

Gopher Tortoise – *Gopherus polyphemus* (DAUDIN 1802) Care

Darrell Senneke, Sharon Chancellor and Chris Tabaka DVM

Copyright © 2003 World Chelonian Trust. All rights reserved

(Updated February 10, 2003)

Taxonomic “journey”

Testudo polyphaemus (BARTRAM 1791)
*T. polyphemus** (DAUDIN 1802)
T. depressa (GUERIN-MENEVILLE 1829)
T. gopher (GRAY 1844)
Xerobates carolinus (AGASSIZ 1857)
X. polyphemus (BEYER 1897-1899)
Gopherus carolinus (SHALER 1888)
G. polyphemus (STEJNEGER 1893)
G. praecedens (HAY 1916)
G. polyphemus - (CONANT & COLLINS 1991)

*While there is some confusion because of the use of the name *G. polyphaemus* by W. Bartrum in 1791¹, it is the French scientist Francois-Marie Daudin who in 1802² is credited with naming this tortoise after the cave-dwelling Cyclops of Homer’s Odyssey. Those familiar with this classic will recognize the name of the Cyclops: Polyphemus, who lost his monolithic eye to Odysseus. Homer placed the cave of Polyphemus on Mount Etna's slopes, a far cry from the home of the Gopher Tortoise in the sandy soil of the American Southeast.



This care sheet is intended only to cover the general care of this species. Further research to best develop a maintenance plan for whichever species/subspecies you are caring for is essential. Under no circumstances should this care sheet be construed as encouragement to acquire a specimen of this species.

Legal Status

The Gopher Tortoise is listed internationally as a CITES II species and is federally listed in the United States under the Endangered Species Act. Because of this protected status, it is illegal to collect a Gopher tortoise from the wild. Contact your state’s wildlife agency for information on the permitting procedure as it varies state to state. Such wild collection permits are very rarely granted. Check with your state wildlife agency BEFORE you consider adopting an animal of this species as federal law protects it.

It is unlawful to touch, harm, harass or collect a wild gopher tortoise. If you come upon one in the wild DO NOT PICK IT UP. When stressed, Gopher tortoises expel the contents of their bladders as a last ditch defense measure. This loss of their water reserves can easily doom the animal to a slow death from dehydration. Gopher tortoises are under extreme pressures in the wild. The combination of chronic upper respiratory tract disease (URTD), road kills and habitat loss are the three major reasons for the severe population decline in wild *G. polyphemus*

Description

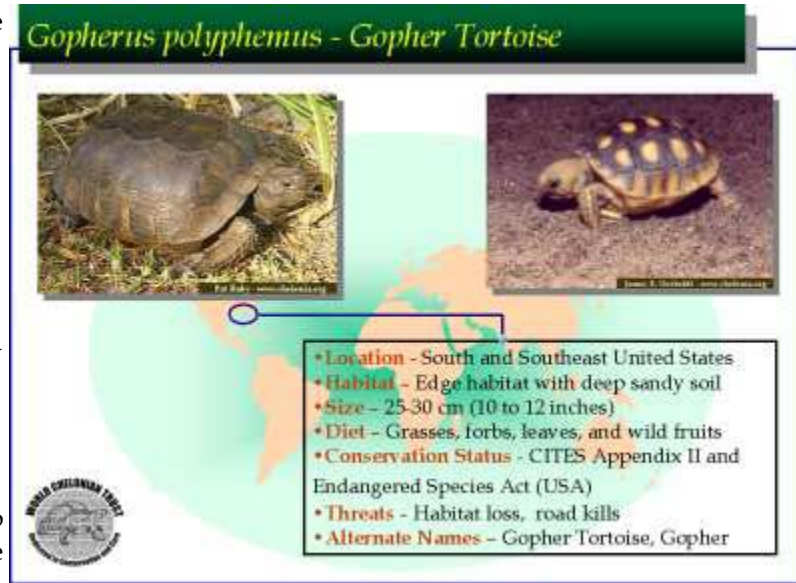
The gopher tortoise is a fairly large tortoise, which reaches 24 cm (9.4 inches) in size. There are occasional specimens of greater than 30 cm (12 inches) and the record is 38 cm (15 inches). This tortoise has a low oval carapace with a flat top. This appearance occasionally results in amateurs thinking it to be an aquatic turtle and returning it to the nearest body of water, often resulting in drowning. The shell color is yellowish in hatchlings darkening to brown or black in adults. Marginal scutes are generally the same color as the carapace with the exception of Western

populations, which may have some yellow-brown markings. Males are larger than females, possess a more concave plastron, a slightly enlarged gular projection as well as a longer, thinner tail with a terminal enlarged scale or “claw”.

