

BOX TURTLE CARE SHEET

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GENERAL: Box turtles are so named because they have a hinge in their plastron that enables them to protect themselves from predators by closing up inside their shell. The location of the hinge is important because it is different in different species. The Hinge-back tortoise also has a hinge but that hinge is located in the rear of the carapace. The box turtle (genus *Terrapene* in the United States) is secretive and usually remains hidden under the cover of low plants and bushes, burrowed in a pile of leaves or soaking in marshy waters under vegetation. The box turtle has a high-domed carapace (top shell) and a plastron (bottom shell) with a well-developed hinge that enables the turtle to completely seal itself up in its shell (although some overweight specimens are unable to close their shell entirely). The color and pattern on the shell and the skin of this genus is extremely varied and, due to interbreeding between species and sub-species, the identification of the subspecies of a particular specimen can at times be impossible.

CONSERVATION CONCERNS: U.S. box turtles are heavily collected in the wild for the pet trade in this and other countries, to the serious detriment of individual animals and the wild populations. Huge numbers of box turtles die before they can be sold, and many of those, offered for sale, are severely stressed and ill due to grossly negligent and abusive treatment following capture.

BOX TURTLE SPECIES of the United States

SCIENTIFIC NAME COMMON NAME

Genus: Terrapene

T. carolina carolina Eastern or Common

T. carolina major Gulf Coast

T. carolina bauri Florida

T. carolina triunguis Three-Toed

T. ornata ornata Ornate

T. ornata luteola Yellow or Desert

The United States species are arranged in order of their preference for humidity and moisture- Eastern desiring the most and Yellow, the least.

MEXICAN BOX TURTLES

T. coahuila coahuila --- Habitat similar to spotted and Bog turtles. Aquatic.

T. carolina yucatanana --- Similar to Gulf Coast in appearance and habitat.

T. carolina mexicana --- Similar to Three-toed in appearance and habitat.

T. nelsoni nelsoni --- Similar to Ornate in appearance and habitat.

ASIATIC BOX TURTLES

Cuora ambionensis Malayan

Cuora flavomarginata Chinese

These species tend to be a bit more aquatic but have same general requirements as other box turtles.

TEMPERATURE: Mammals are called warm-blooded because they are able to regulate their body temperature without help from the external environment.

Turtles are considered cold-blooded because they are dependent on the surrounding air as their only way to regulate their body temperature. In captivity, box turtles must be provided year round with a warm area (80 -85 degree F.) and a cooler area allowing the animal to regulate its own temperature as necessary.

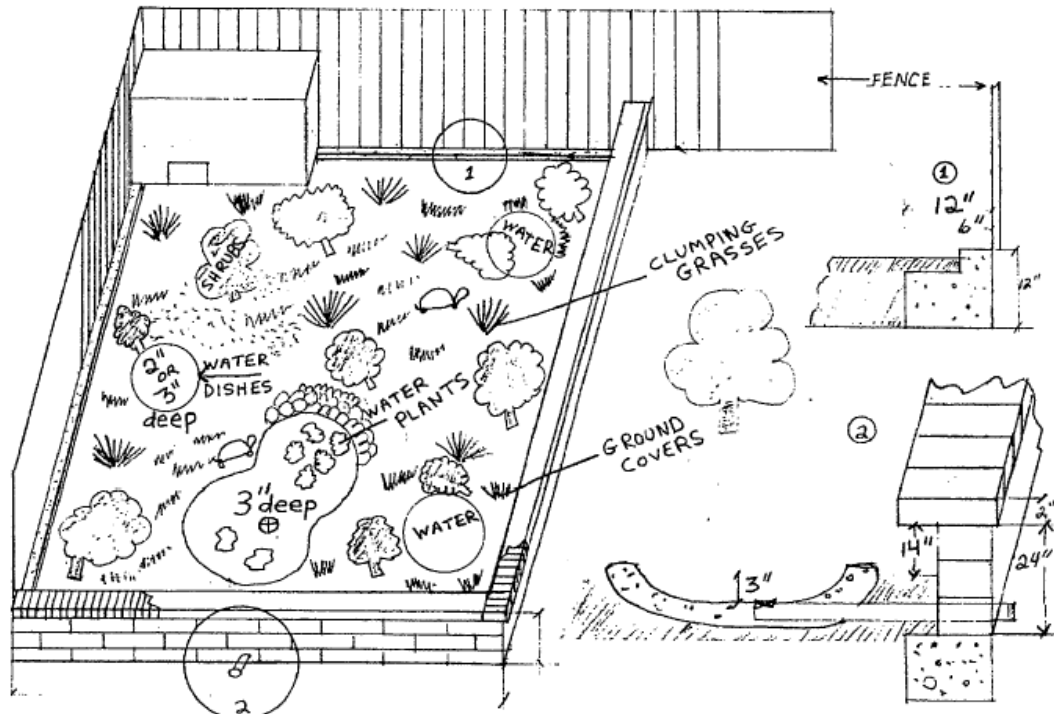
Always use a thermometer when checking temperatures and these should be placed at the level of the turtle. Estimating the temperature is not accurate, a thermometer is necessary. . A large outdoor enclosure with sunny and shady areas should be supplemented with an insulated and heated house that remains at 80 - 85 degrees F year round. Suspect insufficient heat if you find that your turtle is inactive, not eating, or is spending all of its time near the heat source. Frequently, the cause of captive turtle mortality is insufficient heat.

