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ON THE COVER Wild Turkey

Your guide to all the VNV\$VAL, VNIQUE, AND VNBELIEVABLE stuff that goes on in nature

HELLBENDER dads are protective parents. After a mama salamander lays up to 400 eggs under a rock at the bottom of a stream, she splits. Dad sticks around to guard the nest until the eggs hatch four to six weeks later.



About 60 to 70 percent of a PECAN NUT is made up of heart-healthy oils. The tasty tidbits are packed with so much oil, when they're touched by a flame, they ignite and burn like candle wicks.

OYSTER MUSHROOMS get most of their food from the logs on which they live. But they also eat tiny worms called nematodes. When one wiggles over a mushroom, the fungus stuns and digests the worm to get nitrogen and other nutrients.



Before going number two, a RIVER OTTER often shuffles from one back foot to another, shaking its furry bottom in what some biologists call a "poop dance."



When food runs scarce in winter, DOWNY **WOODPECKERS** split up to look for it. Males usually search higher in trees, on tiny branches, and even on weed stems. Females stick to bigger branches and tree trunks.

When it dives underwater, special muscles flex in a HOODED MERGANSER'S eyes, causing the lenses to bulge out. The change in shape improves the duck's vision underwater, helping it snap up prey like small fish and insects.

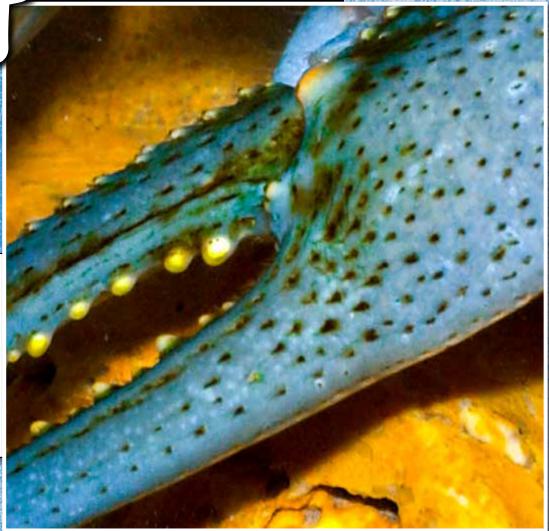




RED FOXES make a variety of sounds, but the one you're most likely to hear in winter is a bloodchilling scream. Girl foxes make these noises during mating season to call to their boyfriends. DON'T KNOW? Jump to page 21 to find out.

WHAT ISD)

- 1 l hide under rocks all day.
- 2 At night, I crawl out and play.
- 3 I raise pincers as a warning display.
- 4 But I'd rather just swim away.



Ask and opession

Hi! I'm Phi, Xplor's mail possum. I know a lot about nature. If you have a question, email me at AskPhi@mdc.mo.gov.

What is the exact population of mountain lions in Missouri? Which county are they most dense in? — From Tegan and Tristan

A: To biologists, a population is a group of the same animals living and having babies in the same place at the same time. Nearly all mountain lions that turn up in Missouri are young males that have wandered from western states like Colorado and South Dakota. These wanderers don't stay put long enough to start populations. Because lions are so rare, no county is dense with them. Shannon County, however, has had the most confirmed sightings (17) since 1996.



FIND A SAFE SPOT TO BUILD A FIRE

Pick a place that's sheltered from the wind. Brush away everything on the ground that could ignite leaves, pine needles, grass — until you get down to bare dirt or rock. The bare area should be a circle at least 5 feet wide.

GATHER FIRE FUEL

You'll need three things for your fire: tinder, kindling, and fuel. Gather all three before you attempt to light the fire.

- Tinder is dry, fluffy material that easily catches on fire, such as dryer lint, toilet paper, pine needles, dead grass, birch bark, or cattail fluff. You'll need a fist-sized wad of tinder.
- **Kindling** lights easily and burns long enough to catch bigger branches on fire. Look for bone-dry twigs that are thicker than a matchstick but thinner than a pencil. Collect at least two armfuls.
- Fuel is made up of larger branches that will burn from several minutes to several hours. As long as it's dry, anything from fingersized branches to leg-sized logs will work. Two armfuls should get you started.

FIND YOUR FOCUS

Place a ball of the driest, fluffiest tinder you can find inside a "cradle" of longer-burning tinder like dry grass or paper.

