A GUIDE TO MISSOURI'S

MISSOURI

MISSOURI DEPARTMENT OF CONSERVATION

A Guide to Missouri's Lizards

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Front Cover: Adult male and female eastern collared lizards basking on a rock. Photo by Jeffrey T. Briggler.

Back Cover: Adult prairie racerunner within its sandy burrow located under a rock. Photo by Jeffrey T. Briggler.



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GET TO KNOW MISSOURI'S LIZARDS

Lizards represent the highest diversity of reptiles on earth with over 6,500 species worldwide. They are found on all continents except Antarctica. Besides lizards, reptiles include crocodiles and alligators, tuataras, amphisbaenians, and snakes. Like other reptiles, lizards are ectothermic, which means they depend on external sources, such as sunlight, heated surfaces, etc., to regulate body temperature, and therefore, they are most active during the warmer months and dormant during the colder months. The overwhelming majority of lizards in the world are harmless except for the venomous Gila monster, Mexican beaded lizard, and Komodo dragon. All of Missouri's lizards are harmless to humans, although some will attempt to bite if handled, usually causing a mild pain similar to being pinched.



Lizards need to bask in the sun to increase body temperature and soak up ultraviolet rays that produce vitamin D for healthy growth, such as this basking broad-headed skink.



Lizards shed their skin in patches, such as this young prairie racerunner.

Most Missouri lizards are long, slender reptiles with scales, a long tail, and have four legs with claws on their toes. They are closely related to snakes, and some even look and "act" just like snakes. They are different from snakes because they have legs, ear openings, and eyelids, but there are exceptions. The western slender glass lizard, which lives in many Missouri counties, is legless, but has the eyelids and ear openings that snakes lack. Missouri is home to 13 species of lizards. Eleven are native to Missouri with two additional subspecies that consist of five families. In addition, two nonnative (introduced) lizards from two families have unfortunately become established in Missouri.

Missouri's native lizards live in a wide variety of habitats from open forests to grasslands and glades. Forest species use clearings, where they can bask in the sun on fallen logs. Glade species bask on rocks and take shelter under them at night. Lizards in grasslands have no problem finding places to bask in such sunlit habitats, and they take shelter in animal burrows or under grass clumps. The two established nonnative species inhabit yard landscaping and buildings in urban areas.

Lizard bodies have many adaptations to survive in warmer, dryer climates and defenses to escape predators. Missouri's lizards all have scales and a tough outer skin that serve a variety of functions. The tough skin helps the lizards retain moisture in warm, dry climates, assists as a defense against injuries, and provides camouflage to blend into their habitat. Just like snakes, lizards must shed their skin so they can grow. A lizard's outer skin normally sheds in large pieces three or four times during the summer.

Lizards use their tongue to pick up odors in their environment, helping them find prey or detect a nearby predator. They use their small, strong teeth to grab and crush prey prior to swallowing it and to defend themselves when threatened. If you capture a large skink or a prairie lizard, its bite will feel like nothing more than a pinch. However, collared lizards have a larger head and strong jaws and can cause a superficial bite that might bleed slightly. The strong teeth also aid in reproduction by allowing the male to grasp the head or neck of the female during mating.

Many lizards have evolved special tail vertebrae that enable the tail to be easily broken off if grabbed by a predator. There are special muscles along the tail that constrict at the break and prevent any blood loss. This is an effective means of self-defense that does not harm the lizard itself. Once the tail is broken off, the lizard quickly runs for shelter and is safe for the moment, leaving a squirming tail to confuse or distract the predator. A new tail will eventually replace the broken section, but



This young little brown skink's "forked" tail is a result of its tail not breaking off completely when grabbed by a predator. A "new" tail grew beside the injured tail.

TOM R. JOHNSON



A male prairie lizard eating a female carpenter ant.

it will not have the same color or scale pattern as the original tail. Most of Missouri's native lizards, especially the skinks, can lose their tail to escape a threat. Collared lizards and Texas horned lizards do not.

All of Missouri's lizards eat a wide variety of insects (e.g., ants, beetles, crickets, caterpillars, grasshoppers, and termites) and other invertebrates (e.g., spiders and earthworms). They are valuable as a natural control of destructive species, such as termites. Skinks and prairie lizards are known to eat the winged life stage of termites (called "alates") as they emerge from underground. The eastern collared lizard not only eats a wide variety of insects, but it is also an important predator of other lizards.

