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# IGUANA

Journal of the International Iguana Society

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*Cyclura ricordii*, Ricord's Iguana. Photographed in the Dominican Republic by John Binns.

## Statement of Purpose

The International Iguana Society, Inc. is a not-for-profit corporation dedicated to preserving the biological diversity of iguanas. We believe that the best way to protect iguanas and other native plants and animals is to preserve natural habitats and to encourage development of sustainable economies compatible with the maintenance of biodiversity. To this end, we will: (1) engage in active conservation, initiating, assisting, and funding conservation efforts in cooperation with U.S. and international governmental and private agencies; (2) promote educational efforts related to the preservation of biodiversity; (3) build connections between individuals and the academic, zoo, and conservation communities, providing conduits for education and for involving the general public in efforts to preserve endangered species; and (4) encourage the dissemination and exchange of information on the ecology, population biology, behavior, captive husbandry, taxonomy, and evolution of iguanas.

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Members of the I.I.S. are encouraged to contribute articles, letters to the Editor, news items, and announcements for publication in *Iguana*. General articles can deal with any aspect of iguana biology, including conservation, behavior, ecology, physiology, systematics, or husbandry. Submission of photographs to accompany articles is encouraged.

Manuscripts based on original research are solicited to communicate recent findings not only to other scientists but to the general. We wish to instill in our readers a greater appreciation for scientific research and a better understanding of how it can contribute to the conservation of threatened iguana populations or the well-being of captive specimens. Research Articles will be subjected to peer review, and should be fairly general in scope (i.e., manuscripts having extremely detailed theoretical or statistical bases should be submitted to more appropriate journals). Manuscripts of any length will be considered, and must be accompanied by an abstract of corresponding length. Authors can expect rapid turnaround time for the reviews and quick publication of acceptable material. Research Articles will be cited as appearing in the Journal of the International Iguana Society, and will be forwarded to the major citation and abstract journals. Research Updates should be comparatively brief and written in non-technical language. They will not be subjected to peer review. Submission of photographs to accompany research reports is encouraged.

Manuscripts may be submitted via e-mail (send to [ctenosaura@cyclura.com](mailto:ctenosaura@cyclura.com)). For any contribution, please include your name, address, phone number, and e-mail address.

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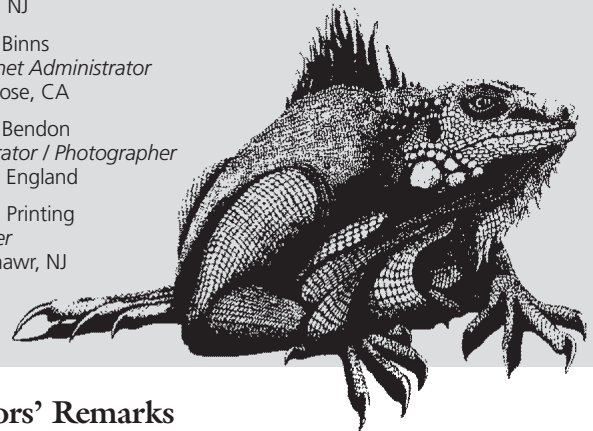
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## Editors' Remarks

As you may have noticed, the title of the *Journal of the International Iguana Society* has changed from the *Iguana Times* to *Iguana*. The editorial staff and the board agreed that the journal has long since surpassed what would be expected of a newsletter, a status implied by the former title. We felt that *Iguana* would be a more fitting title for the journal that represents the diverse interests of the IIS membership.

You also will see in this issue the second "Species Profile" (the first appeared in the last issue). These will become a regular feature of *Iguana*, with each focusing on a non-iguanaid species that shares its habitat with an iguana featured in one of the articles. We hope that you will enjoy these little forays into the broader world of herpetology.

