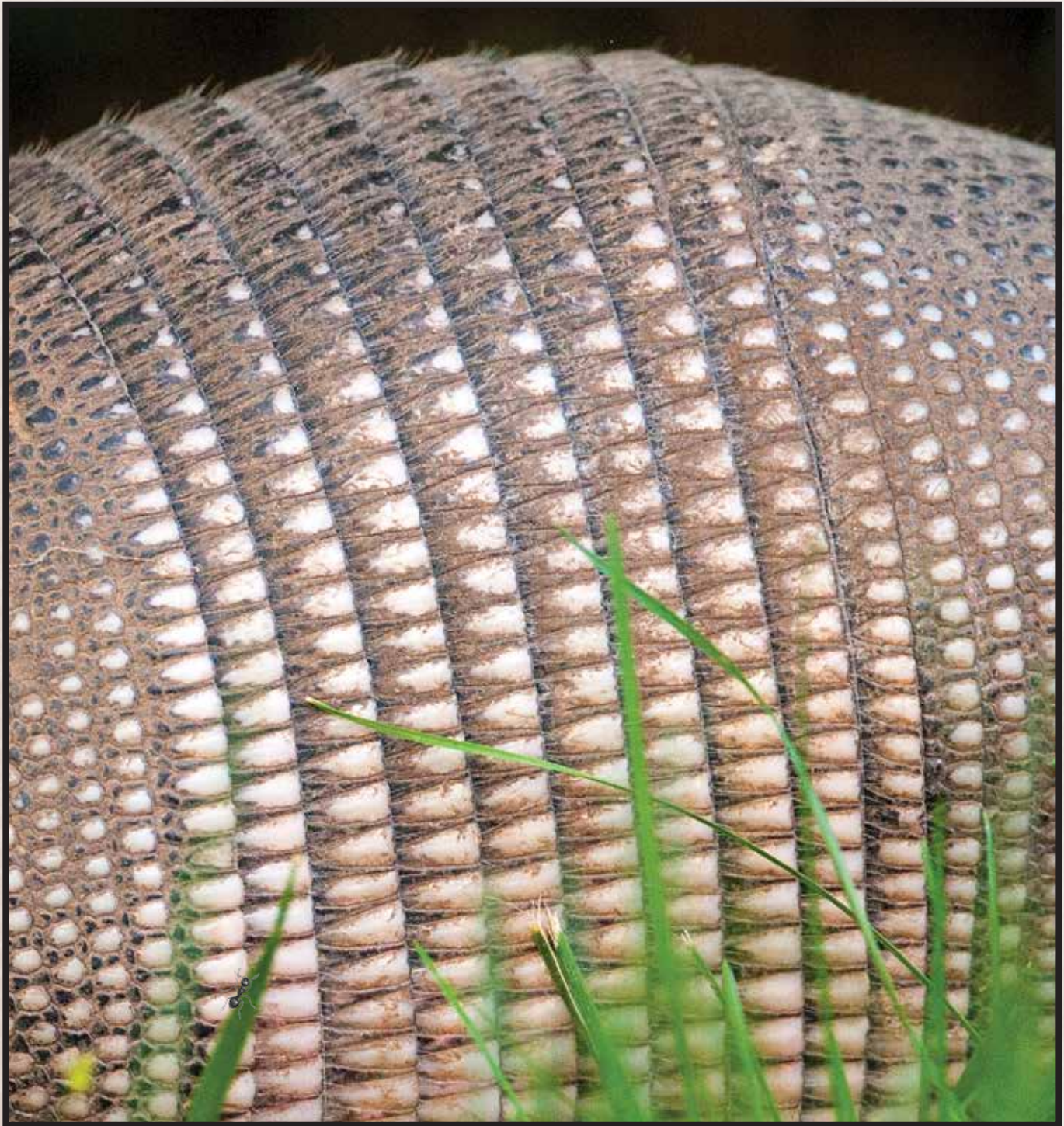


Don't miss the **TOTAL SOLAR ECLIPSE** on August 21! Missouri is a prime spot to see this once-in-a-lifetime event.



