

# TURTLES

Class: Reptilia

Order: Testudines a.k.a. Chelonia

Families: 13, including Cheloniidae (sea turtles), Emydidae (pond and river turtles), and Testudinidae (tortoises)

Genera: 75

Species: about 250

Turtles, tortoises, and terrapins are all turtles in the Order Testudines, formerly Chelonii (hence the term Chelonians). Their sub-classification as a turtle, tortoise, or terrapin are based on differences in their physical characteristics, ecological role, and range. In summary, turtles are omnivores and found in water habitats, and are built to be lighter weight and streamlined for swimming. Tortoises are typically herbivores and found in land habitats, and are built heavier and more erect for land travel. Terrapins spend time both on land and in water, and lives near brackish, swampy areas of the SE United States coast. Refer to the appendix to this Turtle fact sheet for more details.

## **PHYSICAL CHARACTERISTICS:**

These animals are recognized by having a shell – the tough, armor like covering that encloses and protects their body. The shell varies from species to species, but always consists of three parts: the **carapace**, which covers the back, the **plastron**, which covers all or part of the belly, and the **bridge**, which connects the two. Most turtle shells are covered with horny plates; others are protected by tough, leathery skin. The shell is honeycombed with nerves and quite sensitive. Their protective shells generally make them docile, although those with soft shells and/or those lacking the ability to retract into shell are aggressive and dangerous when challenged (example: snapping turtles and soft shelled turtles).

## **Turtle Shell Trivia:**

Turtles and tortoises have hard, protective shells that are made up of 59 to 61 bones covered by plates called scutes. A turtle's shell is part of its skeleton. The turtle cannot crawl out of it, because the shell is permanently attached to the spine and the rib cage. Turtles can feel pressure and pain through their shells, just as you can feel pressure through your fingernails. Some turtles can pull their heads, legs, and feet inside their shells. They are known as "hidden-necked turtles." In order to make room inside the shell, they sometimes have to exhale air out of their lungs, which makes a hissing sound. Other turtles can't pull their legs or heads into their shells. Some of these have long necks and protect their heads by tucking them sideways up against the shell. They are known as "side-necked turtles".

The leatherback turtle's shell is a little different. It does not provide the bony, heavy protection of other turtle shells. Instead, the leatherback turtle's back is covered with a leathery skin supported by tiny bones. This adaptation allows the turtle to dive up to 3,000 feet below the ocean surface. At this depth, the incredible water pressure would crush a turtle with a heavy shell and less flexible body.

## **Size:**

Largest—leatherback turtle - shell length up to 8 feet

Smallest—bog turtle - shell length 3 to 4.5 inches

## **Weight:**

Heaviest—leatherback turtle at up to 1,800 pounds

Lightest—speckled Cape tortoise at up to 5 ounces

## **Senses:**

Turtles and tortoises do not have ears, but they can feel vibrations and changes in water pressure that tell them where food, or a predator might be. They do have a good sense of smell, which helps them find food. The skin of a turtle or tortoise, especially the land tortoises, may look leathery and tough but it is actually very sensitive. In fact, keepers at the San Diego Zoo have found that the Galápagos tortoises really enjoy having their necks rubbed. They close their eyes in contentment, and will follow the keepers around wanting more!

Some turtles seem to have senses or instincts that we do not fully understand. Tracking equipment shows that some sea turtles migrate thousands of miles through the sea on regular routes, returning every two or three years to the same beaches to lay their eggs. No one knows how sea turtles find their way over that great distance, year after year, to the same beaches.

**Breathing:**

They breathe with lungs, although a few may also get some oxygen through their skin and the lining of the throat.

**RANGE:**

Found in temperate and tropical regions of all oceans and all continents except Antarctica.

**HABITAT:**

Turtles inhabit water and tortoises live on land. Some turtles, such as sea turtles and soft-shell turtles spend almost their entire life in oceans, lakes, or rivers. Others, such as bog turtles and wood turtles, are semi-aquatic, spending their time in bogs, swamps, marshes and other wetland areas. And many turtles, such as tortoises and box turtles, live their entire life on land in deserts, forests, and grasslands. (Note: the term "turtle" often refers to all the reptiles in this group. "Tortoise" and "terrapin" are sometimes used to refer to specific kinds of turtles.)

