

**Ecological and Distribution Assessment of Hicatee in Southern Belize Project  
Report (02151213)**



Report prepared by: Hicatee Research and Education Group

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# Ecological and Distribution Assessment of Hicatee (*Dermatemys mawii*) in Belize

## Summary



Hicatee Research and Education Group

The Hicatee (*Dermatemys mawii*; Central American River Turtle) is a critically endangered freshwater turtle endemic to the Yucatan peninsula. This turtle is also data deficient with major threats of over hunting and habitat loss. In June 2013, the Hicatee Research and Education Group (HRE) was awarded financial support by the Conservation Leadership Program (CLP) for the Future Conservationist project entitled “Ecological and Distribution Assessment of Hicatee in Southern Belize.”

This was a one-year project implemented in the Rio

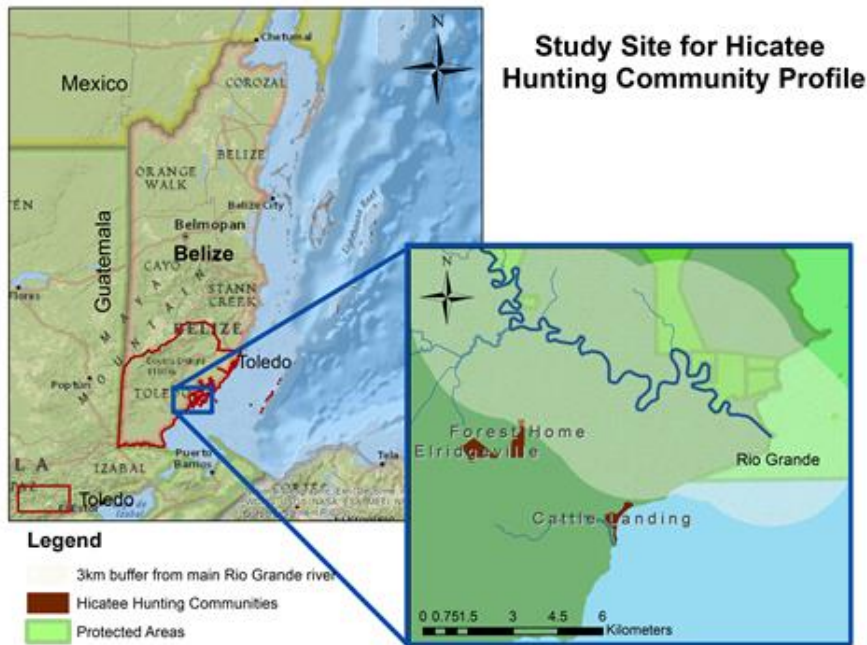
Grande watershed, Southern Belize. During this project, 60 Hicatee hunters were surveyed to examine the level of knowledge they had regarding the Hicatee and hunting locations. Data was collected on 11 Hicatee, and four of these were tracked using radio telemetry. Additionally, education and awareness campaigns were conducted in the communities of Elridge, Forest Home, and Cattle Landing, with the use of a Hicatee Mascot and printed educational materials targeting schools, community meetings and other public functions. An important achievement of this project was the networking among partner organizations in the research and awareness of the critically endangered Hicatee.



Close-up of a male Hicatee

## Background

The Hicatee is a critically endangered freshwater turtle in the Yucatan Peninsula. This turtle is threatened by overhunting and habitat loss. In 2012 a group of young Belizeans formed the HRE Group and decided to take action in order to increase awareness about this species. The HRE Group focused efforts in southern Belize to document the level of awareness in hunting communities, assess the Hicatee population in Rio Grande, and thereafter promote the conservation of Hicatee in hunting communities. This was achieved with the completion of the following activities:



## Objective 1: Document and disseminate knowledge of Hicatee within the local community

### Outputs

- Three meetings with 80 community leaders were carried out before and during the project to ensure communities were aware and involved in the project. Quarterly project updates were made to community leaders to inform stakeholders of the progress of the project.
- A total of 60 Hicatee hunters interviews were completed (20 per community) to document knowledge of Hicatee and hunting.
- A Hicatee Hunters survey report was produced to document the community knowledge and information including: profile of hunters, Hicatee reproduction, capture, availability, and Hicatee regulations in Belize.
- Hicatee information was disseminated to 1500 primary school children, 100 secondary school students and 300 university students.
- A project Facebook page was created to share information with the public, which resulted in 129 likes from page visitors.



