

The Spotted Turtles

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By Edward Kowalski

The spotted turtle (*Clemmys guttata*) is a small, beautiful and semiaquatic emydid turtle found from southern Maine to northern Florida along the Atlantic coastal plain. Its small size and attractive coloration have made it a desirable pet, resulting in massive harvesting for the pet trade.

Famed herpetologist Raymond Ditmars once listed spotted turtles occurring in numbers sufficient to flatten grass tussocks by basking. The days of such abundance are gone due in part to unconscionable harvesting practices. I once saw a collector bring in more than 400 spotted turtles to a pet store in Pennsylvania for shipment to Europe and Japan.

The spotted turtle in many areas is protected from collection due to the extirpation of large numbers of colonies by habitat loss and overcollection. In areas where spotted turtles have been heavily collected, turtles are likely to hide at the slightest disturbance. In some areas this wariness is so extreme that turtles may drop from basking sites if cars on nearby roadways even slow down.

Before you attempt to own spotted turtles, check your state and local laws. I also recommend purchasing captive-bred spotted turtles to alleviate pressure on wild colonies.

Natural History

Spotted turtles have a distinctly patterned shell. Neonates typically have one spot per scute. More spots often accumulate as they grow, and the adults may have more than 100 spots. However, this is not always the case, and it is not unusual to see an adult with an entirely black shell. The adult carapace length typically measures 3 to 4 inches and slightly more than an inch for hatchlings.

Spotted turtles live in quiet, shallow and unpolluted freshwater areas. Some examples of ideal spotted turtle habitat are old flooded cranberry bogs, sphagnum bogs, drainage or irrigation canals, swampy meadows and cypress swamps. Some spotted turtles migrate between different microhabitats for additional food sources. Wild spotted turtles are primarily observed in the spring, and activity peaks between March and May and declines during June. Spotted turtles may aestivate during the hot months of summer with another brief activity period prior to hibernation in the fall.

Captive Care

Spotted turtles are well-suited to captivity. They do well in a 20-gallon-long aquarium, but larger tank sizes (e.g., a 33-gallon long) are even better. The aquarium should contain between 3 to 6 inches of water with a suitable land area. Divide the tank fifty-fifty into equal parts land and water. Provide a basking site by securing a heat lamp or a ceramic heater above a portion of the land area.

The basking site temperature should be between 82 to 86 degrees Fahrenheit. Bulb wattage and the height of the spot lamp may need to be adjusted depending on the tank system. Keep the water temperature between 75 and 85 degrees; do not let it exceed 88 degrees, as this may trigger aestivation. Use a submersible aquarium heater to maintain the water temperature.

Spotted turtle enclosures can be set up in a number of ways, ranging from large aqua-terrariums to small, temporary holding aquariums. With temporary holding tanks the land area may be provided with pieces of cork or driftwood.

Water quality is important for a turtle's health. Because this enclosure lacks filtration, more frequent water changes are needed.

Spotted turtles require clean water for optimum health. Long-term maintenance of aquatic and semiaquatic turtles in poor water quality can predispose them to fungal and bacterial shell infections. Maintain water quality through a combination of water changes and filtration. Filtration may be accomplished by using a variety of submersible filters or various canister filters.

Be sure to use the intake tube strainers provided by the filter manufacturer. Using these will prevent turtles' heads or legs

from being trapped, which can result in drownings. How often you need to clean the filters depends on the manufacturer's specifications, the number of turtles maintained and how often you feed them. A good way to cut down on the number of filter changes (and to keep the overall enclosure cleaner) is by feeding the turtles in a separate container. When turtles are done feeding, dispose of the water into a toilet or slop sink.

Never clean turtle tanks and equipment where human food preparation occurs; aquatic and semiaquatic turtles may carry zoonotic strains of *Salmonella*. Salmonellosis is a bacterial disease of the digestive tract that can cause severe sickness and possibly death in humans (especially immune-suppressed people, such as young children and sick or elderly people). Always wash your hands thoroughly after working with any turtles, turtle enclosures and equipment.

If filtration is unavailable, total water changes may be necessary every few days. The temperature of the water being added should closely match the enclosure's existing water temperature. Water that is too cold may cause spotted to become lethargic enough to drown; water that is too warm may scald them.

There are many options for housing your spotted turtles. These baby spotted are being kept in a simple temporary holding tank.

Lighting

Full-spectrum lighting is required for the proper stimulation of breeding, growth and feeding. Full-spectrum lighting simulates natural sunlight. Natural sunlight passing through window glass or aquarium glass lacks the necessary UV wavelengths due to the glass filtering out the UV. Never place a tank where it receives direct sunlight anyway, as it may rapidly overheat and kill the occupants.

Neonates may require additional supplementation of UVB for proper bone growth. Full-spectrum lights should be mounted between 8 to 12 inches above the turtles' basking site. The lights should be on between 10 and 12 hours a day.