# WHAT IS IT?

**DON'T KNOW?**  
Jump to Page 20 to find out.



- ① Some people call me possum on the half shell.
- ② But I'm more like a knight of old.

- ③ I'm armored from my nose to my pointed tail.
- ④ And I clash with my foes on the road.





# Into the **WILD** sand prairie

If you get the chance to visit one of Missouri's rarest habitats, here's what to look for.

## Take a Closer Look

The red "caps" atop **British soldier lichens** look like the hats worn by British soldiers during the Revolutionary War. In fact, the caps actually release spores that make new lichens.



## What Happened Here?

These lines, which look like the intricate patterns raked into the sand of a Zen garden, are actually made by grasses and other plants when they are whipped around by the wind.

## LOOK

**Prickly pears** unfurl their stunning yellow-and-orange flowers beginning in mid-June. When the flowers fade, egg-shaped red fruits appear. The fruits, or pears, are edible — if you can get past the thorns.







## LOOK

Keep your eyes peeled for **northern harriers** swooping low over the grasses. The bird's saucer-shaped face is lined with stiff feathers that funnel sounds to its ears. This "face funnel" helps harriers hear the slightest squeak, so they can zero in on hidden mice.

## Where to Go



Less than 2,000 acres of sand prairies remain in Missouri. The best place to find this rare but fascinating habitat is **Sand Prairie Conservation Area**. Other places to look are along the Mississippi River, primarily in the Bootheel and the northeast corner of the state.



## What Happened Here?

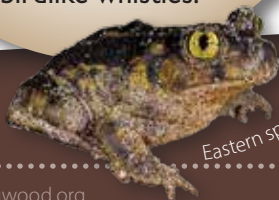
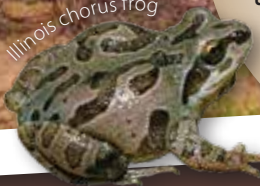


Is this snake dead? Nope. When a **hog-nosed snake** feels threatened, it hisses and flattens its head like a cobra. If this bluff fails, the sneaky serpent rolls onto its back, flops out its tongue, and pretends to be dead. Left alone, the fakey snake will slowly turn right-side-up, peek around to make sure it's clear, and slither away to safety.

## Listen

Two rare amphibians make their homes in sand prairies. If you visit after a rain storm, you might hear males calling to attract a mate. Eastern spadefoot toads go *wank, wank, wank*, like the call of a young crow. Illinois chorus frogs make a series of clear, high-pitched, birdlike whistles.

Illinois chorus frog



Eastern spadefoot

## Did You Know?

If Missouri's fastest insect, the **tiger beetle**, had legs as long as a human's, it could zip around at 240 mph — faster than NASCAR racers drive! Lucky for us, these turbo-predators, which have sickle-shaped jaws used to impale prey, are only half an inch long.







# a Trillion

by  
Bonnie  
Chasteen

artwork by  
Shannon  
Beaumont

## Ants are small,

but their numbers are huge. There are  
1.5 million ants for every person on earth.

That's 10 quadrillion, 500 trillion ants!

The places ants choose tend to be small or hidden — underground, under bark, or inside plants. The countless little spaces between big places is the most plentiful kind of real estate on Earth. Because there are so many ants in so many places all over the world, ants are ...



# ...Lords of the EARTH

## They're Colonizers

Ants live in groups called colonies, which can be large or small. Some are ginormous underground super-cities of billions of ants. Other colonies can fit inside a single acorn. Each species of ant prefers its own kind of habitat and colony size.



## They're Loyal to Their Queen

Ants are class-conscious. Their colonies are divided into three main social levels: queens, a few breeding males, and lots of female workers. It's the queen's job to mate and lay eggs. After breeding, the males die. Some female worker ants take care of the eggs and larvae, and others go out foraging for food. Every little ant you see crawling on a countertop or sidewalk is a nonbreeding female worker.

