

Hicatee Awareness Month PowerPoint Presentation Slide Notes

Slide 1: Introductory Slide

- ✓ This presentation has the goal of increasing our understanding about the critically endangered Hicatee turtle and is designed to highlight the ongoing initiatives in place, to help curb the continued decline of this remarkable species.

Slide 2: Presentation objectives

- ✓ This presentation has seven main goals. Firstly, it highlights the turtle species in Belize. It then provides background information on the Hicatee turtle. Next, it discusses the geographic distribution of *D. mawii*. This leads to descriptions of the species and its habitat. The presentation then addresses the reasons for the species' decline, and finally, it covers ongoing conservation efforts to prevent further decline of the Hicatee.

Slide 3: List of turtles in Belize

Slide 4: Background History of Hicatee

- ✓ The Central American River turtle, (*Dermatemys mawii*) also known locally as Hicatee and Tortuga Blanca (Mexico, Guatemala) is listed as Critically endangered on the IUCN red list and is one of the 25 most endangered turtles in the world. (The cream to white plastron has earned *D. mawii* the name Tortuga Blanca in Mexico and Guatemala)
- ✓ The present range of *D. mawii* is limited to southern México, eastern Guatemala, and throughout most of Belize with the major exception of the Maya Mountain Massif.
- ✓ Northern Belize appears to host populations with the highest densities.
- ✓ This turtle is completely herbivorous and they consume P.Grass (*Paspalum paniculatum*), a semi-aquatic grass growing in mats over the water to upland areas, research has shown that this grass comprise the bulk of adult and juvenile diets in some populations. They also consume emerged, floating, and submerged aquatic plants, as well as leaves, flowers, and fruits falling into the water from riparian trees and shrubs.
- ✓ *D. mawii* are nocturnal and are rarely observed at the water's surface during the day, as adults are lying on the bottom of large river pools, lagoons and slow-flowing reaches, often beneath sand, leaf deposits and sunken logs. Juveniles can be found hiding beneath drift line detritus and vegetation along the edge of the water (Vogt et al. 2011).

Slide 5: Hicatee Species Description

- ✓ **Hatchlings-** Hatchlings have orange snouts that gradually turn yellow in about two years. The carapace has a base color of greenish yellow to olive brown and is covered with flecks.
- ✓ **Adult Male-** When mature, the top of the male turtle's head is usually yellow to yellow orange, which enhances in coloration during breeding season.
- ✓ **Adult female-** typically lack bright colored heads but is characterized by having a brown olive head

Slide 6: Diet

The *D.mawii* lives on a vegetative diet and a component of its diet includes riparian vegetation such as P.grass (*Paspalum paniculatum*), Fig leaves and fruit (*Ficus insipida*), *Inga marginata* (local name unknown). The Hicatee has Serrated labial ridges and tooth-like ridges on the maxilla alveolar surfaces which aid in tearing leaves (Vogt et al. 2011)

Slide 7: Hicatee feet topography

Hicatees have webbed toes with long claws and large scales along the foot margins. This makes them not as agile on land, however these adaptations make them fully equipped for a life underwater.

Slide 8: Tail-length Comparison

The tails of male turtles are long and muscular, reaching past carapace, and have been recorded to be prehensile, while female turtles have a significantly shorter tail.

Slide 9: Shell comparison

Typical Carapace Length (The entire length of the top part of the shell starting from the region closest to the head) from adult turtles measured in the field varies from 330 to 450 millimeters (mm). The females tend to have a larger mass than the males. The carapace length for the males is recorded to be around 340mm while the females Carapace Length is recorded to register at 480mm. The body mass for both sexes vary from 22 to 33 lbs.

Slide 10: Transition slide into Hicatee Habitat

Slide 11: Hicatee geographic distribution

Genetic studies show present populations may have diverged within large watersheds during the Pliocene–Pleistocene epochs and experienced demographic changes afterwards. Translocation of genetic lineages by humans since at least the Ancient Maya increased mixing of *D. mawii* populations after genetic bottlenecking occurred (González-Porter et al. 2011). The present range is limited to southern México, eastern Guatemala, and throughout most of Belize with the major exception of the Maya Mountain Massif (Iverson and Mittermeier 1980).

Slide 12-16: List of different Hicatee habitats

D. mawii is a fully aquatic, neo-tropical, freshwater turtle inhabiting the lower reaches of large, deep, slow moving, healthy rivers, and associated oxbows lakes and floodplain lagoons, accessing riparian and floodplain forests and wetlands during periods of high water. During the day, especially during the dry season when they are confined to deeper pools, adult and juvenile turtles spend time resting on river and lagoon bottoms, often beneath limbs and logs and buried in sand and leaf deposits

Some of the Habitats include:

- ✓ Slow moving rivers
- ✓ Estuaries
- ✓ Isolated Creeks
- ✓ Freshwater Creeks

Slide 17: Transition slide into cause of species decline

Slide 18: Hicatee being traditionally harvested for food

D. mawii is culturally significant throughout its present-day range. This turtle contributed to the diets of pre-Classic Maya populations that settled in the Yucatan Peninsula (Gonzales-Porter et al 2011). Today, *D.*

mawii is hunted for meat and eggs throughout most of its current range. Heavy harvest of *D. mawii* occurs to supply markets around Lent and Easter, but also at other times of the year. Considered to be a special traditional dish, it is often sold by vendors to riverside crowds within the Belize River Valley during the La Ruta Maya canoe race. Over harvesting is the primary cause of *D. mawii*'s decline. Illegal hunting, using gill nets and snorkeling gear to catch numerous turtles for sale, is the most damaging aspect. This issue arises due to inadequate enforcement of protective laws, involving both unlawful fishers and traders who buy and sell to the public. Consumers willing to pay a premium for a traditional dish exacerbate the problem. With high capture rates (sometimes 50 turtles per night for illegal groups) and a slow 15–17-year generation time, the IUCN (2016) predicts rapid *D. mawii* population reduction over the next decades, pushing the species closer to extinction (Vogt et al. 2006).

