

# Illinois Turtles



*Lake Shelbyville Eco-Meet 2018*

## **Junior Varsity**

U.S. ARMY CORPS OF ENGINEERS – ST. LOUIS DISTRICT

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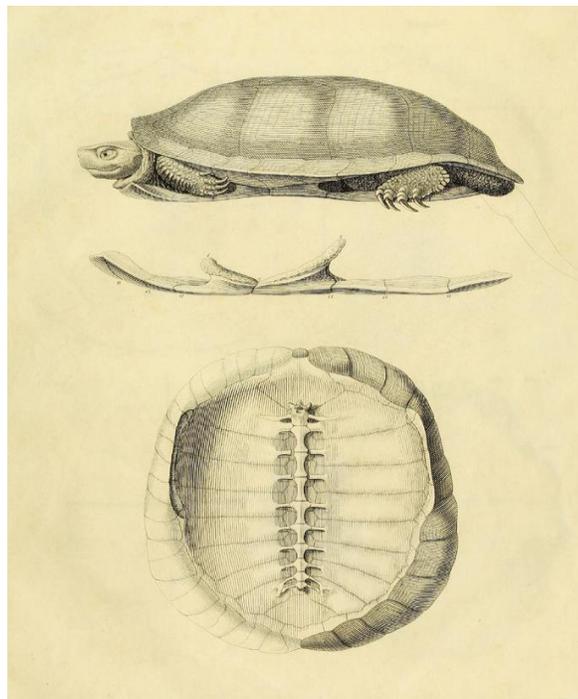
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## TURTLE ANATOMY

Almost all turtles, with the exception of the softshell turtles, are enclosed in a bony shell which is composed of a dorsal (top) portion called the carapace (shell) and a ventral (bottom) portion which is covered in large flat scales. They do not possess teeth or a bony jaw. Instead, their jaw is made up of a keratinized beak like that of a bird. These jaws are covered in tough, horny, shell-like ridges which make them well-suited for tearing food apart. The turtle's shell is probably the most famous feature of the animal. It is made up of 60 bones and has two sections: a carapace (shell) covering the animal's back and a plastron covering its belly. The carapace and plastron are connected on the turtle's right and left sides by a bony bridge which is formed by extensions of the plastron. The turtles shell is fashioned from bone originating in the skin which fuse with one another as well as with the ribs, vertebrae, and parts of the shoulder. In most species, large scales called scutes overlay the bones. Softshell turtles have tough, leathery skin that replaces these scutes. Turtles also normally have a prominent tail that varies depending on the sex of the turtle. They use their limbs to propel themselves in the water and to walk on land. Their toes are connected by webbing which helps to aid them in aquatic locomotion.



The overall size and weight of adult turtles varies considerably, from the Common Mud Turtle, which averages three to four inches in length and a quarter of a pound in weight, to the Alligator Snapper whose shell length may be over two feet and can weigh up to 20 pounds. A turtle's lifespan is known to be quite long, if no outside factors are taken into consideration (ran over, eaten, etc.), with most species passing the half century mark. Aquatic turtles normally survive 40 to 70 years while terrestrial turtles can live 100 years or longer.

## **HABITAT AND DIET**

Most all turtles found in Illinois live in a primarily aquatic habitat such as rivers, lakes, swamps, marshes, etc. However, some turtles, like the box turtles, are terrestrial—land dwellers. The Eastern Box Turtle and Ornate Box Turtle are found in woodlands and prairies, while the Smooth Softshell Turtle and Alligator Snapping Turtle favor rivers. Blanding's Turtles normally dwell in marshes. Eastern Mud Turtles are found in ponds and wetlands, frequently changing from pond to pond. Musk Turtles, on the other hand, reside permanently in one body of water. The Common Snapping, Painted, Slider, and Spiny Softshell Turtles all are very adaptable and have the ability to thrive in a variety of habitats and conditions. During the winter months, turtles like the Softshell Turtle bury themselves in the bottom of the muck underwater. In order to breathe, they use thin-walled sacs attached to the cloaca to absorb oxygen from the water. Most turtles are omnivores, eating whatever they happen to find, whether it be plants or meat. A few turtles are solely carnivorous, or meat-eating reptiles. They consume insects, larvae, fish, crayfish, earthworms, snails, clams, and occasionally carrion. Larger turtles, like the Alligator Snapping Turtle, will consume ducks and other shorebirds. Eastern Box turtles are often poisonous if consumed by other animals as their tissue stores toxins from the poisonous mushrooms they consume. Some turtles, like the Slider, have a change in diet switching from being carnivorous to herbivorous (plant eating) at a certain point in their life.