Snakes are one of the most common predators of lizards. Kingsnakes and racers will eat lizards at every opportunity. The roadrunner, a bird that lives on glades, especially in southwest Missouri, is a primary lizard eater. Hawks are important lizard predators. Skunks, badgers, and racoons dig up and consume lizard eggs. Unfortunately, house cats have proven to be a primary predator of all species of lizards.

The reproductive cycle of Missouri's lizards begins with males courting and mating with females during the spring months. In some species, the males are larger and more brightly colored to attract females during the mating season. Also, behavior displays (combat or threat) are common between males that are establishing or maintaining territories or attracting a female. All of Missouri's lizards lay leatheryshelled eggs from spring into midsummer that hatch in late summer or early fall. Most female lizards will lay their eggs in a burrow in loose soil, under a flat rock or in rotten logs and leave them to develop and hatch on their own. However, some lizards, such as many skinks and glass lizards, are different and show parental care. They lay their eggs under a flat rock or inside a rotten log and stay with the eggs until they hatch. They guard their eggs from being eaten by predators, or they prevent fungus growth from developing by moving eggs around. The size of lizard eggs depends on the species. For example, our smallest lizard, the little brown skink, lays from two to seven eggs that average under a half-inch long. Newly hatched lizards are small, most only 2 to 2.5 inches long, and are on their own, with no help or protection from the female.



Some lizards, such as this female broad-headed skink, protect their eggs.



For more details, visit *mdc.mo.gov/field-guide*.

Eastern Collared Lizard

Crotaphytus collaris (Say in James)

About: Eastern collared lizards live mainly in the Ozark Highlands on rocky, dry, open, south-facing hillsides known as glades. They can also be found in rock quarries and rocky riprap along reservoir dams. They spend most of their time basking in the sun on exposed rocks. Adult eastern collared lizards have the remarkable ability of running on their hind legs



when escaping capture. The popular local name "mountain boomer" refers to a name given to collared lizards in the southwest United States. Early settlers to that area saw collared lizards basking on rocks and, at the same time, heard the barking call of a local frog or howling wind in canyons. Contrary to this popular local name, all lizards native to Missouri, including eastern collared lizards, are voiceless.

Description: These colorful, long-tailed lizards are named for the pair of black markings behind their large head. Males are more colorful than females and have bright green legs, blue-green bodies, green mottling on the tail, and some orange on the throat, especially during breeding season. Females are light brown to yellow-tan with faint light spots. Newly hatched young have contrasting brown and yellow crossbands.

Length: Ranges from 8 to 14 inches (203 to 356 mm) in total length.



Diet: Variety of small invertebrates, especially beetles, grasshoppers, moths, and spiders, as well as small snakes and other lizards.

Missouri Distribution: Mainly southern half of the state, especially the Ozark Highlands.





Texas Horned Lizard

Phrynosoma cornutum (Harlan)

About: This species prefers dry, open habitats with sparse vegetation and sandy or loose soil. Texas horned lizards may be seen basking in the morning during the spring or summer months. They have several interesting, adapted behaviors. Although they mainly rely on their cryptic color and pattern to blend into the environment, they will



defend themselves by "puffing up" to look larger, or they can eject a small amount of blood from the inner corners of each eye to confuse a predator. This species has a unique ability to collect rainwater along its back and direct the water to its mouth by arching the body. This extremely rare, harmless species once populated several southwestern Missouri counties, but it is unknown if natural populations still occur in the state.

Description: Their name comes from the large, specialized scales along the back of their head that look like horns. Coloration may be tan or grayish-brown with two large, dark brown spots behind the head and a series of brown markings along the back.

Length: Ranges from 2.5 to 3.9 inches (64 to 99 mm) in total length.



Diet: Primarily specializes on ants, but also eats beetles, grasshoppers, and spiders.

Missouri Distribution: Southwestern part of the state.





JEFFREY T. BRIGGLER

Prairie Lizard

Sceloporus consobrinus Baird and Girard

About: This common species lives in open woodlands, woodland edges, and on rocky glades where it can be seen on tree stumps, downed trees, brush piles, and rocks. Prairie lizards are often the most common lizard species observed around homes and buildings, especially along split rail fences, lumber piles, firewood piles, and rock walls.