**Top left:** Primary school students receive Hicatee education **Top Right:** Hicatee Hunters on Rio Grande **Bottom Left:** HRE-Group member interviewed 60 hunters in three communities **Bottom Right:** students receive education material during Earth Day celebrations.

**Objective 2: Strengthen collaborative relationships between key relevant stakeholder organizations linked with the management, awareness and decision making of Hicatee.**

**Outputs**

- 15 meetings with stakeholder organizations carried out, including the Toledo Institute for Development and Environment (TIDE), Ya'axché Conservation Trust, and the Belize Fisheries Department.
- Collaborated with University of Belize, Punta Gorda and Belmopan campuses, to implement events including: Earth Day, a primary school variety show, and "La Ruta Maya" Canoe Race using the 'Hubert the Hicatee' mascot.
- Hicatee education materials received from Ya'axché Conservation Trust, updated, and printed.
- Three banners, 200 pamphlets, 100 t-shirts, 24 Polo shirts, and 20 posters designed, printed, and distributed to community members and organizations to increase awareness on the endangered status of the Hicatee.
- Three quarterly updates given to all relevant organizations.

- A short Hicatee story with the title “A Hicatee for Valentine’s” was written and shared on the Flora and Fauna International (FFI) and Toledo Institute for Development and Environment (TIDE) website to share information with the international community.
- Participated in Love FM national radio show to showcase the activities of the project.
- Shared project updates and gained from lessons learned with other Hicatee researchers including Rony Garcia (WCS, Guatemala) and Dustin Smith (Zoo Miami).



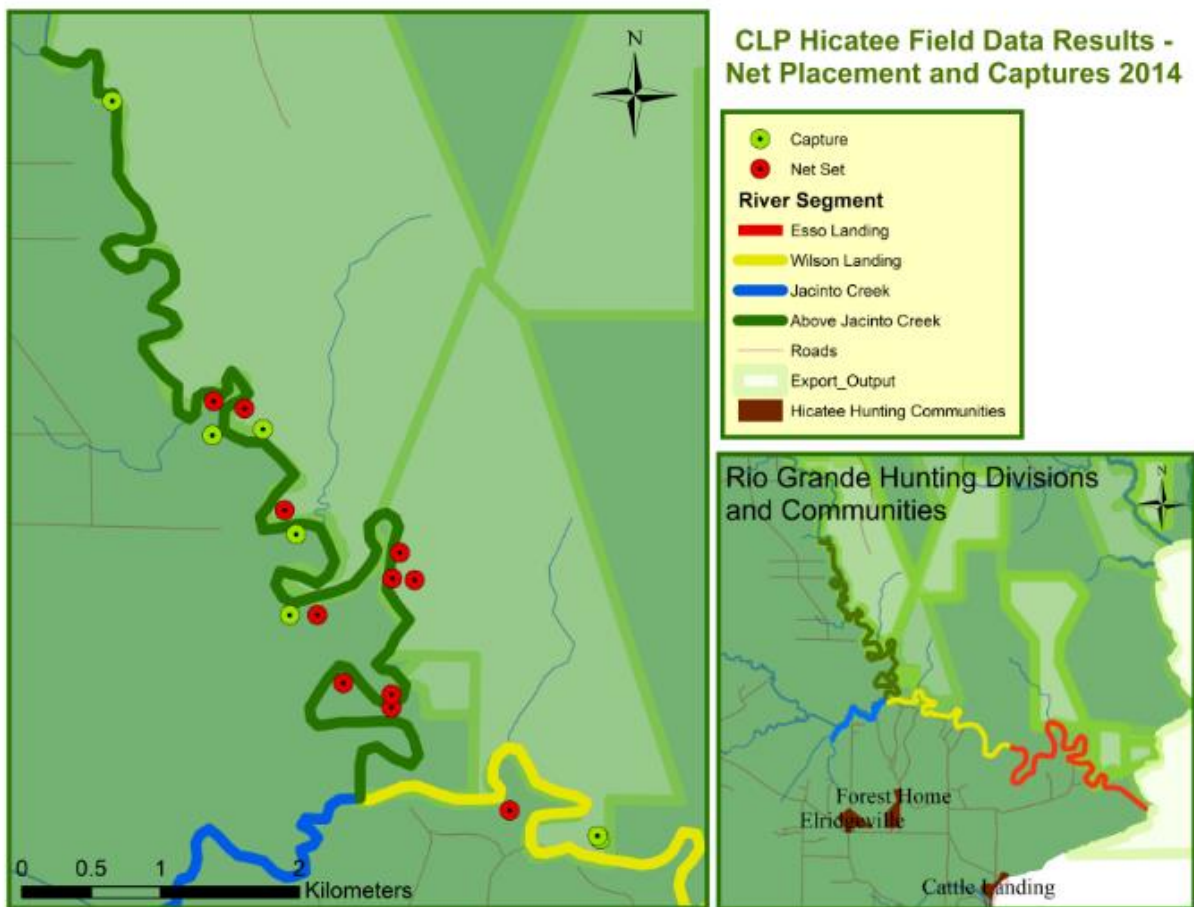
**Top left:** Education and awareness at University of Belize. **Top Right:** Hubert the Hicatee shared information on the endangered status of his population. **Bottom Left:** HRE-Group Leader communicated the need to protect the Hicatee to tens of thousands of Belizeans via the popular “Belize Watch” show. **Bottom Right:** Students received Hicatee t-shirts after participating in a Hicatee quiz.