**Group vs Solitary Environment:**

Turtles are not social animals. Although members of the same species may be observed congregating along a stream or basking on a log, there is usually little interaction between individuals. Several species may inhabit the same river or lake, but each has different foods, feeding behaviors, and likely different activity periods.

**DIET:**

Turtles do not have teeth, so they use their feet or horny beaks to rip, tear, and cut their food. Most turtles have hard beaks, but a few, such as the matamoras, have soft mouthparts. Some species, like map turtles and the river terrapin also have a hard shelf, or secondary palate, in the upper jaw that helps them crush foods like snails or plant stems and fruits.

They feed on a variety of food, from insects, worms, frogs and fish to fruit, mushrooms, and other plant material.

Most turtles and tortoises are omnivores, so they will eat both plants and animal food of various kinds, like fish, snails, worms, or insects. Many are strictly herbivores, though, and only eat grasses, leafy plants, flowers, fruits, and even cactus. Some are specialists: the leatherback turtle and the hawksbill dine on jellyfish, even poisonous ones. Some turtles have broad, expanded jaws for crushing the shells of mollusks.

**LONGEVITY:**

Have very widespread life expectancy. Up to 150 years or more for some land tortoises; aquatic species usually less, about 70 years.

If an individual survives to adulthood, it will likely have a life span of two to three decades. In the wild, American box turtles regularly live more than 30 years. Sea turtles requiring 40 to 50 years to mature will have life spans reaching at least 60 to 70 years. The giant tortoises of the Galapagos Islands and Aldabra have lived more than 60 years in zoos.

**GENDER and REPRODUCTION:**

Females are generally larger. The males in many species can be distinguished by eye color (often red) and a concave plastron (for ease in mounting female). Some females can store viable sperm for 5-7 years after mating and lay fertile eggs each season.

Turtles lay clusters of eggs in soil or sand or vegetation. Some species lay oblong-shaped eggs, while others lay round eggs. In most species, eggs are laid annually; a few species lay every other year, and some lay twice in one nesting season. Once the eggs are laid, they are on their own. The mother does not incubate or care for her eggs or for the

hatchlings when they emerge. Hatchlings have an egg tooth they use to break out of the shell, and some species have a yolk sac attached to their underside where they can absorb nutrients for the first few days. After that, they have to find food on their own. For many species, the temperature in the nest determines the sex of the hatchlings: warmer areas result in females, cooler areas result in males.

**Number of eggs laid:** from only a few to 100 or more, depending on species

**Incubation:** from about 2 months to 1 year, depending on species

**Size at hatching:** from 1 to 3 inches (25 to 76 millimeters)

**Age of maturity:** from 5 to 25 years, depending on species

#### **PREDATORS:**

Sharks, crocodiles, birds, some mammals.

Before the advent of plastics, tortoiseshell from the hawksbill sea turtle was used in eyeglass frames and decorative items. Turtles and their eggs have long been eaten (and used in medicines) in many parts of the world, and they continue to be in great demand commercially.

Sometimes people build roads, homes, and hotels at the edges of lakes, rivers, and seas where turtles come to lay their eggs. This can really confuse turtles and they may not lay eggs as a result. That means fewer baby turtles. Trash in the oceans, like fishing nets and lines and plastic bags, can entangle and kill sea turtles.

Slow-moving tortoises are easily caught for food or "pets." The Roti Island snake-necked turtle has been heavily exploited by the pet trade and is now virtually extinct in the wild.

#### **FUN FACTS:**

Longest life – the longest living vertebrate are the turtles, living an average of 120-150 years.

- The fastest turtle is the **leatherback turtle**—one was clocked swimming at 22 miles per hour ! The slowest are the land tortoises, which may walk at only 0.5 miles per hour.
- Many aquatic turtles, like the **matamata** use the "gape and suck" method to eat. They lie in wait for a fish to come by, then suddenly open their mouths wide and expand their throats, which sucks in the fish.
- Some turtles clean each other, like **roofed turtles**. and **South American river turtles**. One turtle will use its jaws to pull algae and loose pieces of shell off the other, and then they switch places.

#### **MYTHS:**

The age of a Tortoise **cannot** be told by the number of rings on their shell.