Fill a sandwich bag half full of water. Twist a corner of the bag into a small, tight ball of water with no air bubbles.

Use the water ball to focus the sun's rays onto the tinder. You'll have to spin the ball around and move it closer and farther away until you see a pinpoint light. Hold as steady as you can so the light stays in one spot. Soon

you'll see a puff of smoke and a tiny flame.

Loosely wrap the outer cradle around the inner tinder and gently blow on it to coax up a larger flame.

STOKE THE FIRE



Stack kindling around the tinder to form a cone of sticks. Place matchsticksized twigs closest to the tinder and pencil-sized twigs farther out.



Once the kindling is burning brightly, add bigger sticks. Be careful not to knock over the cone.



Add fuel until the fire is as large as you want it to be. Whew! Now you can relax, warm up your toes, and bust out the s'mores.



Brrrrr! It's freezing outside. When people get chilly, we can pull on a puffy or go indoors to warm up. Wild animals aren't so lucky. But don't feel blue. Critters have tons of ways to stay alive when temperatures dive.

GET FLUFFY

If you watch a bird feeder regularly, you'll soon notice something strange. On the coldest days, birds who visit look extra floofy. That's because they're fluffing up their feathers to trap air against their skin. Their bodies heat this layer of trapped air, and it protects them from surrounding chills. People borrowed the same trick. Our warmest coats and blankets are stuffed with — you guessed it — feathers.





GET FURRY

What do you notice about the snow on this deer's back? It isn't melting! White-tailed deer, like many of Missouri's mammals, grow a thick coat of fur in the fall to help them cope with the cold. A deer's winter coat even has hollow, air-filled hairs, which trap extra heat. Their coats hold in heat so well, very little escapes, and fluffy flakes pile up on their backs like snow on the roof of a well-insulated house.





FUELUP

How does a chickadee, which weighs less than a handful of paper clips, not turn into a birdsicle on a frigid winter night? During the day, the tiny fluff balls stuff their beaks with seeds. By dusk, most have packed on an extra 10 percent of body weight. As darkness falls, chickadees begin turning the extra fat into energy so they can shiver through the night. By daybreak, they've shivered away the chonk and dropped back to their normal weight. This would be like a person going to bed weighing 100 pounds and waking up weighing only 90.

HUDDLE UP

When you're cold, do you ever snuggle with your family or friends? In the winter, northern bobwhites gather in groups called coveys. At night, covey members crowd together in a circle with their tails touching and their beaks pointing out. This does two things. First, each quail is kept warm by friends on either side of it. And second, the yummy little birds keep a pair of peepers pointed in every direction, so predators rarely approach undetected.



HOLEUP

When weather turns really nasty, squirrels hunker down in a leafy nest or cozy hole until conditions improve. The nutmunchers are like mini heaters, warming the "room" around them. By placing thermometers inside the winter homes of squirrels, biologists have discovered that the inside of a den can be over 50 degrees warmer than the air outside!





yellowthroat, say "I'm outta here!" before winter arrives. Instead of toughing it out, they fly south where the weather is warmer and where there's more food to eat. For birds who spend summer farther north, like mallards and juncos, Missouri is the warm wonderland where they spend winter.



Every October, Missouri's bats flutter into a cave or crevice, hang upside down, and switch their bodies to "standby." Their breathing nearly stops. Their hearts, which can beat over 1,000 times a minute while flying, slow to about 20 beats a minute. And their body temperatures drop from about 100 degrees to about 50. This slowed-down, sleeplike state is called hibernation. It helps bats save energy, so they can go all winter without eating.

