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Xplor (ISSN 2151-8351) is published bimonthly. It is a publication of the Missouri Department of Conservation, 2901 West Truman Boulevard, Jefferson City, MO (Mailing address: PO Box 180, Jefferson City, MO 65102.) Subscription free to Missouri residents (one per household); out of state \$5 per year; out of country \$8 per year. Please allow 6-8 weeks for first issue. Notification of address change must include both old and new address (send mailing label with the subscriber number on it) with 60-day notice. Preferred periodical postage paid at Jefferson City, Missouri, and at additional entry offices. Postmaster: Send correspondence to Xplor Circulation, PO Box 180, Jefferson City, MO 65102-0180. Phone: 573-751-4115, ext. 3856 or 3249.

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ON THE COVER

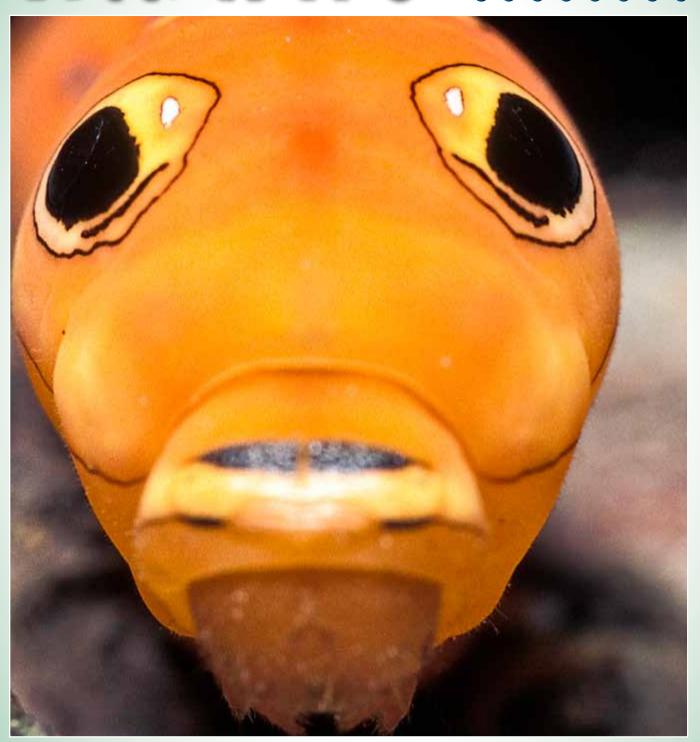
Bicolored Striped Sweat Bee

by Noppadol Paothong

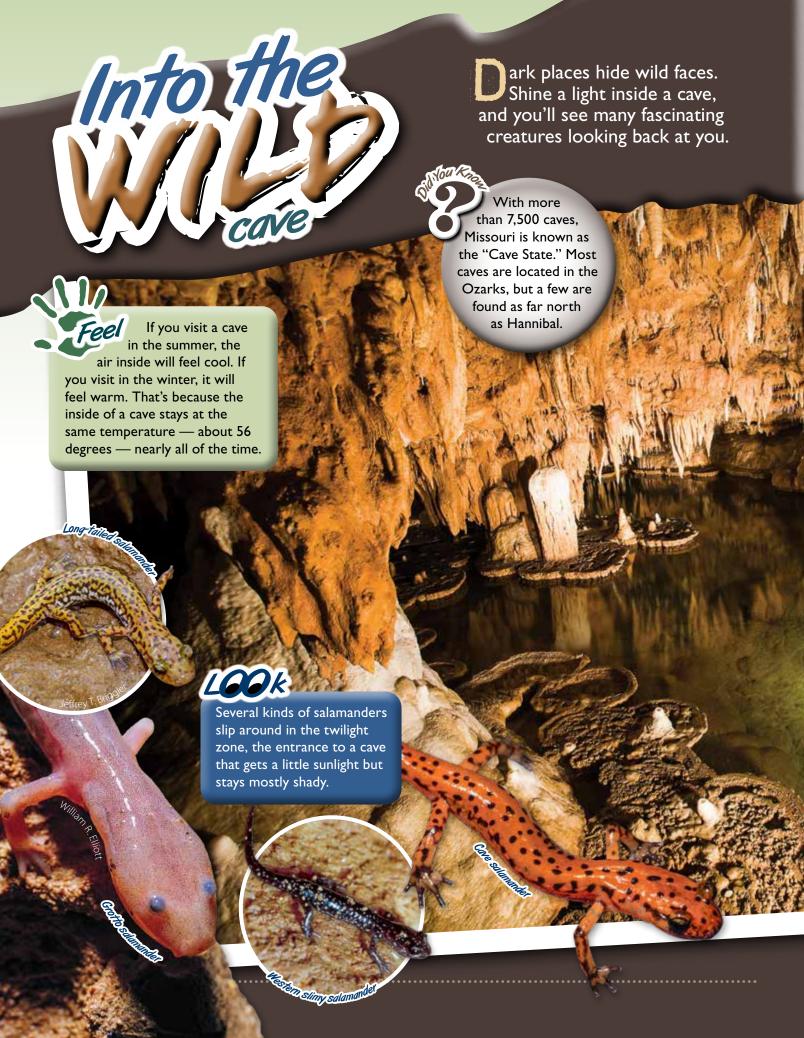


DON'T KNOW?

Jump to Page 20 to find out.



- 1 My eyes make me look like a snake.
- 2 These spots are just some of my fakes.
- 3 I hide in plain sight with the greatest of ease.
- 4 Then I grow up to fly in the trees.







SHOW-MB SHOW-M

These summer showoffs fuel up for fall migration in August.

hen you're at the lake or along a river this summer, keep your eyes peeled for leggy, beaky birds poking at the shoreline, especially in August. That's when Missouri's fall shorebird migration gets into full swing. Every year, some shorebirds like the pectoral sandpiper fly thousands of miles to reach their southern wintering grounds. While they're in Missouri, they'll be wading in shallow water, skittering along mudflats, or probing wet fields for snails, bugs, and other tasty treats to feed their need for speed. The pectoral sandpiper, for example, can reach cruising speeds of 50 mph during migration.

