



May/June 2018

Explorer



NEST FEST

CHECK OUT A FEW OF THE
NIFTIEST NURSERIES IN
THE BIRD WORLD


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Let's dive in to a prairie and see who lives among the waves of green.
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A crayfish's pincers can deliver a painful pinch, but they're no claws — oops, cause — for alarm.

📷 by Noppadol Paothong



Xplor

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ON THE COVER

Scissor-Tailed Flycatcher

by Noppadol Paothong

GET OUT!

FUN THINGS TO DO
AND GREAT PLACES
TO DISCOVER NATURE

HELP A TURTLE CROSS THE ROAD.

But only if it's safe to do so. Always carry turtles in the direction they were headed, or they will crawl back to the road.



ORNATE BOX TURTLE



Maxime Stone

TAKE MOM ON A CHICKEN HUNT.

The beautiful, edible chicken of the woods mushroom starts popping up around Mother's Day. Look for orange overlapping clusters on stumps, trunks, and logs of dead or dying trees. (Never eat a mushroom unless you're sure it's edible.)



BUTTERFLY MILKWEED

NEW ENGLAND ASTER

PURPLE CONEFLOWER

HOORAY FOR NATIONAL PRAIRIE DAY!

Celebrate Saturday, June 2. Plant some New England asters, butterfly milkweed, or purple coneflowers in your yard.

GIVE THE BUTTERFLIES A PUDDLING STATION.

Put some sand and pebbles in a saucer, add a little water, and set it where the butterflies can find it and you can watch them.

SUMMER AZURE BUTTERFLY



Donna Brunet



LEARN ALL ABOUT FISHING

at Kids Fishing Days. Each program provides equipment and instruction — all you have to bring is a grown-up! Find your nearest Kids Fishing Day at short.mdc.mo.gov/Zku.

WHAT IS IT?

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



- ① Careful, my bristles can sting.
- ② I grow up to have spots on my wings.
- ③ When young, I eat leaves on the trees.
- ④ But grown up, I live only to breed.

Into the WILD savanna

Missouri's savannas don't have millions and elephants like Africa's savannas, but our tree-dotted grasslands provide homes for just as many amazing plants and animals.

LOOK

These fuzzy acorns come from a bur oak, and they're the largest seeds of any native oak. The trees that these acorns grow up to be are quite large, too. Bur oaks thrive in savannas where their thick, rough bark protects them from wildfires.



Bur oak acorns

SMELL

Green stink bugs make their living by sucking juices from plants. This can cause problems for farmers and gardeners. If you touch a stink bug, it may release a funky fragrance. Depending on who you ask, the odor smells like cilantro, angry skunk, burning rubber, or stinky feet. Pee-yoo!



Red fox

LOOK

Missouri has two kinds of foxes, and both may be found sneaking around savannas. Red foxes, which are more common in northern Missouri, have reddish-orange fur on their backs. Gray foxes, which are slightly smaller and are more common in southern Missouri, have grizzled-gray fur on their backs.



Gray fox



Did You Know?

Gray foxes often climb trees to look for food or avoid predators.

Take a Closer Look

Several kinds of blue birds live on savannas. Here's how to ID three of the most common ones.

Indigo bunting

- Entire body is blue
- May look black when perched in shadows



Eastern bluebird

- Blue back
- Rusty red chest
- White belly



Blue grosbeak

- Entire body is blue
- Rusty red bars on wings
- Large, triangular bill



Heads Up!



Ticks and chiggers love savannas, so don't forget to spray on bug repellent, especially around your ankles.



Listen

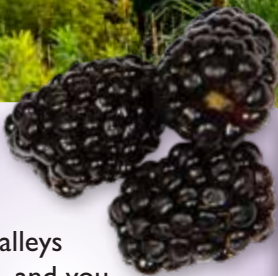
In May and June, male bobwhites call to attract mates. Listen for their whistled *bob-bob-white* calls. Females often answer back with three or four short, clear whistles.



Northern bobwhite

Taste

Search the draws and valleys of a savanna, and you might be rewarded with a sweet treat. **Wild blackberries** ripen in June and July. The berries are safe to eat, but watch out for thorns on the brambles!



Did You Know?