LIGHT: Ideally, turtles should be housed outside for access to the sun. Direct sunlight or broad- spectrum lighting is a necessity for the turtle's health and growth. This sunlight must NOT be filtered through glass because glass will block the ultraviolet rays, which are needed for calcium metabolism. We recommend the use of Vita-Lite bulbs or any broad/full spectrum UV-B Bulb. Be sure to check with the manufacturer regarding the frequency of replacement. Though they may appear to be functional, many need to be replaced every 6 months. Turtles MUST

also have shade available as well to avoid overheating. DO NOT USE: Gro-Lux, Aquarium Light, or Enviro-Light. (An advantage to housing your turtle outside is that none of the artificial lights are needed.)

OUTDOOR HOUSING AND EXERCISE SPACE: A large, securely fenced, sunny yard should contain low bushes, clumps of grass, piles of dry leaves, and clean water. Box turtles do not like and cannot tolerate excessive heat or bright light. If kept in too dry an enclosure they will be prone to serious eye and respiratory conditions. Box turtles are excellent climbers and diggers, therefore the perimeter is very important. These turtles can easily climb Chain link and chicken wire fences. Box turtles need to be confined by a 24-inch high fence made of wood, brick or concrete block. They should not be able to see through the walls of the enclosure. You will also need something placed on top of the wood or brick that is perpendicular to the wall, creating an overhang to keep the turtles from climbing out of the yard. Turtles are clever and will climb on top of each other in order to escape and corners are especially vulnerable. Be sure to top them with triangular pieces to further prevent escape. Once the enclosure is built with 24 inch high walls, determine where the pond is to be placed and lay a slanted drain pipe to the outside of the wall. Then back fill the area with eight to ten inches of good quality organic soil. This will fill the enclosure with soil to support growing grass, shrubs and small trees, while still leaving a wall of 14 to 16 inches. Box turtles can easily drown in water deeper than three (3) inches, and they must be able to get in and out of their water dishes easily. A shallow pond (two to three inches deep with gently sloping sides) or 18-inch diameter plastic or terra cotta flower pot saucers sunk into the soil and filled with clean water is a must. Clean water is essential for drinking, soaking and elimination. Leaf piles are important for these turtles to burrow into. They might be bordered on three sides by logs or boards to keep the leaves as deep as possible and in one place. In addition to the above, a well insulated "dog" house complete with thermostat, heating element and a thermometer (at turtle level), should be constructed. The temperature inside should remain at 80 - 85 degrees F year round. When such an environment is provided, the turtles stay active and healthy all year long.

VERY IMPORTANT: Not only must turtles be protected from escaping, but they also must be protected from injury, or death often caused by predators such as dogs, raccoons, opossums and foxes. **Never assume that your dog will not harm your turtle.** Dogs find turtles fascinating and are capable of inflicting a lot of injury very quickly. Other predators are raccoons, opossums, skunks, gophers, foxes, crows/ravens and hawks. If you live in an area where predators are a problem then you must lock your turtles inside their house at night (or bring them into your own house). The turtles habit of digging into the soil does not protect them from dogs, raccoons and foxes . Another option is to completely screen the enclosure above the wall line, like an aviary. However, this is can be expensive and sometimes inconvenient solution.



