



# Alabama Outdoor Classroom Program

## Frequently Asked Questions about Eastern Box Turtles

### Why are they called “box” turtles?

Eastern box turtles have a unique ability to pull in their legs, tail, and head and *fully* close their shell like a “box” when they feel threatened by predators.

### What are their shells made of?

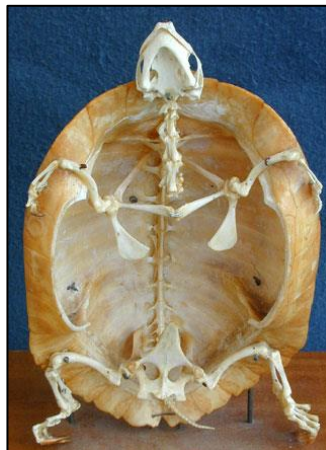
Box turtles’ shells include three main components: the carapace (top part of the shell), the plastron (bottom part of the shell), and the bridge (that connects the carapace to the plastron). *See images below.*

The shells are made of bone with cartilage and ligaments that connect the bones, just like the bone, cartilage and ligaments found in the joints of our own bodies like our elbows or knees. Over time, its shell grows just like our bones grow as we become adults.

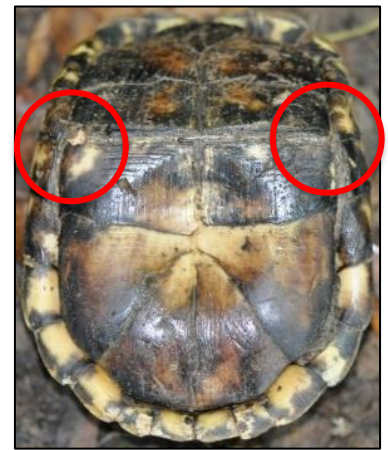
The outer layer of a box turtle’s carapace has brown, yellow and orange scales called scutes that are made of keratin – the same substance in your fingernails. The inner layer of the carapace includes the turtle’s spine and the ribs connected to the spine. The plastron of a box turtle is hinged and the bridge is made of ligaments that help move the plastron along the hinge to completely close the shell.



The carapace is made of white, bony plates, covered in scutes made of keratin.  
*(Photo: Genny Anderson)*



A turtle’s spine and back ribs are fused into its shell.  
*(Photo: Genny Anderson)*



The bridge connects the plastron to the carapace at both ends of the hinge and helps “open” or “close” the box turtle’s shell.

### Can a turtle come out of its shell?

Because their shells are actually part of their bodies, turtles cannot come out of their shells like hermit crabs can!

### Can they feel touch to their shell?

Research shows that nerve endings exist within the shell of turtles. This would imply that turtles do indeed feel when things make contact with their shell.

### How big do they get?

Typically, the Eastern box turtle reaches a maximum of 2 pounds in weight and 7 inches in length.

## How can you determine their age?

The bony plates on a turtle's carapace are called "scutes". Within these scutes are growth rings called "annuli". See *image on right*. These rings, like in trees, represent growth during the turtle's life.

Each ring does not represent exactly one year, but rather one period of growth. Smaller rings may indicate a period of time when resources were not plentiful and growth was minimal, whereas larger rings may indicate a period of time when resources were plentiful and lots of growth occurred. Some rings may not be clearly defined as the shell can be worn down over time due to injury or rubbing against surfaces (like rocks or sand).

Typically, the larger and more worn down the shell, the older the turtle. While these rings do not directly correlate to age, they do tell a story about the turtle's life and growth.

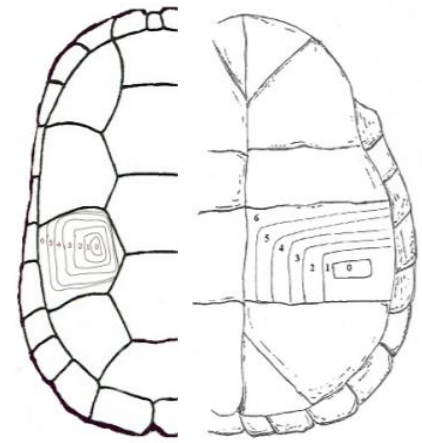


Image source: <https://boxturtle.uncc.edu/>

To read more about counting these annuli, check out our "Instructions for Taking Measurement and Annuli Data"

[HERE](#) or on our website at:

[https://www.alabamawildlife.org/uploadedFiles/AOC\\_Box\\_Turtle\\_Research\\_Instructions\\_for\\_Taking\\_Measurement\\_Annuli\\_Data\\_071719.pdf](https://www.alabamawildlife.org/uploadedFiles/AOC_Box_Turtle_Research_Instructions_for_Taking_Measurement_Annuli_Data_071719.pdf)

## How long can they live?

In the wild, Eastern box turtles can live upwards of 50 years. In captivity, where they have less threats, consistent food, and a suitable habitat, they can reach upwards of 100 years of age.

## How can you determine if it is a male or a female?

There are several traits that distinguish between male and female turtles, some more reliable than others.

The most reliable distinguishing trait is the presence or absence of an indentation on the plastron. Female box turtles have a flat plastron whereas males have an indentation on the back half of the plastron for mating purposes.

The second most reliable trait is the location of the vent (cloaca) along the tail. If the tail is longer with a thicker base and the vent is located past the margin of the carapace when you hold the tail straight, it is a male. If the tail is shorter and thinner and the vent is located within the margin of the carapace when you hold the tail straight, then it is a female.

Males typically have orange or red eyes while females typically have brown eyes. Also, males typically have thicker, sharper, longer, and more curved hind claws while females' hind claws are shorter and straighter.