They often escape capture by climbing a tree where they quickly move to the opposite side of the tree. Males are territorial and employ a series of push-up and head bob displays, as well as showing their blue colorations, to ward off intruding males. Hawks, roadrunners, snakes, other larger lizards, and house cats are common predators.

Description: They are a small, grayish-brown lizard with dark markings across the back and tail. Adult females have distinct, thin bars across the back that are absent in males. During the breeding season male prairie lizards have an iridescent blue throat and belly. Newly hatched young are similar to adults in appearance.

Length: Ranges from 3.5 to 7.5 inches (90 to 191 mm) in total length.



Diet: Variety of small invertebrates, especially ants, beetles, grasshoppers, flies, and spiders.

Missouri Distribution: Southern half and into the northeastern part of the state.





Southern Coal Skink

Plestiodon anthracinus pluvialis (Cope)

About: Southern coal skinks live in forest and woodlands along moist bottomlands to drier rocky hillsides. They are commonly found in open, rocky glades in the Ozark Highlands. Few people know about this secretive lizard. They are seldom seen because they quickly move under rocks or logs or into leaf litter when approached. Like other skink species in Missouri, the southern coal skink will



deliberately shed its tail if seized by a predator. This wiggling, shed tail distracts the predator while the skink runs to safety. Soon the lizard will begin regrowing its tail.

Description: A small, shiny, brown-tan lizard with a broad, dark stripe along each side of the body. The broad stripe can be brown or black and it is bordered by a thin light line above and below. During the breeding season, the sides of the head along the jaws are orange in males. Hatchlings are black with faint lines along each side of the head and body and have a blue-gray tail.

Length: Ranges from 5.0 to 7.0 inches (127 to 178 mm) in total length.



Diet: Variety of small insects and spiders.

Missouri Distribution: Southern half of the state, except for the southeastern corner.





JIM RATHERT

Common Five-lined Skink

Plestiodon fasciatus (Linnaeus)

About: Often called the "blue-tailed" skink, this is Missouri's most common skink. This species lives in open woods and along rocky hillsides. They are often seen by people around rock gardens, rock piles, patios, and firewood piles near homes and buildings. Like most other skink species, females remain with the eggs until they hatch in mid-July into August. The



female will lay between 4 and 14 eggs and if an egg becomes spoiled, she is known to eat the egg content and shell presumably to protect the rest of the eggs from being contaminated by fungi or discovered by a predator.

Description: These shiny lizards have five light stripes on a dark background that vary with age and gender. Males are uniform tan to brown with a dark brown lateral stripe and a maybe a few faint, light strips. Females are normally brown with a dark brown lateral stripe, five prominent tan strips from head to the base of the tail, and a blue-gray tail. During the mating season in late spring, males have bright orange on the sides of the head. Hatchlings are black with five yellow stripes from head to base of the tail and have a brilliant blue tail. This skink can be distinguished from the broad-headed skink by its smaller size and presence of four upper labial scales between the snout and eye.



Length: Ranges from 5 to 8 inches (127 to 203 mm) in total length.Diet: Variety of insects, spiders, earthworms, snails, and smaller lizards.Missouri Distribution: Nearly statewide, except for the extreme northern part of the state.







Broad-headed Skink

Plestiodon laticeps (Schneider)

About: This is Missouri's largest forest-dwelling skink, preferring moist wooded areas with abundant leaf litter. Broad-headed skinks spend much of their time in large trees but will come to the ground to search for prey. When threatened, broad-headed skinks will quickly climb a nearby tree or enter a cavity within a log. Like other skinks, they will detach



their tails to distract predators. Breeding occurs in late spring or early summer with females laying between 6 and 25 eggs, which she guards and protects until they hatch later in the summer. Some Missourians call broad-headed skinks "scorpions," but they are not venomous.

Description: They have a large, wide head and, during the breeding season, the heads of males become slightly swollen and orangish-red along the side of the head. The rest of the male's body may have a few faint stripes. Adult females are more prominently marked with light and dark stripes along the back and sides. Newly hatched young are black with five yellow stripes from head to base of tail and have a bright blue tail. This skink can be distinguished from the common five-lined skink by its larger size and presence of five upper labial scales between the snout and eye.