When a **bullsnake** feels threatened, it pretends to be a rattlesnake. The harmless snake coils up, shakes its tail, and hisses — really loudly. The snake's name comes from its loud hiss, which sounds a little like a snorting bull.



Sea of Grass

Sure, prairies have flowers and grasses galore.
But there's so much more to these magnificent meadows.

by Matt Seek | art by David Besenger



Bobolink

A bobolink perched atop a compass plant proclaims with twangy tweets that this patch of prairie belongs to him — at least for now. When nesting season ends, he and his family will point their beaks south and fly to South America for the winter.



Scissor-tailed flycatcher

Most katydids are green, which helps them hide on plants. Pink katydids stick out like bubblegum on a bedpost, and this one just got spotted! A scissor-tailed flycatcher uses its forked tail to turn like a feathered fighter jet. If the katydid doesn't take evasive action, it will soon be bird chow.



Katydid



Northern harrier

A northern harrier thinks it has plucked a snake from the prairie floor. But as the hawk lifts off, the serpent breaks into two wiggly pieces. *Squawk!* Startled, the harrier drops its dinner.

These bumblebees are buzzy — oops, busy — gathering groceries. After collecting pollen and nectar, the workers zip back to their underground nest. There, they'll share the food with their homebound queen and her babies.

Bumblebee

Uh-oh. Somebody lost a tail. Can you find its owner on the next page?



Coyote

A mama coyote prowls the prairie, hunting prey to carry home for her hungry pups. Not only are these canines crafty, they're also doggone fast! Coyotes can sprint 40 miles an hour for short distances, which is plenty quick enough to run down a rabbit.


A compass plant's lower leaves grow with their edges pointing north and south. This way, less of the leaf is facing the hot, moisture-stealing sun.

Greater prairie chicken

Who dug all these holes?
Turn the page to find out.

Goodness sake, that's no snake! It's a glass lizard. Even though this lizard lacks legs, it has eyelids and ear holes, which snakes don't have. When attacked, glass lizards shed their tails. The tail squirms, giving the lizard time to wiggle away.

Slender glass lizard



While mama prairie-chicken keeps an eye out for predators, her youngsters chase insects to eat. In the spring, male chickens dance to attract a mate. They fan out their tails, stamp their feet, and make booming noises that can be heard a mile away.

Can you guess which mammal has its snout stuck down this hole?

Unlike the grass in your yard, prairie grasses grow in clumps. The bare ground in between makes it easy for animals like chickens to move around.

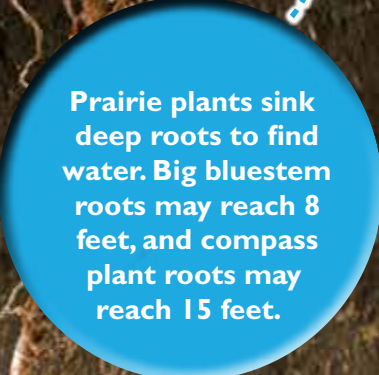
Nom, nom, nom. An ornate box turtle has found blackberries for breakfast. Although insects make up most of the turtle's diet, it also eats tender shoots and fruits.

Ornate box turtle

A detailed illustration of a prairie mole cricket, a large brown beetle-like insect with long antennae and powerful legs, positioned inside its characteristic trumpet-shaped tunnel. The tunnel is a wide, shallow, circular chamber in the soil. The background shows dark earth with various roots and a snake-like burrow.

Prairie mole cricket

Prairie mole crickets spend most of their lives underground, except during spring. That's when females fly around to look for mates. Males can't fly. Their wings are made to sing. They rub them together to make chirping sounds that drive lady crickets crazy. To make their love chirps louder, males dig trumpet-shaped tunnels.

