

- 5 plants- skunk cabbage, sassafras tree, cross vine, royal fern, trumpet vine
- 5 insects/ arachnids- six-spotted fishing spider, green darner dragon fly, ground beetle, mud dauber, black swallowtail caterpillar
- 3 reptiles or amphibians- Eastern river cooter, marbled salamander, Fowler's toad
- 3 fish- longear sunfish, walleye, smallmouth bass
- 3 water birds- king fisher, egret, blue heron
- 2 raptors- red-shouldered hawk, great-horned owl
- 3 small mammals- muskrat, Elliot's short-tailed shrew, Eastern cottontail rabbit
- 2 medium mammals- mink, raccoon
- 2 large mammals- black bears, white-tailed deer
- 3 decomposers- fungus, white- nosed fungus syndrome, morel mushroom, pill bug
- 3 non-living components



Skunk cabbage is a perennial wildflower that grows in swampy, wet areas of forest lands. This unusual plant sprouts very early in the spring, and has an odd chemistry that creates its own heat, often melting the snow around itself as it first sprouts in the spring. While the first sprout, a pod-like growth, looks like something out of a science-fiction movie, the skunk cabbage is a plain-looking green plant once the leaves appear. You may find two common types: Eastern skunk cabbage, which is purple, and Western skunk cabbage, which is yellow. Skunk cabbage gets its name from the fact that, when the leaves are crushed or bruised, it gives off a smell of skunk or rotting meat. Skunk cabbage is eaten by wood ducks, honey bees, and the eastern forest snail.



The sassafras tree is known for its brilliant display of autumn foliage and aromatic smell. The species are unusual in having three distinct leaf patterns on the same plant: unlobed oval, bilobed (mitten-shaped), and trilobed (three-pronged). The medium- to fast-growing sassafras can be trained as a single-trunk tree or a dense, bushy thicket. It grows to a height of 30–60' and a spread of 25–40' at maturity. The sassafras tree blooms in early spring, with clusters of yellow flowers about 1–2" long and up to ½" in diameter. Dark blue fruit about a half inch in size becomes ripe in the fall. The fruit is eaten by deer, bears, wild turkeys and a wide variety of other birds. Throughout its natural range, the roots and smooth, orange-brown or yellow bark were once used as a regular spring tonic. Deciduous sassafras trees lose all of their leaves for part of the year, depending on variations in rainfall. Sassafras is commonly found in open woods, along fences, or in fields.



The cross vine is a climbing, woody vine reaching 50 ft. long with showy, orange-red, trumpet-shaped flowers 2 inches long and 1 1/2 inches across which hang in clusters of two to five. They are sometimes seen high in a tree, as the vine climbs by means of tendrils. Claws at the end of its tendrils allow cross vine to cling to stone, bricks and fences without support. Leaves are opposite, 4–6 inches long by 2 inches wide, with a third leaflet modified into a tendril. Persistent, glossy, semi-evergreen leaves change from dark green in summer to reddish-purple in winter.



Royal Fern is one of the largest ferns in North America. The royal fern has delicate, bright green fronds, often with a silvery cast, are crowned with golden, fruiting pinnae on wine-colored petioles. The spore-producing inflorescence at the top of the plant resembles groups of flowers, hence one of its other common names, Flowering Fern. It spreads slowly by rhizomes, making it one of the slowest spreading ferns. Fronds are 2-5 ft. in height and often 18 in. in width. Rootstock elevated up to 6 inches above the soil surface, with black roots extending deep. It grows in shady areas on moist bluffs and ledges and along streams (sometimes growing in the water).



The trumpet creeper is a flowering plant native to the eastern United States and naturalized in parts of the western United States. Growing to 33 ft, it is a vigorous, deciduous woody vine, notable for its showy trumpet-shaped flowers. It inhabits woodlands and riverbanks. The flowers are very attractive to hummingbirds, and many types of birds like to nest in the dense foliage. The flowers are followed by large seed pods. As these mature, they dry and split. Hundreds of thin, brown, paper-like seeds are released.



