

Chapter IV. Reptiles

Reptiles are egg-laying vertebrates that have a tough skin with a covering of scales. These ectothermic (cold-blooded) animals cannot generate internal heat. There are 4 orders of reptiles: snakes, amphisbaenians, and lizards (collectively known as squamates), crocodiles, alligators, and caimans (crocodilians), tortoises and turtles, and tuataras. Most reptiles, including those that live mainly in water, lay eggs on land. The young emerge fully formed without a larval stage.

Tortoises and turtles are among the oldest of all living reptiles. They first appeared about 200 million years ago but have evolved little in the intervening time, so that the living species are remarkably similar to those that lived side by side with such animals as dinosaurs. Their most distinctive feature is the hard shell that encloses the soft parts of the body, providing protection and camouflage from predators and the elements. Tortoises and turtles have no teeth and instead use sharp jaws to cut their food. They live on land as well as in freshwater and marine habitats (although all species lay their eggs on land). The terrestrial species are commonly referred to as tortoises, while those that live in freshwater are often called terrapins. Although they are most common in tropical regions, tortoises and turtles are also found in temperate parts of the world. Some marine species undertake long-distance migrations, rather in search of food or to reach their nest sites.

Snakes are formidable and highly evolved predators. Although they have no limbs, no eyelids, and no external ears, these versatile animals move with ease and find their prey using sophisticated senses. Snakes are perhaps the most feared and hated animals in New Mexico, but people's fear of snakes comes from lack of understanding and superstition. Snakes are not mysterious at all, and these fascinating creatures don't deserve the anxiety many people feel about them. Of the 46 snake species found in New Mexico, only 8 are poisonous and potentially dangerous, including 7 species of rattlesnakes and a coral snake.

There are many benefits from having some snakes around the yard or garden. Snakes are one of nature's most efficient mousetraps, killing and eating a variety of rodent pests. While snakes will not eliminate pests, they do help keep their numbers in check. Some harmless snakes, king snakes and coach-whips, eat other snakes, including poisonous ones. All snakes eat other animals, ranging from ants to antelopes.

Snake venom can be beneficial and has been used in developing a variety of human medicines. One type of high blood pressure medicine was developed using information based on chemicals in snake venom. Researchers are conducting studies using snake poisons to develop treatments for blood and heart problems. Snake venom is also being investigated for controlling some types of harmful bacteria.

Some snakes are quite rare and are protected species. These rare snakes are on state and federal endangered and threatened species lists. The ridge-nose rattlesnake is on the federal list while the mottled rock rattlesnake, Mexican and narrow-head garter snakes, plain-belly water snake, green rat snake, and western ribbon snake are on New Mexico's endangered and threatened list.

Lizards are the most successful group of reptiles. They form a large and varied group that is not easy to define concisely: although a typical lizard has a distinct head; 4 well-developed limbs, and a long tail. Some lizards also have an unusual ability to shed their tail when attacked by a predator and regenerate it. Most species reproduce by laying eggs, although some give birth to live young; a small number actively care for their offspring. Lizards have adapted to survive in habitats all over the world (although they are not found in Antarctica). Most live on the ground, on low-lying rocks, or in trees. There is a small number of burrowing species and even one that feeds in sea water. A few lizards, notably the geckos, have adapted to live around humans, and in some parts of the world they are a common sight on the walls and ceilings of buildings.

The large reptiles are among the few survivors from the time of the dinosaurs, having changed little in the last 65 million years. Collectively known as crocodylians, they include crocodiles, alligators, and caimans, and one species of gharial. Crocodylians are formidable, semiaquatic predators. Most of them live in freshwater rivers, lakes and lagoons. Alligators and caimans are found only in North, Central, and South America. Crocodiles occur mainly in Asia, Africa, and Australia, with some species in Central and South America.

Western Diamondback Rattlesnake *Crotalus atrox*

The diamondback rattlesnake has one of the most serious bites with the highest fatality rate in North America. The diamondback is also the heaviest of all poisonous snakes. This rattlesnake is classified among the pit vipers. Vipers have a head broader than their neck, eyes with catlike pupils, and thick bodies.



The Western Diamondback is a rigid snake and has the reputation of standing its ground. Just like all of the rattlesnakes, this species is venomous. They are not actually prone to attack offensively, but are extremely defensive. This particular snake assumes the threat posture by slightly flattening the body, rolling it together in a spiral, lifting the forebody from the ground into an S-shape, all while keeping the tail raised and the rattle rattling! This snake can lift its forebody up to 32 inches in the air.

The female diamondback is passive during the mating process, while the male snake will crawl in jerks on top of the female snake, all while he is flicking his tongue. He then will jerk the hind portion of his body vigorously, pressing his tail beneath his partner, who in turn will lift her tail. Their cloacas will make contact, and copulation will occur. The gestation period will last for 167 days! The birthing process may last

for three to five hours and produce ten to twenty young. The young will puncture their thin egg membranes right before birth and are born alive.

The snake occupies diverse habitats from sea level to 7000 feet, ranging from desert flats to rocky hillsides, grassy plains, forested areas, river bottoms and coastal prairies. The snake can swim quite nicely, holding its rattles above the water to keep them dry. Its range spans much of Arkansas, most of Texas and Oklahoma, the southern parts of New Mexico and Arizona, the southern tip of California, and the northern parts of Mexico's Chihuahua and Sonora.

Like other rattlers, the Western Diamondback takes up residence among communities of small mammals such as prairie dogs, rabbits, gophers, chipmunks, ground squirrels, mice and rats, the more the better, usually hunting at night. It ambushes victims along their trails or attacks them in their burrows, sometimes striking and swallowing an animal which weighs more than the snake itself. Given the opportunity, the snake will also eat birds. After feeding, the snake can go several weeks before feeding again.

