



Mark E. Burgess DVM  
2425 SW Cedar Hills Blvd  
Beaverton, OR 97005  
(503) 643-2137  
Fax: (503) 626-7392

## CARING FOR YOUR BOX TURTLE

Box turtles are small land dwelling turtles from the forests and plains of the eastern, southern and central U.S. The most commonly seen are eastern box turtles, which include '3 toed,' 'gulf coast' and 'ornate' forms. Less common is the western box turtle, with 'ornate' and 'desert' forms. Nearly all pet box turtles were caught in the wild. They are not native to Oregon and do not survive long term if released here. When you obtain a 'wild pet' you must try to duplicate that pet's natural conditions. Box turtles reach adult breeding size within 5-6 years after hatching, and may live 60-80 years or more when healthy. They tend to be mild mannered and shy.

**FOOD:** Box turtles are slow moving and can't chase fast prey. A good simple diet includes about 50% vegetables and 50% protein sources (box turtle food, earthworms, slugs, silkworms, Phoenix worms). Avoid redworms & compost worms, and minimize mealworms, superworms, and waxworms, as they are nutritionally poor. Vegetables should be mostly leafy greens such as kale, collards, and dandelions; avoid iceberg lettuce as it is nutritionally poor. Fruits can be used sparingly. Use a nutritional guide to choose veggies with good calcium /phosphorous content. Variety helps minimize risk of nutritional deficiencies; ideally the turtle should regularly eat at least 6-8 different vegetables. Various dry & canned box turtle diets are available; Bearded Dragon diets can be used also. The best are probably pelleted foods which are bright colored and palatable. Pretty Pets and T Rex make quality diets. The pellets can be offered dry, softened with water, or ground up into a powder and sprinkled on damp veggies daily. A diet which includes a good variety of veggies, worms, and commercial food is complete & balanced, and does not need any additional supplementation. Avoid high protein foods for mammals such as meats, dog food, cat food or monkey chow as these are not balanced for a turtle.

If you can't use a commercial turtle diet, then vitamins & minerals need to be provided in other ways, although achieving a good nutritional balance is more difficult. Use a *single* powdered multivitamin-mineral supplement such as Reptocal or Reptivite; use only a tiny pinch on the food once weekly, no more. Overdosing is easy with supplements, and some products are potentially toxic; it is usually safer to use a commercial diet which has a balanced vitamin content.

Water should be provided at all times. Use a small, low bowl which is too heavy to easily tip over; a ceramic ashtray may be used. Ideally the bowl should be small enough to prevent the turtle from soaking and defecating in the water. Baths are unnecessary, but if elected they should be done in a separate container with shallow warm water, and should be brief (15-30 minutes maximum).

**HOUSING:** A terrarium is usually needed to provide good housing, although the turtle can exercise in the house daily (up to 30 minute intervals). The terrarium walls and top should be mostly solid, not screen, to trap heat and humidity. A minimum size would be 3.5-4 square feet of floor space (equivalent to an 18 X 30 inch or 24 X 24 inch enclosure). Cage height is less important, as the turtle lives on the cage bottom. Artificial turf makes good flooring as it can be cleaned & reused, and it can't be eaten. Sand, gravel, corn cob, wood chips, etc may be eaten and cause bowel blockages; if used they must be changed regularly when soiled. Air temperature measured in the shade (under a solid piece of cardboard or wood), away from all heat sources, should be 75-85°F in the day, and above 70°F at night. Good thermometers include mercury, round dial-type, or digital; avoid paper color-strips which stick on the cage wall, or infrared guns, which do not accurately measure air temperature. Reptile heat pads can be used under the cage or on the back cage wall. Hot rocks can be used, but should be covered (with turf or other rocks) to prevent burns. Heat lamps should be at least 12-18 inches above the turtle to prevent burns. Dark heat lamps can be used day & night; dim purple or lightless ceramic-coated bulbs are best. Box turtles are shy and the cage should be in a quiet area. They need hiding places to feel secure, but avoid using dark caves or boxes which block exposure to the UV light. Instead provide objects such as plants or rocks to hide *behind*, or use paper to cover the cage glass in one corner, creating a private area which remains well lighted. A small hiding box with an open top can also allow UV to reach your turtle while hiding.