The green darner dragonfly is one of the largest dragonflies in existence. Males grow to 3.0 inches in length with a wingspan of up to 3.1 inches. Green Darners are dimorphic, which means males and females look different. Both sexes have a green thorax

(middle section of body), but males have a blue abdomen (long back part of body), while females' abdomens are purplish-gray. One of the most common and abundant species throughout North America, it ranges south to Panama. Adult Green Darners eat many flying insects, even away from the water. Some of their prey includes mosquitos, midges, caddisflies, wasps, butterflies, bees, and other dragonflies. Green Darners are found around ponds, lakes, marshes, and slow-moving streams. Dragonflies are eaten by animals which can catch them. This is difficult for most, because of the dragonflies' speed. Hawks and other large birds prey on dragonflies, as well as fish from below the surface. Dragonfly naiads are eaten by large fish, crayfish, and water birds, among others.



The six-spotted fishing spider is a large and strong hunting spider. This spider has a greenish-brown body with two white stripes on the front section (cephalothorax) of its body, and 12 white spots on its rear section (abdomen). Underneath the abdomen, it has 6 black spots. It is up to 2 1/2 inches long, including its legs. Females are larger than males.

It is one of the most common aquatic spiders and can be found among aquatic vegetation at the margins of streams and rivers, as well as floating around in lakes and residential pools. It eats aquatic insects, small fish, or even small amphibians. Besides walking on the surface of the water, Six-spotted Fishing Spiders can walk underwater as they climb down a plant leaf or stem below the surface.

Six-spotted Fishing Spiders hunt terrestrial (land) insects which fall in the water and can't escape, but they eat aquatic insects too. They also attack larger prey, such as small fish, frogs, tadpoles, or newts. They do not build webs.



Caterpillars of black swallowtail butterflies are various shades of green with narrow black bands on each body segment. The black bands are interrupted by yellow-orange dots. The caterpillars, which can reach 2" in length, consume leaves and flowers of various plants in the carrot family including cultivated carrot, parsley, dill, and fennel. Older larvae often prefer the inflorescence. This species spends the winter in the pupal stage inside a chrysalis. Adults, which are black with yellow markings near the margins of the fore and hind wings, and more limited blue and red marking on the hind wings, emerge in the spring and seek a host plant on which to lay eggs. The caterpillars have a forked, glandular process behind the head that can emit a strong odor distasteful to predators.



This metallic green beetle can reach 1 - 1½" in length and it emits an odor to ward off predators. The wing covers have many fine longitudinal furrows that are beset with tiny punctures, and each cover has a reddish-copper border. The head, pronotum, and legs are deep metallic blue or purple, and the pronotum has a gold margin. This beetle also has large mandibles. It is a highly beneficial species that climbs trees in search of caterpillar prey. Although the beetles are active from May to November, they seem to be especially numerous in May after trees are fully leafed out and while the spring flush of caterpillars is ravaging the foliage. Adults winter over, and they live up to 3 years. Eggs are placed one at a time in soil. Larvae also hunt caterpillars and climb trees and shrubs in search of prey. They pupate in earthen cells.



Organ-pipe mud-dauber wasps Females build elongate, tubular mud nests under bridges and eaves, on protected rock faces, in tree holes, and on other smooth, shaded surfaces with a nearby source of mud and adjacent woods. The females fill each cell of the nest with paralyzed spiders as food for their offspring. To do this the mud dauber risks getting caught in a spider's web and end up prey herself. Other predators of mud daubers include insect predators such as birds, toads, mantids, and ants. They hunt mostly orb-weavers in nearby woods, but they also take a few wandering spiders.

Males remain in the nest during most of nest construction guarding it from intruders, including other organ-pipe mud-daubers. The male and female mate in the nest, and the female lays an egg and seals the cell with a mud partition. Eggs hatch in a couple of days and the larvae consume the spider in about 5 days.

Organ-pipe mud-daubers rarely sting.



The Eastern river cooter is a medium-sized aquatic turtle with a broad shell and numerous stripes on the head, which is blunt and proportionately small compared to the shell. The upper shell is olive brown, brown, or nearly black, with numerous concentric yellow lines or markings. The lower shell is either plain yellow or may have some faint gray-brown markings along the scute seams, especially in the forward section. The head and limbs are normally olive brown or black with many yellow lines. A wide variety of aquatic plants make up the bulk of this species' food, but some aquatic insects, mussels, snails, and crayfish are occasionally eaten. Heaviest foraging occurs in early morning and late afternoon.



