

The North American Box Turtle Diet

by

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Box turtles are omnivorous in the wild, eating a wide array of both plant and animal matter. Their diet in captivity should likewise be varied to encourage a strong feeding response and to promote good health. It should include a variety of vegetables, raw leafy greens, fruits and berries, and high-quality animal protein.



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A varied diet, including vegetables, fruits, leafy greens, berries, and Turtle Brittle, is nutritious and appealing to box turtles

Below is a two-part meal plan that I have successfully used in the care of many rescued box turtles (mostly eastern box turtles plus a few ornate box turtles).

Meal Plan

(Meal plan presented on next page.)

Meal A (per adult turtle)

Please note that it is not necessary to make exact measurement of the ingredients. I have listed amounts in a recipe-like format as a guideline. Variety is the key! Although you can finely grate or dice food as described, I find that it is easiest, especially if you are caring for multiple turtles, to use a mini food processor to quickly grind up any items selected from Lists A and B, apples from List C, and mushrooms from List D. Manually dice all other items; they would turn to mush in a food processor. Dice items so that they all are about the same size as Turtle Brittle balls.

1. Re-hydrate 1 tablespoon of dry Turtle Brittle (a fish/meat/grain-based chow available on-line at www.enasco.com) in just under 2 teaspoons of water. Do NOT serve dry chow. The water content of moistened chow is important to your turtle's water balance.
2. Add 1/2 tablespoon of an item from List A very finely diced.
3. Add 1/2 tablespoon of dark leafy greens from List B very finely diced. (Most box turtles are not fond of greens but will eat them when mixed in with foods they like.)
4. Add 1/2 tablespoon of a fruit from List C finely diced.
5. Every few meals, add 1/2 tablespoon of fully rehydrated or fresh WILD mushrooms (List D) very finely diced. Purchase those sold for human consumption; Trader Joe's sells dehydrated bags of wild mushrooms very inexpensively. Most turtles will not eat button mushrooms, or their mature counterpart, the Portabella mushroom.
6. Hand mix all of the above ingredients together very well so the animal is less likely to focus on a single food item.
7. Optional: Once a month, add a sprinkle of crumbled, cool hard-boiled egg on top of the meal. Include both yolk and egg white in the crumble.

List A	List B	List C	List D	List E
<ul style="list-style-type: none"> • acorn squash¹ • butternut squash¹ • carrots¹ • legumes² • pumpkin¹ • red/orange bell peppers² • sweet potatoes¹ • zucchini 	<ul style="list-style-type: none"> • amaranth • clover leaves and blossoms • dandelions (all parts) • endive • escarole • red leaf lettuce • romaine • spring mix 	<ul style="list-style-type: none"> • apples • apricots • bananas² • cantaloupe • figs • grapes • mango² • Opuntia pad (no spines) • oranges • papayas • peaches • pears • tomatoes • watermelon² 	<ul style="list-style-type: none"> • mushrooms (rehydrated or fresh edible wild mushrooms; not button or Portabella mushrooms) 	<ul style="list-style-type: none"> • blackberries • blueberries • elderberries • gooseberries • raspberries • strawberries

¹ Microwave on high for 90-120 seconds (or until tender) and cool to room temperature before dicing or processing in a blender.

² Serve 1/2 tsp instead of 1/2 tbsp, and serve no more than a couple of times a month; serve another item from the same list at the same meal.

- Top with 1-2 berries from List E.
- Alternate very lightly dusting meals with a multiple vitamin supplement (I use Reptivite by ZooMed) and a phosphorus-free calcium supplement. For indoor turtles, use a calcium supplement with Vitamin D3. (I use Repti Calcium With D3 by ZooMed.) For outdoor turtles, use a calcium supplement without Vitamin D3 added, such as ZooMed's Repti Calcium Without D3. You can also add a cuttlebone (with the hard backside removed) to the turtle pen to give your animals access to calcium. Cuttlebones are a good source of calcium and help to wear down the beak. However, in my experience, most turtles completely ignore them.
- To reduce the chances of suddenly dumping too much supplement on a meal, try tapping it onto the meal through a fine mesh tea strainer, or use a new pepper shaker.

The lists of foods for Meal A are far from complete but represent a reasonable variety of commonly available foodstuff that is palatable and nutritious. Try to vary which items are used from each list. (For ideas on additional items, consult *The Tortoise and Turtle Feeding Manual*, Highfield, A.C, 2000, Carapace Press, London. It can be ordered online at www.tortoisetrust.org.) Be sure that any field-collected foodstuff has not been exposed to harmful chemicals. Wash all items as you would for human consumption, and do not feed wilted foods. They lack moisture that may be essential in helping a turtle maintain its water balance. I recommend avoiding corn (box turtles like it but it is poorly digested) and cruciferous vegetables (contain goitrogens), or at least serve them in tiny amounts infrequently. I would also avoid all commercial cat and dog foods. Most are too high in fat. Also, according to Dr. Susan Donoghue, “most cat foods are formulated to produce acid urine in cats. Acidic urine increases the excretion of calcium in urine. Thus, juvenile reptiles fed cat foods risk calcium deficiency.” Dr. Donoghue further states that, “Anecdotal reports also suggest that box turtles (*Terrapene carolinensis*) fed commercial pet [cat and dog] foods for long periods (years) suffer shell deformities and soft tissue calcification.” (“*Nutrition*,” In Mader, D. (ed.) *Reptile Medicine and Surgery*, 2nd Ed. Saunders Elsevier, St. Louis, 2006, pp. 251-298.)