Bob Powell and AJ Gutman



# Iguana Specialist Group

2002 Annual Meeting, Santo Domingo, Dominican Republic  
November 14-18

## 2002 Iguana Specialist Group Conference

John Bendon and John Binns

International Iguana Society and  
Iguana Specialist Group

The IUCN/SSC Iguana Specialist Group (ISG) held its annual meeting in November 2002 in Santo Domingo, Dominican Republic (DR). The DR occupies about two-thirds of the island of Hispaniola whereas the Republic of Haïti occupies the remainder. Hispaniola is the only island on which two species of Rock Iguanas (*Cyclura*) are sympatric: *C. cornuta*, the Rhinoceros Iguana, and *C. ricordii*, Ricord's Iguana.

The conference was hosted jointly by the Parque Zoológico Nacional (ZooDom) in Santo Domingo, Grupo Jaragua, a non-governmental organization (NGO) devoted to the conservation of Dominican natural resources, and the Coral Resorts. Although the agenda was typically broad, the focus of the meeting and a subsequent workshop was the status of *Cyclura ricordii* (p. 4).

The International Union for the Conservation of Nature and Natural Resources (IUCN) has established the Species Survival Commission (SSC), within which about 70 Specialist Groups (including the ISG) address threats to the continuing existence of particular plants and animals. Information from each group is used to classify threatened species by categories ranging from "vulnerable" to "critically endangered." In all, about 7000 people work directly to enhance the chances for the survival of plants and animals. Zoologists, many of whom are zoo curators or university lecturers, government officials, representative of NGOs, or individuals from the private sector all give freely of their time.

Following the opening welcome message, the meeting agenda continued with presentations by each of the endangered or threatened species project representatives. Each of their reports highlighted project successes and disappointments, and all contained a common thread of deep concern for the species' recovery. This year's bittersweet presentations included a report on the successful implementation of the Blue Iguana Species



*Cyclura ricordii* at ZooDom. Photograph by John Bendon.



Allison Alberts, José Ottenwalder, Quentin Bloxam, Sixto Incháustegui, and Fred Burton (from left to right) at the ISG meeting. Photograph by John Bendon.

## Current Status of *Cyclura ricordii*

Adapted from a Report  
by Sixto Incháustegui, Grupo Jaragua

*Cyclura ricordii*, classified as critically endangered on the IUCN Red List, is known only from the Dominican Republic. Populations occur on Isla Cabritos in Lago Enriquillo, two sites near Lago Enriquillo, two locations at Loma del Guano near the southern tip of the Barahona Peninsula in Jaragua National Park in Pedernales Province, and another near Cabo Rojo on the western side of the Peninsula. The total area of all sites combined is less than 100 km<sup>2</sup>.

All populations appear to be declining. For example, a 1985 survey on Isla Cabritos resulted in an estimated iguana density of 8/ha, but the population had dropped to an estimated 1.33/ha by 2000. Recent total population estimates range from 2–4000 individuals at the six locations.

However, in light of the 2000 survey work, those estimates may have to be reduced to fewer than 1500 animals.

Past efforts at captive breeding have met with little success. However, in 2002, ZooDom (Parque Zoológico Nacional in Santo Domingo) successfully produced a clutch of *C. ricordii* from their very small captive population.



(Above) A pair of *Cyclura ricordii* hatchlings at ZooDom. The dark areas on the sides of each animal are individual identification numbers. Photograph by John Binns.



(Left) Adult *Cyclura ricordii* at ZooDom. Photograph by John Binns.



2002 ISG Annual Meeting in the Dominican Republic. Participants included: Quentin Bloxam, Fred Burton, José Ottenwalder, Rick Hudson, Alberto Alvarez, Peter Tolson, Edwin Vargas, Jan Ramer, Dale McGinnity, Allison Alberts, Glenn Gerber, Rachel Goodman, Tandora Grant, Jeff Lemm, Chuck Knapp, Tom Wiewandt, Andy Verhey. Photograph by John Binns.

Recovery Plan headed by Fred Burton. An element of that plan, the population assessment on Grand Cayman, revealed that the Blue Iguana has reached a point of functional extinction, with only 10–25 animals remaining in the wild. Rachel Goodman highlighted her work on Grand Cayman tracking free-ranging Blue Iguanas within the Botanic Park (see article on p. 15).

