

TURTLE SURVIVAL

AUGUST 2011

A PUBLICATION OF THE TURTLE SURVIVAL ALLIANCE



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ABOUT THE COVER: Described in 1906 from China's southern Yunnan Province, the Yunnan Box Turtle (*Cuora yunnanensis*) essentially vanished and had not been seen since the 1940's, despite intensive field searches. Known from only 12 museum specimens collected over a century ago, this species remained an enigma for decades. In 2000, the IUCN Red List officially listed the species as 'Extinct in the Wild'. But a glimmer of hope appeared in 2004, when photos of a female were posted on an Internet forum requesting assistance with identification. A few months later, an adult male appeared in the southern Chinese pet trade. A Chinese turtle breeder acquired both specimens and was able to produce hatchlings in 2006 as well as in subsequent years. Since then, other wild specimens have trickled into the market and commanded incredibly high prices. In 2008, Professor Rao Dingqi and his colleagues finally discovered the habitat for the species which will be formally reported to science at an appropriate time. There is great concern that the remaining wild animals could be illegally removed for the pet trade and the pressures on this unprotected wild population are expected to be intense. With a few animals from this population and some rescued from the markets and local village homes, an officially sanctioned assurance colony was established at a secure location in Kunming, under the oversight of Professor Rao, where this photo was taken. Captive reproduction in this colony first occurred in 2010. Now recognized by the IUCN Red List as 'Critically Endangered', *C. yunnanensis* has been given a "second chance" for survival. But with the only known remnant wild population in an unprotected area, this situation is still considered a crisis and there is an urgent need for additional support. Captive assurance colonies are critical at this juncture. The TSA, in collaboration with Kadoorie Farm and Botanic Garden in Hong Kong, is providing husbandry assistance and technical support to Professor Rao Dingqi and his capable staff to help ensure success for this important program.

BELIZE

Close-up of an adult female *Dermatemys* captured on the Rio Grande in southern Belize during the 2011 *Dermatemys* Survey and Monitoring Workshop. PHOTO CREDIT: THOMAS RAINWATER

Forging Partnerships in Belize to Protect the Hicatee: A Team Building Approach to Conservation

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The Central American River Turtle (*Dermatemys mawii*) was historically found in the coastal lowlands of southern Mexico, northern Guatemala and Belize. Due to years of intense harvesting for its meat, *Dermatemys* has been virtually eliminated from much of its former range in southern Mexico, while its status in Guatemala remains unclear. In 2010, the Turtle Survival Alliance (TSA) conducted a country-wide survey in Belize to assess the current conservation status of *Dermatemys* in what is believed to be its last stronghold. Results of the survey indicated that *Dermatemys* (locally known as “hicatee”) is

heavily depleted in most of Belize, but healthy populations remain in a few remote areas. This trend was similar to that observed in previous *Dermatemys* surveys in Belize during the 1980s and 1990s, but the current findings were of particular concern because the number of localities where turtles were observed and the number of turtles observed at those localities were both much reduced compared to the earlier investigations. In addition, we learned that large turtles (reproductive adults) continue to be targeted during harvests, significantly reducing the most demographically important segment of the

population. Further, interviews with fisherman and hunters indicated that laws and regulations enacted for the protection of *Dermatemys* in Belize are largely ignored by locals, as broad-scale enforcement is difficult to impossible to achieve.

Despite this gloomy outlook, however, there is good news to report. The 2010 *Dermatemys* surveys generated much interest and support from the Belizean government (Belize Fisheries Department, Belize Forestry Department), as well as several Belizean non-governmental organizations (NGOs), individual conservationists, scientists, students, guides, and general citizens. This momentum resulted in a TSA-sponsored Hicatee Conservation Forum and Workshop held at the University of Belize in December 2010, during which a National Hicatee Conservation and Monitoring Network (NHCMN) was formed. The NHCMN quickly sprung into action with *Dermatemys* conservation initiatives on multiple fronts and established three primary focal areas for *Dermatemys* conservation in Belize: education and outreach, legislation and enforcement, and science.

In March 2011, as part of NHCMN efforts in the focal area on science, the TSA, in collaboration with the University of Belize’s Environmental Research Institute (ERI) and Lamanai Field Research Center, sponsored two Hicatee Survey and Monitoring Workshops in Belize. The primary purpose of these workshops was to teach Belizean NHCMN members standardized methods for surveying and monitoring *Dermatemys* throughout the country so the species’ status can be examined on a broader scale and a more consistent basis.