The adult Fowler's toad eats insects and other small terrestrial invertebrates, but shy away from earthworms. As a tadpole, they use their mouths, which are rimmed with tooth-like structures, to scrape attached algae from rocks and plants. The tadpoles are also known to feed on bacteria and other organic material from the water.



Adult marbled salamander eats invertebrates including earthworms, slugs, snails, centipedes and a variety of insects. Marbled salamander larvae eat zooplankton. As they grow larger, they will eat tadpoles, insects and other salamander larvae.



This little longear sunfish has adapted to almost all types of habitat in Arkansas but prefers the clear streams and reservoirs in the highlands. It is an opportunistic feeder but mainly eats insects and crayfish. It spawns in colonies on gravel bottoms in June.



Smallmouth bass feed on crayfish, amphibians and fish. Some may reach 12 years old. They lurk among woody debris, boulders, overhangs and other structures in streams. Spawning usually begins when surface water temperature reaches about 57 degrees in early April.



Walleye (type of perch) is a nocturnal predator that has big eyes adapted for low light and a formidable set of teeth. It feeds on crayfish, amphibians and fish. Spawning begins in late February and continues until almost April. Walleye prefer gravel shoals in streams but also spawn near a lake's shore.



Belted Kingfisher

The belted-kingfisher is large-headed with a big bill and shaggy crest. It is a powdery blue-gray; males have one blue band across the white breast, while females have a blue and a chestnut band. It nests in burrows along earthen banks and feeds almost entirely on aquatic prey, diving to catch fish and crayfish with its heavy, straight bill. Kingfishers are one of the few birds capable of stalling flight and hovering in place. As it hovers it scans for food, then plunge-dives into the water to catch fish.



The great blue heron is the largest and most widespread heron in the United States. It has long gray legs, a gray-blue body, a long gray neck, and a dagger-like yellow bill. It often stands motionless as it scans for prey or wades belly deep with long, deliberate steps. It may move slowly but can strike like lightning to grab a fish or snap up a gopher. In flight, look for this widespread heron's tucked-in neck and long legs trailing out behind.



The great egret is the largest heron in Arkansas. It has all-black legs and thin all-yellow bill. Often seen standing silently along inland rivers or lakeshores, or flying high overhead, with slow wing-beats, its head hunched back onto its shoulders. It can be found along rivers in wooded country. It usually nests in trees or shrubs near water, sometimes in thickets some distance from water. The great egret eats mostly fish, but also frogs, salamanders, turtles, snakes, insects, rodents, and birds. The great heron forages mostly by standing or walking in shallow water, waiting for fish to come near, then catching them with rapid thrust of bill. It also forages in open fields, sometimes around cattle.



Great horned owls are large, thick-bodied owls with two prominent feathered tufts on the head. The wings are broad and rounded. They are mottled gray-brown, with reddish brown faces and a neat white patch on the throat. Their overall color tone varies regionally from sooty to pale. Great Horned Owls are nocturnal. Their call is a deep, stuttering series of four to five hoots. Mammals make up the majority of their diet, but they also eat snakes, lizards, frogs, insects, and scorpions. They typically use old nests of other large birds, such as hawk, eagle, crow, heron, usually 20-60' above ground. They may also nest on a cliff ledge, in a cave, in a broken-off tree stump, and sometimes on the ground. They add little or no nest material, aside from feathers at times.



Red-shouldered Hawks are medium-sized, with broad, rounded wings and medium-length tails that they fan out when soaring. In flight, they often glide or soar with their wingtips pushed slightly forward, imparting a distinctive, "reaching" posture. Adults are colorful hawks with dark-and-white checkered wings and warm reddish barring on the breast. The tail is black with narrow white bands. Immatures are brown above and white below streaked with brown. All ages show narrow, pale crescents near the wingtips in flight. Red-shouldered Hawks soar over forests or perch on tree branches or utility wires. Its rising, whistled kee-rah is a distinctive sound of the forest. They hunt small mammals, amphibians, and reptiles either from perches or while flying. Look for Red-shouldered Hawks in deciduous woodlands, often near rivers and swamps. They build stick nests in a main crotch of a



Elliot's short-tailed shrews have dark brown on black fur, blending to gray on the belly. They have long, pointed snouts and tiny black eyes. Shrews have very poor vision. In hunting, shrews use their keen sense of touch to locate prey. It's also believed that like bats, shrews may use echo-location to find prey. Shrews emit ultra-sonic calls which, it's theorized, help them locate prey; especially in low-light conditions. Arkansas is home to five species of shrews. Elliot's short-tailed shrew is from 3 to 5 inches long and weighs .5 to 1 ounce. They are thought to live about one year in the wild.