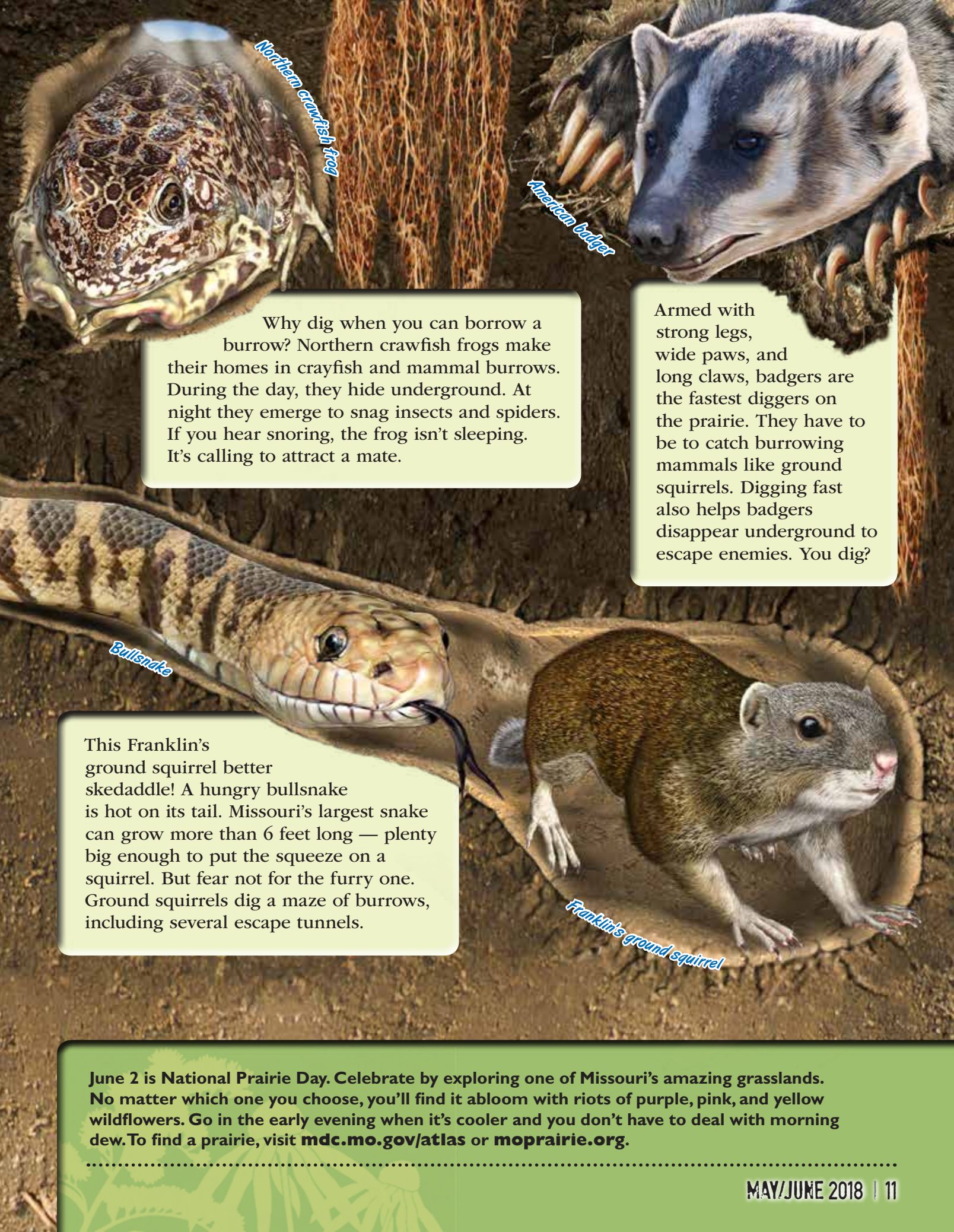
A blue circular callout with a dashed white arrow pointing towards the roots of a plant on the left side of the image.

Prairie plants sink deep roots to find water. Big bluestem roots may reach 8 feet, and compass plant roots may reach 15 feet.

A detailed illustration of a grassland crayfish, a reddish-orange crustacean with large pincers and long antennae, inside its burrow. The burrow is a large, funnel-shaped chamber in the soil. A small pool of greenish water is visible at the bottom of the chamber. The background shows dark earth with roots and a snake-like burrow.

Grassland crayfish

Crayfish need water, but not all crayfish live in streams. Some, like this grassland crayfish, burrow down to find water underground. It isn't unusual for their tunnels to run more than 15 feet deep. As they excavate, they carry blobs of mud in their pincers, stacking it at the surface to form tiny chimneys.



Northern Crawfish Frog

American Badger

Why dig when you can borrow a burrow? Northern crawfish frogs make their homes in crayfish and mammal burrows. During the day, they hide underground. At night they emerge to snag insects and spiders. If you hear snoring, the frog isn't sleeping. It's calling to attract a mate.