## **REPRODUCTION**

Turtles are oviparous, meaning they only lay eggs and do not have live births. The females lay these eggs in holes they dig in the soil, sand, or decaying vegetation. The number of eggs laid by a single female differs greatly between species. Anywhere from less than 10 to several dozen eggs are possible. Turtle eggs are elongated or spherical in shape, white in color, and have a shell that varies in texture from soft and leathery, like a snake's egg, to brittle. The eggs may not have the same texture throughout their entire incubation period. Sometimes they will be very soft after first being laid then harden over time. The typical incubation periods for turtle eggs ranges between two and three months, depending on the species and other environmental factors, like the temperature and moisture in the ground in which the eggs were laid. The temperature of the nest is vital in many ways for the eggs. The sex of the turtle is TSD or Temperature-Dependant Sex Determination. This means that depending on the temperature inside the nest, the hatchlings may be all male or all female. The warmer the nest, the more likely the eggs will all be female. The colder the nest, the more likely the eggs will all be male. The hatchlings usually emerge in mid to late summer. However, they often do not leave the nest until the spring.

## **LOCOMOTION**

Turtles are normally known for being slow moving creatures that do not have the ability to catch fast moving prey. Many species spend their time moving slowly along the bottom of bodies of water or in weed beds grazing on vegetation and eating slow-moving animals, like earthworms. Turtles are often found around fruit trees rummaging through fallen fruit. Nonetheless, some turtles like the Alligator Snapping Turtle are very fast moving, using their camouflaged shell and long muscular neck to strike their prey from a distance. The Softshell Turtle is also a master at sneaking up on its prey because of its pancake like shell, which allows for quick hiding beneath a thin layer of sand.

## **CONSERVATION**

Over the last century and a half, humans have dramatically altered the land in negative ways, leaving many animals without food and shelter. For example, in 1999, of the 17 turtle species that existed in Illinois at the time, four were endangered and one was labeled as threatened. As of 2017, the Department of Natural Resources reports that six turtles are listed on the Endangered Species List and one is considered threatened. Exploitation and siltation of rivers have contributed to the negative decline of turtle population as well. Almost 90% of Illinois wetlands have been drained. In Illinois, Snapping and Softshell Turtles are often sought for food. In Asia, turtle is considered a delicacy. With their turtle populations being depleted, they have turned to other countries, such as the United States, to meet demands. The Illinois Department of Natural Resources regulates the consumption and collection of turtles, requiring anyone who is collecting them for commercial use to have a license to do so, as well as monitoring heavily for poaching. Now, protective laws are in place that protect the turtles of Illinois from being stripped of and from their natural habitats.

## **TURTLES OF ILLINOIS**

There are 260 different species of turtles worldwide, 17 of those turtle species inhabit Illinois, dwelling in forests, prairies, marshes, swamps, ponds, lakes, streams and rivers. There are aquatic species that spend almost all of their lives in the water, basking in the sun along sandbanks and lining logs that are submerged or floating on the water. Other turtle species are semi-aquatic or terrestrial and are most often encountered in the spring while crossing highways and fields in search of new habitats, mates or nesting sites. The chief conservation issue for all turtles is the loss or alteration of critical habitats. Over-exploitation of turtles for food and the pet trade are also serious problems in Illinois and all over the world.