Ron Carter, from Loma Linda University, brought alarming news of *Cyclura rileyi rileyi*, the San Salvador Rock Iguana. The devastation of remaining populations has been dramatically accelerated by hurricanes, rats, and poaching, the results of which have left this species in a critical situation and complicated recovery measures. In a twist of fate, the poached iguanas were relocated to the local Club Med, where they are reportedly breeding and appear to be larger and healthier than those in their natural habitat.

Chuck Knapp, of the Shedd Aquarium, discussed the plight of the Andros Island Iguana (*Cyclura cyclura cyclura*). The increased presence of hunters using guns and dogs has almost wiped out the entire population of iguanas in his research area. On the bright side, he described the successful translocation of Exuma Island Iguanas (*Cyclura cyclura figginsii*) to establish a second population, increasing the chances of survival of the species in case of natural disasters.

The Anegada or Stout Iguana (*Cyclura pinguis*) received considerable attention. Issues included recovery, limited head-start releases, and relocation. Glenn Gerber detailed the current situation on Anegada and the need to augment the

declining and aged population of wild *Cyclura pinguis* with a limited release of head-started captives. In addition, a new population assessment was proposed for mid-2003 to properly configure elements of the *Cyclura pinguis* Species Recovery Plan currently being drafted. Both of these measures were approved by the ISG Steering Committee.

John Binns reported on the population assessment of *Cyclura pinguis* conducted with James Lazell and Numi Mitchell on Guana and Necker islands, BVI. Some 120–140 animals constitute the second population on Guana, and another 30 animals the third population on Necker.

Additional reports included Karen Graham's account of the Saint Lucian Iguana (*Iguana iguana*), which may represent a distinct species. Alberto Alvarez reported successes in managing the Mona Island Iguana (*C. cornuta stejnegeri*). Miguel Garcia discussed overpopulation of the Cuban Iguana (*C. nubila nubila*) on Isla Magueyes. Rick Hudson reported on the Jamaican Iguana (*C. collei*), Glenn Gerber described the successful relocation of Turks and Caicos Iguanas (*C. carinata carinata*) to various cays within the archipelago, and Joe Wasilewski and John Bendon provided an update of IIS efforts on behalf of Bartschi's Iguana (*C. carinata bartschi*).

Next year's meeting will be held in the Turks and Caicos Islands, site of an ongoing translocation effort to enhance the survival of the Turks and Caicos Iguana (*Cyclura carinata carinata*).

### A Field Trip to Isla Cabritos National Park

Some members of the ISG participated in a ZooDom-sponsored field trip to Parque Nacional Isla Cabritos. This island lies in Lago Enriqueillo, a below-sea level, hypersaline lake that was once part of the marine channel separating the Hispaniolan North and South paleoislands. Populations of both endemic species of *Cyclura* occur on the island.

The valley in which the lake is situated, protected to both the north and south by high mountain ranges, acts as a heat sink. As a result, the temperatures frequently exceed 40°C. The island is characterized by white sandy soil, low topography with



The boat ride to Isla Cabritos. Photograph by Joe Wasilewski.



The ISG group was greeted on arrival by Rhinoceros Iguanas habituated to humans. Photograph by Joe Wasilewski.



Large adult male *Cyclura ricordii* in natural habitat on Isla Cabritos. Note the dry-climate-adapted vegetation. Photograph by John Binns.

a central incline, and patchy dry forest composed of succulents, such as aged *Neobottia* tree cactus and shrub-like *Cylindropuntia caribea*, a few palms and epiphytes, and scattered deciduous trees capable of withstanding the harsh, dry conditions.

The trip was strenuous, involving four hours each way in a bus and an hour each way in a boat, which sadly limited time on the island to a short period in the middle of the day, not an ideal time for viewing iguanas, most of which were escaping the heat by retreating into their burrows. *Cyclura cornuta* was common, but *C. ricordii* was scarce.

On the main island opposite Isla Cabritos, a number of *Cyclura cornuta* have become habituated to humans. They were commonly encountered on the paths through the scrub woodland that characterized the shoreline and the area around the visitors' center. Iguanas of all sizes provided ample evidence that they were breeding successfully every year.



*Cyclura ricordii* on Isla Cabritos, the top individual was seeking shelter from the mid-day heat near the opening of its burrow. Photographs by John Bendon and Joe Wasilewski.