TAKE A STAND

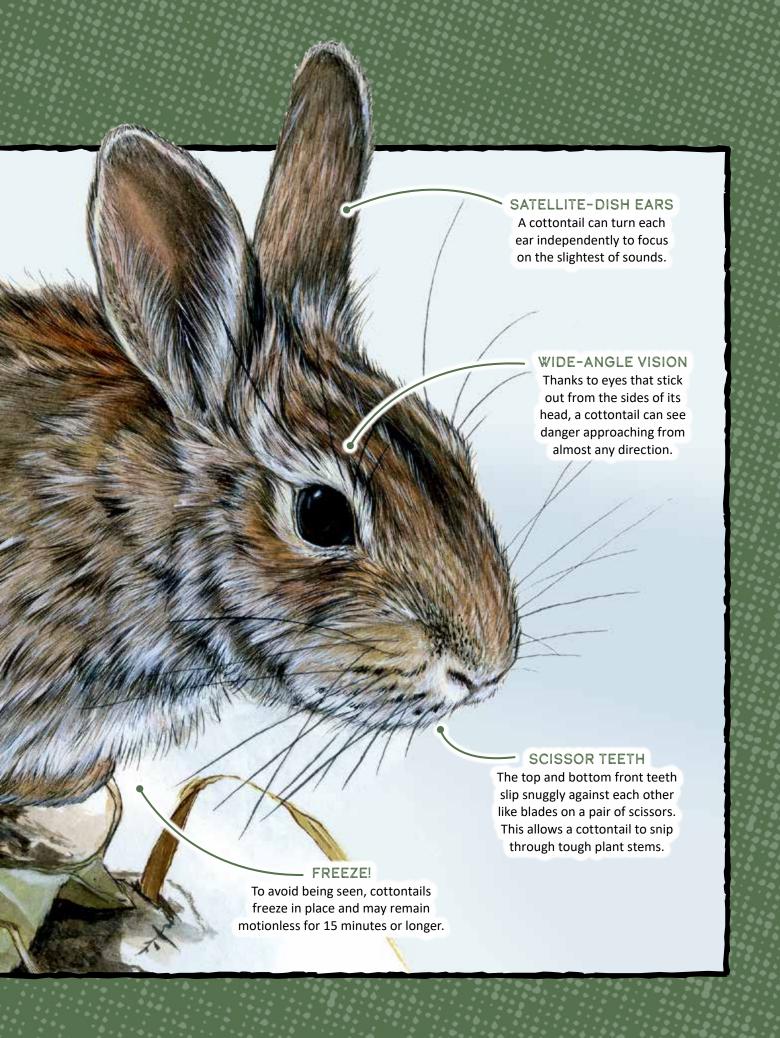
This mallard, like many birds, has two main blood vessels in each leg that run side by side. One carries blood from its body down to warm its foot. The other carries blood from its foot back up to its body. As cooler blood from the foot moves upward, it's heated by warmer blood moving downward. By the time the blood returns to the body, it's warm again.



— literally. When icy weather hits, the frog quits breathing, its heart stops, and its body freezes nearly solid. Most animals would die if this happened. But the frog's liver makes a chemical that keeps the frog's cells from freezing. When spring arrives, the ice-cold croaker thaws out and hops away as if nothing happened.

EASTERN COTTONTALL







THANKSGIVING

November 23 — Hi! I'm Jenny. I'm a wild turkey. People might think I hate Thanksgiving. But I don't. How could I hate a holiday that celebrates turkeys? Besides, lots of animals eat turkeys, not just people. You can't grow up in the wild and not know your place in the food chain.

So what am I thankful for? Acorns! They're delicious. I use my big feet to scratch through leaves. Then I peck, peck up any acorns I spot. Yum! Speaking of spotting: Another thing I'm thankful for is my excellent eyesight. Í see three times better than a person who has perfect vision. My

Delicious!

eyes give me an edge when hunters — human or otherwise — come calling.





CLOSE CALL

January 24 — Today I was scratching through the snow, searching for grain at the edge of a farmer's field. All of a sudden, one of the hens in my flock sounded the alarm with a sharp PUTT! My head snapped up just in time to spot a flash of fur as a hungry coyote burst out of the woods.



The flock scattered. I barreled away too, my long legs churning through the snow. On a good day, I can go from zero to 18 miles per hour quicker than you can blink. That's fast, but it isn't good enough to outrun a fleet-footed coyote.

I could hear the carnivore's feet pound the snow behind me. Crunch, crunch, crunch. Closer and closer.

At the last second, I leaped into the air, flapping my wings furiously. As I took flight, I heard the coyote's jaws snap shut just inches behind my behind.

whew! That was close!

TALKING TURKEY

April 5 — Ahh, spring. Such a lovely season.

This morning, a male turkey named Tom caught my eye — or, rather, my ear. I was with a few other hens, pecking at pasture grasses, minding my own business, when I heard a thunderous GOBBLE, GOBBLE, GOBBLE! from a nearby hillside.

Hmmm, I thought, he sounds interesting.

I called back: Yelp, yelp, yelp.

In no time, Tom joined me in the pasture. He dropped his wings, puffed up his chest, and fanned out his rusty-brown tail like a peacock. Then he started humming and strutting around!

