

# Painted Turtle

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## Natural History

Painted turtles (*Chrysemys picta*) are the most widespread turtles in North America, native from southern Canada down to northern Mexico. They are semi-aquatic, living in slow moving waters and hauling out onto logs and rocks during the day to bask. They seem to prefer aquatic habitats with muddy bottoms and vegetation. There are 4 subspecies of painted turtle; eastern (*C. p. picta*), midland (*C. p. marginata*), southern (*C. p. dorsalis*), and western (*C. p. bellini*). Southern are the smallest of the subspecies and westerns are the largest. These subspecies can be distinguished by differences in patterns on their carapace (upper shell) and plastron (lower shell). Painted turtles are considered “Least Concern” by the IUCN.

## Characteristics and Behavior

Painted turtles are readily available in captivity, so captive bred specimens are preferred over wild caught. These turtles are fairly hardy and quite beautiful, making them popular pets. Some keepers report that they recognize their owners and may interact with them. However, like all chelonians, painted turtles have specific care requirements and are long lived, making them challenging for the beginner keeper. Painted turtles are better suited for intermediate or more experienced keepers. Water quality maintenance can be very daunting to the new keeper. It should be noted that in the US, sales of turtles with shells <4” are banned.

## Lifespan

25+ years, >50 reported

## Adult Size

6-8 inches is average, but up to 10-12 has been reported. Westerns and females tend to be larger.

## Housing

There are a few rules of thumb when looking at tank sizes for aquatic/semi-aquatic turtles. One guideline is 10gal per every inch of shell size. That means a 10 inch turtle would need a 100gal aquarium. Another rule is 6” of aquarium floor space per every inch of shell size. With this guideline, a 10 inch turtle would need 60” of floor space.

Whichever guideline is used should be looked at as a minimum. Bigger is better! Turtles produce large amounts of waste, making smaller tanks a risk for ammonia build up. They are also fairly active animals that like having space to swim around. When weather appropriate, outdoor housing in large tubs or ponds are excellent options. Painted turtle habitats should be furnished with plants (live or fake) to help them feel more secure. Rocks and other decor can also be added. For substrate, bare bottom tanks are preferred. If substrate is used, large gravel or pebbles not large enough to swallow can be used. Canister filters are recommended for painted turtles.

Haul out areas are also needed for semi aquatic turtles. These are above water platforms where turtles can bask. This can be floating logs or platforms, large rocks or cinder blocks, or premade docks. Basking areas should be positioned under heat and UV lamps. The platform needs to be kept above the waterline so the turtle can fully pull itself out of the water.

Like other semi aquatic/aquatic animals, turtles need to have their tank cycled before they are added to the enclosure. To understand cycling, one needs to understand the nitrogen cycle. Decaying food, plant matter, waste, or organisms release ammonia in the water, which is extremely toxic to aquatic animals. The way to counteract this is to build up the "good" bacteria. Nitrifying bacteria convert ammonia to nitrites, then nitrites to nitrates, which are much less toxic than ammonia or nitrites. Nitrates are then kept at a reasonable level with water changes +/- live plants. Cycling needs to be done before the animal is added to ensure water parameters are safe for the animal. A 20-30% water change with dechlorinated water should be done weekly. The filter should never be scrubbed clean, as nitrifying bacteria live here as well. To clean out the filter, tank water can be run through to wash out any debris. Canister filters work well for aquatic turtles. Other maintenance should be done based on brand recommendations.

Cycling: The tank should be completely set up prior to adding the animal, then dechlorinated water can be added (dechlorinators can be purchased at pet stores or online). The filter should be turned on, and live nitrifying bacteria should be added. Ammonia should then be added every day until an ammonia test kit reads 0 ammonia, 0 nitrite, and some nitrates. There are multiple sources of nitrifying bacteria and ammonia. Substrate can be added from an already cycled tank, or fish food, raw fish, or 100% ammonia. Both ammonia and nitrifying bacteria can be purchased from most pet stores or online. Cycling can take weeks to months. Improper cycling is the cause of disease called "new tank syndrome", where toxic compounds build up in the tank and cause disease. Cycling is also the reason that full water changes should never be done. If all of the water is removed, all of the "good" bacteria are removed as well.

pH: This is a measure of how acidic or basic the water is. 7.0 is neutral; lower is acidic, higher is basic. 7.4-7.8 is the optimal range for turtles.

Nitrate: This is the end product of the nitrogen cycle. Nitrates should be <80.

KH: This is the carbonate hardness or alkalinity, which measures the water's ability to neutralize an acid. The name carbonate hardness comes from carbonate and bicarbonate, which are the primary components of alkalinity. This is important for stabilizing pH and providing energy for nitrifying bacteria. The KH for turtles should be ~80ppm.

GH: This is the general hardness, which measures hard minerals in water (i.e. calcium and magnesium). Turtles need a GH of 180-200ppm.

Salinity: This is the salt level in the water. Ideally, salinity should be 0.4-0.5%.

Ammonia and nitrites should be 0. Weekly-biweekly water tests should be done to ensure your turtle's water parameters are within acceptable limits. Water testing kits can be bought at most pet stores or online.