Habitat

The Gopher tortoise is found in the Southeastern part of the United States. Its range includes Southwestern South Carolina, South almost to the tip of the Florida peninsula; West through Southern Georgia, Alabama, and Mississippi, to Louisiana and the edge of Southeastern Texas and Arkansas.³ Overall Gopher tortoise populations have diminished severely but they still can be locally quite common, especially on certain Florida islands.

Gopherus polyphemus can be found in a great variety of habitats. The one unifying factor of all these habitats is existence of deep sandy soil. Edge areas appear to be very important to this species. In Spillers and Speake⁴, it was determined that the level of Gopher tortoise population in a specific area was directly related to the amount of available edge habitat. Gopher tortoises appear to do well on dry sand ridges dominated by pine and scrub growth, where such areas are maintained by fire.



The presence of fire is important to the Gopher tortoises. Rapidly moving brush fires have little effect on the tortoises if they are in their burrows, but the fire clears out the underbrush, opens the canopy and encourages the growth of vegetation that *G. polyphemus* depends on to survive. In areas with strict fire control, Gopher tortoise populations invariably decline.

The Gopher tortoise is considered a “Keystone” species in the areas where it makes its home. The burrows, which may be up to 15 meters (45 feet) long and 3.5 meters (10 feet) deep, are an important refuge for other species, many of them endangered. Skunks, red foxes, raccoons, opossums, rats, rabbits, quail, burrowing owls, diamondback rattlesnakes, black racers, indigo snakes, six-lined race-runners, gopher frogs, leopard frogs, and toads⁵ often use both occupied and abandoned Gopher tortoise burrows. Invertebrates are also commonly found in the burrows, including some 32 species of spiders, ticks, and insects. It is this creation of the burrow refuge that has acknowledged the gopher tortoise by ecologists as the keystone species for its habitat.

Natural Diet

The gopher tortoise is one of the most widely studied tortoises in the world. As such its dietary preferences are well known. Conat⁶ reports that gopher tortoises eat a mixed diet of grasses, leaves, and wild fruits. Landers et al.⁷ conducted a food habit study of gopher tortoises in the longleaf-scrub oak association of South Georgia and concluded that grasses and grass-like plants were the principle foods of adults. Broad-leaved weeds are preferred by juvenile tortoises, with dependence upon them increasing as the growing season progresses and grass

becomes dryer and less nutritious. Morning glory and bindweed leaves are also commonly eaten. Seasonally available fruits are also taken by *Gopherus polyphemus*.

Housing Gopher Tortoises Indoors

The Gopher tortoise burrow is a very stable environment, an important consideration when attempting to care for them. The difficulty in duplicating such a stable environment in captivity is a primary cause of husbandry failure. As there is no legal trade in Gopher tortoises, it is very rare that one would be encountered outside its natural range. Because of this there should be almost no reason to have to house one indoors. Occasionally this does become necessary though, especially with hatchlings. In the event that outdoor accommodations are not practical, predator safe, or are environmentally unsuitable, indoor facilities may become necessary.

The most common form of indoor accommodation for small or medium sized Gopher Tortoises consists of a "turtle table". To all appearances this looks like a bookshelf unit flipped onto its back. A reasonable size habitat for a hatchling is 2 feet by 3 feet (60 cm by 90 cm); as the animal grows the size of this habitat should be increased. Into the bottom of this "turtle table" holes can be cut to allow for the sinking of food and water containers flush with the surface for easier animal access.

The water area of the habitat should be large enough to allow the tortoise to soak in if it wishes - it must also be shallow enough to protect it from drowning. Photographic developing trays work well for this with larger specimens. Our inability to perfectly duplicate the microclimate inside a burrow necessitates the provision of a water source. To closely mimic their natural habitat, a mixture of 50% clean topsoil without herbicides, fertilizers or other additives and 50% playsand may be used. As waste products will be difficult to detect with such a substrate it is recommended that if using this soil mix that one replace all of it at regularly scheduled intervals such as every 6 weeks or so.