The shorebird that migrates the farthest, however, is the American goldenplover. It nests in the Arctic tundra in northern Canada and Alaska. In fall, it flies over the Atlantic Ocean down to southern South America for the winter. Round-trip, it travels more than 20,000 miles nearly every year! The shorebird with the shortest commute to Missouri is probably the American woodcock. Its winter range reaches from southern Missouri down to the Gulf Coast. In the summer, it ranges farther up into Missouri and as far north as central Canada.

Shorebirding Basics Not all shorebirds seek food and friends at the beach. The killdeer, for example, is just as likely to feed in a wet field as a wetland. And the American woodcock

Not all shorebirds seek food and friends at the beach. The killdeer, for example is just as likely to feed in a wet field as a wetland. And the American woodcock hides in wet woods all day. Wherever you spot shorebirds, it helps to carry a good pair of binoculars and focus on these features:

- **Beaks.** Shorebird beaks tend to be long and pointed, the better to probe the silt or soil or swish the water for squishy, crunchy munchables.
- **Legs.** Except for the woodcock, most shorebirds' legs are on the long side. This helps with wading and chasing bugs.
- Feet. Not webbed, but with toes that are long and wide-set. This helps shorebirds stand in soft, wet mud but not sink into it.
- **Feeding behavior.** Regardless of their favorite kinds of "beaches," all shorebirds probe or dab for critters with their beaks.



There, it spends its days probing the wet soil

for earthworms. It's active only at dawn and

dusk, so you might never see it unless you're

outside near wet woods in the evening.

flight, not what you were probably thinking),

it may give a sharp, twittering *churt*. Like

the American golden-plover, it nests on the

Arctic tundra and winters in South America.



Like the woodcock, this member of the sandpiper family avoids mudflats. Instead, it prefers moist grassy areas, swamps, shallow marshes, or even drainage ditches. You seldom see these shy birds until you are nearly upon them, when they abruptly rocket into the sky and fly away in a zigzag pattern.



Compared to most shorebirds, this little plover's beak is kind of short and stout. It eats seeds and berries as well as tiny water critters. In Missouri, look for it on prairies, farms, mudflats, and shorelines.