Armed with strong legs, wide paws, and long claws, badgers are the fastest diggers on the prairie. They have to be to catch burrowing mammals like ground squirrels. Digging fast also helps badgers disappear underground to escape enemies. You dig?

Bullsnake

This Franklin's ground squirrel better skedaddle! A hungry bullsnake is hot on its tail. Missouri's largest snake can grow more than 6 feet long — plenty big enough to put the squeeze on a squirrel. But fear not for the furry one. Ground squirrels dig a maze of burrows, including several escape tunnels.

Franklin's ground squirrel

June 2 is National Prairie Day. Celebrate by exploring one of Missouri's amazing grasslands.

No matter which one you choose, you'll find it abloom with riots of purple, pink, and yellow wildflowers. Go in the early evening when it's cooler and you don't have to deal with morning dew. To find a prairie, visit mdc.mo.gov/atlas or moprairie.org.



American robin nest

NEST FEST

by
Bonnie
Chasteen

In Missouri, bird-nesting peaks the last week of May. This is a great time to *Xplor* the many kinds of nests birds make, make over, or take over in your neck of the woods.

Quest with Care

It can be hard to spot bird nests, and that's a good thing. In most cases, birds build their nests in out-of-the-way places to avoid predators (including us and our pets).

If you find a nest close to the ground, don't move branches out of the way to get a better view. Grab a pair of binoculars to see the bird's nest without disturbing the parents or attracting predators.

Eggs-act Timing for Every Bird

Each kind of bird spends a specific amount of time growing in its egg before it hatches and in its nest before it flies. Some birds, like ducks and geese, are ready to leave the nest as soon as they hatch. But songbirds, like robins, are blind and naked and need their parents' care.

If you find an active nest, keep track of it. What kind of bird is nesting? Does the male help the female with building, incubating (sitting on the eggs to keep them warm), feeding nestlings, and defending the nest — or is she on her own? How many babies do you see? Can you guess what day they will fly away?



Peregrine falcon chick

All Shapes, Sizes, and Places

Birds build their nests with everything from grasses and twigs to mud, spider webs, and dog fur. Nests can be shaped like cups or pouches, and some are just bare scrapes on the ground. They can range in size from a pingpong ball to big stick piles several feet wide. Look for nests anywhere from below ground (kingfishers dig nest holes into creek banks) to treetops and skyscraper ledges.

Hardly a nest at all!

Killdeer make shallow scrapes in sand or gravel in open spaces around lakes, ponds, and rivers.

Don't be surprised to find them and their speckled eggs on a gravel road, railroad, or graveled roof.



Killdeer eggs

Your nest is my nest

Brown-headed cowbirds lay lots of eggs, but they don't build nests. Instead, they drop an egg in the nest of another kind of bird. When the cowbird egg hatches, the nestling often pushes out the host birds' babies, and takes whatever food is brought to the nest – tricking the parents into raising it as their own young!



Cowbird egg in a dickcissel nest

Eggs are shown as actual size.

American Robin

Where to look: Open woodlands and yards with scattered trees, usually near a clump of leaves in the top half of medium-to-large trees.

Nest design: An open cup of coarse grass, weeds, and other pickings. The inside will have a smooth inner cup of mud and a thin lining of fine, dry grasses.

Growth rate: Hatch in 12–14 days; fly in 14–16 days.

Who does the work: The female generally builds the nest and incubates the eggs. The male helps care for young once they've hatched.



Usually 4 per nest



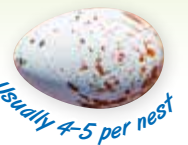
Barn Swallow

Where to look: In open areas near water, often above a barn door or under a bridge or culvert.

Nest design: An open, shallow cup made of mud pellets mixed with grasses and thinly lined with feathers. Barn swallows often nest in colonies.

Growth rate: Hatch in 14–16 days; fly in 17–24 days.

Who does the work: Both parents build the nest, incubate the eggs, and feed the young once they've fledged (left) the nest, often in midair.



Usually 4-5 per nest



Ruby-Throated Hummingbird

Where to look: In the woods, usually near water, often near the fork of a twig, 10–20 feet above ground.