Slide 19-20: Hicatee Laws and Regulations in Belize

The IUCN Species Survival Commission Action Plan for the Conservation of Tortoises and Turtles considers *D. mawii* to be a high priority species given its low population numbers and hunting pressures (IUCN 2023). This helps give local and international attention to this species. The Government of Belize legislated protection of *D. mawii* in 1993 based on recommendations from field assessments (Polisar 1992, 1994). The law highlights strategies to help prevent further declines such as limits to the number of turtles one could have in possession, a one month closed hunting season in May, and established protected zones.

Slide 21: Transition slide to Conservation efforts

Slide 22: Conservation efforts: Give summary

Slide 23: Partnership with BFREE and TSA

A collaboration between the Turtle Survival Alliance and the Belize Foundation for Research and Environmental Education resulted in a comprehensive nationwide survey in 2010 to reevaluate the species' population. The findings of this study brought about several significant developments, notably the inception of the Hicatee Conservation Research Center. This center serves as a controlled breeding facility with the twin objectives of enhancing our knowledge of the species' biology and eventually raising turtles for head start release.

Slide 24: Where is BFREE?

BFREE is a Non-Governmental Organization that owns and operates a field station on a 1,153 acre privately protected area in the rainforest of Southern Belize committed to conserving the biodiversity and cultural heritage of Belize.

Slide 25: BFREE's mission and Philosophy

Slide 26: The Hicatee Conservation and Research Center (HCRC)

This is a captive facility dedicated to the critically endangered Central American River turtle, also known as the Hicatee turtle. This is a facility where scientists, researchers, students and conservationists acquire and share Knowledge about this unique species of turtle. The program started with 45 confiscated turtles that were donated to the program by the Belize fisheries department. The facility consists of 2 breeding ponds and 1 rearing pond.

Slide 27: Overview of the HCRC

Pond A and B are now covered with flourishing Fig trees, intentionally planted to create a natural habitat and serve as a food source for the turtles.

Slide 28: Nests, eggs, hatchling

- ✓ Nesting occurs mainly between September and December during the wet season, with a second nesting period in January and February (Vogt et al. 2011). Captive turtles at the HCRC have been observed nesting from November to April (Marlin, personal communication). Wild nesting has also been recorded in March and April (Lee 1969, Moll 1986). Eggs are laid along shorelines, including riparian forests and savannas, up to 3 meters from the water, with some nests becoming submerged during the wet season (Vogt et al. 2011).
- ✓ The eggs, known for their durable shells, can remarkably survive underwater conditions for over a month (Polisar 1996, Polisar and Horwich 1994) and continue developing when water levels recede. Fertile eggs develop distinct bands shortly after being laid.
- ✓ Hatching in the wild is initiated by increased nest moisture after June and July rains (Polisar 1992, 1995), while in captivity, hatching occurs from late May to early July, with a peak in June (Marlin, personal communication). Clutch sizes in Belize vary from 2 to 20 eggs, with an average of around 11 eggs per clutch. Female turtles in Belize lay an average of 2 clutches per year. The number of eggs tends to increase with the size of females (Polisar 1992, 1996).
- ✓ Incubation can last from 115 to 300 days (Polisar 1992, Rhodin et al. 2011, Vogt and Flores-Villela 1992). Sex determination is temperature-dependent, with temperatures above 28°C resulting in females, temperatures around 25–26°C producing males, and temperatures at 28°C yielding both male and female hatchlings (Vogt and Flores-Villela 1992).

Slide 29: Releasing captive hatched turtles

Releasing critically endangered species of turtles that were once held in captivity is a multifaceted process aimed at restoring their natural behaviors, habitats, and populations. This approach recognizes that while captivity can play a vital role in conservation, releasing turtles back into their native environments is essential for their long-term survival and the health of ecosystems. Raising awareness about the importance of these turtles and their role in the ecosystem can garner community support and reduce potential threats. In 2020 the captive breeding facility at BFREE began its next phase in their head-start release program and are now strategically releasing Hicatee in rivers in Belize where much of the breeding stock was acquired from.

Slide 30: Transition Slide Raising Awareness

Slide 31: National Awareness Campaign (History)

Hicatee Awareness Month was established in 2017 with the launch of the film: Hope for Belize's Hicatee. The goal of the film and the month was to bring attention to this critically endangered species and to create opportunities for partners to share the valuable work they are doing to understand and conserve the species. Since that time, Hicatee Awareness Month has occurred every October with National Hicatee Day taking place on October 17.

Slide 32: Examples of outreach activities

- o Educational school tours of the HCRC

- o Media interviews
- o Student presentations
- o Community engagement
- o Supplying educational resources to schools

Slide 33: Hicatee Hero Transition slide

Slide 34-35: How can you Help?

You can actively contribute to this initiative by volunteering with NGOs like BFREE to do outreach and research regarding the Hicatee. You can help raise awareness about the species' critical status and adhering to Belize's Hicatee Laws and regulations.

Slide 36: Closing Statement

Slide 37: Quiz time Transition slide

Slide 38-53: Quiz Questions

Slide 54: Reminder about Hicatee awareness Month

Hicatee awareness month is in October, with October 17TH being national Hicatee day.

Slide 55: Partners in conservation

Slide 56: Contact information slide

Slide 57: Thank you