## They Share Their Lunch

Bet you didn't know this: Only ant larvae can eat solid food. The worker ants bring them picnic crumbs, seeds, or bits of insects. The larval ants turn the solids into liquids, which the worker ants "harvest." Think that's gross? Worker ants have a trick for sharing lunch with each other. They have two stomachs, one for digesting food and one for storing liquids to share with the rest of the colony. Back in the nest, they barf up the liquid so their sisters can drink it. *Mmmm.*



## They Have Sensational Superpowers

Ants' super social order depends on superpowers of sense, communication, and strength. Some ant species have large eyes and good eyesight, while others are nearly blind. All ants use their ANTennae to sense their surroundings and each other.

Ants tell each other about food through airborne chemicals call pheromones (*FER-uh-moans*). If a worker finds food, she goes back to the colony, leaving a scent trail as she goes. Her sisters follow the scented trail to the food and help carry it back to the colony.





# Show-Me ANTS

Missouri has 150 different kinds of ants, including the two species you're most likely to see in your kitchen or bathroom: the **odorous house ant** and the **acrobat ant**.



You usually see the **odorous house ant** in your kitchen looking for sweets. It has a small abdomen, and it releases a fruity coconut smell when smashed.

The **acrobat ant** has a heart-shaped abdomen and thrives near moisture. You're most likely to see it near the tub or bathroom window.



The study of ants is called **myrmecology** (MER-muh-KAHL-uh-jee). Myrmecologists have identified 15,000 species of ants worldwide.

## E-I-E-I-OUCH!

If you're antsy to start your own fascinating ant farm, ask a grown-up to help you find a well-designed ant farm container online. Once your container arrives, you can collect your own worker ants. They will live and work in your farm for several months. Be careful catching and handling wild ants, though. Some kinds can both bite and sting. If you want your farm to last, you'll need to order a queen and her workers online. Learn more about ants at [mdc.mo.gov/field-guide](http://mdc.mo.gov/field-guide).





# What **GOOD** are Ants Anyway?

Most Missouri ants aren't pests. They're important members of our **forests, prairies, and yards.** In fact, we couldn't do without the many free services they provide for nature and people.

## They Work the Soil and Help Plants Grow

By digging tunnels and chambers, ants mix oxygen into the soil, which helps the roots of trees and other plants "breathe." This mixing also helps loosen the soil so seeds can enter it and grow. Some seed-eating ants help spread certain kinds of plants.



## They're Super Recyclers

They help decompose the world's dead plants, animals, and food waste. As garbage handlers, ants help keep our environment clean and healthy.

## They're Both Predator and Prey

Ants eat other kinds of insects, helping control garden and home pests. They also serve as dinner for many kinds of animals, from bears to woodpeckers.





# Ant ANATOMY

Ants are insects, which means they have six legs and three main body parts: **head, thorax, and abdomen**. This drawing gives you a general idea of how ants look, but it doesn't represent the many specific differences between different kinds of ants.