Nest design: A tiny pingpong-ball-sized cup made of plant fragments, lined with down, bound together with spider webs, and covered on the outside with lichens.

Growth rate: Hatch in 16 days; fly in 19 days.

Who does the work: The female builds the nest, incubates the eggs, and feeds the young.



Baltimore Oriole

Where to look: In open woods and woody neighborhoods.

Nest design: A 6-inch-deep pouch made of long plant fibers, vine bark, hair, string, yarn, and lined with hair, wool, and fine grasses.

It usually hangs from a twig fork at the end of a branch, about 25–30 feet above the ground.

Growth rate: Hatch in 12–14 days; fly in 12–14.

Who does the work: The female builds the nest and incubates the eggs. Both parents feed the young.



Pileated Woodpecker

Where to look: In woods with large, tall trees.

Nest design: A hole about 4 inches wide and 5 inches tall, around 15–70 feet up the trunk.

Growth rate: You will likely not see the white eggs, which lie in the tree cavity 10–14 inches deep. Hatch in 18 days; fly in 26–28 days.

Who does the work: Both parents hammer out the nest, both incubate the eggs, and both tend the young. Family groups may stay together through summer.



Carolina Wren

Where to look: In low, shrubby areas, also in any little nook around yards, barns, or outbuildings.

Nest design: A bulky, domed cup made of grasses, weeds, bark strips, moss, and rootlets. Lined with fine grasses, hair, and feathers.

Growth rate: Hatch in 12–14 days; fly in 12–14 days.

Who does the work: The male builds the nest, and the female lines it. The female incubates the eggs, and both parents feed the young.

Great Blue Heron

Where to look: Way up in the trees along a stream or lake.

Nest design: A large, bulky platform of twigs. Herons nest in colonies called “rookeries” and add to their nests every year.

Growth rate: Hatch in 25–29 days; fly in 60 days; leave the nest in 64–90 days.

Who does the work: The male brings the nesting material, and the female builds the nest in 3–14 days. Both parents incubate the eggs, and both tend the young.



Usually 4 per nest



Peregrine Falcon

Where to look: On cliff ledges or tall buildings in cities.

Nest design: A shallow scrape.

Growth rate: Hatch in 28–29 days; fly at 35–42 days, but stay with their parents for another two months.

Who does the work: After the female lays her second egg, the male begins bringing her food. It’s mainly the female that incubates the eggs, and she takes close care of them the first 14 days after they hatch. After that, dad begins tending the young if mom is absent.



Usually 3-4 per nest



Falcon Cam The Missouri Department of Conservation is helping to restore peregrine falcons to our state. To watch the nest box camera, visit short.mdc.mo.gov/ZZJ.

Wild Turkey

Where to look: In open woods and clearings.

Nest design: A scrape several inches deep among grasses and lined with grass and leaves.

Growth rate: Hatch in 28 days. Downy nestlings can search for food soon after they hatch, but they will stay with their brood until winter.

Who does the work: The female builds the nest, incubates the eggs, and tends the young after they hatch. Males take no part in nesting, but sometimes several female turkeys will share the same nest.



Usually 8-12 per nest



THIS
ISSUE:

DIVING BEETLE VS GOLDEN SHINER

Illustrated by David Besenger

Scuba Skills

To breathe underwater, the spotted predaceous diving beetle holds an air bubble under its wing covers, where its breathing tubes are.

Fang Force

On contact, the beetle's sharp, hollow fangs inject digestive juices, helping disable prey.

Oar Action

Powerful, oar-shaped hind legs covered with swimming hairs help the beetle thrust toward larger prey.

Sensitive Skin

The shiner's skin-deep sense organs, called lateral lines, help it feel the slightest change in the water and dart away.

School Safety

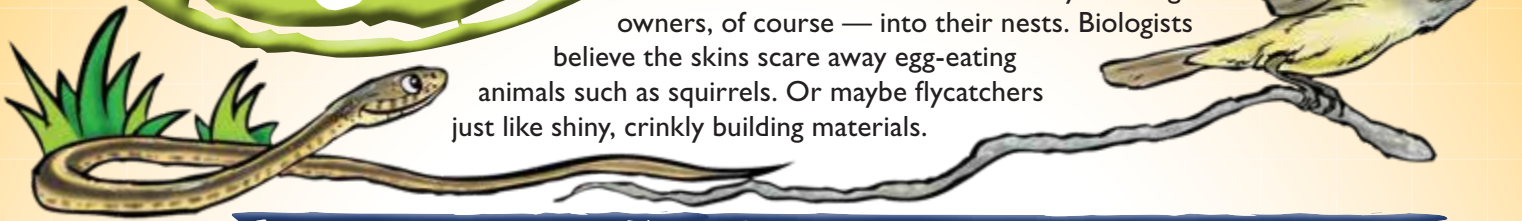
By schooling together, small fish multiply their ability to detect and confuse predators.