Lighting should be provided 12-14 hours daily, with the remainder being dark. You must provide white (visible) light and ultraviolet light in the 280-320 nm wavelengths (called UV-B). This mimics basking in sunlight. Our climate provides too little sun, and window glass or plexiglass filters out most UV light, so you must provide sunlight artificially. The best lighting for most terrariums is fluorescent full spectrum bulbs; simple heat lamps are not adequate for UV. Good brands include Arcadia, and Reptisun by Zoomed; some others are Reptiglo, Reptasun by Flukers, and Reptile Daylight

by Energy Savers Unlimited. These bulbs won't burn the pet and need to be close to the turtle to be effective; in general the maximum effective distance is less than the length of the bulb. For instance, a 24 inch tube needs to be within 18 inches of the floor. Avoid glass or plastic barriers between the bulb and the pet, as these block the UV light. Change fluorescent bulbs every 6-7 months when in use, as they produce less UV over time.

Mercury vapor lamps also produce UV light; these resemble regular incandescent bulbs, but produce both heat and UV. They last about 1 year. These usually cost \$45-100, and when turned off must cool down before they can restart. Cheaper incandescent bulbs which don't require a cool down period are simple filament-type bulbs, and do *not* produce UV. Vapor bulbs are powerful and hot, and are best suited for very large, tall enclosures, not the average terrarium.

Healthy turtles may be allowed to hibernate in winter in an unheated garage or greenhouse. The temperature needs to be below 55°F ideally, and the day length should be short (winter hours). Healthy hibernation must be induced gradually in the fall, with steady decreases in day length & temperatures as it occurs outdoors. This can be difficult to achieve, and it may be safer to keep a turtle active in the winter. Never hibernate a sick or underweight turtle.

## COMMON DISEASES

**Respiratory Infections:** Common among stressed turtles, especially when air temperature is too cool. Poor diet or other stresses can also weaken the turtle and allow infection. Symptoms: crusty or runny eyes, swollen eyes, runny nose (often with bubbles out the nostrils), wheezing, or mucus in the mouth. They often will not eat, and can progress to pneumonia and die. Treatment: antibiotics daily, and correct the diet & environment.

**Vitamin A Deficiency:** Mimics respiratory infection but not as severe; mostly causes eye swelling & discharge. Often the turtle is still eating. This condition develops only if the turtle has been on a Vitamin A deficient diet (or not eating at all) for *months*. Treatment: Vitamin A orally (the injectable forms are easily overdosed and potentially toxic to turtles). Good sources: commercial turtle foods, some greens, cod liver oil, papaya, yellow vegetables, carrots.

**Middle Ear Infections:** Visible as a swelling on the side of the neck where the ear should be. Usually results from a respiratory infection. Treatment: Surgical drainage of the infection, antibiotic injections, and correction of diet and environment.

**Beak & Nail Overgrowth/Hyperkeratosis:** This condition is seen only in box turtles that have been in captivity for some time, and is likely the result of nutritional imbalances such as excessive protein intake or vitamin imbalances (including overdosing with supplements). The beak & nails overgrow and may become thickened and deformed. Severe cases may develop deep cracks in the dry thickened skin of the extremities, which can cause the toes or tail to break and fall off. Low humidity may also play a role in causing these lesions. Treatment involves trimming the overgrown beak & nails, using ointments to soften the thick dry skin, and correction of diet & environment. Even severe cases may be reversed in time, but lost appendages do not regrow.

**Shell Rot:** Infection of the shell (usually bacterial, occasionally fungal), which causes pitting, discoloration or softness of the shell. If untreated, the lesions can deepen and spread, eventually causing death. Treatment: Removal of infected tissue, topical disinfectants, keep the shell dry & clean, and give injectable antibiotics in severe cases.

**Intestinal parasites:** Box turtles can carry a variety of worms and other parasites in the digestive tract. Symptoms: Diarrhea, poor weight gain, lethargy; worms may often be present without visible signs. Treatment: Bring a fecal sample and/or worms (if seen) to a veterinarian for identification, so the proper worm medication can be used.

**Appetite Loss:** Often occurs in turtles if stressed by their environment: cool temperatures, low UV levels, short days, a cramped cage, lack of hiding places, and excess noise or disturbances can all cause anorexia. Any illness such as an infection can decrease appetite as well. If your pet stops eating for more than a few days (except when hibernating properly), you should seek veterinary advice.