## HEAD

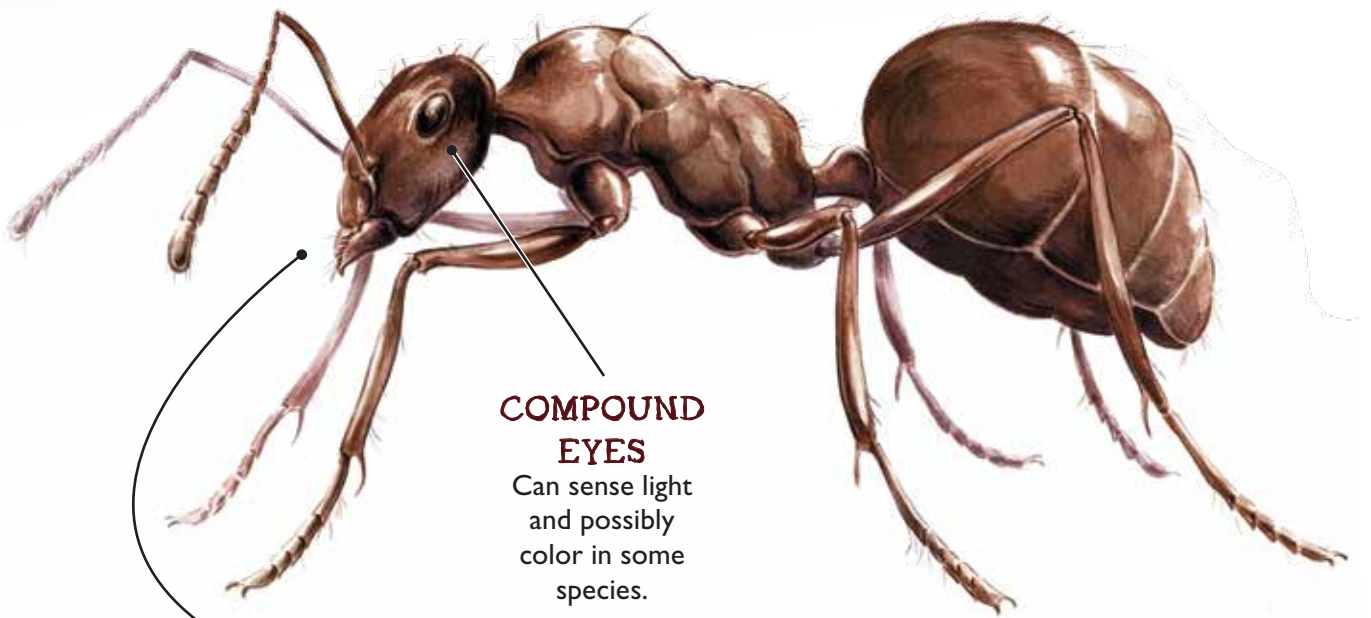
Jointed and flexible.  
Antennae are equipped with sensors for touch and smell.

## THORAX

Little spurs and claws on the legs and feet allow ants to grip objects and cling to smooth surfaces.

## ABDOMEN

Flexible, so worker ants can aim stingers or spray repellent from their rear ends.



## COMPOUND EYES

Can sense light and possibly color in some species.

## MOUTH PARTS

Mandibles or jaws are used as tools, food cutters, and weapons instead of for actual eating.

## EARS AND NOSE?

Nope, ants don't have ears or noses, but their bodies detect vibrations and their antennae detect scents. They have no lungs and breathe through tiny holes covering their bodies.

An ant can lift and carry **20 times** her body weight. If you could lift 20 times your body weight, what could you lift?





## Stupid Ant Trick

Next time you see a line of ants, wipe your finger through it and watch the followers break up in confusion. It'll take them a while, but they'll eventually pick up the trail's signal and get back on track.

# Freaky ANT Facts

Ants live on every continent except (wait for it) ANTarctica. That's because it's just too cold for them to survive there.



Some kinds of predatory army ants march on leaderless, never-ending quests to find food, defeat enemies, and claim territory.

Trap-jaw ants hold the record for the fastest movement in the animal kingdom. Their spring-loaded jaws snap shut on prey at a rate of 78 to 145 miles per hour.



Some ants are herders. They guard plant-sucking bugs like aphids, which produce a sweet goo called honeydew. Ants fend off challengers so they can harvest all that yummy goo for themselves.



Zombie ants are real. A parasitic fungus targets a carpenter ant and releases a brain-controlling chemical, making the victim clamp down on a twig. Then the fungus kills the ant and shoots a spore-spewing stalk out of its head to infect more ants.





# Changing CHANNELS

by Matt Seek • photographs by Noppadol Paothong

**P**ut down the remote and climb off the couch. Lazy summer days aren't meant to be spent indoors watching TV. Besides, there's a more exciting "channel" to catch outside. You'll find it at your nearest pond.





## Introducing Mr. Whiskers

Channel catfish — with their gaping mouths and fleshy whiskers, their fins armed with venomous spines, and their smooth, slimy skin — could be cast as monsters in any Hollywood movie. But anglers love to catch these fish, and it's easy to see why. They're found in nearly any pond, lake, or stream, and you don't need fancy fishing gear to hook 'em. On the line they put up a thrilling fight, and on the table they make a tasty meal. Best of all, they're tons of fun to catch.