**Objective 3: Conduct scientific research (baseline data) on the population status, density, distribution, and habitat requirements of Hicatee in the Rio Grande Watershed**

**Outputs**

- The HRE Group team members attended three trainings to build skills needed to execute the project effectively. These skills include: (a) turtle monitoring training and handling (b) GIS mapping techniques to prepare turtle range maps and (c) report writing.
- Ten field trips completed (420 man hours), taking into account the information gathered from hunting communities during the hunter’s survey.

- Radio telemetry units were attached to four Hicatee including three females and one male, and individuals were tracked. Results showed that turtles made minimal movements from their respective sites of capture (suggesting high site fidelity).
- 11 Hicatee were captured within the Rio Grande and the relevant morphometric parameters (carapace length, plastron length, shell width, body weight) were collected.
- Data collected from turtle monitoring was analysed, and a map of habitat range was created.
- A research paper on Hicatee Hunters from three communities in Southern Belize and a field report on Hicatee in the lower Rio Grande was produced.





**Top:** 11 Hicatee were captured, marked, and released **Bottom Left:** 4 of the 11 Hicatee captured were fitted with radio transmitters with the assistance of TIDE field staff. **Bottom Right:** turtles were tracked using radio telemetry.

**Objective 4: Distribute scientifically sound information (including population status, density, distribution, and habitat requirements) on the endangered Hicatee in Southern Belize to stakeholders (including decision makers and regulators).**

### **Outputs**

- Project findings were communicated to policy-making organizations including the National Hicatee Conservation Network, which also includes the members of the Belize Fisheries Department, one of the policy-making agencies in Belize.
- Quarterly project updates were given to partner organizations.
- A Hicatee database was created and made available to the Environmental Research Institute (ERI).
- 200 Hicatee activity books, 200 stickers, and 200 temporary tattoos donated by Zoo Miami were distributed in the communities.
- Two project videos were released via Facebook and Love FM (national news station).
- Data obtained during this work contributed to the preparation of revised draft Hicatee regulation for Belize.



Top Left: Team members attended meeting with WCS, Guatemala to discuss collaboration.  
Top Right: HRE-Group attending a bi-national exchange to share lessons learned. Bottom  
Left: Workshop on the future of Hicatee conservation initiatives in Belize. Bottom Right:  
Community leaders were active in environmental awareness campaign.

## Achievements and Impacts

One of the major achievements of this project was the increase in awareness of the endangered status of the Hicatee in Belize.

- Education and outreach materials which included pamphlets, t-shirts, tattoos, activity books, a project documentary, and a short field video were distributed and well-received by the communities. During meetings, community members realized that they are important partners on the conservation of this species.
- Three hunting communities participated in the project by sharing their knowledge about Hicatee during the hunter survey, and attending sessions when education materials were disseminated during public meetings. One community member stated that Hicatee can disappear within our lifetime, as this turtle has a slow reproductive rate similar to humans. This was encouraging as it indicated that some community members understand the basic biology of the species, and the important role of local people in conservation.
- An estimated audience of 1,000 individuals including community members, primary level and university students (locally and nationally) were reached.
- Critical collaborations were established with other Hicatee researchers in the region (e.g., WCS Guatemala, Zoo Miami) to share research data and lessons learned.



- HRE Group participation in the Belize National Hicatee Conservation Network facilitated the development and national dissemination of Hicatee educational and awareness materials

### **Problems encountered and potential solutions**

During the data collection phase of the Hicatee Hunters Survey, some of the interviewees were difficult to locate as they were at work; however, this was overcome by visiting at strategic times and scheduling interviews after work hours, and on weekends.