The first workshop was conducted on the Rio Grande in southern Belize, near the town of Punta Gorda. A diverse and enthusiastic group of attendants representing several key groups in Belize participated in this workshop, including the Belize Fisheries Department, the Belize Foundation for Research and Environmental Education (BFREE), the Community Baboon Sanctuary (CBS), ERI/University of Belize, the Toledo Institute for Development and Environment (TIDE), and Ya’axché Conservation Trust (YCT). For two and a half days, trainees learned netting and spotlight survey techniques, as well as methods of determining gender, collecting morphometric measurements, and marking captured turtles before release. Importantly, the trainees also learned how to record data on standardized data sheets so that information from surveys conducted around the country can be stored in a central database and compared.

During the workshop, several *Dermatemys* were captured, examined, and released, and others were encountered during surveys. It was telling that the only people in the group that had ever actually seen a live *Dermatemys* prior to the workshop were three of us that had conducted surveys in 2010 and an older gentleman with the Fisheries Department that was once a *Dermatemys* hunter in his younger days. Everyone was elated to finally see the turtle up-close that they are working so hard to protect.

The second workshop was conducted in northern Belize on the New River Lagoon and associated tributaries. Like the southern workshop, the northern workshop was attended by an outstanding and diverse group of participants, including representatives from the Belize Audubon Society, the Belize Fisheries Department, the Belize Forestry Department, BFREE, and Lamanai Field Research Center. Over the ensuing two and a half days, trainees learned net and spotlight survey techniques, as well as the methods for processing captured turtles and recording data on standardized data sheets. Similar to the southern workshop, none of the trainees in the north had ever seen a live *Dermatemys* before. Thus, the entire group was quite excited and inspired when we landed the first turtle of the workshop, an adult female. During the course of the training, the group engaged in numerous in-depth conversations regarding *Dermatemys* status and exploitation in Belize. Trainees from different backgrounds and representing different groups exchanged information on the threats to *Dermatemys* in Belize and provided ideas on how to address these threats. Conversations like these underscored the critical knowledge that Belizeans have regarding the realities (including politics) of *Dermatemys* conservation in their country and the importance of a united effort by different stakeholder groups to effectively address *Dermatemys* declines. Indeed, perhaps the most valuable component of both training workshops was bringing these groups together in the field, allowing them to see wild *Dermatemys* up-close, and providing a forum for discussion and networking.

In parallel with our efforts to improve monitoring of natural *Dermatemys* populations, the TSA has advanced the concept of developing a captive program that could meet several long-term goals including building an assurance colony and providing headstarted turtles for restoring depleted wild populations. Unfortunately, we believe that Hicatee populations will



Participants of the 2011 *Dermatemys* Survey and Monitoring Workshop in northern Belize with two female “hicatee” that have just been examined and are ready for release. Similar to the workshop conducted days earlier in southern Belize, this was the first time most trainees had ever seen a live *Dermatemys*. Like the Rio Grande in southern Belize, the New River Lagoon and its tributaries in northern Belize provide critical habitat for *Dermatemys*, but increasing human presence in these areas has led to escalating pressure on *Dermatemys* populations, primarily through commercial exploitation. Thomas Rainwater (front left) served as primary instructor for the field courses.



Tom Pop, who supervised the breeding facility construction, stands with the solar panels that will power the well pump. PHOTO CREDIT: JACOB MARLIN

continue to decline across their range and in ten years may only exist as isolated populations in remote areas. Eating Hicatee is too culturally ingrained to simply go away. Restoration efforts will be needed and potential for recovery could likely depend on head-starting and release or translocations, and this effort will need to be done to scale. Small breeding efforts will not be sufficient. We contend that we should develop the basic captive techniques now and begin to lay the foundation for what may be inevitable.

However, given the rather dismal history that *Dermatemys* has experienced in captivity, we recognize the need to better understand the reproductive biology of this species under artificial conditions. In response to this the TSA launched a partnership with the BFREE, a non-profit with 18 years of experience conducting conservation work in Belize. The goal of this collaboration is to build the Hicatee Con-

servation Research Center (HCRC) at BFREE where we can address some basic questions about *Dermatemys* in captivity (for example, when and where they lay their eggs), and to test the feasibility of large-scale captive management. After a number of site visits by Rick Hudson and consultants Dave Manser (Ponds and Plants) and Rob Crook (Floating Islands Southeast), plans for the facility were well underway by the beginning of the year. With start-up funds provided by the Batchelor Foundation, construction of the HCRC began in February 2011. The site is located on two acres of tropical broadleaf rainforest within the 1,153 acre BFREE private reserve in southern Belize, and is under the direction of Jacob Marlin. BFREE staff member Thomas Pop, a local Mayan and field assistant to Thomas Rainwater during the 2010 surveys, was hired to assist with the construction of the facilities. BFREE

resident biologist Dan Dourson oversaw the digging of the ponds by a local contractor.