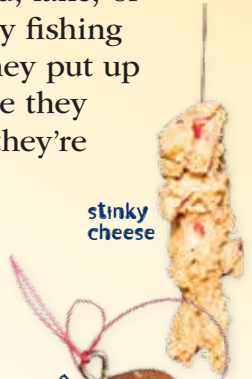
### Bait Up

Every inch of a channel cat's slippery skin, from its whiskers to its tail, is covered with taste buds. This *sense-*sational skin isn't made to savor flavors. It helps catfish nab snacks in dark, murky waters. So to catch this cat, all you need to do is throw something with a strong taste or smell in the water.

Live minnows, crayfish, and grasshoppers work well. So do chicken livers, stinky cheese, hotdogs, shrimp, pieces of dead fish, and even soap. Wiggly earthworms are tough to beat.

Many anglers use treble hooks for catfishing. But these can be tough to remove from a fish's mouth. Circle hooks are designed to hook a fish in the corner of the mouth, which makes them easy to remove. They're also nearly impossible for a fish to swallow. Whichever hook you choose, make sure it's sharp. Catfish have tough, leathery lips, and a dull hook will miss lots of fish.

stinky cheese



hot dog



soap



earthworm



circle hook



treble hook







## Find the Fish

Channel cats may lurk in nearly any part of a pond, but certain spots are more *fish-ful* than others. Cast your bait along pond dams, over rocky areas, and near any underwater brush, weeds, or other structures. Catfish are usually hungriest in the early morning and late evening. Fishing after a rain storm can be exciting, too. The rain washes insects and worms into the pond, sending catfish into a feeding frenzy. Summer heat sends fish down deep to find cooler water, but not to the bottom, where oxygen is scarce.



## Rig Up

There are two basic ways to fish for channel cats. One way is to crimp a couple of split shot about a foot above the hook, bait up, and cast out. Let the bait sink all the way to the bottom of the pond, then reel in the extra line. Keep a finger on the line so you can feel if a hungry whiskerfish is nibbling.



The other way is to use a bobber to suspend the bait several feet under the water's surface. A couple of split shot will help the bait hang straight down and will keep a wary catfish from feeling the tug of the bobber. Watch the bobber closely, and if you see it start to wiggle, get ready.

## Land That Lunker

When you suspect Mr. Whiskers is tasting your bait, quickly sweep the tip of the rod upward to set the hook. If you're using a circle hook, however, doing this will likely snatch the hook right out of the fish's mouth. Instead, just keep the line tight. A circle hook is designed to hook the fish all by itself.

Once the fish is on, keep the tip of the rod high, and reel in line to pull the fish closer. Don't jerk the rod or pull too hard. That could snap the line or injure the fish. When the fish is close enough, slip a net under it or reach down and grab it.