## BLANDING'S TURTLE

*Emydoidea blandingii*



The Blanding's Turtle lives approximately 70 years, thriving in aquatic environments that stay relatively chilly most of the year. During the winter months, this turtle will burrow under the cold mud and hibernate there, using the cold temperatures to help balance their body temperature. Their metabolism is so slow that little oxygen is needed for the turtle to live during this time. The Blanding's Turtle is often mistaken for a box turtle, but can be distinguished by its bright yellow chin and throat. Its shell, head, and legs are dark and covered in yellow to light colored dots. The carapace (shell) is domed and speckled with yellow or light colored flecks or streaks. This turtle likes to hibernate in the water but does spend some time on land. It stays under water to hibernate, eat, and mate, but returns to land to nest as well as move to another body of water. This turtle mates very late in life with females becoming sexually mature around 18 years and males around 12 years old. Their hatchlings and eggs are often sought after by raccoons, foxes, and skunks, leaving them with low survival rates. This problem, in addition to destruction of habitat and road mortality, has put this turtle on the Endangered Species List in Illinois as well as in many other states.

## EASTERN MUSK TURTLE

*Sternotherus odoratus*



The Eastern Musk turtle is a very small turtle with an oval, elongated carapace that is domed and usually dark in color, with irregular dark pattering which fades in older turtles. The plastron is usually relatively small and brown to yellow. The skin is dark with some light markings, including a distinct yellow/white stripe on either side of the head and one above and below the eye. They can also be identified by the part of their head that points out, resembling a snout. Males and females are relatively the same size and shape, with males having a thicker tail with a small barb on the end and the anal opening extending past the edge of the carapace. In both sexes, patches of raised scales will form behind the knees at around 3-4 years old.

The average female lays 1-2 clutches per year, which vary from 1-9 eggs. Once the hatchlings hatch, they make their way, unassisted, straight to the water, where they live on average 15-19 years. This turtle likes to lay low and crawl along the mud banks, seldom leaving the water except to nest. You will rarely see them sunbathing or resting on shallow water with their shell exposed. They are a rare swimmer that is found only in freshwater.

They exhibit an ill-temperament, often hissing and biting at anything that approaches. They hibernate in large groups buried in mud bottoms of ponds and streams during the winter. If approached by predators, the Eastern Musk Turtle will give off an odor to ward off hungry predators. This odor is produced in glands in the skin just below the upper shell along the sides, earning the turtle its nickname, "stinkpot."

EASTERN RIVER COOTER  
*Pseudemys concinna*



The Eastern River Cooter is a freshwater turtle which resides mostly in rivers with moderate currents and high vegetation. The adults are herbivores, though some young will feed on crustaceans for added protein. They have adapted to breathing underwater, which makes them very hard to catch and study. Though they enjoy basking in the sun, they may be spotted there for only a quick second. They have a domed carapace that is olive or brown in color with yellowish cream markings. Older males appear to have much darker carapaces than females and young males. Males also tend to have much larger tails, although the female is larger in terms of overall size. They live about 40 years, but due to hunting, hatchling loss, and habitat destruction the Eastern River Cooter has been put on the Illinois Endangered Species list.

## PAINTED TURTLE

*Chrysemys picta*



The Painted Turtle is a turtle species that is distributed statewide. It will reach lengths of about 5 inches averaging about the same size as a box turtle. There is no keel on the shell, giving it an oval and flattened appearance. The turtle's overall color is olive to dark brown. There are small scutes framing the outer edge of the shell red in colored bars or bands as well as several yellowish lines or streaks. The head is dark olive or brown with light lines running longitudinal. The widest lines are found on the chin and side of the head behind the angle of the jaw. These turtles thrive best in fully aquatic environments. Shallow, slow-moving streams, rivers, ponds, lakes, and marshes provide the best habitat. They enjoy bodies of water with mud bottoms that are plentiful with aquatic vegetation as well as plenty of space to swim. They eat plants and animals in equal amounts. You can often find these turtles sunning themselves on floating logs or riverbanks. These turtles are also largely sold as pets throughout the world, living up to 50 years with proper care in captivity, and 20-30 years in the wild.

## SPOTTED TURTLE

*Clemmys guttata*



According to IDNR, the Spotted Turtle is the smallest turtle in Illinois. The Spotted Turtle likes to dwell in shallow waters that provide a soft bottom substrate and some submergent and emergent vegetation. They eat a variety of plants and animals, which they consume in the water. They frequently go on land between wetlands for weeks at a time on their journey to a new body of water.