The enclosed yard should be approximately eight to ten inches higher than the yard outside of the wall. The pond depth at the deepest end is three inches. Place the drainpipe in the front wall. To drain the pond, simply unscrew the pipe cap and the pond will drain into your yard via gravity, then rinse the pond before re-filling. A turtle house should be insulated and include a heating element (located at a safe distance from the turtle) a thermostat to control the temperature. If you are not able to provide a large outdoor area, decrease the number of turtles to be kept and create a smaller enclosure version of the larger enclosure. If the smaller enclosure will not accommodate a heated house, the turtles will need to be brought in at night.

PLANTS FOR A TURTLE GARDEN:

Grass: Bermuda, Mondo, or most any "clumping" grass as long as the edges of the blades are not sharp. Small clumps of sod may be used in part of the enclosure. Be sure it does not have plastic/nylon mesh as this could lead to injury. At this time, only "Bermuda" type sod does not have this mesh.

Shrubs: Dwarf pittosporium, Rosemary, Hibiscus

Small Trees: Strawberry, Lemon, Pineapple, or Mexican Guavas; Dwarf Nectarines, Peach, or Apricot; Ficus benjamina.

Note: These shrubs and trees can be easily pruned to keep them small.

Miscellaneous: Creeping Charlie, Wandering Jew.

Pond Plants: Water Hyacinths, Dwarf Papyrus, Water Lettuce.

TEMPORARY/EMERGENCY OR NIGHTTIME ONLY INDOOR HOUSING: A large (4 feet by 4 feet would not be too large), draft-free enclosure with solid sides (not glass) that are 12 to 18 inches high is a good start. There should be several places for the turtle to hide, e.g., under plant branches, in a box, under a half-log, or a "hide box", etc. A heavy water dish with easy entrance and exit, at least 12 inches in diameter and two inches deep is needed. The bottom of the enclosure should be of easily changed material such as newspaper, paper towels, or soil. **NEVER USE THESE:** corn cobs, rabbit pellets, sand, gravel, orchid bark, ground walnut shells, Astroturf, cedar or pine shavings, or cat litter.

NOTE: BOX TURTLES SHOULD NOT BE KEPT IN AQUARIUMS!!!

Heat and lighting are especially critical in an indoor enclosure.

1. **Heat:** Provide at least one warm area (85 degrees F) by using a heating element. This can be accomplished by using clamp-on fixtures available at hardware stores. Make sure they will handle the wattage you are going to use (we usually recommend 100 watt bulbs). You may also use a fixed stand with the bulbs shining down into the enclosure. The temperature on the floor of the enclosure directly under the bulb should not exceed 85 degree F. We recommend using a thermostat attached to the flood lights to regulate the temperature which will prevent overheating. As always, check the temperature using thermometers at the turtle level. We also recommend enclosing the top of the enclosure to prevent heat loss.

2. **Lighting:** If this enclosure is for nighttime use only, there is no need to provide a Vita-Lite. However, if the turtle is to spend daylight hours in this enclosure, a Vita-Lite (Duro-Test) must be provided. The Vita-Lite should be attached to the lid of the enclosure or be attached to a frame that spans the top of the enclosure. The light should shine down into the enclosure. The Vita-Lite should be turned on during daylight hours and off at night simulating daylight.

FEEDING: Variety of food items is most important aspect in feeding. Of course, this means offering the proper types of foods. Inadequate diet is a serious cause of turtle and tortoise deformity and death in captivity, because it lowers their resistance to illness and disease. The number one cause is keeping the animal at too low a temperature. All box turtles are omnivorous; that is, they eat both animal food (the entire animal, not just the flesh) and vegetation (fruits and vegetables). They should NOT be fed steak, lean ground meat, or chicken. Steak and ground meat contains too much fat and raw chicken can be the source of salmonella. Eating only flesh does not give the turtle the vitamins, minerals and roughage that it gets from eating skin, stomach, internal organs, etc.