#### **Turtles and tortoises just need a leaf of lettuce a day.**

A lettuce leaf, even lot of lettuce leaves, will starve a turtle or tortoise. Depending on the species turtles and tortoises eat a wide variety of vegetables, fruits, leafy greens, even hays and grasses. Some water turtles eat invertebrates, fish, and crustaceans. Some sea turtles enjoy a meal of jelly fish, seaweed, mollusks, ell grass, and other sea plants and invertebrates. Some tortoises and box turtles enjoy such tasty morsels as snails, slugs, and worms.

#### **It's okay to carve your name and other information into a turtle or tortoise shell.**

Humans can decide for themselves to get tattooed or pierced; turtles and tortoises don't have that choice. Their shells are made of living tissue - bone, skin, blood, and nerves – and when you cut into them, it hurts. Cut into the shell and create an opening into the body cavity, and the turtle or tortoise may well die of infection. Since their shells are living tissue, they also should never be painted.

**REPRESENTATIVE SPECIES AT MPZBG:**

The Zoo has historically had an assortment of turtles, both land and aquatic. The lakes and grounds have many wild turtles that provide visitors with many viewing opportunities. The basking turtles on logs are generally Red Eared or Pond Sliders, although Soft Shelled Turtles and Common Snapping Turtles are often seen.

On exhibits, visitors can observe:

- Leopard tortoises – Inside lower Kley during the winter, near the gibbons in summer.
- Spur-thighed tortoises - “ “ “ “ “ “ “ “ “
- Aldabra tortoise (adult) – by gibbon in summer
- Alligator Snapping Turtle – Kley, Nocturnal
- Burmese Brown Tortoises – Kley, Rainforest
- Yellow-footed Tortoise – Kley, Rainforest
- Red-footed Tortoise - Kley, Rainforest
- Giant River Turtle – Amazonia
- Yellow Spotted River Turtle -- Amazonia

	<b>Tortoise</b>	<b>Turtle</b>
<b>Definition:</b>	A Tortoise is a reptile from the testudines family and dwells well on land.	A Turtle is a reptile from the testudines family and dwells well in the water.
<b>Habitat:</b>	Tortoises live primarily in arid regions, built for storing their own water supply and walking on sandy ground. Tortoises live entirely above water, only wading into streams to clean themselves or to drink. In fact, they could drown in deep or swift current. They rarely migrate	Turtles live in or near the water and have adapted to swim by holding their breath underwater. Turtles may live in freshwater, the ocean, or brackish ponds and marshland. Some turtles sun themselves on logs, rocks, or sandy banks. During cold weather, they burrow in mud and go into torpor. Sea turtles migrate great distances.
<b>Lifespan:</b>	80-150 years (The longest living Tortoise is 188 years)	20-40 years
<b>Weight of the shell:</b>	The shells are heavier	Generally light-weight shell
<b>Limbs:</b>	Feet are short and sturdy with bent legs. Their feet are hard, scaly, and nubby so it can crawl across sharp rocks and sand. Tortoises often have claws to dig burrows, which they occupy during hot, sunny weather or during sleep.	Webbed feet with long claws. Their front feet might be fins or merely webbed toes with streamlined back feet to help them swim. Large blade-shaped fin/flippers for swimming.
<b>Distribution:</b>	Found mostly in Asia and Africa but some species exist in the Americas too.	Africa, America
<b>Shape of the shell:</b>	Mostly large rounded dome shaped shells (with bumps on the top in some species.)	Mostly flat, streamlined shells
<b>Diet:</b>	Tortoises are mostly herbivorous, eating cactus, shrubs, and other plants that have a lot of moisture. Also eat fruits and veggies	Eats fruits and veggies and leafy vegetation and insects and fish - so they are omnivorous.
<b>Reproduction:</b>	Nest in vegetation, sand, soil	Turtles mate and lay eggs underwater or on the shore
<b>Birth:</b>	Tortoise hatchlings move from their nest to the mothers burrow soon after birth	Turtle hatchlings stay in their nest on their own for 90-120 days

## So .....what's a Terrapin?

**Terrapin**— Spends its time both on land and in water, but it always lives near water, along rivers, ponds, and lakes. Terrapins are often found in brackish, swampy areas. The word terrapin comes from an Indian word meaning "a little turtle." "Terrapin" is sometimes used to describe any aquatic turtle but is now largely restricted to the edible diamondback terrapin of the eastern United States.