Nearly the entire diet of shrews consists of insects, earthworms, snails, slugs, centipedes, millipedes and spiders. Salamanders, small snakes, mice and small birds are sometimes also eaten. Shrews paralyze their prey using the poison contained in their saliva.

Short-tailed shrews live in dark, damp or wet localities, or in fields covered with heavy, weedy growth. Shrews run about the surface of the ground and also tunnel in the moist soil found under old logs and leaf cover. They also use tunnels of other mammals.

Most adult females have from one to four litters annually with three to 10 offspring born per litter. Young shrews are well-grown at one month and are soon on their own.



An adult muskrat is about 16–28 in long, half of that is the tail, and weighs from 1.3–4.4 lb. Muskrats are much smaller than beavers with whom they often share their habitat. Muskrats are covered with short, thick fur which can be medium to dark brown or black in color. The belly is a bit lighter in color, and as their age increases, it will turn grayish. The fur has two layers, which helps protect them from the cold water. They have long tails covered with scales rather than hair and, to aid them in swimming, are slightly flattened vertically, which is a shape that is unique to them.[13] When they walk on land, their tails drag on the ground, which makes their tracks easy to recognize. Muskrats spend much of their time in the water and are well suited for their semiaquatic life. They can swim under water for 12 to 17 minutes. Their bodies, like those of seals and whales, are less sensitive to the buildup of carbon dioxide than those of most other mammals. They can close off their ears to keep the water out. Their hind feet are semi-webbed, although in swimming, their tails are their main means of propulsion.

The muskrat can close its mouth around its protruding teeth and chew underwater! The muskrat eats aquatic vegetation like cattails, sedges, rushes, water lilies and pond weeds. In some areas it also eats clams, mussels, snails, crayfish, small fish and frogs. The muskrat doesn't eat its food where it finds it; it usually drags its food out to a feeding platform in the water or a feeding station near one of its travel paths. These feeding platforms are made of mud and vegetation. It can then eat its food without worrying about predators. The muskrat is crepuscular, that means it is most active at dawn, dusk and at night.



The eastern cottontail is a medium-sized mammal with long ears; large hind legs; shorter front legs; a short, fluffy white tail; and soft fur. The upper parts are grayish- to reddish-brown, coarsely peppered with black; the underparts are grayish white; the tops of the hind feet are tan to whitish; and the nape of the neck is bright rusty red. Individuals are 10 to 19 inches in length and weigh 1½ to 3½ pounds.

Eastern cottontails are the most abundant small game animals in Arkansas, but numbers may vary widely from year to year depending on habitat availability, weather, disease and other factors.

They browse at night on grasses and herbs and are fond of garden fare such as peas and, of course, lettuce. In winter, their diet becomes a bit coarse and consists of bark, twigs, and buds. During the day, cottontails often remain hidden in vegetation. If spotted, they flee from prey with a zigzag pattern, sometimes reaching speeds of up to 18 miles (29 kilometers) an hour.

Females give birth in shallow ground nests, to young so helpless that perhaps only 15 percent survive their first year. Fortunately, rabbits breed three or four times every year and produce three to eight young each time. Young rabbits mature quickly and are self-sufficient after only four or five weeks. They are sexually mature after only two or three months, so populations are able to grow with staggering speed.



The American mink is a voracious and opportunistic predator. It takes a variety of prey, including small mammals, fish, amphibians, birds, crayfish, crabs, insects and worms. The exact composition of the diet depends on the location and season, and the American mink may also opportunistically hunt rabbits, squirrels, reptiles, bats and snails, as well as sometimes eating carrion. This species can be a significant predator of waterfowl and their eggs. The American mink often kills more prey than it can eat, storing the surplus to feed on later.