Food

Spotted turtles feed on a variety of foods, including commercial turtle foods, trout chow, pink mice, prekilled adult mice, live or frozen fish, earthworms and crickets. Neonates frequently will not take commercial foods and initially may only eat small crickets, red worms or chopped earthworms. Sometimes neonates can be encouraged to feed on commercial foods by keeping another similarly sized, less-finicky turtle in their enclosure with them; they may eat after watching the other turtle eat.

Offer spotted as much food as they can consume in 15 to 20 minutes. Feed adults every other day or every third day. Neonates should be fed several small meals a day. Female spotted turtles seem to breed better and produce more eggs if they have more animal protein in their diets. I've had excellent success when pink mice, adult mice and trout chow were added to my females' diets.

Reproduction

Spotted turtles are relatively easy to breed in captivity. Males possess a concave plastron; a larger, longer tail with the cloaca closer to the tip of the tail; and the chin region is black with little or no orange, yellow, white or red coloration. Female spotted turtles have a smaller tail, a flat or slightly convex plastron and a brightly colored chin. In captivity spotted turtles may reach sexual maturity in as little as 47 months, while wild spotted turtles may require as much as eight to nine years for females to become sexually active.

Spotted turtles can be kept in pairs or in a group of one male and several females. However, due to the male's persistent mating attempts, you should provide several hiding spots to which females can escape. Breeding occurs from March through the early weeks of May in the wild and in specimens housed outside year-round. Specimens kept indoors attempt to breed year-round, but successful copulations generally occur between March and July.

Males kept with females should be closely observed as some males will pursue females to the point where females refuse to eat or even accidentally end up drowning. Separating the sexes when feeding may alleviate this problem, or keeping the male separate and only introducing him for breeding is another solution.

Breeding females should always have access to a nesting site. A nesting site is necessary to prevent egg deposition in the water, or egg retention in females due to a lack of suitable laying sites. Females lay three to five eggs and occasionally up to eight. Provide a plastic shoebox filled with several centimeters of moist sand or fine cypress mulch for a nesting site. Check the shoebox every several days for eggs.

Incubation

Eggs can be incubated in a commercial incubator or in a plastic shoebox. If using a commercial incubator, follow the

manufacturer's directions. With a plastic shoebox fill the container about halfway with vermiculite that has been moistened with water. Use a 1-1 ratio by weight (e.g., 100 grams of vermiculite to 100 grams of water). Punch several small holes in the lid of the shoebox to allow for air exchange.

Spotted turtles require a haul-out spot with a basking light. Breeding females need a nesting area as well.

Carefully excavate eggs from the nest area and transfer them to the incubation chamber, taking care to keep eggs in the same orientation as they were laid. Gently drawing an X on the top of the egg with a soft lead pencil can aid in keeping eggs oriented correctly. Bury them about halfway into the vermiculite to allow for occasional observation. Incubate at 75 to 85 degrees. Hatching normally occurs between 55 and 90 days. Monitor humidity levels; you don't want the eggs or the container to dry out. If humidity levels drop, gently mist the interior of the incubation chamber.

Is Hibernation Necessary?

In my experience, captive spotted turtles do not need to hibernate for health reasons or to induce breeding. If you decide to hibernate your turtles, stop feeding them two to three weeks prior to hibernation. Then place them in a container filled to within several centimeters of the top with moistened sphagnum moss and peat moss. Add water so that it barely covers the surface of the substrate. Some of the substrate should be mounded slightly to allow the turtles to climb out of the water if desired.

After turtles are placed in this hibernaculum, cover the container loosely to prevent them from escaping and to keep light from entering. Then, to acclimate the turtles to hibernation, place the hibernaculum where temperatures will slowly decrease over about two weeks. During the eight- to 12-week hibernation period, the temperature should remain at 45 to 55 degrees. Check the turtles' weight and condition on a weekly basis. If there is significant weight loss (as compared to the animal's prehibernation weight) or any sign of a bacterial or fungal infection, remove the turtles from hibernation and seek veterinary aid. If the hibernaculum's temperature rises above 55 degrees for more than two or three days, you'll need to end hibernation.

Wild animals often die during hibernation. If you have any doubt as to the suitability of a spotted turtle for hibernation, do not hibernate it.

Once you remove the turtles from hibernation, provide a gradual warming period of several days to a week before feeding them. After the warming period, offer small meals daily for several days. Then you can resume the original feeding schedule.

Conclusion

Spotted turtles have increased in popularity over the last few years, as they are small, easily kept and attractive turtles. These positive attributes have created a larger demand for this species, putting them at risk of overcollection while habitat destruction reduces the number of areas where spotted turtles can still be found. These traits that make spotted turtles desirable as pets also make them excellent candidates for captive-breeding programs, which over time will reduce the demand for wild-caught turtles.

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