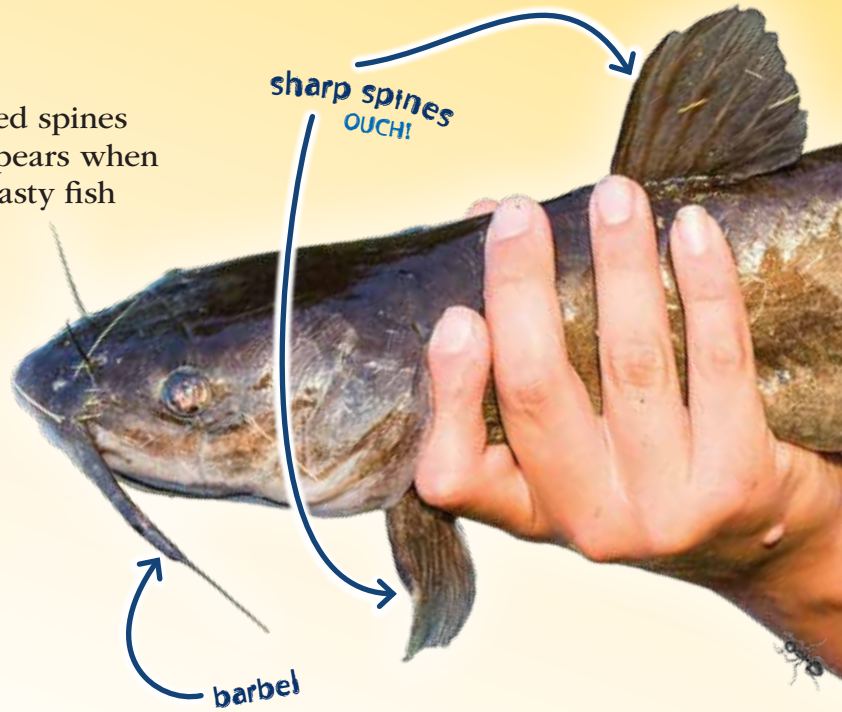


## Watch Those Spines

Channel cats are armed with sharp, venom-laced spines on their top and side fins that they raise like spears when they feel threatened. This turns an otherwise tasty fish into a painful meal for a predator to swallow.

If you get poked by a spine, the venom won't make you sick, but it will make you say "ouch!" Protect yourself by holding the fish from the underside, with your fingers firmly behind the spines on the side fins. Smaller catfish can be held by putting your thumb into the fish's mouth and pinching its lower lip (don't worry, catfish don't have teeth).

Some people think catfish can sting with their whiskers, which are called barbels. That's not true. The barbels are harmless and are used to find food in muddy water.



## Dinner or Swimmer?

If you like catching channel cats but don't want to eat them, make sure you release the fish quickly and carefully so it has the best chance to survive. When possible, leave it in the water while you remove the hook.

If you must take it out, wet your hand before handling it. When a fish swallows the hook, don't remove it. Cut the line, and the hook will eventually rust away.

If you're hankering for a fish dinner, fried catfish can't be beat. For an easy recipe, check out *How To* on Page 18.

### Know the Rules

Fishing doesn't have many rules, but it does have a few, and it's your responsibility to follow them. Get the lowdown on permits, daily limits, and other rules at [huntfish.mdc.mo.gov/fishing/regulations](http://huntfish.mdc.mo.gov/fishing/regulations).

### Find a Place to Fish

Looking for a place to cast a line? The Conservation Department has hundreds of ponds, lakes, and river accesses across the state. Find one near you at [huntfish.mdc.mo.gov/fishing/where-fish](http://huntfish.mdc.mo.gov/fishing/where-fish).





THIS ISSUE:

# ALLIGATOR SNAPPING TURTLE

# FLATHEAD CATFISH

VS

Illustrated by David Besenger

## Tricky Tongue

Resting on the bottom with its big mouth wide open, the snapper can wiggle its tricky tongue to lure in worm-seeking fish.

## Bottom Dweller

Large size, massive weight, and gnarly shell help the snapper hide among sunken rocks, roots, and logs.

## Super Sensors

The flathead's whiskers aren't just for decoration. They're covered with taste buds, which tell the fish what to eat and what to avoid.

AND THE WINNER IS...

The flathead may have super sensors, but it's also hard-wired to eat live food. It can't resist the turtle's wiggly tongue. So the turtle's big hooked jaws snap shut — and the snapper wins.





# STRANGE but TRUE!

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

## AMERICAN WHITE PELICANS

win the prize for having the longest wingspan — up to 9½ feet — of any bird in Missouri. With a wingspan of only 4 inches, **RUBY THROATED HUMMINGBIRDS** have the teeniest wings.



The dangly tails on a **LUNA MOTH** aren't just for show. When the moth flutters its wings, the long tails confuse hungry bats, knocking their attacks off target. A bat may chomp off a mouthful of moth tail — *ouch!* — but the luna survives to fly another night.



Most birds that eat plants also eat insects. But not **AMERICAN GOLDFINCHES**. The only time these strict vegetarians swallow a bug is when they mistakenly gobble one up while snarfing down seeds.



The bold colors on a **MILKWEED BUG** warn predators that a meal made out of this insect may be their last. The bugs eat milkweed, which contains poisonous chemicals. They store the chemicals in their bodies, which makes them poisonous, too.



**RED MILKSMAKES** are so named because people once thought they drank milk from cows. How could anyone come up with such a crazy idea? Maybe because the colorful snakes are frequently found in barns, hunting for mice and other rodents.