The American mink is usually solitary and marks its territory with pungent secretions from anal scent glands. It is also able to empty the contents of these glands under stress, possibly as a form of defense. This species sometimes digs its own burrows in which to shelter, but it more commonly uses abandoned muskrat or beaver houses, the burrows of other small mammals, or builds a den among tree roots, stones or brush piles. Its dens often have more than one entrance and are typically located close to water.



Raccoons snare a lot of their meals in the water. These nocturnal foragers use lightning-quick paws to grab crayfish, frogs, and other aquatic creatures. On land, they pluck mice and insects from their hiding places and raid nests for tasty eggs. Raccoons also eat fruit and plants—including those grown in human gardens and farms. They will even open garbage cans to dine on the contents.

These ring-tailed animals are equally opportunistic when it comes to choosing a denning site. They may inhabit a tree-hole, fallen log, or a house's attic. Females have one to seven cubs in early summer. The young raccoons often spend the first two months or so of their lives high in a tree hole. Later, mother and children move to the ground when the cubs begin to explore on their own.



The white-tailed deer is tan or brown in the summer and grayish brown in winter. It has white on its throat, around its eyes and nose, on its stomach and on the underside of its tail. The male has antlers. Males weigh between 150 and 300 pounds and females weigh between 90 and 200 pounds. It feeds in the early morning hours and in the late afternoon. A deer's diet changes depending on its habitat and the season. It eats green plants in the spring and summer. In the fall, it eats corn, acorns and other nuts. In the winter, it eats the buds and twigs of woody plants. White-tailed deer inhabit open woodlands, brushlands, mixed pine and hardwoods, pine, forest edges and second growth deciduous forest. They favor thick vegetative growth on cutover and burned-over areas which provide a food source of succulent leaves, twigs and shoots from various shrubs and trees.



The black bear is the smallest of the three North American bear species. Adult females seldom reach 300 pounds, but males weighing over 700 pounds have been recorded. Bears in Arkansas are heavier than most. Males seven years of age or older usually exceed 400 pounds. Bears have poor eyesight but have an extraordinary sense of smell and are one of Arkansas' most intelligent mammals.

Bears breed during the summer months, and males cover large areas searching for females. Young are born in the winter den. Bear cubs are relatively undeveloped and small at birth, being only about eight inches in length. Two is the average litter size, but three are more common than one. Mother and cubs emerge from the den by mid-May, and the cubs begin learning about life in the wild. These cubs will again den with their mother the following winter and stay with her until the next summer when she finally drives them away. Females produce a litter of cubs only once every two years because of the care the young require.

Arkansas bears start searching for dens in early October, and most have denned by late December. Bears den in rock crevices, excavated burrows and cavities in standing trees. Tree cavity dens may be as high as 60 feet.

Little food is available after bears emerge from their dens in spring. They lose weight during this period until later in the summer when blackberries, pokeberries and blueberries ripen. During autumn, bears feed heavily on fat-rich acorns and hickory nuts and commonly gain 100 pounds or more during this short time. This extra fat readies them for the rigors of winter denning. Consequently, acorn and other nut crops are vital for bears.

Black bears have large canine teeth typical of meat eaters, but their diet is mostly fruit, berries and nuts, with the majority of their "meat" being insects. When natural foods are scarce (usually in early summer), they may overcome their fear of people and seek food around human habitations.



White-Nose Syndrome Fungus

The fungus grows very slowly on artificial media and cannot grow at temperatures above 20 °C. It can grow around 4 °C to 20 °C, which encompasses the temperatures found in winter bat hibernacula. The fungus was definitively identified as the cause of the syndrome in bats, according to research published in 2011 by scientists at the United States Geological Survey.

White-Nose Syndrome is caused by a fungus that thrives in the cold environments where bats hibernate. Hibernating bats with white-nose syndrome often display this white fungus on their noses and on other hairless parts of their bodies including their wings. The fungus isn't always visible to the naked eye -- and usually is not seen on bats found flying or dead outside of their hibernacula or at their summer roosts.