Normally, I pay no attention to showoffs. But ooh-la-la, he looked handsome!



NEST QUEST

April 14 - My romance with Tom didn't last long. In fact, he's already gone through nearly a dozen other girlfriends! But I'm not bitter. I have more important things to do.

A few days ago, I found a hidden spot in a clump of weeds near the edge of the woods. It seems like a safe, cozy place to start a family. There, I scratched out a shallow nest on the ground and laid a speckled egg.

Each day, I sneak back to the nest.

I don't stay long, just enough time to lay another egg. Before I sneak away again, I use my beak to place leaves over the eggs to keep them safely hidden.

While I'm gone, I snarf down all the bugs and seeds I can find. I must fatten up. Lean times are coming.





EGG BANDITS

April 22 — Today, I laid my final egg. There are 13 in the nest. Now it's time to start incubating them. Gently, gently, gently, I lower myself down until my chest and belly cuddle against my eggs. Even though each one was laid on a different day, they'll all hatch at the same time. It's simply eggstraordinary!

That is, if they make it. Nesting on the ground is risky business. Raccoons, skunks, and snakes are just a few of the egg-eaters who'd love to dine on turkey omelets for breakfast.







HAPPY BIRTHDAY TO YOU AND YOU AND YOU AND YOU...

May 17 — I've had about enough of incubating eggs! For nearly four weeks I've been sitting atop them, still as a stone, day and night, in the sun and the rain, always on alert for prowling predators. I use my beak to gently turn each egg, so each side stays toasty. I leave the nest for just minutes a day, barely long enough to grab a quick drink. I'm tired. I'm hungry.

But I hear encouraging sounds. Little cheeps and peeps are coming out of the eggs. I cluck to the chicks inside, so they'll know who I am once they see me. Soon, my chicks are pecking open their shells, chipping jagged circles around the wide ends of the eggs. It takes a long time! When they finally hatch, they're damp and exhausted. But in no time, their feathers dry and they're able to take their first clumsy steps. They're so fluffy!

Tomorrow we'll leave this nest. Finally.







POULT PROBLEMS

May 25 — My poults (that's what people call young turkeys) follow me everywhere. I don't get a moment of me time.

When I peck at bugs, they peck at bugs. When I take a dust bath, they roll in the dirt like happy puppies. When it's cold or rainy, they snuggle under me to stay warm and dry. And when I spot danger, I give a sharp patt, and the poults scramble under my outstretched wings.

I do my best to keep them safe, but life at this end of the food chain isn't easy. Owls and hawks circle overhead. Foxes and bobcats lurk in the shadows. The poults can't fly yet, so they're easy snacks for hungry predators.

Out of 13 eggs, 11 chicks hatched. Now, only six are left.



BRANCHING OUT

June 3 — what a relief! My poults can finally fly. Turkeys, you might have noticed, are ... um ... chunky birds. Getting airborne takes effort. So we prefer to run from danger whenever possible. But I must admit, flight is pretty handy for escaping from four-legged hunters. And once we're airborne, we can hurtle across the sky at over 50 miles per hour. (Coming to a stop is a different story.)

Now, the sun is sinking, and the western sky is blushing rosy red. I'm perched high in a hickory tree. My poults are already fast asleep, spaced out on the branch beside me like knots on a log. Though we spend our days on the ground, at night we feel safest up here.

Since my poults can now roost in trees, we all sleep more soundly.



July 4-A few days ago, two other hens joined their families with mine to form a large flock. I guess you can call us three chicks and some chicks.

Being in a flock has lots of advantages. Of course, there are more eyes to watch out for danger. And we help each other find food when times get lean. Last but not least, being around other turkeys helps our

youngsters learn their place in the pecking order.

I have only a few more months to teach my poults how to survive. Then they'll leave to form flocks and families of their own. Someday, my diary will come to an end. But, with any luck, my youngsters will pick up the story where I left off.