**RACCOONS** often dunk food in water before eating it. Are they washing it? Probably not. More likely, the raccoon is simply rubbing off parts of the food it doesn't want or using its sensitive paws to feel for another meal underwater.



To-tail-ly tubular, dude! A **ROUGH GREENSNAKE'S** tail makes up more than a third of the snake's total length. The slender serpent uses its extra-long appendage as an anchor and to balance when climbing through trees and shrubs.





# HOW TO

## Fry Fish Over a Campfire

### HERE'S WHAT YOU NEED

- Cast-iron skillet
- Spatula and tongs
- Measuring spoons and cups
- Oven mitt
- Paper towels
- Gallon-sized zip-top plastic bags
- 4 catfish fillets (about 8 ounces each)
- 1 cup low-fat buttermilk
- ½ cup corn meal
- ¼ cup flour
- 2 tablespoons Cajun seasoning (use more if you like it spicy)
- ½ teaspoon salt
- Vegetable oil
- 1 lemon
- An adult to help



The only thing better than catching fish is eating fish. Follow this recipe to turn your catch into crispy, tasty, golden-brown perfection.

## HERE'S WHAT YOU DO

- 1 Light a campfire. Once it has burned down, rake the coals flat using a long stick. While you're waiting, prepare the fish.
- 2 Pour the buttermilk into a zip-top bag. In another bag, mix together the cornmeal, flour, Cajun spice, and salt.



- 3 Rinse the catfish fillets with water and pat them dry with paper towels.
- 4 Place the fillets into the bag of buttermilk and swirl them around until they're coated evenly. Drain off the excess buttermilk.
- 5 Transfer the fillets to the bag containing the cornmeal mixture. Gently shake the fillets around inside the bag until they're coated evenly.

- 6 Pour an 1/8 inch of oil into the skillet. If your fire ring has a grill, set the skillet on top of the grill. If it doesn't have a grill, set the skillet directly on top of the coals. Every few minutes, drop a tiny pinch of cornmeal into the oil. The oil is ready when the cornmeal sizzles quickly.



- 7 Gently place the fillets in the hot oil. Fry for 3 to 4 minutes on each side, until the cornmeal is golden and crispy, and the fish flakes easily with a fork. Use the oven mitt to remove the skillet from the fire. Be careful! The skillet will be extremely hot and stay that way for a long time.



- 8 Place the fillets on paper towels to soak up excess oil. Squeeze lemon juice over each fillet just before serving.





# XPLOR MOR



Pileated woodpecker

## Tongue Tied



Carpenter ant

Some woodpeckers can stick out their tongues more than twice the length of their beaks. They use their super-long slurpers to search for food inside hammered-out holes. The tongues are pointy and sharp, perfect for spearing unlucky insects. Many woodpeckers have tongues that are covered with barbs. These keep squirmy bugs from wiggling off. And the tongues are coated in sticky spit, which helps the head-banging birds rake meals back into their yappers.

### ANTS IN OUR PANTS



This issue of *Xplor* is crawling with ants! In fact, we've hidden 60 carpenter ants *just like this one* throughout the magazine, except for pages 6–11. **How many can you find?**

Ant illustrations throughout the magazine by Steve Buchanan

**A carpenter ant wants to get home to its nest.** Can you lead it safely through this maze of tunnels without getting tongue-tied by a woodpecker?