Length: Ranges from 6.5 to 12.8 inches (165 to 325 mm) in total length.

Diet: Includes insects, spiders, small reptiles, such as lizards and snakes, and their eggs.

Missouri Distribution: Southern two-thirds part of the state.





Great Plains Skink

Plestiodon obsoletus Baird and Girard

About: Great Plains skinks are the largest skink species in the United States. This grassland species spends considerable time in burrows dug under rocks or in loose soil, or they use burrows made by small rodents. They are rarely seen basking unlike many other species of lizards. If captured, they will readily bite to defend themselves. Due to its secretive

habits, and lack of native, open grasslands with rocky habitat, Great Plains skinks are rarely observed in Missouri and only known from a few western counties.

Description: This large, shiny lizard is tan to light brown with most of the scales being edged in black. The dark edged scales may resemble lines on the back. The scales along the side of the body do not run in parallel rows, like other Missouri lizards, but run in diagonal rows. Adult males and females look very similar, but males have a slightly swollen head during breeding season. Young are shiny black with a blue tail and a series of white or orange spots on the side of the head.

Length: Ranges from 6.5 to 13.7 inches (165 to 348 mm) in total length.







Diet: Variety of insects (ants, grasshoppers, crickets, beetles), spiders, snails, and other lizards.

Missouri Distribution: Along the western edge of the state.





J. DAREN RIEDLE

Northern Prairie Skink

Plestiodon septentrionalis septentrionalis Baird

About: Both of these burrowing subspecies live in native prairies or open grasslands with rocks, typically near a small stream, marsh, or pond. To escape intruders, they will quickly run under rocks, into thick vegetation, or even into water. Often, they will remain motionless underwater on the bottom until the threat has passed. Like other skink species, prairie skinks will cast off their own tails to distract an attacking predator with the discarded wiggling tail. Prairie skink females will remain with their eggs during the summer incubation period similar to many other skink species. The prairie skink is considered a rare species due to few records and little suitable grassland habitat.

Description: Prairie skinks have many stripes and a long tail. They are tan to gray with a faint, light stripe down the back and one or two wide dark stripes along the sides. Males have reddish-orange on their chin during the spring breeding season. Young are dark with a bright blue tail.

Length: Ranges from 5.2 to 8.8 inches (132 to 224 mm) in total length.

Diet: Includes many insects (grasshoppers, crickets, beetles, caterpillars), spiders, and snails.



Missouri Distribution: The northern prairie skink occurs in northwestern Missouri, while a subspecies, the southern prairie skink, *Plestiodon septentrionalis obtusirostris* (Bocourt), is known along the Kansas border in the southwestern part of the state.





Little Brown Skink

Scincella lateralis (Say in James)

About: This is Missouri's smallest species of lizard. Little brown skinks live on the forest floor and spend much of their time in dead leaves or under flat rocks. They do not climb trees like the other forest-dwelling skinks. When walking along a forest trail, hikers may hear the sound of these small lizards scurrying through dead leaves, but seldom see them.



Unlike other skinks native to Missouri, little brown skink females do not remain with eggs after laying. They deposit two to seven eggs in rotten logs or stumps, in leaf litter, or under rocks. The eggs will hatch in mid-tolate summer.

Description: This small, slender lizard is brown, gray-brown, or coppery with dark brown or black stripes and speckling along their sides. The stripe extends from the snout to the middle of the tail. Other than size, adult males, females, and young look similar.

Length: Ranges from 3.0 to 5.7 inches (76 to 145 mm) in total length.



Diet: Variety of small insects, spiders, and earthworms.

Missouri Distribution: Nearly statewide except for northern and northwestern counties.





TOM R. JOHNSON

Prairie Racerunner

Aspidoscelis sexlineata viridis (Lowe)

About: Racerunners live in dry open sites with loose soil or sand and little vegetation. They can be quite abundant on rocky glades in the Ozark Highlands. Racerunners are aptly named; they can run across an open area at what seems like lightning speed. They like to hide under flat rocks and are skilled at digging a shallow burrow in loose or sandy



soil. They are ground dwellers and are not known to climb bushes or trees. Racerunners are active on warm sunny days from April into September and seek their burrows during hot afternoons and at night.

