



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. However, some local rehabilitators will take unwanted pets and ship them back to their native habitat where they are released in protected areas. 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 would be about 50% vegetables & fruit, and 50% protein sources (box turtle food, earthworms, and slugs). Vegetables can include leafy greens such as collards, kale, and dandelions; avoid iceberg lettuce as it is nutritionally poor. Fruits can be used *sparingly*. Ideally 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 8-10 different vegetables. Various dry and canned box turtle or tortoise diets are available; the best are probably the pelleted foods which are bright colored and smell fruity. Pretty Pets is one of the more palatable brands; T Rex is similar. The pellets can be offered dry, or softened with water, or crushed and sprinkled on dampened veggies as a powder daily. A diet which includes a good variety of veggies, worms, and commercial food is complete and balanced, and does *not* need additional supplementation. *Avoid* high protein foods for mammals such as meats, dog food, cat food or monkey chow as these may harm the turtle. Mealworms, waxworms, crickets and roaches are less nutritious and/or hard to catch, and should be minimized.

If you can’t use a commercial turtle diet, then protein and vitamins need to be provided in other ways, although achieving a good nutritional balance is more difficult. Protein sources include tofu, beans (various types), silkworms, earthworms (use night crawlers, *not* redworms or compost worms), slugs, and crickets (crickets must be fed a high calcium “gut loading” insect food (T-Rex Calcium Plus) for at least 2 days prior to feeding them to the turtle, or they will be calcium deficient). Avoid mealworms and waxworms, as they are nutritionally poor (high in fat, low in calcium). Without box turtle food, vitamins & minerals should be provided via a *single* powdered multivitamin-mineral supplement such as Reptocal or Reptivite; use a *tiny* pinch on the food once weekly, no more. Do not use a simple calcium/vitamin D powder. Overdosing is easy with supplements, and some products are potentially toxic; it is usually safer to use a commercial diet which has a balanced supplement included.

Water should be provided at all times. Use a small low bowl which is too heavy to easily tip over; a ceramic ashtray is adequate. 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 very shallow warm water and should be brief (20-30 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 & humidity. A minimum size would be 3 ¾ to 4 square feet of floor space (equivalent to an 18x30 inch or 24x24 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 and 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 near floor level in the *shade* (under a solid piece of cardboard or wood, away from heat sources) should be 75-85°F in the day, and ideally above 70°F even at night.

Use a good mercury, digital, or dial-type thermometer which can be moved to check temperature in various locations at the cage bottom; avoid paper strip thermometers or temp guns, which do not give reliable air temperatures. A reptile heat pad beneath the cage is one heating method; hot rocks can be used but should be covered (with turf or other rocks) to prevent burns from direct contact. Heat lamps inside the cage should be at least 18 inches above the turtle to prevent burns. If a heat lamp is used at night it should produce minimal light; good choices are lightless ceramic-coated bulbs, though dim purple or red night lights can also be used. Box turtles are shy and the cage should be in a quiet area. They need hiding places to feel secure, but you should try to avoid using dark caves or hiding boxes which block exposure to 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. UV light should be able to reach your turtle even 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 the open sunlight. Our climate provides too little sun, and window glass or plexiglass filters out most of the UV light, so you need to provide sunlight artificially. The simplest lighting is fluorescent full spectrum bulbs; incandescent "screw type" round bulbs are not adequate. Some good brands include Reptisun by Zoomed, and Reptile D-Light. Other bulbs which produce less UV but are adequate include Verilux, Reptasun by Flukers, Reptiglo, and Reptile Daylight by Energy Savers Unlimited (ESU). These bulbs won't burn the pet and need to be close to the turtle to be effective; in general the effective distance is less than the bulb length. For instance, a common 24 inch tube should be within 18 inches of the turtle. Bulbs should run the entire cage length; tubes less than 24 inches long (including compact coils) are usually too weak to be effective. Avoid glass or plastic barriers between the bulb and the pet (these block UV). Change these bulbs every 6-8 months when in use as they produce less UV light over time.

NOTE: more recently a few incandescent "screw type" round bulbs have appeared which *do* produce UV-B; these look like typical bulbs but are actually mercury vapor lamps. They produce both UV and strong heat, so should be kept at least 18 inches from the turtle. Their effective lifespan is uncertain; probably they are reliable for at least 1 year. These devices cost \$45-100 and when turned off must have a "cool down" period before they can be restarted. Incandescent bulbs which cost less and do not require a cool down period are simple filament-type bulbs, and do *not* produce adequate UV-B.

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

COMMON DISEASES:

Respiratory Infections: Common among stressed turtles, especially new pets which were recently captured and shipped. Poor diet or environment also stress the turtle and allow infection. Symptoms: crusty or runny eyes, swollen eyes, runny nose (often with bubbles out the nostrils), and mucus in the mouth. They often will not eat, and if untreated may progress to pneumonia and die. Treatment: antibiotics daily, correct the environment, and force feed if needed.

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

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 the diet and environment.

Beak & Nail Overgrowth/ Hyperkeratosis: This condition is seen only in 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 and nails overgrow and also 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 creating these lesions. Treatment involves trimming the overgrown beak and nails, using ointments to soften the thick dry skin when needed, and correction of the diet and environment. Even severe cases may be reversed over time, though 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 the infected areas of shell, topical disinfectants applied daily, keep the shell dry and give injectable antibiotics in severe cases.

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

Appetite Loss: Box turtles easily lose appetite if their environment stresses them; cool temperatures, low UV levels, short days, a cramped cage, lack of hiding places, and excess noise or disturbance may all cause the turtle to stop eating. Any illness such as an infection often causes appetite loss as well. If your pet stops eating for more than a few days (except when properly hibernated) you should seek veterinary advice.