AND THE WINNER IS...

STRANGE but TRUE!

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

GREAT CRESTED FLYCATCHERS weave snakeskins — left behind by the original owners, of course — into their nests. Biologists believe the skins scare away egg-eating animals such as squirrels. Or maybe flycatchers just like shiny, crinkly building materials.



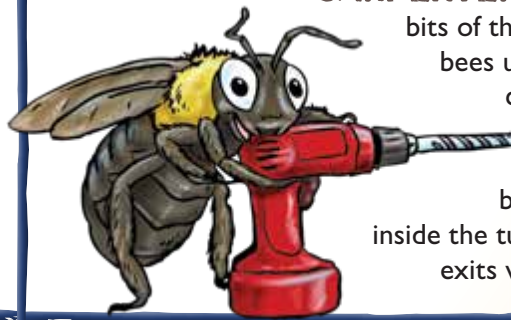
Young **OPOSSUMS** leave their mom's pouch when they're 2 months old. But the pouch potatoes can't yet fend for themselves. So mom becomes a four-legged minivan — a *mamavan*. The youngsters ride on her back, learning to survive as she gathers food.



No bones about it, **BELTED KINGFISHERS** have tough guts. Baby birds swallow fish whole and rely on strong stomach acids to digest bones and scales. When they grow up, their stomach chemistry changes, and they cough up pellets of undigested food.



CHANNEL CATFISH are protective parents. Males guard their nests and chase away egg-eating predators such as sunfish. To make sure the eggs stay clean and get plenty of oxygen, the whiskery dads even swish their tails over them.

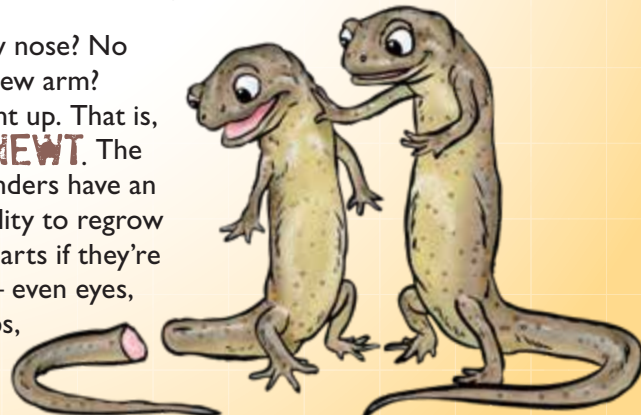


CARPENTER BEES are the drill bits of the insect world. Mama bees use their burly jaws to chew tunnels up to 18 inches long into dead wood. The buzzy builders lay eggs inside the tunnels and seal up the exits with spit and sawdust.

Neither **YUCCA MOTHS** nor **YUCCA PLANTS** could survive without the other. Baby yucca moths eat only seeds from the spiky plants. And yucca flowers — which make the seeds — can be pollinated only by the tiny white moths.



Need a new nose? No problem. New arm? Coming right up. That is, if you're a **NEWT**. The tiny salamanders have an amazing ability to regrow new body parts if they're damaged — even eyes, hearts, limbs, and tails.



HOW TO

Make Gourmet S'mores

The crunchy, gooey, yummy combination of graham crackers, chocolate, and roasted marshmallows — a.k.a. the s'more — has been satisfying hungry campers since before you were born. And though it's tough to improve on a campfire classic, darn if we didn't try. So if you want s'more ideas (see what we did there?) for ooey, gooey goodness, give these recipes a whirl.

Roasting the Perfect Marshmallow

A flaming marshmallow looks awesome, but its burnt-black taste just doesn't compare to a marshmallow that has been roasted to golden-brown perfection.