## Lighting

Like all chelonians, painted turtles require UVB light to synthesize vitamin D3 in their skin. Vitamin D3 is needed for proper metabolism of calcium and prevention of metabolic bone disease. The ReptiSun T5 5.0 HO, Arcadia T5 12% Desert, or Arcadia T5 6% Forest are all acceptable choices, depending on where you set up your turtle's basking spot. Arcadia provides a guide as to where to place your UVB fixture in relation to your chelonian's basking spot. It is important to note that UVB cannot penetrate glass, so natural sunlight through a window will not be sufficient for a chelonian to synthesize vitamin D3. Allowing safe outdoor time is also an excellent source of UVB and visible light.

Sunlight is made of ultraviolet, near infrared (IR), mid IR, far IR, and visible light. It is our job as keepers to provide full spectrum lighting, which means as close to sunlight as possible. Unfortunately there is not one source for all of these components, so we must provide multiple types of lighting. For visible light, LED or halide bulbs should be provided.

UVB is NOT optional for chelonians. Lack of proper UVB can lead to impaired skeletal, muscle, and immune function. Replace UVB bulbs every 6 months, as they can continue to give off light even when not producing UVB. Lights should be turned off at night to maintain normal day/night cycles. For this reason, red or black nightlights should not be used as they can disrupt normal day/night cycles.

Arcadia UVB guide: <https://www.arcadiareptile.com/lighting/guide/>

## Heat

Unlike mammals, reptiles cannot internally regulate their temperature and rely on their environment to heat and cool themselves. Therefore, it is important that we provide captive reptiles with a temperature gradient so they can warm up or cool down as needed. Basking temperatures can be measured with a digital infrared thermometer.

Painted turtles need a basking spot of 90-95F and water temperatures maintained at 75-80F. All light emitting sources should be turned off at night. Sunlight is made of UV, near IR, mid IR, far IR, and visible light. Flood tungsten-halogen bulbs are the most efficient at producing near IR, which is the most abundant IR in sunlight, and they also produce significant mid IR and some far IR. Far IR is the least abundant in sunlight, but is most often produced in large amounts by sources like ceramic heat emitters, heat pads, and radiant heat panels. Tungsten-halogen bulbs should be the flood type to ensure a wide enough basking site. These heat producing bulbs can be found as reptile specific bulbs or at hardware stores. Avoid hot rocks as these can easily burn reptiles.

## Feeding

Painted turtles are omnivores, with juveniles eating a higher portion of animal protein than adults. Wild turtles eat aquatic vegetation, stems, leaves, fish, insects, snails, worms, and other small aquatic animals. In captivity, variety is key to preventing nutritional deficiency and providing enrichment. It is unlikely that most owners would obtain a hatchling (shell length <4"), but these young turtles would need to be fed animal protein daily with small amounts of plant matter offered. Juveniles (~4-6") should be fed animal protein every other day and plant matter daily. Adults (>6") should be fed every 2-3 days. The composition of an adult's diet should be 50-60% plant matter, and remaining equal portions of commercial turtle pellets and animal protein. As dietary deficiencies are very common in captive turtles, providing nutritionally balanced commercial pellets to turtles of all ages is important for maintaining calcium and vitamin A levels. A cuttlebone can also be provided for added calcium and beak maintenance.

Animal protein: Earthworms, insects, snails, bloodworms, freeze-dried shrimp or krill, and feeder fish (not goldfish). Occasional lean ground beef or pinky mice can be offered.

Leafy greens: Dandelion greens, turnip greens, spring mix, escarole, bok choy, mustard greens, radicchio, endive, carrot greens, collard greens, radish greens, alfalfa (plant, not sprouts), cabbage, romaine lettuce. Spinach should be fed in moderation as it contains oxalates, which can disrupt calcium absorption. It is a common mistake to feed only lettuce, or only one type of green. Be sure to provide a variety for your turtle. Water hyacinth, water lettuce, watercress, and duckweed are all options for turtles as well.

Veggies and herbs: Carrots, squash, sweet potatoes, broccoli, asparagus, basil, bell pepper, cucumber, zucchini, rosemary, celery, cilantro, okra. Avoid garlic, onion, rhubarb.

Fruit and other: Blueberries, mango, raspberries, grapes, pomegranate, grapes, melon, strawberries, apples without seeds, blackberries. Flowers like hibiscus, dandelions, and rose petals can also be offered. Avoid avocado.

## Sexing

Males have very long nails and longer, thicker tails. A female's cloaca is located closer to the shell than a male's.

## Zoonosis

Like other reptiles, painted turtles can carry *Salmonella*. Always wash your hands after handling reptiles or items from their enclosure.

## Health

Painted turtles may be prone to malnutrition (especially vitamin A deficiency), shell rot, nutritional-secondary hyperparathyroidism (metabolic bone disease), reproductive problems, water quality issues, and aural (ear) abscesses. Your turtle should be examined by your veterinarian every 6-12 months.

Sources and Further Reading:

- <http://www.exoticpetvet.com/painted-turtle-care.html>
- <https://www.reptilesmagazine.com/painted-turtle-care-sheet/>
- <https://lafeber.com/vet/wp-content/uploads/Aquatic-turtle-handout-color-copy.pdf>
- <http://www.chelonia.org/Articles/chrysemyscare.htm>

- <https://srelherp.uga.edu/turtles/chrpic.htm>
- <https://www.portlandoregon.gov/bes/article/273016>
- Facebook: Advancing Herpetological Husbandry
- *The Arcadia Guide to Reptile and Amphibian Nutrition*
- *Mader's Reptile and Amphibian Medicine and Surgery*