Since breaking ground in February, three large ponds have been installed: two breeding ponds, 100' x 80' and 120' x 60', and one bio-filtration/food pond, 50' x 40'. A freshwater well has been dug and reinforced, a pump house has been constructed over the well, and a solar system has been installed to power the submersible solar water pump. Fresh water is pumped automatically into the ponds when the sun rises each day and turns off at dusk. Overflow from the breeding ponds flows into the bio-filtration pond where semi-aquatic food plants will be grown. Currently, the ponds are being kept full and are being allowed to settle and find equilibrium. When finished, the HCRC will house close to 50 adult breeding *Dermatemys* and all of their food plants will be raised on site. To protect turtles from natural predators living in the area (jaguars, pumas, ocelots, coatimundis, etc.), a ten-foot chain-link electrified fence will encircle the ponds. TSA and BFREE hope to procure the breeding stock from the illegal meat trade, either directly from hunters or confiscated turtles, in Belize in early 2012. Completion of the HCRC is planned for December 2011, and we hope the facility will be fully operational by March 2012. The HCRC is expected to become an important part of the BFREE biological research and educational field station facilities. Currently, BFREE is accepting interns to assist with this innovative and exciting program. Interested individuals should contact Jacob Marlin at bfree@hughes.net or Heather Lowe at hlowe@turtlesurvival.org.

Conservation efforts on behalf of *Dermatemys* are occurring on multiple fronts, by a range of Belizean environmental NGOs, and in concert with the Belize Fisheries Department and the University of Belize. These local organizations are joined by TSA, and work collaboratively under the umbrella of the NHCMN. The group's first attempt to mount an awareness campaign aimed at *Dermatemys* hunters and consumers, and targeting area festivals where *Dermatemys* meat is openly served, was met with resistance, and often hostility. It is obvious that eating *Dermatemys* meat is a deeply and culturally engrained practice that will not go away easily, and recent government actions confirm that the political will simply does not exist to more strenuously enforce *Dermatemys* hunting regulations. Old habits die hard and if we are to be successful over time we must be patient and work to engage stakeholder groups.



One of the two large *Dermatemys* breeding ponds beginning to fill at the Hicatee Conservation Research Center at BFREE; both will be 9 – 10 feet deep, providing cool water so the turtles can avoid overheating.



Participants of the 2011 *Dermatemys* Survey and Monitoring Workshop in northern Belize use calipers to carefully measure the shell depth of a female "hicatee." For each turtle captured, gender, body weight, and multiple shell measurements were recorded prior to release. (Left to right: Derick Hendy, Neri Bol).

PHOTO CREDIT:
THOMAS RAINWATER

We are seeking support to conduct a series of community meetings to better understand what the consumer/hunter groups are willing to accept in terms of regulation and enforcement. We believe that engaging this group as a partner, rather than as an adversary, will likely be more productive than legislating without their involvement. We recognize, at least for the near future, that we will have to accept the limited harvesting of *Dermatemys*, especially in the months leading up to Easter holiday celebrations. It is difficult to determine if this level of hunting is having a significant negative impact on wild populations, but we do know that commercial hunting does have an adverse impact, and local *Dermatemys* population extinctions have been documented following observed large scale harvests. In other words, a local family consuming several *Dermatemys* a year may be a sustainable practice, but harvesting

truckloads of *Dermatemys* to supply a festival is not. It is this latter level of harvest that we must confront, and fortunately the law is clear in its regulation of such activity.

We believe the answer lies in increased enforcement activity, particularly during the five months leading up to the Easter harvest and associated festivals when *Dermatemys* consumption peaks. However, patrolling rivers is expensive and the agency charged with *Dermatemys* protection, Belize Fisheries Department, lacks the personnel and transportation to conduct regular excursions. The local environmental NGOs (TIDE, SATIIM, YCT, Belize Audubon Society) also have constabulary status and can patrol and monitor illegal hunting activity; however, they are limited by a lack of funding for fuel and other expenses. In order to provide economic incentives for these authorities to increase their patrol activities,

the TSA established a fund, managed through the University of Belize, to cover the costs associated with additional patrols. The TSA is also seeking funding to hire and outfit a Hicatee Protection Officer that would work under the Belize Fisheries Department, and whose sole responsibility would be to patrol well-known *Dermatemys* collecting sites to monitor turtle hunting.