Description: They are long and slender with a dark brown or black background and yellow or white stripes extending from the head along the back and onto the upper portion of the tail. Prairie racerunners have seven stripes compared to six stripes on the six-lined racerunner. Their long tails are tan or gray with slightly spiny scales. Males have a wash of blue to bluish-green on their throat and chest, especially during the breeding season. Hatchlings have brighter stripes and a pale blue tail.

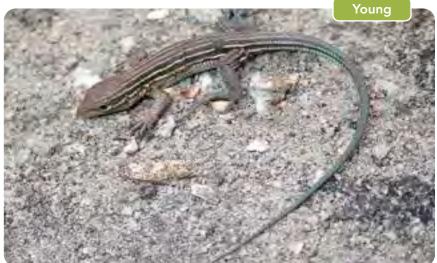
Length: Ranges from 6.0 to 10.5 inches (152 to 267 mm) in total length.

Diet: Variety of insects, spiders, scorpions, and other small invertebrates.



Missouri Distribution: The prairie racerunner occurs in most of state, excluding northcentral Missouri, and it intergrades with the six-lined racerunner, *Aspidoscelis sexlineata sexlineata* (Linnaeus), in the southeastern part of the state.





Western Slender Glass Lizard

Ophisaurus attenuatus attenuatus Cope

About: Missouri's longest species of lizard is most often found in prairie and grassland areas, but also occurs in savanna, open fields, glades, and grassy fens. They are often called a "glass snake" because they are long, slender, and legless. However, they are true lizards, with eyelids and an ear opening on either side of the head; snakes have neither of these



characteristics. Nearly two-thirds of this lizard is tail, and a large part of it can break off if grabbed by a predator. The groove located along the sides of the body allows expansion of body for ingested food, growth of eggs in females, and flexibility in movement.

Description: This slender, legless lizard is tan, gray, or brown with black stripes on back and sides. There is a distinct groove running along each side of the body. Males and females look similar, and young have darker and bolder stripes.

Length: Ranges from 22 to 46.5 inches (559 to 1,181 mm) in total length.

Diet: Variety of insects, spiders, snails, baby mice, other lizards, and small bird eggs.

Missouri Distribution: Presumed to occur mostly statewide.



Mediterranean Gecko

Hemidactylus turcicus (Linnaeus)

About: Mediterranean geckos are mostly active at night and can be observed climbing walls by using their "sticky" toepads for gripping. They are native to warm climates in the Mediterranean area and Middle East. The Mediterranean gecko mainly dispersed throughout the world by hitchhiking on cargo ships, vehicles, and transported plants.



This nonnative species is unlikely to survive in the outdoor conditions of Missouri and is found only in warm urban buildings, especially greenhouses, zoo and university buildings, and homes. It is often called the "house" gecko due its affinity to be in or near homes. They can be vocal, emitting faint chirping and squeaking sounds.

Description: A small lizard with a large head, vertical eye pupils, flattened body, and broad toepads. The body is white to pink with brown spots and warty looking tubercles. The tail has broad, darker cross bands.

Length: Ranges from 3.9 to 5.0 inches (99 to 127 mm) in total length.

Diet: Variety of insects, spiders, and other small invertebrates.

Missouri Distribution: Scattered throughout the southern half of the state in urban areas.



Italian Wall Lizard

Podarcis siculus (Rafinesque)

About: This nonnative species to Missouri has been deliberately or accidentally introduced around the world. Its native range is southern Europe and along the Mediterranean Sea coast. In the United States, Italian wall lizards have become established in numerous urban areas. They can be seen sunning on rock walls, sidewalks, or building



foundations, as well as foraging for prey in grassy lawns, from April into November in Missouri. This species was carelessly introduced into Missouri and has become well established in an urban area. The Italian wall lizard is known to negatively impact native lizards through competition and displacement. So far, this population in Missouri is restricted to an urban area that supports few native lizards, but its expansion or illegal movement does pose a threat to our native lizards in natural habitats.

Description: This nonnative species is brown or gray and usually has a green back. Pattern along the back and sides may be spots, stripes, or a net-like pattern. The tail is mainly brown or gray. Adult males have larger heads and are longer than females.



