

A PUBLICATION OF THE TURTLE SURVIVAL ALLIANCE

Turtle Survival

2013



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ABOUT THE COVER: This year's cover photo for Turtle Survival is largely symbolic, combining images of the new Turtle Survival Center (TSC) in South Carolina with an Asian box turtle (*Cuora*), one of the primary targeted species groups. *Cuora* are emblematic of the reason why the TSA must develop such a Center, and represent the most threatened group of turtles in the world: 12 of the 13 recognized species are ranked Critically Endangered by the IUCN Red List. Worse, some of the species are already extinct in the wild, or biologically extinct, meaning that the populations are too small to be viable, consisting mainly of scattered, aging adults. Sadly, the number of turtle species "slipping through the cracks" and edging closer to extinction is growing, victims of chronic and uncontrolled poaching pressures. For these species, the TSC is being developed. When fully operational, the Center will provide a secure future to at least twenty species that have little chance for survival in nature, having essentially become refugees in their native lands. PHOTO CREDIT: CRIS HAGEN



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One of the two breeding ponds is now holding water, thanks to the artificial liners. Note the 4-inch PVC vertical pond drain which can be swung manually to adjust pond levels to the desired depth. Cohune thatch palm leaves have been placed around the perimeter of the ponds to mitigate any erosion that might take place during the coming rainy season and until natural vegetation takes hold. PHOTO CREDIT: WILLIAM GARCIA

Local Belize Businesses Step Up To Support Hicatee Conservation

JACOB MARLIN

The Central American River Turtle (*Dermatemys mawii*) is a large river dwelling species historically found in the coastal lowlands of southern Mexico, northern Guatemala and Belize. Known locally as the Hicatee, it has been intensely harvested for its meat and eliminated from much of its former range in southern Mexico. Its status in Guatemala remains unclear.

The lone surviving representative of the family Dermatemydidae, *D. mawii* is a unique

evolutionary lineage. Classified as Critically Endangered by the IUCN Red List, it was ranked 15th in the 2011 Turtle Conservation Coalition report *Turtles in Trouble: The World's 25 Most Endangered Turtles and Freshwater Turtles*.

Urgent conservation measures are needed to restore depleted wild populations. Captive management has been recommended, but Hicatee have proven difficult to reproduce due to their secretive nesting habits and because eggs undergo

embryonic diapause and delayed development.

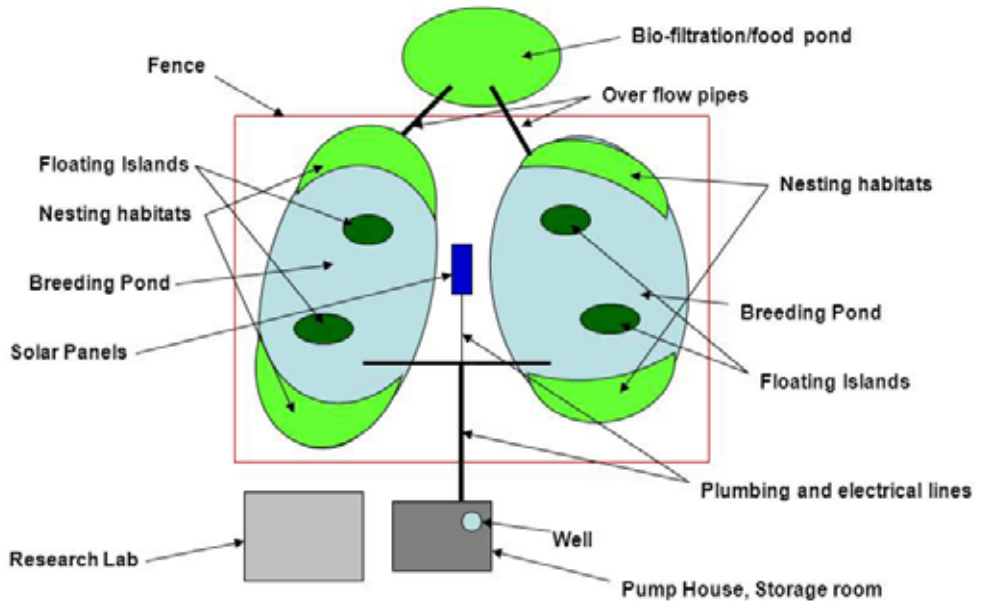
To save the species, these reproductive challenges must be met in a controlled setting and through a local initiative. With that goal in mind, the Turtle Survival Alliance partnered more than two years ago with the Belize Foundation for Research and Environmental Education (BFREE), a biological field station in southern Belize. In 2011, the partnership began building the Hicatee Conservation and Research Center (HCRC). Initial work focused on constructing clay-lined ponds fed by a freshwater well and a solar powered pumping system. Breeding ponds were designed to permit manipulation of environmental variables to help determine egg-laying cues.