I would not rely on any currently available commercial turtle chow to meet all the nutritional requirements of your turtle, even if it is marked as being complete. Rocksolidherpetoculture.com previously sold a diet called American Box and Wood Turtle, which was highly palatable, all natural, and met all nutritional requirements of these animals. I used it both privately and professionally for years. Unfortunately, the company is currently not taking orders although the website is still up and well worth visiting for the informative material it provides on chelonian nutrition.

Meal B (serve as every third meal)

Feed any combination of the following (up to about half a dozen items): pesticide-free slugs, terrestrial snails, earthworms, and various insects, such as June bugs, house or field crickets, grasshoppers, preying mantids (remove the spiked forelegs), katydids, and sowbugs (woodlice). Eastern tent caterpillars (*Mallacosoma americanus*) should be avoided as their safety is uncertain. Occasionally, it is okay to offer a dozen or so mealworms (*Tenebrio molitor*) or a half-dozen supermealworms (*Zophobas morio*).



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Box turtles should be given high quality animal protein as part of a balanced diet.

All invertebrate food items, except for earthworms, should be *lightly* dusted with a high-quality calcium supplement, such as those described above, just before serving. Offer the insects by forceps, or incapacitate them so they can't move far after placing them in front of the turtle. Dusted items quickly lose their dust once they begin moving around. They also lose their gut content and its potential nutritional benefits if not eaten within a few hours of release.

No more than once a month, it is okay to offer a prekilled pinkie mouse or rat pup. It is best if the rodent has been frozen in a freezer bag (to prevent desiccation) for at least 72 hours to kill parasites and then thawed and in tepid water before being fed out. Never use a microwave to thaw rodents. It can result in dangerously high internal temperatures. Rodents frozen more than 3 months or with freezer burn should be discarded.

How often should I feed?

I feed healthy box turtles in good weight every other day regardless of age. Underweight rescues are fed daily. I recommend feeding all meals on a flat rock, slate tile, plastic butter tub lid, or the like to prevent the animal from possibly ingesting substrate with the meal. Hatchlings can be fed using plastic pill bottle lids as small dishes. Use dishes with low sides so that turtles can easily eat their meal without climbing into the dish and dragging debris with them. Each animal should have its own food dish separated from other turtles to avoid problems with food aggression and intimidation. (In my experience, such aggression can be particularly pronounced and lead to serious injuries in very young turtles.)

Dealing with Fussybutts

Let's assume you have a good basic setup for your animal (i.e., appropriate housing, social grouping, and for indoor animals, appropriate climate, lighting, and diurnal light cycle). Still, you have a finicky eater on your hands. What do you do? Start by looking to nature. During the summer, wild box turtles are most active in the late morning and after it rains. So try misting the enclosure just before feeding, and offer meals in the late morning after your animal has had time to warm up but before the day becomes too hot. Box turtles are loners in the wild and at best only mildly social in captivity. Shy turtles may respond best if fed underneath foliage where they feel secure, hidden away from other turtles and people. Keep activity in the area to a minimum while your animal is feeding.

Box turtles are naturally attracted to moving prey, and it is the rare turtle that turns down animal protein in favor of vegetable matter. (I have met a few of these exceptions over the years!) Difficult turtles can sometimes be encouraged to eat by adding cut up, wiggly earthworms or mealworms to their diet or a bit of fragrant, cooked skinless chicken, plain salmon filet (juice included), or sardines *packed in water*. (King Oscar brand makes a waterpacked version with no salt added.) Keep in mind that the salmon and sardines are just ways of possibly jump starting your turtle's appetite when all else fails and are not meant for use as regular dietary items. They are too high in sodium, especially the sardines. I have added very small amounts of these items to an otherwise normal meal with great success and have never needed to do it more than a couple of times to jump start a finicky but healthy turtle.

Some fussy eaters also respond well to the addition of very ripe cantaloupe, tomatoes, or bananas to their diet or an extra helping of berries. Work towards expanding the turtle's diet as soon as possible and cutting out bananas except as an infrequent treat. Don't worry if your turtle doesn't eat every meal or picks at it sometimes. As long as your turtle is healthy and in good weight and has ready access to fresh water to stay properly hydrated, it can easily skip a meal here and there.

When boxing is a problem ...

On the other end of the spectrum from the fussy eater is the box turtle that will eat anything put in front of it. While it may be tempting to feed a “good eater” extra large meals, be careful about allowing your turtle to take in so many calories that it becomes obese and can no longer close up its shell. Not only will your tubby turtle be more vulnerable outdoors if it cannot box up, but the animal will likely suffer internally from other health problems commonly associated with obesity.