Animal Foods: The main diet of the box turtle should be a good quality (lowest fat content possible) dry dog food, or Primate-Dry by Zu-Preem, and a variety of fruits and some vegetables. The dog food and Primate-Dry should be softened with a small amount of water. Do not use too much water. They should be spongy, but not mushy. Box turtles also enjoy slightly moistened Trout Chow. For a treat, feed the turtle earthworms, nightcrawlers, sow bugs, meal worms, insect larvae and pupae, beetles,

crickets, caterpillars, grasshoppers, eggs (hard boiled, scrambled), ground beef heart and beef liver. Snails and slugs can be fed only if they have NOT been treated with snailbait. Fruits and Vegetables: Some of their favorites are bananas, mangoes, papayas, cantaloupes, apples, melons of all types (except watermelon), cherries, grapes, all kinds of green leafy vegetables, squash, yams, sweet potatoes, and mushrooms. Any fruits or vegetables can be tried. Steam, then cool the harder-textured types. .

Ant Problems: Ants not only accumulate on and eat vegetable matter and meats, they also can kill turtles! You must be vigilant and eliminate ants when they are seen around your turtles and their food dishes. Pouring boiling water on the ant nests is one way. Another method is to remove the turtles and their food and water from the area and spray the ants with Formula 409 All-Purpose Cleaner (Clorox company). This not only kills the ants but also removes the ant trail so others cannot follow an established trail to the food or the turtles. Wait 30 minutes, wash the area down with water, and replace the turtles and their food. Some people use white vinegar on the anthills. Another method to keep ants out of the turtle food is to place the plate containing the turtle's food into a larger plate that has been filled with water. This way the ants cannot cross the water to get to the food. Never use toxic substances inside the turtle enclosure.

Water: These turtles use water for drinking, lowering body temperature, and to clean out their nostrils, eyes and anal openings. Bathing in water also helps the animal eliminate properly. This cleaning plays an important part in keeping the animal healthy and washing off potential parasites which could be harmful.

Therefore, water dishes must be kept clean and the water changed frequently.

Vitamins: Vitamins and minerals are very important. Box turtles should be given Super Preen vitamins/minerals on their food once each week. Place the Super Preen in a saltshaker and sprinkle on the food lightly. A cuttlebone (remove the backing) and mineral block should be available somewhere within their enclosure for them to regulate their own calcium intake.

Osteoform or Bone Meal can be lightly sprinkled on the food as a good calcium supplement. Many box turtles are shy, secretive animals and may not eat in the presence of humans and other turtles. They require an area where they can hide and feel safe when eating (under low bushes, logs, etc.). Moisture and humidity stimulate activity and eating.

Caution: Do not use snail bait, poisons or fertilizers in the turtle enclosure or on plants and carrion the turtle will be fed. These can poison the turtles directly, or indirectly, by the turtle eating bugs that has poison within their bodies.

WINTER HIBERNATION: Allowing box turtles to hibernate during winter IS NOT RECOMMENDED in captivity. North American box turtles are native to a climate with very hot summer temperatures both night and day and very cold winter temperatures. In this climate they have many summer rainfalls and a constant source of foods to stock up for a long cold winter and a true hibernation. The

winters here in Southern California are not very cold, we do not feel hibernation is necessary and since it can also stress an animal we do not recommend it. Keep your turtle active and feeding year round by providing a proper environment as previously described. However, if you move outside of California to a true box turtle habitat, contact your local turtle and tortoise or Herpetological society for information on hibernation.

BREEDING: Box turtles mate predominantly after cooler weather or, to a lesser degree, in the fall before cooler weather; but some mating activity is observed through the summer and those box turtles with access to a heated turtle house sometimes mate all year. Your enclosure must be large enough to provide hiding places where the female has the opportunity to hide and eat unmolested.

Sometimes constant mating causes the female to stop eating and can also cause a prolapsed (intestine protruding from the cloaca) and eventual death if left untreated and not separated from the male.

Egg Laying: Egg laying usually occurs in June or July, although some individuals do lay outside this period.

AILMENTS: Illness in box turtles is evidenced by runny or clogged nostrils, swollen, runny or filmy eyes, large lumps or swollen area near the ear (side of the neck), white or black tongue and/or mouth (normally these are light pink), and not eating for a week.

We have Care Consultants who specialize in Box turtles and they can be reached by email at: careconsultant@sdturtle.org. Clearly state your species, habitat, and question and expect a reply within 3 days. If your turtle needs medical attention, contact our care consultants for referrals to veterinarians in your area who are knowledgeable in treating turtles.