1. Whittle a point on the end of an arm-length, green-wood stick.
2. Spear a marshmallow (or four) on the end.
3. Hold the marshmallow about 6 inches above a bed of hot coals. Turn the stick slowly so that each side of the marshmallow gets direct heat.
4. Check your marshmallow often. When it's golden brown and soft, it's ready.

Do NOT stick the marshmallow directly in the flames. If you do, the puffed sugar will quickly ignite, and you'll have a marshmallow torch that burns like lava if it drips on your skin. Yuck and ouch!



THE GRASSHOPPER



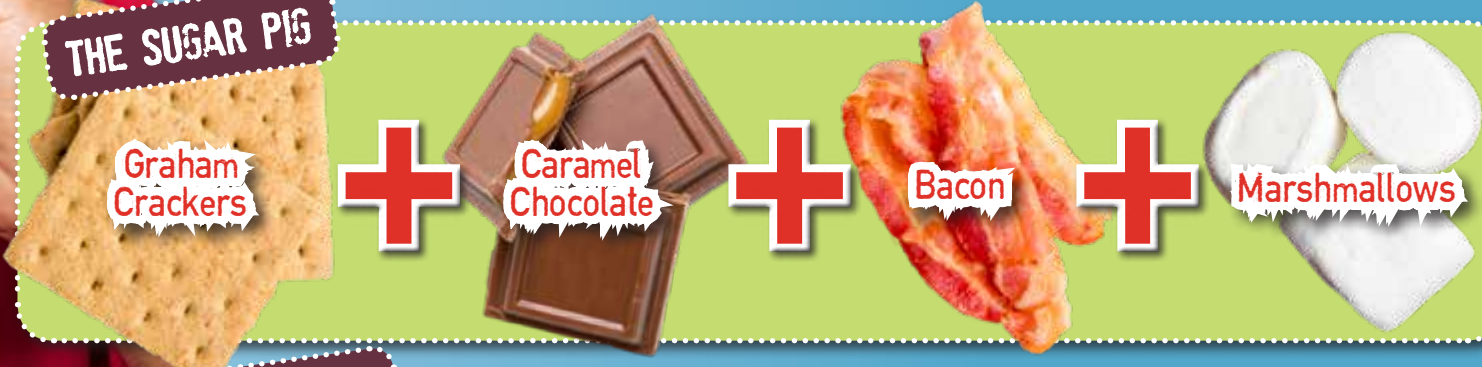
THE ELVIS



BLACKBERRY COBBLER



THE SUGAR PIG



THE UP-ALL-NIGHT



XPLOR MOR



MOLE MAZE

Put your ear on a molehill, and you might hear the tiny tunneler's tummy rumble.

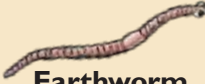





A mole may eat up to half its weight each day, stuffing its belly with worms, grubs, and other underground creepy-crawlies. Although its eyes are only good for telling light from dark, its nose knows where to dig to find food. Using oversized front paws, moles tunnel quickly — up to a foot per minute — following their sensitive sniffers from nibble to nibble.



Start

Instructions

This hungry mole wants to grab some snacks on its way home. Two tunnels lead back to its den. Can you find the one that offers the most morsels to munch? First, find both possible paths. (**Hint:** Use two different colored crayons.) Then, count how many creepy-crawlies each path contains.

							Creepy-crawly total
1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

WHAT IS IT?

— FROM PAGE 3 —

Careful — those bristles can sting! After spinning its cocoon, this bristly green caterpillar will become a big, colorful io moth. When disturbed, the moth will spread its forewings to show bold eye spots that can scare predators. Females are larger than males and have pinkish-brown wings instead of yellow ones. Io caterpillars are leaf eaters, but the moths live only to mate and don't eat at all. Both caterpillars and moths fall prey to birds and other critters. Learn more at mdc.mo.gov/field-guide.