Production of education materials, specifically the posters, was delayed due to technical problems encountered by the designers. This was overcome by requesting a project extension to enable the production of these materials.

- **Please detail any problems that the project has encountered or deviations from original project plans. Describe how these problems were addressed and what solutions were found to deal with these issues (for example with project management or administration).**

*Limited Project Time Line* - The timeframe to implement both research and education outreach activities proved to be limited. Due to the set timeframe, team members had several activities to complete simultaneously. To keep up with the schedule, team members had a meeting and leadership tasks were divided among team members. This allowed for a coordinated effort to complete the project activities.

Team members were employed full-time, and were in different locations over the district. It was challenging to schedule meetings and activities due to work schedules. However, the group was able to overcome this by scheduling project meetings and activities ahead of time, and during weekends.

- **Please state important lessons which have been learnt through the course of the project so far.**

One of the major lessons learnt through the course of the project was that the time given to complete the project was too brief. Research over a longer time period would yield more information about the Hicatee population in Rio Grande. A suitable timeframe, considering all the activities to be completed, would have been 18 months. This would allow for data to be collected during the dry and wet season, and would allow the team to determine if there is a temporal variation in Hicatee movement patterns during a given year.

Guidance provided by the CLP management team and quick response to questions and concerns allowed for the project to be implemented according to schedule.

## Appendices

### Field Work Methodology

#### Trammel Netting

Twine trammel nets, which were 50 meters long by 2 meters wide with a mesh size of 8 x 8 centimetres, were used to capture Hicatee. To maximize capture probability, trammel nets were placed in areas where Hicatee had previously been observed.

#### Habitat Use Patterns

To identify spatial habitat-use patterns of Hicatee, a VHF Telemetry System was used. A VHF transmitter was attached to the carapace of each of four turtles using waterproof epoxy glue.

The project video and pictures were uploaded onto our Facebook Page. The link to the video can be found [here](#).

A Hicatee Jingle, composed by Ms Giani Martinez to the tune of “Frère Jacques”, was sung during school presentations and public events by Hubert the Hicatee.

*I am a Little Hicatee*

*I am a little Hicatee*

*Come help me*

*Come help me*

*Save my friends and family*

*Save my friends and family*

*Come help me*

*Come help me*

Project Article was written by Stuart Paterson and Posted on the Flora and Fauna International website.

### **Unique sighting in Belize of the Critically Endangered hicatee, also known as the Central American river turtle.**

We all know the fairytale about the Princess and the Frog. Well here’s a story to warm the hearts of even the most cold-blooded reader.



This Valentine's Day (14 February) a team of young Belizean conservationists came across the Critically Endangered hicatee, otherwise known as the Central American river turtle (*Dermatemys mawii*).

For many of the team, this was the first time that they had seen this rare turtle – and it was the first time that one had been encountered in the Rio Grande.

Having captured the turtle in a trammel net, the team set about fixing a radio telemetry tag to its carapace in order to track it over the coming months.

“This is an important find and we expect to learn a lot of new information about the turtle's behaviour, home range and feeding grounds,” said team leader Elmar Requena. “Having this information, we will be able to share the research results with communities, non-governmental organisations and government departments so that everyone can come together to protect the hicatee in Belize.”

The team fixed a radio telemetry tag to the hicatee in order to track it over the coming months.  
Credit: Marty Alvarez

During the capture of this first turtle, team member Marty Alvarez said, “I have not seen a Hicatee in my life and now I got a Hicatee for Valentine's Day!”

To complete this romantic tale, the team decide to name the tagged Hicatee 'Huberta', and she will be paired with 'Hubert the Hicatee' which is the mascot being used to raise awareness about the project in Belize.

The Hicatee is the only species in the *Dermatemyidae* family. Spending almost its entire life in the water, it is vulnerable to water pollution but its main threats are from habitat destruction and hunting. These freshwater turtles have a brown, grey or olive shell. Females have an olive head and males have a bright yellow head. They survive in Belize, Honduras and Guatemala, and have almost been hunted to extinction in Mexico.

This project is funded by the [Conservation Leadership Programme](#) in Collaboration with the Toledo Institute for Development and Environment (TIDE), the Ya'axché Conservation Trust and the Belize Fisheries Department.

Written by



**Stuart Paterson**