### WHAT IS IT?

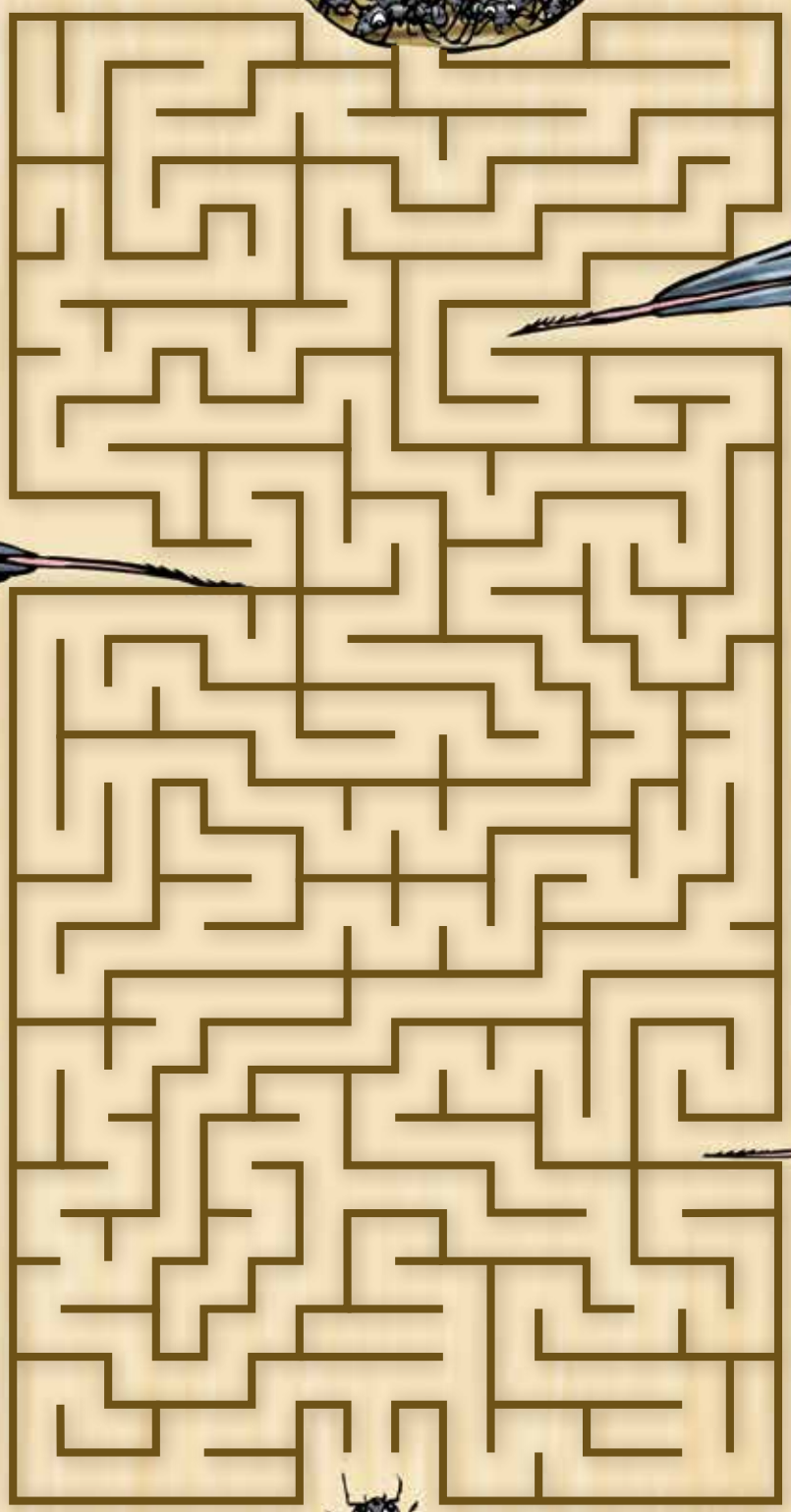
— FROM PAGE 3 —

flicks into its mouth with its long, sticky tongue. Armadillos are active at night, and their hearing and eyesight are poor. When threatened, they jump straight up into the air. This is why you see so many dead ones along roadsides.





E



Red-bellied woodpecker



Pileated woodpecker



Downy woodpecker





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FREE TO MISSOURI HOUSEHOLDS

## CRITTER CORNER American Badger



© Gkuchera | Dreamstime.com

The stout, low-slung badger is related to weasels, otters, and wolverines. Badgers are known for their snarly tempers. With their long-clawed paws, they can dig faster than their burrowing prey, and they mainly feed on ground squirrels, mice, rabbits, lizards, and snakes. In Missouri, badgers live on open prairies and farmland. You'll be lucky to see one because they're active mostly at night. Learn more at [mdc.mo.gov/field-guide](http://mdc.mo.gov/field-guide).