In one corner of the environment a 100W spot lamp should be positioned to provide artificial basking facilities. This should be positioned to provide a basking spot of 95 degrees F (35 C) or so in that section of the habitat. The habitat should also be equipped with a full spectrum fluorescent light to provide for UVB. A UVB source is necessary for Vitamin D3 synthesis (needed in calcium metabolism). If preferred to this lighting arrangement a Mercury vapor bulb may be used that fulfills both heat and UV requirements. While Gopher tortoises can handle cool weather quite well, cold combined with wet conditions will result in respiratory distress, especially in animals that have suffered from prior cases of URTD. As they are burrowing animals they should be provided with a dark, dry retreat. There should be a hide box located in the corner away from the basking spot to provide the animal with this retreat.

Outdoor Housing

Predator proof outdoor habitats offer many advantages over indoor accommodations and should be seriously considered as an option during warm weather. Since these tortoises burrow, the perimeter should have sides extending well below the surface of the soil. This species does not do. If they are to be kept in such areas, provision must be made to ensure that a large portion of their environment does not become overly wet through the use of landscaping and proper drainage. Many keepers have found that it is advisable to construct an artificial burrow for their tortoises to mimic their natural environment. Some form of outdoor housing for much of the year is vastly preferred over strictly indoor housing.

Captive Diet

A high fiber, low protein, and calcium rich diet will ensure good digestive tract function and smooth growth. Gopher tortoises are prone to pyramiding or "stacking" of the scutes as well as

bony imperfections. Over reliance upon 'supermarket' greens should be avoided. In general supermarket greens have been cultivated to appeal to human tastes; this tends to result in a "green" that is both high in sugar and low in fiber.

Diet: A varied diet should be provided closely imitating the natural diet of:

- Opuntia
- Grasses (Bermuda grass or Orchard grass)
- Assorted weeds
- Leafy greens (dandelions, endive, grape leaves etc.)
- Occasional Fruits

Additional calcium supplementation is essential. Powdered calcium can be sprinkled all foods. It is suggested that one use calcium supplemented with vitamin D3 if the animal is being maintained indoors and calcium without D3 if it is outdoors. Provision of a cuttlefish bone, which can be gnawed if required, is also highly recommended not only for the calcium but also to maintain proper beak growth. Regular supplemental use of vitamins and mineral complexes is encouraged.

Medical

This species should NEVER be mixed with any other species of turtle or tortoise. If you are maintaining animals with known respiratory disease, be sure to use extreme caution to prevent cross contamination with other chelonia in your collection.

G. polyphemus is very susceptible to upper respiratory tract disease (URTD) caused by *Mycoplasma* sp, a pleomorphic (cells variable in size and shape) bacterium that lacks a cell wall and can be difficult to grow on culture. Signs of infection by this organism are mild to moderate mucopurulent (containing mucus and pus) discharge from the nares and conjunctivitis (infection of the conjunctiva of the eyes). While symptoms can be relieved with appropriate antimicrobial treatment in conjunction with optimal environmental parameters being maintained, *Mycoplasma* is essentially incurable and relapse often occurs. Great care must be taken to avoid exposure of the species with other species of turtle or tortoise as well as other gopher tortoises suffering from URTD. Mycoplasma is one of the causative agents in the decline of wild populations of this species. No captive gopher tortoise should be released back into the wild.

This species hibernates in nature, after careful research and provision of a cool dry location this can be reproduced for your tortoise.

It should be noted that turtle and tortoise care research is ongoing. As new information becomes available we share this on the World Chelonian Trust web site at www.chelonian.org. Serious keepers find it to be a benefit to have the support of others who keep these species. Care is discussed in our free online email community, which may be joined from the web address above. Please contact us about the many benefits of becoming a member of the World Chelonian Trust.

References:

1 Bartram, W. 1791. Travels through North and South Carolina, Georgia, East and West Florida. Philadelphia

2 Daudin, F.M. 1802. Historie naturelle, generale et particuliere des reptiles, Vol. 2. F. Dufart, Paris.

3 EMBL Reptile Database, <http://www.embl-heidelberg.de/~uetz/LivingReptiles.html>

4 Spillers, D.M., and D.W. Speaks. 1986. Status and distribution of the Gopher tortoise (*Gopherus polyphemus*) in southern Alabama. U.S. Fish and Wildlife Service

5 Conservation Management Institute at Virginia Tech. <http://fwie.fw.vt.edu/indexnew.html>

6 Conant, R. 1975. A field guide to reptiles and amphibians of eastern and central North America, 2nd Ed. Houghton Mifflin Co., Boston.

7 Landers, J.L., et al. 1981. The Gopher tortoise: Distribution ecology and effects of forest management. Ga. Dept. of Nat. Res.

World Chelonian Trust
www.chelonia.org
685 Bridge Street Plaza PMB# 292
Owatonna, MN
55060