Black Morel Mushrooms grow abundantly in forests which have been burned by a forest fire, with black morels at the start of the season, followed by the yellows, greys and greens. Black morels have a honeycombed cap with black to brownish black ridges and yellowish brown pits and are completely hollow. Caps are elongated and conical, with vertically elongated ridges and pits. Stalk are sometimes enlarged at the base and whitish with a granular texture. Spore print is white to cream. Spores are located inside the pits. Mushrooms exist most of the year as a network of cells (mycelium) penetrating the soil or rotting material. When ready to reproduce, the mycelium develops mushrooms, which produce spores that, once released, can begin new mycelia elsewhere. For at least part of its life cycle, this species is a saprobe, "eating" decaying materials such as dead leaves or wood. It also might be mycorrhizal, spending part of its cycle connected to tree roots in a relationship benefiting both tree and fungus. Mushrooms are specifically designed to support the production and dissemination of spores, which are the fungal equivalent of seeds.



A pillbug goes by many names -- roly poly, wood louse, armadillo bug, potato bug – but whatever you call it, it's a fascinating creature. Pillbugs are crustaceans, not insects. They're much more closely related to shrimp and crayfish than to any kind of insect. Pillbugs breathe through gills. Like their marine cousins, terrestrial pillbugs use gill-like structures to exchange gases. They require moist environments to breathe, but cannot survive being submerged in water. Pill bugs are able to roll into a complete ball, antennae and all. They do this for protection. They have seven pairs of legs and two antennae. They can be found on land in moist places, usually under logs or bark, or hiding out under potted plants.

They also don't have any bones. Instead, they have a tough outer skeleton—called an exoskeleton—that helps protect them. Like other invertebrates, they shed their exoskeleton once they outgrow it, in a process called molting.

They are decomposers, or detritivores—which means they eat decaying plant and animal parts, along with fungus. They also will eat their own scat for nutrients!

Like crabs and other crustaceans, pillbugs tote their eggs around with them. Overlapping thoracic plates form a special pouch, called a marsupium, on the pillbug's underside. Upon hatching, the tiny juvenile pillbugs remain in the pouch for several days before leaving to explore the world on their own. The female can have up to several hundred babies at a time, and they can live up to five years.

Our blood is red because it has iron in it. Our bodies use iron to carry oxygen throughout our body. Pill bugs and sow bugs have blue blood because their body uses copper to carry oxygen around.

EXTRAS

Bobcat



Bobcats are found in almost all types of habitat in Arkansas. The bobcat has long legs and large paws and can weigh up to 30 pounds, but the average weight is 15 to 20 pounds.

Bobcats generally subsist on a diet of small rodents, rabbits and other small animals and birds.

Bobcats occupy areas from 1/4 of a square mile to as much as 25 square miles, depending on the habitat and sex of the animal. Female bobcats occupy smaller areas than males and normally do not associate with other female bobcats. Males roam wider than females; while they are not particularly tolerant of other males, the home ranges of males will overlap those of both males and females.

Young are usually born in April and May, although litters may be born during almost any month except December and January. The normal litter consists of 2 or 3 kittens, born blind and weighing 4 to 8 ounces. The kittens open their eyes after 10 days and are taught hunting skills by their mother until they leave her 9 or 10 months later. The father has no role in raising the offspring.



The beaver is the largest rodent in the U.S., reaching 4½ feet in length. The average adult weight is 40 to 60 pounds. Beavers are well adapted for their aquatic existence. They're "bottom-heavy," with well-developed hindquarters and small chest and forequarters. Their huge hind feet are webbed and driven by large muscles that propel the beaver's streamlined body throughout the water. The beaver's tail is large and flat. It's furred at the base, but is mostly covered with leathery scales. The tail is slapped loudly on the water to warn other beavers of possible danger. It also serves as a balancing platform when cutting down a tree on dry land or a rudder when swimming or diving. It's not used to move mud to the dam or lodge as some have claimed. Mud is clutched to the beaver's chest with its small hand-like front feet when transported. Other adaptations make the beaver virtually waterproof. Valves in the ears and nostrils close when the beaver submerges, and its dense underfur is impervious to water. A split claw on each hind foot enables the beaver to evenly distribute waterproofing body oil when grooming and cleaning its fur. The beaver has large lungs and can stay underwater for up to 15 minutes. Most of the beaver's diet is made up of tree bark and cambium - cambium is the soft tissue that grows under the bark of a tree. They especially like the bark of willow, maple, birch, aspen, cottonwood, beech, poplar, and alder trees. Beavers also eat other vegetation like roots and buds and other water plants. The beaver has a specialized digestive system that helps it digest tree bark.