



Russian or Greek

Scientific Name: *Tortoises Testudo horsfieldii & Testudo graeca*

Written by Dr. Scott Medlin

Background: The *Testudo* genus is a complex group of several species that have not yet been well delineated. In general, Russian tortoises are native to central Asia including Kazakhstan, Uzbekistan, Kyrgyzstan, and are especially common in Afghanistan, Pakistan, and parts of Iran. The subset of species referred to as Greek tortoises are commonly found in the countries of northern Africa, Turkey, Greece, Syria, Israel, Iraq, and Iran. Almost all of these species prefer to live in an open, dry, scrubby habitat that may also be referred to as a steppe or semi-desert habitat. They have been documented to survive the harsh conditions of these climates by remaining in hibernation for up to 9 months of the year. Attempting to simulate the severity of these harsh conditions, and this degree of hibernation is not recommended in captivity, however.

These species will commonly grow to be 5 to 8 inches in length (carapace) with ideal husbandry. Females tend to be slightly larger with shorter tails. There are reports of *Testudo* species living to be up to 165 years of age. (http://en.wikipedia.org/wiki/Timothy_%28tortoise%29)

Enclosure: *Testudo* tortoises can be kept in both outdoor and indoor environments. The normal temperatures of southern Florida are well suited for this species to thrive and reproduce while living outdoors. However, due to the relatively small size and very persistent digging behaviors inherent in this species, it is highly recommended that if you plan to keep your tortoise outside that you provide a well-secured enclosure to ensure that they do not escape. This will almost certainly entail extending the caging below the ground level. Tortoises that are kept indoors can be started in a moderate to large-sized Rubbermaid or Tupperware container or even in an aquarium. As they grow they will need increasingly larger enclosures to accommodate them and allow for exercise and mobility.

Substrate: There are many suitable substrates for this species. One of the easiest, cheapest, and least complicated substrates is to simply use reptile carpet, newspaper, or even paper towels. These substrates are non-toxic, easy to clean, and virtually eliminate the risk of impaction due to ingestion of substrate while eating. Nevertheless, some owners prefer to appearance of a particulate substrate such cypress mulch or a shredded coconut bark. When using a particulate substrate, your tortoise will need to be fed on a slab of rock (slate, etc) or on a clean plate or dish that can be sanitized between feedings to reduce the risk of substrate ingestion. Additionally, some particulate substrates may clump in and around the eyes. Sometimes it can even become lodged between the eyelid and the eye itself. Unfortunately this can cause corneal irritation and inflammation that may require veterinary attention.

Light cycle: Keep your tortoise at a cycle of 12-14 hours of light per day. Seasonal fluctuations in the light cycle may contribute to seasonal shifts in hormone levels and is not recommended for those wishing to avoid breeding behaviors. Using a timer that automatically turns the lights on and off every day is the easiest way to stay consistent for most owners.

Heat: *Testudo* species need warm temperatures to stay healthy. Tortoises that are kept indoors should have a basking area of 85-90F. The cold portion of the cage can be in the mid 70's. Ceramic heat emitters work well, but heat lamps and under-tank heaters can be used useful as well.



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UVb: Tortoises living outdoors will get plenty of natural UVb from sunlight, even on cloudy days. For those tortoises kept indoors it is recommended that they have a special UVb light installed above their enclosure. Use caution though, because not all lights that advertise themselves as being UV lights will emit UVb, so it is important to verify that the lamp emits sufficient amounts of UVb light prior to purchasing it (Usually 5 to 10% percent is sufficient depending on the enclosure.) Most fluorescent UVb bulbs will stop emitting sufficient amounts of UVb after 6 months even though they continue to emit visible light. Because of this, remember to change out your UVb bulb every 6 months.

Diet: Testudo diets should consist largely of dark leafy greens that are high in calcium, small amounts of fruits and vegetables, and an unlimited supply of a good quality hay. Good examples of dark leafy greens that are high in calcium would include kale, mustard greens, collard greens, and dandelion greens. Kale has the added benefit of containing Vitamin A as well, an essential vitamin needed by most reptile species. Romaine, swiss chard, cauliflower, and broccoli are also acceptable. Small amounts of fresh fruits and starchy vegetables are fine as long as they represent less than 10-15% of the diet (sweet potato, carrots, cantaloupe, papaya, strawberries, blueberries, raspberries, etc.). Lastly, a high quality pelleted diet fed two to three times per week can provide some of the essential vitamins and minerals that are not present, or present in low amounts, in the plant portion of the diet. Some good brands of tortoise pellets include Rep-Cal, Pretty Pets, Mazuri, Mozaic, and Ziegler's. Briefly soaking the pellets in water before offering them will improve their acceptance of them.

Supplementation: Tortoises are susceptible to hypocalcemia, especially when young, so if you opt to not provide a pellet as a part of the diet, then it is important that you provide vitamin supplements on their food. First and foremost, you will need to add a calcium supplement to their food 3 to 4 times per week. Avoid calcium supplements that also contain phosphorous as an additive. Additionally, it is recommended that you also provide a multivitamin (with preformed vitamin A) at least once per week or once every other week to avoid problems with shedding, otitis issues, as well as other pathologic conditions that may develop with nutritional deficiency.

Water Intake: It is recommended that you help to maintain appropriate hydration levels by soaking your tortoise at least once weekly. The soak water should be lukewarm to warm (up to 95° F). Your tortoise should soak in this water for 10-15 minutes. The water level should be high enough to completely cover the cloaca, but never be so high that your tortoise's head is completely covered. The tortoise should never have difficulty maintaining their nostrils above the water level easily and comfortably.