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ARTICLE REPRINT

Wading Safely Over Deep Water: Creating A Pond for North American Box Turtles

By Sandy Barnett, MATTS President

It is common for folks who keep box turtles outdoors to make little pools for the turtles to use for drinking, soaking, and eliminating wastes. Often, these pools are made out of plastic plant saucers, shallow bowls, birdbaths, and plastic paint roller pans. There are several major drawbacks to these types of water basins. Since the volume of water is small and unfiltered, the water pollutes quickly and must be changed frequently, often several times a day. Also, such small bodies of water change temperature quickly, and may get too warm to be optimal for box tur-



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Box turtles wade safely in a shallow, 40-gallon pool at the author's house

gles on hot days, especially if the water is exposed to direct sunlight.

A small, in-ground pond (the smallest preformed models usually hold 30-40 gallons) offers greater temperature stability, and if properly filtered, considerably better water quality than dishes and pans. However, a pond can be dangerous for box turtles. Although these animals can swim, they tire easily and may drown if they cannot find footing and hold their head above water after a brief "go around" in the water. Also, in my experience, box turtles do not swim well in a current, such as might be created by a waterfall cascading into a pond.

The pond system described below solves the problems of temperature spikes and water quality while providing a safe environment for box turtles. It has a large water volume, but a false floor that prevents the animals from wading into water more than 2 inches deep. I have such a system in an outdoor pen that houses five adult box turtles. I drain the pond down every fall and refill it with water in the spring. Once filled, I only need to top off the water to compensate for evaporation every few days.

Creating a Box Turtle-Friendly Pond

1. Start with a preformed high-density polyethylene pond. (They can be purchased from home supply centers and garden shops. Mine is a 40-gallon "peanut pond." by Maccourt Products, purchased at Lowe's.)
2. Sink the pond in the ground with the rim resting just above the surface of the substrate, and line the perimeter of the pond with smooth, flat rocks (e.g., tumbled granite) to reduce the amount of debris that the turtles drag into the water. The rock edging should be level with the rim wherever you want turtles to enter the pond.

