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RESEARCH UPDATE

JOHN G. SHEDD AQUARIUM STUDIES POSSIBLE DECLINE OF EXUMA ROCK IGUANAS IN BAHAMAS

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Habitat loss, feral animals, and hunting pressure have led to declines in most rock iguana species (genus *Cyclura*). These pressures have not only reduced most iguana populations but have devastated some taxa, bringing them to the verge of extinction. The staff at Shedd Aquarium have recognized the need for *Cyclura* conservation, and facilitates its preservation efforts through education, captive breeding and active field research.

Shedd Aquarium is currently working with two species of rock iguana in captivity: *Cyclura nubila caymanensis x nubila,* from the islands of Little Cayman and Cayman Brac, and *C. n. lewisi,* from Grand Cayman Island. The colony of *C. n. caymanensis x nubila* is housed on display to promote education through public interpretation and lectures. The Grand Cayman iguana, *C. n. lewisi,* has received much attention at the Aquarium due to its severely endangered status, and is awaiting reproductive age for captive breeding (Knapp, 1993).

The Aquarium is also conducting field surveys to help assess the status of certain wild iguana populations. A brief survey of the Exuma rock iguana, *Cyclura cychlura figginsi,* was conducted from 4 to 6 June 1994 on Guana Cay in the Exuma Island chain of the Bahamas (Knapp, 1995). The cay is located in the Jewfish Chain that juts southwestward from Great Exuma. Guana Cay was selected as the study site because previous studies on the cay in the 1970's by Carey (1976), Windrow (1977) and Coenen (1995) supplied an abundance of baseline data in which to evaluate two decades later the present population.

The 1994 survey yielded 32 iguana captures for which weights, measurements and sex ratio data were collected. Of the thirty-two captured iguanas, 53% were males (N=17) and 47% were females (N=15). Windrow (1977) delineates juveniles as less than 22.5 cm snout-vent length (SVL). No iguanas <25 cm SVL were captured or observed during the study. The mean SVL of the captured iguanas was 29.9 cm (range = 25.5 to 36.5 cm).

Cyclura nubila caymanensis x nubila at the Shedd Aquarium. *Photograph: Edward G. Lines*

The mean weight of the captured iguanas was 1.18 kg (range = 0.7 to 1.8 kg). Certain female iguanas weighed significantly less than others with similar snout-vent lengths. Since these females were captured in early June and nesting burrows appeared to be used, a possible explanation could be that females with lower weights in relation to body size had deposited their clutch of eggs prior to capture.

The island vegetation was inventoried and food preference data were collected through direct observation of feeding and scat analysis. Preferred food items during the study were leaves and flowers of black torch (*Erithalis fruticosa*) and leaves of rice wood (*Strumpfia maritima*).

The census revealed, through transect surveys, that the iguana population appeared to be slightly lower (64 iguanas) than previous studies. Carey (1976) and Windrow (1977) estimated the Guana Cay population to be between 80 to 90 individuals. The fact that we observed no juveniles on the cay raises concern about stability of the population.

Representatives from Shedd Aquarium are returning to Guana Cay in October 1995 to search more carefully for juveniles as well as to conduct secondary iguana and vegetation surveys. Gaulin Cay, located north of Guana Cay, will also be surveyed. Weights from captured female iguanas may help us determine if the inconsistent female weights from the 1994 study were the result of ovoposition in late May or early June. Scat analysis and vegetation inventories will again be utilized to determine seasonal food availability and preference.

Gaulin Cay will be more challenging to survey because, unlike the Guana Cay population that is desensitized to the presence of humans, Gaulin Cay iguanas are extremely wary and nervous. Observations by myself, Ron Harrod and Tina Henize during an International Iguana Society sponsored survey in May 1993 indicated that the animals would not tolerate the presence of humans within four meters. The May 1993 observations at Gaulin Cay revealed what appeared to be a stable population, with all age classes of iguanas being represented.

These surveys will be supplemented by new research techniques, including DNA analyses based on blood samples taken from the field, and the use of a laser guided non-contact thermometer. The DNA analyses will be performed by Dr. Scott Davis at Texas A&M University. Dr. Davis' work will help to complete a *Cyclura* genetic data set which will determine how closely the different taxa are related. The DNA work will also help to elucidate the extent to which the isolated Guana and Gaulin Cay populations have diverged genetically.

Cyclura cychlura figginsi perched atop a seven-year apple on Guana Cay, Exumas, Bahamas. *Photograph: Chuck Knapp*

The laser guided non-contact thermometer will be used to record iguana skin temperatures during different activities throughout the day. There is a slight chance to observe hatchling iguanas as they emerge from their nests; therefore, temperature conditions at nesting sites will also be monitored.

This research trip is open to the public, but limited to nine active participants. For an itinerary and registration form, contact Amy Ihde at 312-939-2426, ext. 3311. For more detailed information about the iguana research, contact the author at ext. 3401.

An aerial view of Guana Cay. Note the small boat and researchers on the beach. *Photograph: Sandra Buckner*

Rock iguana habitat at the Shedd Aquarium. *Photograph: Edward G. Lines, Jr.*

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John G. Shedd Aquarium Research Expedition—October 22-29, 1995, to study endangered *Cyclura cychlura figginsi* in the Exuma Islands, Bahamas, aboard the Aquarium's research vessel, the R/V Coral Reef II. Opportunities for snorkeling, swimming, photography, exploring. Cost: $1,425, plus airfare. *Leader:* Chuck Knapp. *For more information*: Contact Amy Ihde at (312) 939-2426, ext. 3311.