



Desert Tortoise

Gopherus agassizii

Desert tortoises, also known as desert turtles or gopher tortoises, currently are found in Arizona, California, Nevada and Utah, as well as parts of Mexico, and in the Mojave, Colorado, Sonoran and Sinaloan deserts. As the result of various human activities over the past 150 years, tortoises have been eliminated or reduced in large portions of their range in California and in areas near Las Vegas and St. George, Utah.

Desert tortoise population densities range from just a few per square mile to more than 200 per square mile. Although the number of desert tortoises in the world is unknown, biologists have used estimates of between 500,000 and 2 million.

To survive the harsh environment of the hot, dry desert, desert tortoises spend much of the year in burrows dug under shrubs or

in caves which provide protection from extreme heat. They emerge in late winter and early spring to feed and reproduce. Desert tortoises eat a variety of native plants, especially the flowers of desert annuals and grasses, and they can survive up to a year without water.

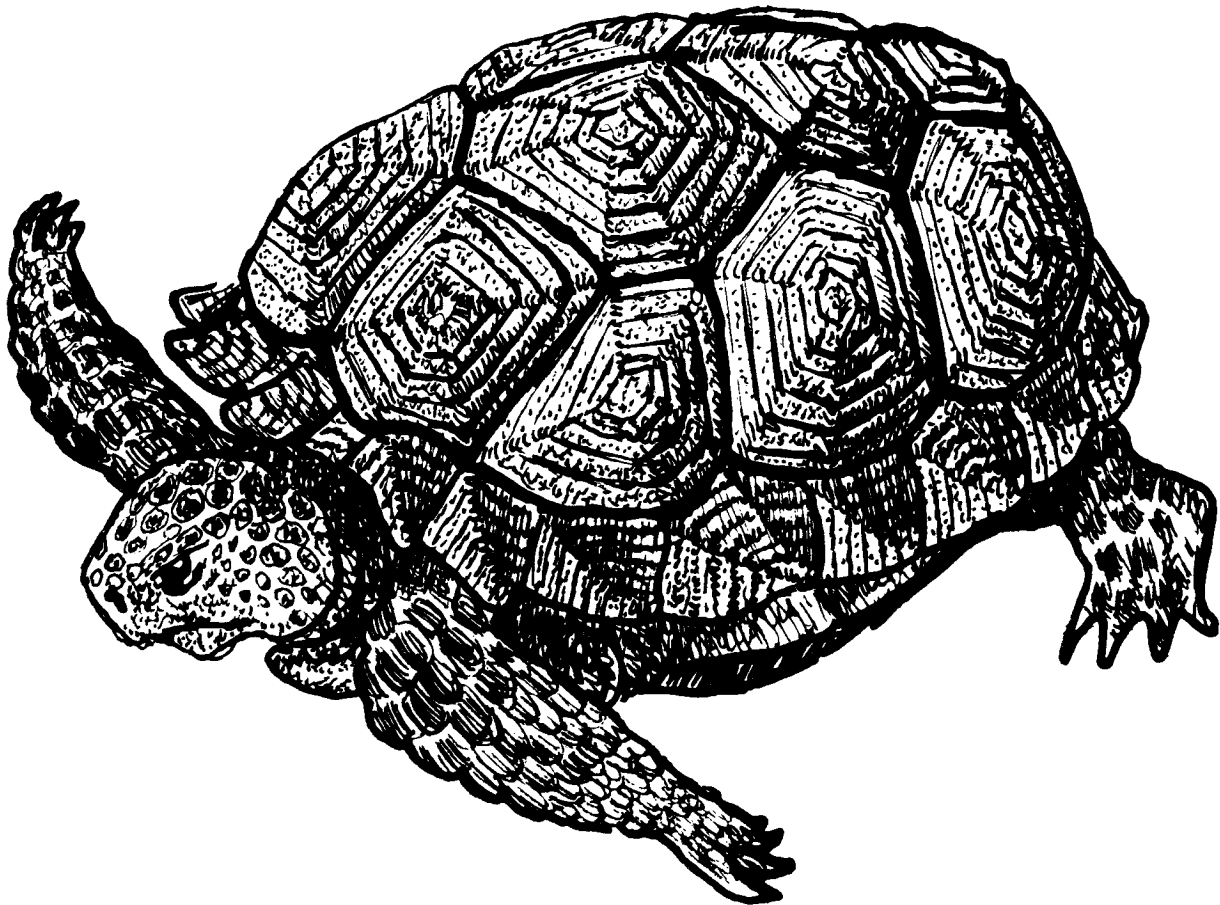
Desert tortoises may live more than 60 years. They are slow to mature, not ready to reproduce until they are 15 to 20 years old. The breeding season varies from year to year and across the tortoise's geographic range, but generally occurs in the spring (April and May) and again in the fall (August through October). After 3 to 4 months of incubation, the eggs hatch and hatchlings typically seek shelter in rodent burrows or natural cavities. Tortoise shells remain soft for the first 5 to 10 years of their lives; therefore,

juveniles spend little time outside the protection of their burrow.

