

## Turtles: an ancient species

Did you know that turtles lived on earth even before the dinosaurs? They are one of the oldest reptile groups and a more ancient than lizards and snakes. The earliest fossils are from the beginning of the age of dinosaurs, in the late Triassic. Turtles live everywhere on the planet except the Arctic and Antarctic. They are fascinating creatures and characteristics between different varieties are as different as can be. There are many different species of turtles. Some live in fresh water, others in the sea and still others live on land.

All turtles, whether water or land dwellers, have a few things in common. They are reptiles of the order Testudines. They all have a carapace or top shell, which is a bony case or shield covering the back. They all have nostrils, beaks, plastrons (bottom shell), and scutes which are scales that cover the shells. All turtles are ectotherms—which is basically another term for cold-blooded. Turtles don't have an outer ear but they have inner ear mechanisms. Turtles do not hear airborne sounds as loudly as we do, but they can sense and interpret vibrations in the environment. But what they lack in hearing, they make up for in sight and smell.

Fresh water turtles that are native to Florida include the Spotted, Chicken, Barbour's Map, Escambia Map, River Cooter, Common Cooter, Florida Redbelly Cooter, Yellowbelly Slider, Florida Snapping, Alligator Snapping, Florida Softshell, Gulf Coast Smooth Softshell, Gulf Coast Spiny Softshell, Three-striped Mud, Eastern Mud, Loggerhead Musk and Common Must Turtles. A turtle that prefers brackish water is the Diamondback Terrapin. Although many of these turtles spend large amounts of their lives underwater, all turtles breathe air. They must surface at regular intervals to refill their lungs. They can also spend much of their lives on dry land.

Sea turtles include the Loggerhead, Green Turtle, Atlantic Hawksbill, Atlantic Ridley, and the Leatherback. Sea turtles are almost always submerged in water, and, therefore, have developed an anaerobic system of breathing. Although all sea turtles breathe air, under dire circumstances they may resort to anaerobic respiration for long periods of time. When surfacing to breathe, a sea turtle can quickly refill its lungs with a single explosive exhalation and rapid inhalation. Their large lungs have adapted to permit rapid exchange of oxygen and to avoid trapping gases during deep dives.

Turtles may also live on the land. Most land turtles are called tortoises, such as the Gopher, however the Box Turtle is a bit different. They are identified by yellow markings on the head and a dark brown to black shell. The carapace generally reaches its high point rear of center. The hind foot usually has three toes. Box turtles are extremely long lived, slow to mature, and have relatively few offspring per year. They are small to medium sized turtles, attaining a maximum length of about 8 inches. A key characteristic of box turtles is their hinged plastron (bottom of the shell) that can be shut completely to exclude predators. In general male box turtles have very orange or red eyes and a slightly concave plastron while females have brown or light orange eyes and a plastron that is almost completely flat.

Tortoises are types of turtles that make their home on land. The only tortoise that is native to Florida is the Gopher Tortoise. Gopher Tortoises live in burrows they construct in upland areas, which unfortunately (for the tortoises) are prime areas for development. Currently the tortoise is listed as a "Species of Special Concern" and afforded some protection, but it is likely to be moved up to the category of Threatened soon.

Some tortoises have been known to live more than 200 years. Box turtles have been documented at over 100 years old. Sea turtles may live to be up to 75 years. The common pet turtle, the red-eared slider can live up to 40 years if good care is received.

Some interesting facts about turtles and tortoises:

- The earliest turtles had teeth and could not retract their heads, but other than this, modern turtles are very similar to their original ancestors.
- Turtles will live in almost any climate warm enough to allow them to complete their breeding cycle.
- While most turtles don't tolerate the cold well, the Blanding's turtle has been observed swimming under the ice in the Great Lakes region.
- Turtles range in size from the 4-inch Bog Turtle to the 1500 pound Leathery Turtle.
- North America contains a large variety of turtle species but Europe contains only two species of turtles and three species of tortoises.
- The shell of a turtle is made up of 60 different bones all connected together.
- Most land tortoises have high domed carapaces that offer protection from the snapping jaws of terrestrial predators. Aquatic turtles tend to have flatter more aerodynamically shaped shells. An exception to the dome-shaped tortoise shell is the pancake tortoise of East Africa that will wedge itself between narrow rocks when threatened and then inflates itself with air making extraction nearly impossible.
- Most turtle species have five toes on each limb with a few exceptions including the American Box Turtle of the carolina species that only has four toes and in some cases only three.
- Some aquatic turtles can absorb oxygen through their skin on their neck and cloacal areas allowing them to remain submerged underwater for extended periods of time and enabling them to hibernate underwater.
- Turtles are one of the oldest and most primitive groups of reptiles and have outlived many other species. One can only wonder if their unique shell is responsible for their success.