This turtle has a smooth carapace that is black or brownish in color with round yellow spots all over. These spots may fade in older adults, and some fade entirely. The plastron is yellow or orange with a black blotch covering a portion of each scute. The head is mostly black with a variable number of yellow spots as well as a large, sometimes divided, yellow or orange blotch on each side of the head. The upper surfaces of the legs and tail are black with scattered yellow spots, and the lower surfaces of the legs and neck are orange to pink.

Males and females are easily distinguished in adults, with males having a more elongated and compressed carapace versus the females' higher, more rounded carapace. Males typically have tan, brown, or black chins while females have yellow or orange chins. The male's tail is much longer and thicker. On average, females are larger than males in overall size.

Due to the widespread drainage of wetlands for agriculture and residential land the Spotted Turtle has lost much of its viable habitat. This, mixed with their common traits of high egg mortality, low reproductive potential under natural conditions, and delayed sexual maturity, has landed the Spotted Turtle on the Illinois Endangered Species List.

RED EARED SLIDER TURTLE  
*Trachemys scripta elegans*



The Red Eared Slider is a subspecies of the species Pond Slider (*Trachemys scripta*) that is found in Illinois. This type of Slider is one of the most common reptile pets in the world. This turtle can be identified by its unique, broad red or orange stripe behind each eye extending over their “ears.” Their carapace is rounded with black and yellow lines running across the surface. As hatchlings, this turtle is bright green in appearance. This then turns to dark green with age. Their skin has a green and yellow stripe pattern. In general, females are larger than males. However, males have longer claws and a longer, thicker tail which helps them to fend off competing males. This turtle is semi-aquatic, residing in areas with calm, fresh water sources. They enjoy basking in the sun and will most often be found on a log or flat rock basking in a group, normally on top of one another. These turtles are extremely fast and agile swimmers, keeping close to water at all times, except to find a mate or lay its eggs. While young, the Red Eared Slider feeds on smaller prey like snails and insects gradually transitioning to a chiefly herbivorous diet. They have very well-developed senses including color vision and an excellent sense of smell. These turtles are an abundant and hearty species.

## NORTHERN MAP TURTLE

*Graptemys geographica*



The Northern Map Turtle is named for its network of fine, crisscrossing lines that extend from the head to the carapace, vaguely resembling the lines on a road map. These lines are very noticeable on young turtles but fade with age. Northern Map Turtles are extremely wary and prefer large deep bodies of water, where they can safely dive into the depths to escape predators. They are chiefly carnivorous, with snails, crayfish, and clams making up the bulk of their diet. These turtles are one of the last species of turtles to go into hibernation, and sometimes skip it entirely. Most of their time is spent underwater beneath submerged logs or buried in the mud.

## OUACHITA MAP TURTLE

*Graptemys ouachitensis*



The Ouachita Map Turtle resides in swift large ponds, lakes, and rivers. They love to bask in the sun and are fairly sensitive to water quality and temperature. Their diet consists of aquatic plants, algae, insects, mollusks, and fish. Their shell is olive green or brown with yellow oval markings. They have a distinct keel with blunt, black spines running down the middle of the shell, as well as a patch of yellow behind their eye.

FALSE MAP TURTLE  
*Graptemys pseudogeographica*



The False Map turtle is a medium sized turtle that has a prominent keel along the center of the upper shell. The upper shell is brown or olive with narrow, yellow connected circle or lines. The hind edge of the upper shell is strongly serrated. The lower shell is greenish yellow with several light brown lines following the scute seams. The head and neck are brown or green to gray with numerous yellow lines bordered by dark brown or black. There is a thick yellow line behind each eye that forms a backward L shape causing a wide-eyed appearance. This turtle is semi-aquatic and lives where there is a constant flow of water in large rivers, constructed reservoirs, and floodplains that connect to tributaries. They are often found on logs basking in the sun and can climb several feet to reach a sunny spot. These turtles are primarily carnivorous, but occasionally consume plant material if they must.