Since the TSA first became involved with *Dermatemys* conservation in Belize, our stated goal has been that we want to be catalytic and help move *Dermatemys* to the conservation forefront. We believe that we can develop a captive technology, in partnership with BFREE that can be passed on, not only within Belize but to Mexico and Guatemala as well. Good conservation work is already occurring with *Dermatemys* in Guatemala under the Wildlife Conservation Society (WCS) Program, and it is important that we link these programs to foster better communications and exchange of ideas and techniques.

In the near future we hope this will lead to the development and implementation of a regional *Dermatemys* Conservation Action Plan that is shared between the three range countries. Saving representative *Dermatemys* populations across their range will be extremely challenging and require a multi-faceted approach. Increased enforcement and protective legislation will be necessary, and this will test the political will of the three countries. We must improve monitoring capacity through training and outfitting field teams and our public message must be clearly articulated through a targeted and consistent media awareness campaign involving radio, billboards, print and television. We must be willing to engage hunters and user groups and try to provide them with alternatives. Most importantly, we must identify and vigorously protect robust natural source populations that can be used to “re-seed” depleted populations through natural (migration) or artificial (translocation) means.

ACKNOWLEDGMENTS

We thank Dr. Elma Kay and Julissa Bardalez of the Environmental Research Institute/University of Belize for crucial organizational assistance during both training workshops. We also thank the Toledo Institute for Development and Environment (TIDE), Ya'axché Conservation Trust (YCT), the Belize Fisheries Department, and Lamanai Field Research Center for generously providing logistical support and accommodations during the training workshops. For their time and efforts on behalf of the work at BFREE we wish to acknowledge Gomez and Sons, Dale Gomez, Dan Dourson, Dave Manser, Rob Crook, Thomas Pop, Marcelino Pop, Saturnino Teul, and volunteers from Emory and Henry College. For financial support for 2011 we extend our sincere gratitude to the Batchelor Foundation, the Mohamed bin Zayed Species Conservation Fund, the New Mexico Bio Park in Albuquerque, Steve Ecrement and Mariamar Gutierrez.

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Ya'axché Conservation Trust Launches Hicatee Awareness Campaign in Belize

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Following Dr. Rainwater's confirmation that a cohesive and sustained national effort is required to ensure that *Dermatemys* does not suffer declines like neighboring Mexico and Guatemala, a national awareness-raising campaign was one of the primary conservation needs identified. That campaign would alert Belizeans that *Dermatemys* is at risk of extinction unless significant actions are taken. Ya'axché Conservation Trust (YCT) secured funding from the Mohamed bin Zayed Species Conservation Fund to undertake this campaign using diverse media sources to reach the target groups, primarily those who are involved in the hunting and consumption of *Dermatemys*.

Belize is a small country with an even smaller population. Given these characteristics, Ya'axché was able to reach the vast majority of the identified target group employing innovative media sources, even with a relatively low budget. Sponsorship of, and presence at, major events and festivals, with support from Belizean students, provided direct contact with the public. A poem, written in creole about the cultural and intrinsic value of *Dermatemys*, was created, recorded and broadcast repeatedly on the national radio station, Love FM, by a national celebrity. Two TV commercials that featured a song and dance by talented Belizean students were sponsored by the national news and broadcast throughout the peak season for *Dermatemys* consumption (March through May). The campaign was supported by billboard promotions using strategic points alongside Belize's busiest cities and highways to reach tens of thousands of residents. Ya'axché was also able to use its private sector contacts to get the message out on the back of phone bills, reaching an estimated 35,000 households.



A pair of adult Hicatee - the male (front) is recognizable by the yellow head. Photo credit: Robert Flanagan

It is essential that this awareness campaign is sustained over the next few years, in order for the message to get through to all those who want future generations to see *Dermatemys*. Ya'axché is currently seeking funding to ensure this (www.yaaxche.org). We wish to thank Joel Friesch and the International Reptile Conservation Foundation (IRCF) for the Hicatee artwork featured in this campaign.