Length: Ranges from 5.5 to 9.4 inches (140 to 239 mm) in total length.

Diet: Variety of small invertebrates, such as crickets, grasshoppers, beetles, ants, spiders, and earthworms, and occasionally plant material. **Missouri Distribution:** Introduced in Joplin downtown area.





GUNTRAM DEICHSEL

MISSOURI'S LIZARDS AND THEIR CONSERVATION

Lizards are a widespread group of reptiles that most Missourian's have encountered at least once in their lives. Many Missourians like lizards, but some believe they are harmful to humans. Although some of Missouri's lizards will occasionally bite to defend themselves when handled, they pose no threat to humans.

Missouri's native lizards live in a variety of natural habitats from grasslands to open woodlands and rocky glades. They also can occur near or around homes if shelter and food are plentiful. Lizards in Missouri are vulnerable to a variety of threats, such as habitat loss, invasive species, illegal collection for pet trade, and chemical contaminates.



Natural grassland in western and northern Missouri are important habitats for a variety of lizards.



Rocky glades and surrounding woodlands throughout the Ozark Highlands are important habitats for a variety of lizards.

Many people enjoy having lizards around their homes and enjoy watching them. Landowners who are interested in helping lizards can do so by following some simple land-management practices. Small brush piles and rock piles provide ideal basking areas and hiding places for lizards. Encourage nesting by providing open, loose soil such as flower or vegetable gardens near lizard shelters. Avoid the use of pesticides around homes and gardens if possible. These chemicals not only can kill lizards if sprayed directly upon them, but also kill many of the insects upon which they feed. Keep domestic cats from going near where lizards live. Cats are major predators, and lizards have little defense against them. With a little effort, landowners can ensure these animals remain a part of our outdoor heritage.

Many people enjoy having lizards around their homes and enjoy watching them.

Lizards are an important part of the natural food chain and play an important role in the balance of nature. As an example, lizards are helpful in reducing populations of insect pests, and, in turn, are prey to such wildlife as birds, small

mammals, and snakes to name a few. The study of these interesting reptiles can be a rewording summertime hobby. Lizards are a fascinating part of the natural world in which we live. Patiently watching the daily activities of a lizard from early morning basking to foraging for food, and even mating, not only can be enjoyable, but it will also increase our knowledge of these intriguing reptiles.



JEFFREY T. BRIGGLEF

Rock piles and wooden structures used for landscaping provide excellent habitat for many lizard species.

LIZARD MYTHS

MYTH: A glass lizard that has lost its tail will come back, find its tail, and put itself back together again.

No, it is biologically impossible to rejoin the tail to the body. A new tail will regrow over time but will be shorter than the original tail.

MYTH: The tail of a skink is "poisonous" and can sting you.

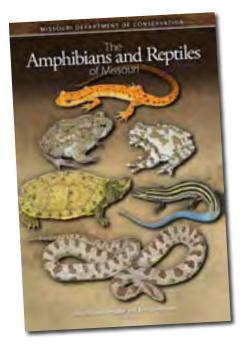
No, a skink tail is not a stinger, and it is not harmful. Many juvenile lizard tails, especially skinks, are bright blue. The bright blue is not an indication of the tail being poisonous or venomous, but it is believed the brightly colored tail protects the young lizards from being attacked by aggressive adult males or distracts predators away from the head.

MYTH: "Mountain boomers" (eastern collared lizard) produce a call that sounds like a frog.

No, all of Missouri's native lizards, including the collared lizard, are voiceless. It is believed that early settlers to southwestern United States saw many of these lizards and mistakenly thought sounds from a frog or wind in canyons were being emitted by collared lizards.

MYTH: If a lizard bites you, it will hold on until it thunders.

No, some lizard species will bite when handled, but they have no interest in holding on for a long time.



To help you learn more about Missouri's frogs and toads, consider purchasing *The Amphibians and Reptiles of Missouri* (2021) third edition by State Herpetologist Jeffrey T. Briggler and retired State Herpetologist Tom R. Johnson. This updated and expanded 522-page book is a valuable resource for understanding and identifying some of Missouri's most interesting species. To purchase, go online to *mdcnatureshop.com* or call 73-522-0108.