This one's easy. It has long, yellow legs, a straight beak, and it's about 11 inches tall. Its cousin, the greater yellowlegs, is larger and has a slightly upturned beak. Look for lesser yellowlegs wading wetlands and flooded fields in belly-deep water. Rather than probing, the yellowlegs dabs at the water and swings its beak at small fish.







If you like apples, peaches, or blueberries, you should thank a blue orchard bee. In early spring, these beautiful, busy bees bustle about, searching for food and empty holes in which to build nests. Their favorite find is pollen from fruit trees and berry bushes. They mix it with spit and nectar to form a pollen loaf. Then they tuck the loaf into a hole, lay an egg on top, and seal the chamber with a wall of mud. When the egg hatches, the baby bee will have plenty to eat until it emerges as an adult the next spring.



Many flowers give off odors to attract pollinators. But not all flowers smell sweet. Some smell downright stinky.

Pawpaw flowers, for example, smell like rotten meat. This odor, along with the plant's liver-colored blossoms, attracts flies and beetles that mistake the flower for a dead animal.

After pollination, pawpaw flowers produce large potato-shaped fruits that ripen in late summer. Many animals love to eat pawpaws, including people. The fruits taste like a cross between a banana and a mango.



Housefly

Paulaw Hower

Yellow and Black-STAY BACK!

Most people know that a bee's behind can pack a painful punch. The ability to sting protects the buzzy insects from birds and other predators. The yellow and black bands on bees act like warning signs to tell predators, "Back off!"

But here's a little secret: Only female bees can sting. Male bees don't have stingers and are completely harmless. Yet because of their yellow-and-black coloration, most predators leave them alone, too.

Boy bees aren't the only insects that use this trick. If you saw this insect buzzing around, would you give it lots of room? Of course you would. But there's no need. Even though it looks, sounds, and acts like a bee, it can't sting. It's a harmless fly.



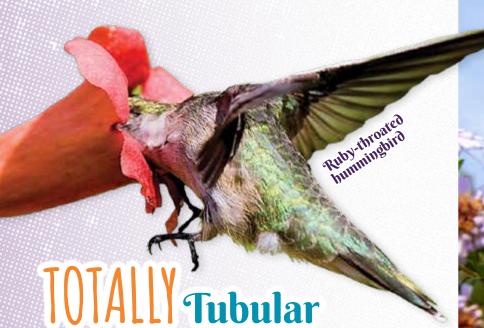
Invisible
TREASURE
Maps

Bilobed looper not of its

Some flowers have patterns on their petals to help guide hungry insects to their nectar. If you look closely at this iris, you can see how the dark "veins" and "ribs" on the light-

colored petals point to the center of the flower where the nectar is pooled.

On other flowers, these petal patterns, which biologists call "nectar guides," are invisible — at least to people. But bees and other insects can see colors that humans can't see. To a buzzing bee, the nectar guides aren't invisible at all. Like a map painted on the petals, they guide the bee right to the flower's sugar-filled treasure chest.



A ruby-throated hummingbird's long beak is perfect for sipping nectar from deep, tubular flowers. And when the bird buries its beak in a blossom, its forehead gets dusted with pollen to drop off at the next flower it visits.

Hummingbirds flap their wings at blinding speeds — on average, about 50 times each second. This helps hummers hover precisely in place while they get a drink. But all that flapping comes at a cost.

The tiny birds burn energy faster than any warm-blooded animal. To keep their wings revved up, they must eat half their weight in sugar every day. (You'd have to drink more than 450 cans of soda to keep up.) In fact, from sunrise to sunset, a hummingbird may visit nearly 1,000 flowers. Now that's a lot of pollination!

A Moth in DISGUISE

It's easy to mistake this hummingbird moth for a bee or a hummingbird. After all, it has yellow and black bands on its abdomen like a bee. And, when it hovers in place, its wings buzz like a hummingbird's. Males even have flared hairs on their behinds that look like a bird's tail feathers.

To reach the flower's nectar, these day-flying moths are equipped with freakishly long tongues. In fact, some kinds of hummingbird moths have tongues that reach twice the length of the moth's body!