The Western Diamondback, especially the juvenile, often comes under attack itself. It may become a meal for an eagle, a hawk, a roadrunner or a wild turkey; for a kingsnake or a whipsnake; or for a coyote, a fox, a badger or a feral hog. Regarded as an enemy and a threat, it may be trampled to death by a deer, an antelope, a cow, a horse or even a sheep. The Western Diamondback lives in a rough neighborhood.

Painted Turtle *Chrysemys picta*

The painted turtle (*Chrysemys picta*) is the most widely distributed North American turtle, and the only one to range across the entire continent, occurring from southern Canada to northern Mexico and from the northwestern to the southeastern United States. They are small turtles with an adult carapace length of 4-10 inches (10-25 cm). The carapace (top shell) is a smooth, flattened oval, and is green to black in color, with red markings in some sub-species. The plastron (bottom shell) is generally yellow, sometimes tinged with red, sometimes with a black to reddish-brown figure of varying size and shape. The skin of the painted turtle is black to olive with red and yellow stripes on the neck, legs and tail and yellow stripes on the head. Males have elongated foreclaws and long, thick tails. Females have shorter foreclaws, shorter and thinner tails, and tend to be larger.



The western painted turtle, *C. p. bellii* (Gray, 1831), is the largest subspecies. Adults are often over 7 inches (17.8 cm) long, with a record of 9.8 inches (25 cm). They

are found as far north as Manitoba and the extreme southern extent of their range happens to be near the Bosque del Apache NWR, as well as the Pecos River in southern New Mexico. Its green carapace features a network of faint markings. Its yellow or reddish plastron is marked by an intricate dark figure branching along the seams.

Painted turtles are omnivores. Most species of plants or animals living or dead which are found in their habitat may be eaten, including snails and slugs, insects, crayfish, tadpoles, small fish, carrion, algae and aquatic plants. Younger painteds are carnivorous, older painteds become more herbivorous as they mature.

Because of their small size and adaptability to captivity, painted turtles are often kept as pets. They have interesting individual personalities and often exhibit comical behaviors.

Coachwhip *Masticophis flagellum*

The Coachwhip, an extremely fast snake, is active in the day. They often raise their heads high to look around as they move. When pursued, they may take to a tree or disappear into mammal burrow. Coachwhips attempt to flee from humans but if cornered they become aggressive and will strike and bite. If handled you can just about count on this snake trying to bite and defecate. Rarely the Coachwhip tries an alternative to aggression and plays dead.

Like the Racer, the Coachwhip will eat a wide variety of foods. These snakes are fast enough to chase after and capture lizards and adaptable enough to hunt off the ground in trees. Prowls about during the day in search of grasshoppers, cicades, lizards, snakes and small rodents.

They mate in the spring, clutches of 4 to 16 granular surfaced eggs, 1 – 2 ¼ inches long. They are deposited June to July and hatch in 6 to 11 weeks. Young are 12 to 16 inches long.



Desert Tortoise *Gopherus agassizii*

The desert tortoise is a species of tortoise native to the Mojave desert and Sonoran desert of the southwestern United States and northern Mexico.

These tortoises may attain a length of 6 to 15 inches, with males being slightly larger than females. Their shells are high-domed, and greenish-tan to dark brown in color. Desert tortoises can grow from 4–6" in height and weigh 8–15 lb when fully grown. The front limbs have heavy, claw-like scales and are flattened for digging. Back legs are more stumpy and elephantine.



The tortoise is able to live where ground temperature may exceed 140 degrees Fahrenheit (60 degrees Celsius) because of its ability to dig underground burrows and escape the heat. At least 95% of its life is spent in burrows. There, it is also protected from freezing winter weather while dormant, from November through February or March. With its burrow, this tortoise creates a subterranean environment that can be beneficial to other reptiles, mammals, birds, and invertebrates.

The desert tortoise is an herbivore. Grasses form the bulk of its diet, but it also eats herbs, annual wildflowers, some shrubs, and new growth of cactuses, as well as their fruit and flowers. Rocks and soil are also ingested, perhaps as a means of maintaining intestinal digestive bacteria and/or as a source of supplementary calcium or other minerals. The stones may also function as gastroliths, enabling more efficient digestion of plant material in the stomach.



Much of the tortoise's water intake comes from moisture in the grasses and wildflowers they consume in the spring. A large urinary bladder can store over forty percent of the tortoise's body weight in water, urea, uric acid and nitrogenous wastes. During very dry times they may give off waste as a white paste rather than a watery urine. During periods of adequate rainfall, they drink copiously from any pools they find, and eliminate solid urates. Adult tortoises can survive a year or more without access to water.

One defense mechanism the tortoise has when it is handled or molested is to empty its bladder. This can leave the tortoise in a very vulnerable condition in dry areas, and they should never be alarmed, handled or picked up in the wild.

The mating season for the desert tortoise is lengthy. It occurs from spring to fall, with a peak in late summer/early fall (September). They typically lay 4-8 eggs per clutch, with 1-2 clutches per year. The eggs are hard, chalky and elliptical or spherical and buried in a funnel-shaped nest. They are incubated for 90-120 days. Hatchlings from only a few eggs out of every hundred actually survive the 7-15 years it takes to reach full adulthood.

Ravens, gila monsters, kit foxes, badgers, roadrunners, coyotes, and fire ants are all natural predators of the desert tortoise. They prey on eggs, juveniles, which are 2-3 inches long with a thin, delicate shell, or in some cases adults. Ravens are hypothesized to cause significant levels of juvenile tortoise predation in some areas of the Mojave Desert, frequently near urbanized areas. The most significant threats to tortoises include urbanization, habitat destruction and fragmentation, illegal collection and vandalism by humans, and competition with cattle for forage plants.