## SMOOTH SOFTSHELL TURTLE

*Apalone mutica*



The Smooth Softshell Turtle inhabits large rivers with sandy substrates. The turtle has a very smooth, leather like, flexible carapace and a long tubular snout. Females are often larger than the males and are different in color. Adult females are tan or brown with irregular dark brown blotches, while the males are brown or grayish in color with scattered, small dark brown dots or dashes. They are often easily confused with the Spiny Softshell Turtle. The main difference between the two is that the Smooth Softshell Turtle has a carapace that is smooth and lacks spines on the front edge, while the Spiny Softshell Turtles have a very rough carapace with spines and bumps along the front edges of the carapace. These turtles are chiefly herbivorous throughout their life. The Smooth Softshell Turtle is also one of the few species of turtles whose eggs' sex is not temperature-dependent. The population of Smooth Softshell Turtles has been in a major decline in recent years due to river channelization, siltation, and water pollution, landing it on the Illinois Endangered Species List. This turtle has adapted to be able to extract oxygen from water which makes it very vulnerable to water pollution.

## SPINY SOFTSHELL TURTLE

*Apalone spinifera*



The Spiny Softshell Turtle, like the Smooth Softshell Turtle, has a carapace that is soft and leathery, as well as a tubular snout. Unlike the Smooth Softshell Turtle, the Spiny Softshell Turtle's carapace has a texture much like sandpaper and is nowhere near smooth. The front edge of the carapace bears small spines and is usually olive to yellow brown in color with black blotches patterned over the surface and a dark line around the outer edge. Adult females normally lose these black blotches, but males will display them for life. The head is marked with two pale lines, which are bordered with black and extend backwards from the eyes and jaw against an olive to gray background. Adult females are much larger than adult males, but do have a smaller and less thick tail. The females' carapace may also be slightly smoother than the males. This turtle species spends most of its life in water, mainly burying itself or laying on the muddy bottom that is shallow enough for them to stick their long tubular snout out to get air. They hibernate in this mud for six months out of the year. They are mainly carnivorous, but occasionally will consume plant and animal material, often times by accident. They are excellent at camouflaging themselves in order to hunt for food along the bottom of the water. They thrive best in habitats like fast-flowing rivers, lakes, creeks, ponds, and even some ditches.

## EASTERN MUD TURTLE

*Kinosternon subrubrum*



The Eastern Mud Turtle has a domed, oval shaped carapace that is brown, olive, yellow, or black in color, with possible light stripes or blotches. Males display a well-developed blunt spin at the tip of the tail as well as rough, scaly patches on the inside of the hind legs. This turtle is found mainly in southern Illinois in semi-aquatic habitats that are quiet and well vegetated with soft substrates. They are often found in seasonal wetlands. When these wetlands dry, these turtles can be found burrowed a few inches underground in the land surrounding the wetland. They often live for over 20 years, fending off predators with their sharp, hooked beak. They are not good swimmers and are rarely seen basking. These turtles are carnivorous. Like the Eastern Musk Turtle, these turtles have musk glands that secrete a pungent odor to ward off predators. These species are heavily hunted by other animals and exploited in the pet trading industry. These problems have caused a major decline in the population of turtles in many states, leading this turtle to be put on the Illinois Endangered Species List.

## YELLOW MUD TURTLE

*Kinosternon flavescens*



The Yellow Mud Turtle is a small, olive colored turtle that displays yellow colored areas on its throat, head, and sides of its neck. The male Yellow Mud Turtle has a blunt spine at the end of its tail that the female lacks. This turtle loves to spend its time basking in the sun along slow moving bodies of water, like ponds, cattle tanks, and lakes that have muddy bottoms. They spend about half of their time in the water and the other half basking in the sun or on land hunting, nesting, or migrating. They are carnivorous and, like their other subspecies, the Eastern Mud Turtle and Eastern Musk Turtle, also secrete a powerful odor from their musk glands on each side of their body to ward off predators.