The project utilized heavy machinery, wheelbarrows and sweat equity to move large amounts of clay onsite. The clay lining process often takes time to seal and stabilize. Unfortunately, a year and a half after installation, the ponds still leaked and failed to hold sufficient water, stalling the HCRC effort.



One of the breeding ponds just after liner installation and before being filled with water. Note the uprights of the perimeter fencing under construction in the back.
PHOTO CREDIT: JACOB MARLIN

Hicatee Conservation and Research Center at BFREE



The layout of the HCRC includes two breeding ponds, one biofiltration/food rearing pond, solar panels, pumphouse, and a perimeter fence. DIAGRAM BY: JACOB MARLIN

In March 2013 as the dry season began, TSA and BFREE agreed that the clay pond lining was not viable and that artificial pond liners were the solution. The effort to procure, transport and install these liners was conducted with some urgency: the work had to be complete before the rainy season began. From mid-May to February, a time when 140 inches of rain can fall, the six-mile-long dirt HCRC access road that fords the Bladen River is mostly impassable, making movement of supplies and equipment impossible.

With only a two-month dry weather window still available in 2013, BFREE staff set to work. Jacob Marlin sought out heavy-duty liners. U.S. purchasing and shipping proved cost-prohibitive, so staff searched for in-country options. BFREE cacao farm manager Elmer Tzalam recommended Belize Aquaculture Limited (BAL), a local shrimp farm, as a possible source.

BAL representatives were enthusiastic about helping with the project. “BAL believes in sustainable and responsible shrimp farming, and we are devoted to positively impacting our surrounding social and natural environment,” said Isabelle Gayot, BAL’s Environmental and Human Resources Manager. “We are proud to contribute to Belize natural resource preservation and to assist the Hicatee Conservation and

Research Center.”

BAL quickly identified a shrimp pond where plastic liners weren’t necessary. They put a crew to work removing the liners and repurposing them for the HCRC ponds. BAL also volunteered staff and tools to do the installation. However, they didn’t have a transport vehicle. Maya King Ltd., one of the largest agricultural businesses in Belize and a long-time BFREE friend, stepped forward with a truck.

Two BAL workmen arrived at BFREE with installation equipment and tools, including a hot air welding gun to join the pieces of plastic liner. The installation took just five days and five staff—three from BFREE and two from BAL.

Liner installation preparation included removal of the Morelet’s Crocodile (*Crocodylus moreletii*), four Bocatora Turtles (*Trachemys scripta*), and two Furrowed Wood Turtles (*Rhinoclemys areolata*), from the ponds. These reptiles were moved to other parts of the field station.

The existing ponds were drained and bulldozed deeper and wider by staff from Thomas Gomez and Sons Sawmill—another local BFREE supporter. BFREE staff led by Marcelino Pop smoothed the pond bottoms and dug pond drains with hand tools. Staff also installed a ten-foot-tall fence to keep natural predators—such as jaguars

and ocelots—out, and turtles in.

With the arrival of this year’s rainy season work continued, including completion of the electrified perimeter fence, and the building of artificial nesting areas and small floating islands to provide shade for thermal regulation.

Early in 2014 when the rainy season subsides, stock will be acquired, likely making the HCRC fully operational by summer. This will allow the facility to study the Hicatee under semi-natural conditions, hopefully unlocking the reproductive mysteries that have prevented past captive production.

Ultimately, the Hicatee’s survival depends on local cooperation. The tremendous outpouring of local support in 2013 in the creation of the HCRC ponds bodes well for this critically endangered river turtle.

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