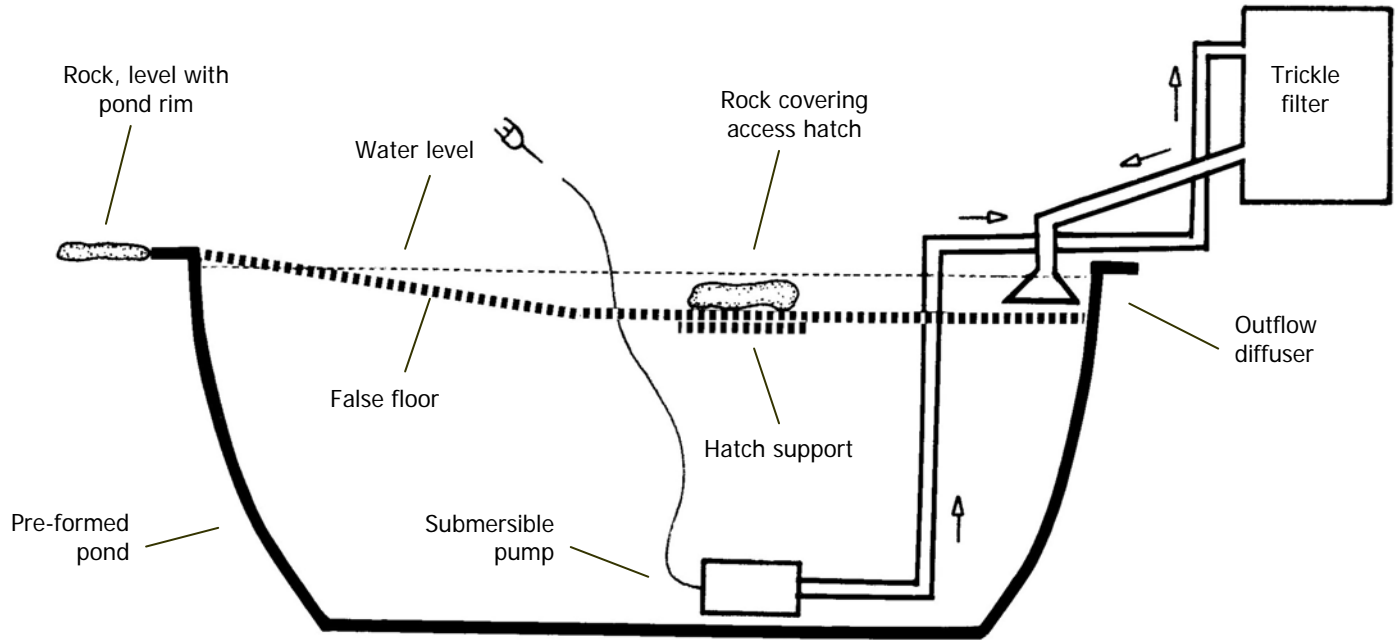
3. Make a false floor from egg crate screen (sold in 2 x 4-foot sheets as diffuser panels for ceiling lights and for use as drop ceilings). White egg crate screening is easy to find, but black is more attractive. (One source is www.lifereef.com.)
4. Cover the egg crate with 1/8-inch mesh heavy-duty plastic screening (Product XV-1672, Inter-Net Inc., Minneapolis, MN 1-800-328-8456). Attach the mesh to the egg crate with small black plastic electrical ties. (Secure the fasteners on the underside of the egg crate to keep the topside free of protruding ends.)
5. Cut the floor in two sections, which you will later hinge together with black plastic electrical ties.) One section serves as an entry/exit ramp. It is installed flush with the rim at one end of the pond and slopes gently downward (no more than a 35° angle) to about 2 inches below the rim of the pond. (Installation tip: Hold the section level with the rim, then use wire cutters to snip away the edges as you slope the section downwards.) At the end of the ramp, the other section continues parallel to, and 2 inches below, the rim. When you are done, you will have a ramp leading to a flat section that is 2 inches underwater.
6. Cut out two holes along the edge of the level floor section to accommodate the outflow hose and electrical line from the submersible pump.
7. Cut out a rectangular hatch in the level floor section to allow access to the submersible pump. Make the hatch opening large enough for a hand holding the pump to comfortably reach through it, plus an extra 1/2 inch on each side. To prevent the hatch door from falling through the false floor, take plastic electrical ties and attach a piece of egg crate screen to the underside of the false floor. This support piece has an opening 1/2 inch smaller on each side than the hatch opening. (When the hatch is in place, you can cover it with a smooth rock that is too heavy for the turtles to move. Alternatively, you can secure the hatch with reusable electrical ties)
8. Loosely hinge the two floor sections together with black plastic ties. Wedge the entire unit in place in the pond. Seal the perimeter with black rubber silicone caulk so there are no gaps where a turtle might get its leg caught. Where the electrical line for the pump exits the false floor, cover the hole with a piece of plastic screen held in place with several small electrical ties.

The water in the pond is kept sparkling clean with the use of a submersible pump combined with a gravity-fed trickle filter. My pump (Eheim 1046, Eheim GmbH & Co. KG, Deizisau, Germany) has a small foam filter that must be sprayed clean with a hose every few weeks. The trickle filter (Tetra Pond Clearchoice PF 2, Tetra Sales, Blacksburg VA) requires no maintenance while in service each year. In the late fall, I drain the filter. In the early spring after the last freeze, I refill the pond and start the filter operating. By the time the turtles are regularly using the pond, the filter is well seeded with aerobic bacteria and the system functions well. I occasionally skim the surface of the water with a net or my hand to remove plant debris that falls in.

I recommend that the return pipe/hose from the trickle filter enter the pond in such a way as to minimize splashing and strong currents. In my experience, box turtles avoid both. I use a diffuser on the delivery pipe that enters the pond just beneath the surface of the water.

To best insure that the temperature of the pond water is comfortable for box turtles, include plants around the perimeter that overhang the water and partially shade it from the sun. The turtles will appreciate the privacy too!





Schematic cross-section of a preformed, in-ground pond modified to make it box turtle safe. It has a false floor (made of egg crate screen overlaid with plastic screen) that is flush with the rim at the access end of the pond, and gently sloped to fall 2 inches below the rim at the "deep" end. A removable section of the false floor allows access to a submersible pump which moves the water to a trickle filter located above the level of the pond. The return pipe gravity feeds the water back into the pond. A diffuser on the end of the return pipe dampens any current. The pond maintains excellent water quality and temperature stability due to its large volume of water and large capacity trickle filter.