Flower



In September, monarch butterflies migrate all the way to Mexico to escape winter weather. To make the 1,500-mile trip, the plucky orange butterflies need lots of energy. And to get it, they sip nectar from late-blooming flowers like asters, goldenrods, and thistles. Nectar is the perfect energy drink to fuel a butterfly's flutter. In fact, most monarchs actually gain weight during their exhausting journey. The flower fat they pack on is key to their survival. Once they reach their wintering grounds, they won't eat again for nearly five months.



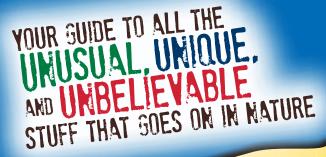
Throughout the world, pollinators are disappearing in alarming numbers. But you can do something right in your own backyard to bring back the buzz.

- Plant a variety of flowers so something is blooming from early spring through late fall.
- Many native wildflowers make attractive additions to your flower beds. Plus, they're better for pollinators. For ideas about which ones to plant, flutter over to grownative.org.
- Ask your parents to avoid using pesticides. Not only do these chemicals kill pests, but they also kill helpful bees and butterflies.
- Mow your lawn less often. A few flowering weeds in a desert of grass offer an oasis for thirsty pollinators.
- Leave small patches of bare dirt for ground-nesting bees. Or search the internet for plans and build a bee house.

THE STRUCCLE TO SURVIVE ISN'T ALVAYS A FAIR FIGHT



FISH need oxygen just like people do. But while we use lungs to get oxygen from air, fish use gills to get oxygen from water. If oxygen in the water runs low, fish can suffocate.



LEAFCUTTER BEES snip circles from leaves with their sharp jaws. They stuff the cutouts in their nests to make "sleeping bags" and lay an egg inside each one. When the eggs hatch, the babies have a

dry, cozy place to live and grow.

When startled, a WESTERN RATSNAKE

(aka black snake) will often vibrate its tail in dry leaves. Biologists believe the harmless snake may be

trying to sound like a venomous rattlesnake to scare away attackers.

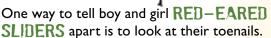
Many birds take a dip in a bird

bath or splash in a puddle to wash off. WHITE-EYED VIREOS have a different way to stay clean. The shrub-loving birds rub their bodies against dew-soaked leaves in the morning.

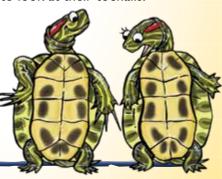


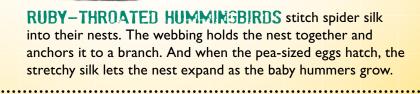
Because ants bite and sting, many predators prefer to eat spiders. To avoid snack attacks, some JUMPING SPIDERS pretend to be ants. Not

only are the eight-legged imposters shaped like ants, they also raise their legs to imitate an ant's antennas.



Boys usually have longer front claws than girls do. And when a slider guy wants a girlfriend, he waves his long claws in the female's face.







Catchal Frog with Your Bare Hands

Bullfrogs can be as jittery as your little brother after his third can of cola. Sneaking close enough to grab a jumpy frog takes skill and a little luck.

Few things are more fun than slopping around a muddy pond at night in hopes of catching America's largest frog. A bullfrog can weigh more than half a dozen cheeseburgers and grow larger than your dad's hand. They're fun to catch, and best of all, they grow meaty legs that when cooked to perfection give fried chicken a run for its money.

FIRST, A FEW RULES ...

Frogging season runs from sunset on June 30 to midnight on Halloween. Bullfrogs and their smaller cousins, green frogs, are both legal to catch. If you're 15 or younger, you don't need a permit to harvest frogs. If you're 16 or older, you do. You can take home eight frogs each night. The possession limit — how many you can keep in your freezer before having a frog fry — is 16.