Griffer CHUSSIVIER CHU

Instructions

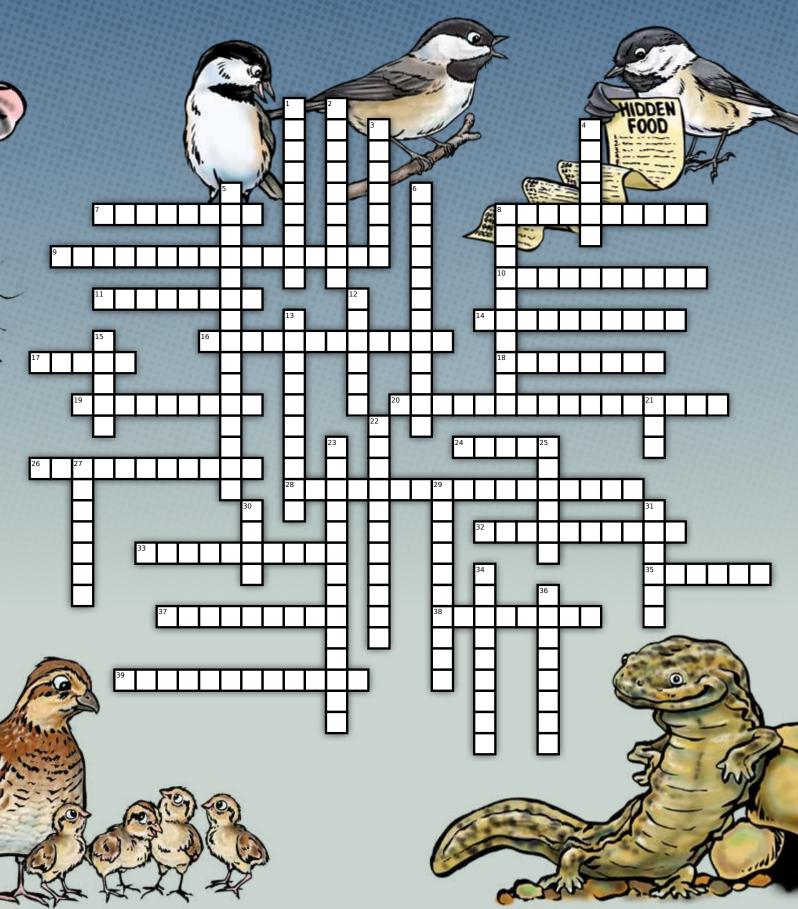
Write the answer to each clue in the boxes that match the clue's number. If the answer is two words, remove the space between the words (for example, "wood duck" is written "woodduck"). If you get stumped, turn to the page number in parentheses to search for a hint.

Down

- 1. What river otters do before going number two. (Page 2)
- 2. A small bird that can add 10 percent to its body weight each day. (Page 8)
- **3.** Another name for a crayfish's claws. (Page 21)
- 4. The sound a male turkey makes to call to hens. (Page 14)
- **5.** A small duck that dives underwater to catch fish. (Page 2)
- **6.** The season when animals look for boyfriends and girlfriends. (Page 2)
- **8.** The ability to wrap around objects. (Page 21)
- **12.** Oak nuts that turkeys like to eat. (Page 12)
- **13.** A chicken-like wild bird that lives in Missouri. (Page 12)
- **15.** A tasty nut that's full of healthy oils. (Page 2)
- **21.** A female turkey. (Page 13)
- **22.** A sleeplike state that helps animals conserve energy. (Page 9)
- **23.** A pale fungus that eats nematodes. (Page 2)
- **25.** Dry, fluffy material that easily catches on fire. (Page 5)
- **27.** The only marsupial that lives in Missouri. (Page 21)
- **29.** Shrimp, crabs, and lobsters are this type of creature. (Page 21)
- **30.** Large branches and logs that burn for a long time. (Page 5)
- **31.** A reddish-orange wild dog with a bushy tail. (Page 2)
- **34.** A large mammal that fattens up before napping through the winter. (Page 7)
- **36.** Twigs and thin sticks that burn quickly. (Page 5)

Across

- **7.** An amphibian that can freeze solid and survive. (Page 9)
- **8.** A group of the same animals living in the same place at the same time. (Page 3)
- **9.** Small woodpeckers who split up to look for food in winter. (Page 2)
- **10.** Dads of this aquatic salamander guard their eggs. (Page 2)
- **11.** A tiny worm that gets eaten by oyster mushrooms. (Page 2)
- **14.** Something that helps hold in heat, like fat or fur. (Page 7)
- **16.** The social structure of turkeys. (Page 13)
- 17. A group of quail. (Page 8)
- **18.** To sit on eggs to keep them warm. (Page 16)
- **19.** A mammal that carries its babies in a pouch. (Page 21)
- **20.** A bird that huddles in coveys during winter. (Page 8)
- **24.** A young turkey. (Page 16)
- **26.** A ribbon of ice that forms when water leaks from a plant stem. (Page 20)
- **28.** A type of rabbit that lives in Missouri. (Page 10)
- **32.** A long, skinny mammal that swims underwater. (Page 2)
- **33.** A type of bird that hammers on trees. (Page 20)
- **35.** What wood frogs do in the winter. (Page 9)
- **37.** A yucky "food" eaten by cottontails. (Page 11)
- **38.** An aquatic crustacean that lives in Missouri streams. (Page 21)
- **39.** A large cat that wanders into Missouri from western states. (Page 3)