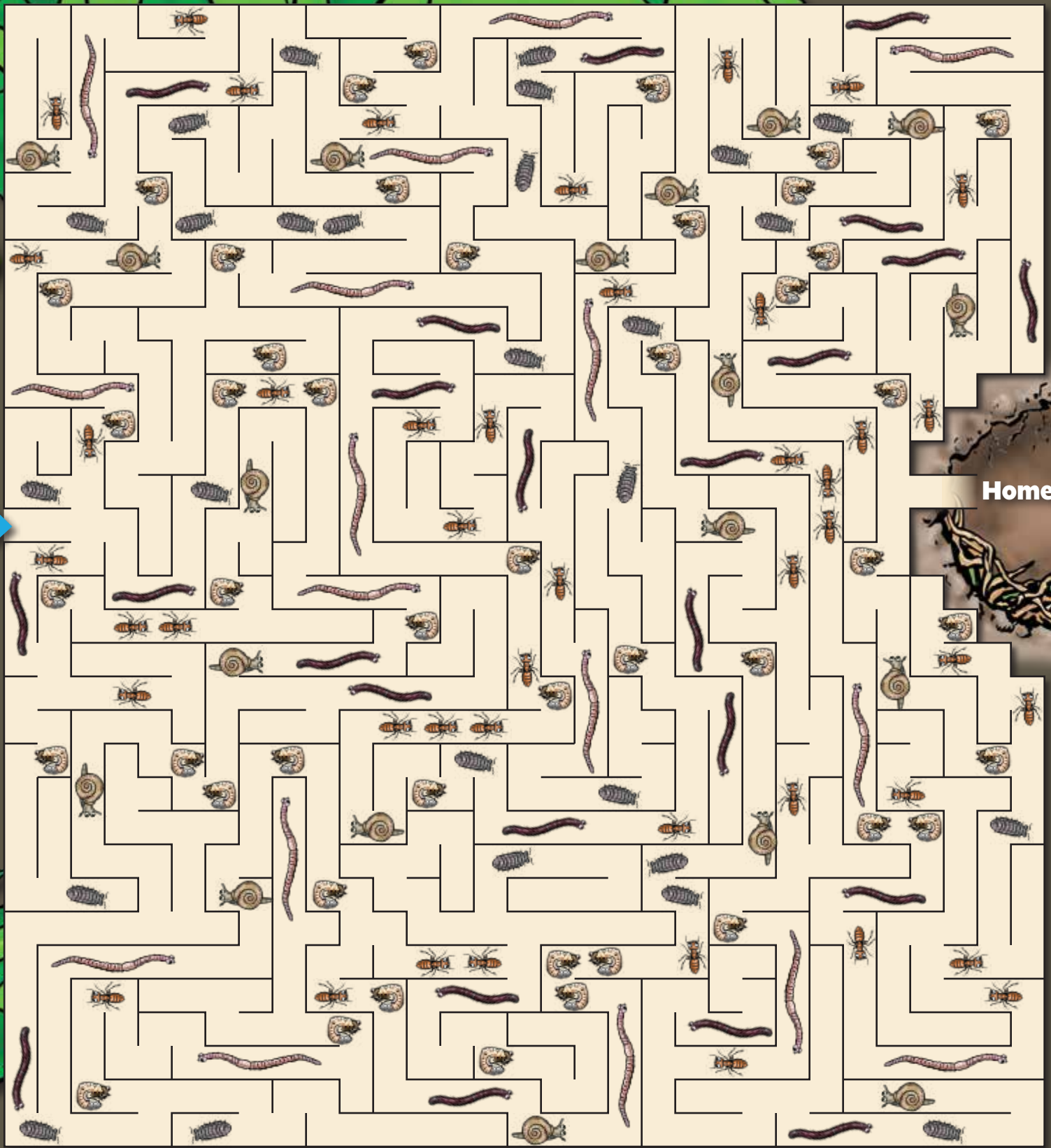


Male

Female

Male io moth: Donna Brunet; Female io moth: Jessica Louque/Smithers Viscient/Bugwood.org

F



Home

Answer: The tunnel with the most morsels contains 51 creepy-crawlies.

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FREE TO MISSOURI HOUSEHOLDS

CRITTER CORNER Midland Smooth Softshell



Jeffrey T. Briggler

This streamlined, water-dwelling turtle has sharp claws on its webbed feet, so be careful if you pick one up. In Missouri, you might spot it on sandbars or mud flats with just the tip of its nose snorkeling above the water. Females eat the larvae of water bugs, but males hang out in shallower water and eat land bugs. In May and June, mama softshells go looking for sandy places to lay their eggs. Learn more at mdc.mo.gov/field-guide.