- You don't need fancy gear for frogging, but one item is essential: a bright flashlight.
 Headlamps are handier because they leave both of your paws free.
- Load your light with fresh batteries and bring extras in a zip-top bag.
- Pigs wallow in less mud than most frog hunters, so wear old clothes your parents can cut into rags when the froggin' is done.
- Some froggers wear rubber boots. If you don't mind wet feet, an old pair of sneakers works fine. Lace them up tight so mud doesn't suck them off your feet.
- Spray yourself with insect repellent to keep squadrons of mosquitoes away.
- Stuff your frogs in a mesh laundry bag or an old pillowcase. Tie the bag shut to keep the croakers contained.

mud along the shore. Slowly circle the bank, sweeping your light all around. Look for white chests and glowing eyes.When you spot a frog, keep the light tight on its face. The hypnotized hopper won't be able to

L. During summer, frogs cool off at night in

face. The hypnotized hopper won't be able to see anything and will remain hunkered in place.

3. Creep toward the frog from the front. If it startles, it's liable to jump right toward you, offering a chance for a mad grab.

4. If it doesn't spook, move your hand s-l-o-w-l-y within striking range and ... GRAB IT! When you get your paws on a frog, hang on tight — they're as slippery as a greased water balloon.

5. After you've bagged eight frogs, it's time to call it a night. Run yourself through a car wash, tiptoe up to bed, and sleep in so you can stay up late tomorrow night for another round of mud, fun, and frogs.



All mammals begin life drinking their mama's milk. But once they grow up, different beasts eat different feasts. And how much each critter eats might surprise you. Some of Missouri's tiniest mammals have ginormous appetites. A 3-inch-long least shrew, for example, can gobble down more than its weight in insects every day. To accomplish the same feat, you'd need to eat about 240 quarter pounders! On the other hoof, large mammals often consume less than you might think. A 700-pound bull elk nibbles only about 20 pounds of grass each day.

How good are you at measuring a mammal's meals? Let's find out. For each critter, check the choice that correctly completes its fact.



Better than a bug zapper:
During peak feeding times,
a little brown myotis (aka
little brown bat) can swoop,
snatch, and snarf down 1,200
mayflies, beetles, and other
insects in one

☐ A. minute ☐ B. hour ☐ C. day



Put your ear to a molehill and you might just hear the tiny tunneler's tummy rumble. An eastern mole may eat half its weight in worms, grubs, and other underground creepy-crawlies each ____.

☐ A. minute ☐ B. hour ☐ C. day

WHAT IS?

— FROM PAGE 3 —

The spicebush swallowtail caterpillar is a master of disguise. It goes through five phases before it becomes a chrysalis. In early phases, it looks like bird poop. In the last phase, it resembles a snake —

first green then orange — with bold eyespots. These disguises may help protect it from predators. As adult butterflies, spicebush swallowtails live in the forest. They lay their eggs on the leaves of spicebushes and other shrubs and trees. Learn more at mdc.mo.gov/field-guide.





thought in its furry little head: storing enough food for winter. In oak- and hickory-rich habitats, a hard-working 'munk can gather more than 160 acorns in a single ____.

☐ A. hour ☐ B. day ☐ C. week



Super snoozer: During hibernation, a 400-pound black bear may not eat a single thing for nearly four _

☐ A. days

☐ B. weeks

C. months



A gray squirrel, which weighs about as much as an NFL football, eats more than 100 pounds of acorns, hickory nuts, and other foods in one ____.

A. week

☐ B. month

C. year



Barely bigger than a bratwurst, least weasels are the world's smallest meat-eating mammals. But don't let their small size fool you. To fuel their ferocity, a least weasel eats half its weight in mice every ____.

☐ A. day ☐ B. week ☐ C. month



Beavers eat bark and use branches to build dens and dams. Using only its teeth, this furry chainsaw can gnaw down a willow tree that's thicker than your leg in under five ____.

A. seconds

☐ B. minutes

C. hours



River otters waste little time digesting their dinners. When an otter munches and crunches a crayfish, the crayfish's remains turn up in the otter's droppings in about one ____.

A. minute B. hour C. day



After stuffing its belly with a big meal, a bobcat is purrfectly happy to skip eating for a few ____.

A. hours

☐ B. days

C. weeks

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- You might see this big crayfish in any Ozark stream or river except the Osage and Neosho. In the White River basin, it lives in the North Fork and Bryant Creek. A black spot on each pincer near the base of the moveable finger proves you've found the spothanded crayfish. It is a strong swimmer. At night, it grazes
- on algae, and it's known to feed on dead fish. Learn more at mdc.mo.gov/field-guide.