Other than golden eagles and coyotes, adult desert tortoises have few natural predators. Bobcats, skunks, kit foxes, coyotes, ravens and Gila monsters prey upon juveniles and desert tortoise eggs. Feral dogs dig up and destroy tortoise burrows, crush eggs, eat juveniles and harass adults.

Since desert tortoises spend much of their lives in shallow burrows and feed on native plants, they are vulnerable to any activity that disturbs the earth or changes their habitat. One popular human activity in particular threatens the survival of desert tortoises: the use of off-road vehicles. Off-road vehicles kill tortoises above and below ground, collapse burrows, and damage plants they use for food.

Also known as gopher tortoises, desert tortoises are threatened by such diverse factors as expanding urbanization, which is encroaching upon their habitat; disturbances from military bases such as tank maneuvers and explosives testing; and collection for pets, food or commercial trade.



Expanding urbanization is also a serious threat to desert tortoises. Over the next few decades, populations in large urban areas such as Las Vegas; St. George, Utah; and San Bernardino County, California, are expected to increase sharply. Roads in these areas give humans increased access to turtle habitat; tortoises have been nearly eliminated from either side of heavily-traveled roads for up to a mile. Railroads also cause problems, as tortoises can be crushed by trains or get caught between the tracks, overheat and die.

Proliferation of telephone and power lines may enhance one predator's ability to kill tortoises. Ravens have increased dramatically in number in parts of the desert tortoise's range. Poles and towers that support utility lines provide nesting and perch sites for ravens to spot slow-moving juvenile tortoises.

Collection for pets, food or commercial trade continues to deplete tortoise populations despite federal and state laws forbidding these activities. The expansive size of the desert tortoise's range makes law enforcement difficult.

Captive tortoises released by people who no longer want them pose health problems for the wild population because they may carry a highly contagious, and generally fatal, upper respiratory-tract disease. Furthermore, captive animals accustomed to having water, food and shelter provided may find it difficult to fend for themselves in the wild.

Poachers who deal in endangered plants and animals sell tortoises to collectors. Some desert tortoises are sold to restaurants. If you suspect wild desert tortoises have been illegally poached and

sold in a restaurant, contact your nearest U.S. Fish and Wildlife Service office.

Construction of military bases and test sites in the deserts of the western United States has been associated with a decline in desert tortoise populations. Intense disturbances, including tank maneuvers, air-to-ground bombing, and testing of explosives, cause soil compaction and changes in the plant communities that adversely affect desert tortoises. Also, noise from vehicles, military aircraft and explosions may damage their hearing.

Exploration for minerals like gold, tungsten and borax, and extraction of sand and gravel occurs throughout most of the tortoise's range, causing further degradation of tortoise habitat. Construction of roads, vehicular traffic and the toxic byproducts associated with mining also have a negative impact on desert tortoises.

Agricultural activities including plowing, application of fertilizers and pesticides, and clearing of native vegetation for crops, kill tortoises directly or indirectly by changing their habitat. In addition, livestock trample tortoises above ground and crush their burrows, killing eggs and juveniles. Sheep, for example, can strip a large area of plants very quickly, leaving barren ground with no food or cover, exposing tortoises to predators and harsh desert conditions.

Litter poses a threat to desert tortoises as well. Discarded objects such as balloons, plastics, metal foil, and glass remain in tortoises' stomachs or intestines, giving a false sense of fullness and causing starvation. Garbage such as string or rubber bands becomes entangled around tortoises' heads or legs, causing infection, loss of

limbs, or strangulation. Trash also attracts tortoise predators such as ravens, kit foxes and coyotes.

In 1989, the U.S. Fish and Wildlife Service gave temporary emergency protection to the desert tortoise in the Mojave region of the western United States. Long-term protection replaced this temporary measure when the Service listed the Mojave population as threatened species under the Endangered Species Act of 1973. While an *endangered* species is considered in danger of becoming extinct in all or a significant portion of its range, the less dire designation of *threatened* means a species is likely to become endangered within the foreseeable future.

Conserving desert tortoises requires protecting the desert ecosystem as a whole. The State of Nevada, federal agencies, off-road vehicle user groups, the mining industry, The Nature Conservancy, and other groups have cooperatively developed a 30-year habitat conservation plan calling for strengthened law enforcement, construction and maintenance of tortoise barriers along roadways, closure of some roads, rehabilitation of habitat, and acquisition of livestock grazing allotments. The plan also designates funds for research and public education. Continued development within tortoise habitat is permitted as long as development is carried out in accordance with the plan. Under the plan, loss of habitat must be adequately *mitigated* (tortoise habitat that is lost must be replaced).

Augmenting this effort is the conservation of approximately 540,000 acres of federal lands within the Piute-Eldorado Desert Wildlife Management Area to aid in the recovery of tortoises and other desert plants and animals.

Desert tortoises may live more than 60 years. To survive the harsh environment of the hot, dry western desert, tortoises live underground in burrows or in caves.