EASTERN BOX TURTLE  
*Terrapene carolina carolina*



The Eastern Box Turtle is terrestrial and probably the most common turtle seen on land. It is seldom found in water unless it is a very hot or dry period. This turtle likes to lay in the woodland in underbrush, feeding on plant material of all kinds as well as small insects. They vary in size and shape, normally only reaching 6 inches long. They all have an oval appearance to their shell, but, when looking from above, the shell looks almost box-shaped and slightly keeled. The shell has hinges and can draw in all soft parts on the turtle's body, keeping it safe from predators until it wishes to come out. These soft parts on the turtle's body can help identify the sex of the turtle. If the soft parts are spotted, streaked, or mottled with yellow it is a female. If it is mottled with orange, it is a male. The male will also have bright red eyes in comparison to the female. The rest of the turtle's body can vary widely between turtles, normally keeping a theme of brown with colorful radiating lines. The tip of the box turtles jaw is slightly hooked, but not near as noticeable as a snapping turtle.

## ORNATE BOX TURTLE

*Terrapene ornata*



The Ornate Box Turtle is distributed statewide, except for the southern tip of Illinois. They are terrestrial, liking to dwell in prairies as well as dry sandy areas, and are also common in woodland. This turtle would be one that you would likely see while taking a hike in Illinois. They eat some vegetation and many small insects. They are very similar in appearance and size when compared to the Eastern Box Turtle. The top of the Ornate Box Turtle is distinguished from the Eastern Box Turtle in that the top of its shell is much more flat and there is no median keel in adults. This turtle can also draw all of its soft parts in using its hinged plastron. Unlike the Eastern Box Turtle, this species varies little in color from turtle to turtle. Light lines radiate in all directions on a dark background. The head and neck are mixed with irregular light areas, while the legs are patterned with rounded yellowish spots. The Ornate Box Turtle usually lives 32-37 years. This species of turtle has been added to the Illinois Threatened Species List due to its drastically declining numbers. Loss of habitat as well as threats from predators and vehicles are the main reason for this decline.

## COMMON SNAPPING TURTLE

*Chelydra serpentina*



The Common Snapping Turtle fits its name as it is found statewide. This turtle is more widely distributed in North America than any other species of turtle. They utilize almost every type of aquatic habitat and eat both plants and animals. Common Snapping Turtles can be identified by three large ridges on the very hind end of their shell, near the tail. These ridges can be very hard to see on adult turtles, but can be an easy trait to identify in young. Their eyes can be observed from directly above, unlike other turtles. This turtle will average about 20 pounds, with its max weight being 85 pounds, and will reach up to 15 inches in length. Their shell does not act like a hiding place for the reptile—they cannot draw their limbs and tails into the shell to be protected. This is what warrants the turtle's aggressive behavior. This type of turtle has no defense except for its strong, hooked jaw, which is made for tearing and gripping tightly to anything that comes in front of its mouth. Snapping Turtles can also be identified by their long, lizard-like tail.

## ALLIGATOR SNAPPING TURTLE

*Macrochelys temminckii*



The Alligator Snapping Turtle is the largest freshwater turtle in North America, and one of the largest in the world. They are distributed mainly in the southern half of the state in the largest bodies of water. They spend almost all their lives in water, except when the female goes 160 feet inland to nest. They have the ability to be submerged for 40-50 minutes before surfacing for air. This turtle can attain a weight of over 200 pounds, reach a length of over 2 feet, and live for 50-100 years. Their head, limbs, and tail are all dark brown in color, while small cross-shaped plastron and the fleshy under parts are dull gray or whitish. Alligator Snapping turtles can be identified by three large ridges on the top of the shell. This turtle has the same traits common to all snapping turtles, as well as an additional advantage. There is a cylindrical, pink, worm-like growth on this turtle's tongue which he is able to move how he pleases. When prey comes towards the turtle he waits motionless, mouth open, wiggling the growth like a wriggling worm. This motion attracts the fish and lures it into the reach of the turtle's jaws. Alligator Snapping Turtles have no natural predators except for man, who hunts the reptile for sport, meat, shells, and for the exotic trade market. Due to unregulated harvesting of these turtles and major loss of habitat, these turtles are on Illinois Endangered Species List.

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