Answers

Down: 1. Poop dance, 2. Chickadee, 3. Pincers, 4. Gobble, 5. Hooded merganser, 6. Mating season, 8. Prehensile, 12. Acorns, 13. Wild turkey, 15. Pecan, 21. Hen, 22. Hibernation, 23. Oyster mushroom, 25. Tinder, 27. Opossum, 29. Crustacean, 30. Fuel, 31. Red fox, 34. Black bear, 36. Kindling

Across: 7. Wood frog, 8. Population, 9. Downy woodpeckers, 10. Hellbender, 11. Nematode, 14. Insulation, 16. Pecking order, 17. Covey, 18. Incubate, 19. Marsupial, 40. Marsupial, 20. Morthern bobwhite, 24. Poult, 26. Frost flower, 28. Eastern cottontail, 32. River ofter, 33. Woodpecker, 35. Freeze, 37. Droppings, 38. Crayfish, 39. Mountain lion

GETOVII

FUN THINGS TO DO AND GREAT PLACES TO DISCOVER NATURE



Red-bellied woodpecker

Hairy, woodpecker

Once leaves fall, it's easier to spot woodpeckers as they search tree trunks and branches for insects to eat. Set off on a

eat. Set off on a
WOODPECKER
SAFARI to see if you can
find all seven of Missouri's
head-banging birds.

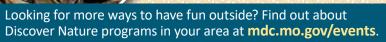
Here's how to turn a backyard evergreen into a living Christmas tree: Collect pine cones and tie loops of yarn to their stems. Spread peanut butter over the cones, roll them in birdseed, and hang them on an evergreen. In no time, birds will flock to the tree like colorful LIVING ORNAMENTS.



Want to know when treefrogs sing, bluebirds nest, or blackberries ripen? With daily reminders of wild happenings and beautiful photos of Missouri's plants, animals, and wild places, the NATURAL EVENTS CALENDAR is just the ticket. Order yours at www.mdcnatureshop.com.



FROST FLOWERS form when water freezes in a plant's stem and bursts out in delicate ribbons of ice. November is a good time to find frost flowers in pastures, wooded valleys, and along weedy fencerows. You'll have to get up early, though. Most disappear by mid-morning.





GIVE YOUR RAKE A BREAK!

Many pollinators stay snug as a bug under a rug of leaves during winter. To help these helpful insects, let leaves lie until late spring.





LONG-PINCERED CRAYFISH

Crayfish are crustaceans (crus-tay-she-uhns), closely related to shrimp, crabs, and lobsters. Like their saltwater cousins, they have a hard shell and claws called pincers. To escape danger, crayfish flip their tails under their bodies to swim backward. Missouri is home to 38 kinds of crayfish. They're found throughout the state, but the largest variety live in Ozark streams. Most hide among rocks during the day and crawl out at night to look for plants and animals to eat.

Cut out this critter card and take it with you outside. How many of the things on the card can you find?

VIRGINIA OPOSSUM







FURRY FAKER

When cornered by a predator, an opossum often faints and pretends to be dead.

LEND ME A TAIL

An opossum's tail is prehensile (pre-hen-sul), which means it can curl around branches for balance.

NATURE'S CLEANUP CREW

A germ-bashing immune system allows an opossum to eat almost anything, including insects, worms, dead animals, and garbage.

PACKING A POUCH

Opossums are marsupials (marsue-pee-uhls). Mama opossums have a pouch like kangaroos.

MAMA MINIVAN

Baby opossums live in mom's pouch for the first 80 days of life. Afterward, they ride on mom's back until they can fend for themselves.

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mdc.mo.gov/xplor.

FREE TO MISSOURI HOUSEHOLDS



Opossums are common throughout Missouri near wooded areas, around farms, and in cities and towns. For more on these pouch-packing pals, scurry over to mdc.mo.gov/field-guide.