For more information about this as well as comparative photos of each trait, take a look at our "Instructions for Determining Gender" [HERE](#) or on our website at

[https://www.alabamawildlife.org/uploadedFiles/AOC\\_Box\\_Turtle\\_Research\\_Instructions\\_for\\_Determining\\_Gender\\_071719.pdf](https://www.alabamawildlife.org/uploadedFiles/AOC_Box_Turtle_Research_Instructions_for_Determining_Gender_071719.pdf)

## What type of habitat do they live in?

Eastern box turtles are found across the Eastern United States.

Box turtles live in wooded areas. They will travel to more open areas like grasslands and pastures but will retreat to shady, moist areas when it's too hot out.

They prefer moist areas like stream banks, pond edges, and wetlands. You can often find them under fallen logs or clumps of leaves or dirt.



### **What are their predators in the wild?**

Box turtles are especially vulnerable to predators when they are young and their shells are still soft. At that point they can be eaten by just about anything – raccoons, opossums, skunks, and even crows and ravens. As they get older and larger and their shells harden, they are still at risk of being eaten by larger mammals like foxes, coyotes, and especially dogs. Humans collecting box turtles as pets is one of the greatest risks for box turtle populations, as well as habitat loss and vehicle strikes.

### **How big is a baby box turtle?**

Eastern box turtles typically dig a small hole where they then lay two to seven elongated-shaped eggs, which hatch into tiny box turtles about the size of a quarter (about 1.5 inches long).

### **What do box turtles eat?**

Box Turtles are omnivores, meaning they eat both meat and plants. Their diet includes mushrooms, berries, other fruit, worms, slugs, and bugs. While they start off eating a lot of meat as babies, they eat less meat as adults.

### **Do they have teeth?**

No, turtles do not have teeth. They do have a sharp “beak”, similar to birds, made of keratin that helps them to bite and tear their food. Their beak (and nails) grow continuously, but are naturally filed down by rocks and substrate as they walk and hunt.

### **Can they swim?**

Box turtles are terrestrial (land-dwelling) turtles, but they love spending time in water. They enjoy swimming and soaking in puddles in the wild. Sometimes they even eat hunt for fish and other aquatic animals in the water!



### **How fast are they?**

Experiments show that a box turtle can move as quickly as 0.25 mph over a short distance. The average walking speed, however, is around 0.17 mph. For reference, garden snails top out at .06 mph and rabbits and house cats top out at 30 mph. Box turtles move around a lot looking for food, shelter, and mates, but rarely cover more than 100 yards in a full day of walking.

### **At what times of the day are they most active?**

Like other cold-blooded animals that cannot internally maintain a specific body temperature like we can, turtles are most active when they can warm their bodies during warmer weather. Often you will find them out basking in the sun, warming up their bodies. However, they do seek retreat into the shade, under leaves or logs, or in water during the hottest part of the day or when they get too hot.

### **Do they hibernate in the winter?**

During cold months, box turtles bury themselves underground to brumate. Brumation is basically a reptile's version of hibernation. During this time their metabolism slows down tremendously. They do not resurface to eat and reproduce until it is warm enough for their metabolism to speed back up. Box turtles brumate in stump holes, under logs, in mammal burrows, or buried down several inches in the soil and leaf litter of the forest floor. Some have been observed using the same hibernaculum (site where they brumate) year after year!

## Are they endangered?

Eastern Box Turtle populations in Alabama are declining so the Alabama Department of Conservation and Natural Resources considers this species “protected.” This means they cannot be kept in captivity without a permit and they are illegal to harvest from the wild. Some states in the box turtle’s range do not grant them protection, while others list them as a species of special concern or even endangered.

The Eastern box turtle species is not listed as federally endangered or protected, but the IUCN (International Union for Conservation of Nature) lists it as vulnerable with populations decreasing.

## What should I do if I see one crossing the road?

If you see a turtle crossing the road, only stop to help if you are sure it is safe to do so. You can help a turtle across the road by carefully picking it up by its shell near its hind legs. Never put your fingers near its mouth and never pick it up by its tail. Place it across the road in the direction in which it was heading.

If the turtle is injured, carefully move it from the road and call a licensed rehabber for advice. Find your local licensed rehabbers [HERE](#) or online at:

<https://www.outdooralabama.com/wildlife-rehabilitation/current-wildlife-rehabbers>



Always try to keep the turtle near where you found it. Most turtles have a small home range and when they are removed from it, they will only try to return, often causing increased predation or increased likelihood of road strikes and ultimately death.

## Does it harm a turtle to paint its shell?

Yes! Turtles absorb UVB light from the sun through their shell and convert it into the vitamins needed for healthy bones. If paint is covering their shell, they cannot properly absorb the UVB light, causing their bones to be soft or brittle and potentially lead to death. Turtles can also absorb the toxic chemicals in markers and paint through their shell into their bloodstream, causing illness or death.

A turtle’s shell is naturally designed to give the turtle the camouflage it needs in its natural habitat. If a turtle’s shell is painted it cannot blend in with its surroundings, making it more likely to be seen and potentially killed by predators.

## Can I keep a box turtle as a pet?

No! Wild animals belong in the wild, particularly species whose numbers are declining. As mentioned above, this species is protected in the state of Alabama and you must obtain a permit from the Alabama Department of Conservation to keep one in captivity.

## Sources for the information in these Frequently Asked Questions

[Encyclopedia Britannica](#)

[Outdoor Alabama](#)

[University of Michigan BioKids](#)

[Reptiles Magazine](#)

[The Wildlife Center of Virginia](#)

[IUCN Red List](#)

[Smithsonian’s National Zoo & Conservation  
Biology Institute](#)

[University of Georgia’s](#)

[The Journal of Wildlife Management](#)

[Savannah River Ecology Lab](#)