A Rhinoceros Iguana (*Cyclura cornuta*) crossing the road near the visitor's center at Lago Enriquillo. Photograph by Joe Wasilewski.



Rhinoceros Iguanas on exhibit at ZooDom appear to behave naturally. Photograph by Joe Wasilewski.



After the island visit, the ZooDom veterinary staff treated the ISG group to a typical Dominican meal at the "Iguana Hotel." Photograph by John Bendon.

### A Trip to ZooDom

A trip on the final day of the meeting to ZooDom included a delicious buffet lunch and a short speech by the director, Dr. Alfonso Ferreira, who thanked the ISG for coming and contributing valuable advice and assistance.

ZooDom is well known in the reptile world as the principal breeding center for Rhinoceros Iguanas. Offspring are not sold to the public — *Cyclura cornuta*, like all Rock Iguanas, is protected under provisions of the Convention for International Trade in Endangered Species (CITES). However, many approved institutions throughout the world have been the recipients of animals bred at the zoo. The public display in which iguanas live is a large, oval habitat surrounded, like most other exhibits at the zoo, by a



ZooDom director Dr. Alfonso Ferreira holding two recently hatched *Cyclura ricordii*. Photograph by John Bendon.

deep trench. The terrain within the enclosure was dotted with rocks and cacti and other naturally occurring vegetation. The iguanas had plenty of space and appeared to behave as they would in the




*Cyclura cornuta* on exhibit at ZooDom. Photograph by John Bendon.

*Cyclura ricordii* hatchling at ZooDom. Photograph by John Binns



wild. The off-exhibit holding pens similarly housed many iguanas, some of which were destined for export.

Newly-hatched *Cyclura ricordii*, quarantined in the ZooDom veterinary facility, are quite rare in captivity. These young Ricord's Iguanas are continually monitored and afforded every opportunity to increase their chance of survival. The attending zoo veterinarian mentioned that the currently offered food was not being consumed as readily as they had expected. ISG members viewing these young animals suggested including in the diet crickets dusted with vitamins and calcium and Hibiscus flowers that were abundant on the zoo grounds. The latter are a favorite with most iguanas. Between the rows of clinic buildings, fencing has been installed to provide enclosure space for literally hundreds of young Rhinoceros Iguanas. In an ingenious use of space, the close proximity to the surrounding facilities affords continual monitoring of these young iguanas. 

### Acknowledgements

The following persons (listed in alphabetical order) were instrumental in assuring the success of the 2002 ISG Meeting. Their hospitality was endless and their contributions to the meeting inestimable. We thank them all.

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 Andreas Schubert, Programa Mediambiental  
 Transforesterio Haiti-RD  
 Elizabeth Maria Skeet Garcia, ZooDom



## Summary of the Proposed *Cyclura ricordii* Species Recovery Plan

The 2002 Annual Meeting of the IUCN/SSC Iguana Specialist Group and the Recovery Planning Workshop for Ricord's Iguana (*Cyclura ricordii*) was hosted by Dr. Alphonso Ferreira, Director, Parque Zoológico Nacional (ZooDom) and the Coral Resorts in the Dominican Republic. The intense two-day recovery planning workshop was facilitated by Frederic J. Burton using his template for the Blue Iguana Species Recovery Plan.

Summarized, the Ricord's Iguana Species Recovery Plan includes the following components: (1) Rapid surveys will be conducted in order to map all areas in which Ricord's Iguanas still occur along with a more detailed survey of the protected population on Isla Cabritos in Lago Enriquillo. The results of these surveys will provide information necessary to propose protection of all areas critical to the survival of this species, including an extension of Parque Nacional Jaragua in the Cabo Rojo area, already under consideration. (2) Major public awareness and education efforts in areas where Ricord's Iguanas still occur will be implemented primarily by Grupo Jaragua in order to develop local community support. In Santo Domingo, the role of ZooDom in enhancing public awareness will be expanded. (3) Once initial studies are com-

plete, a planning workshop will review results to define terms of reference for a future management plan in protected areas supporting Ricord's Iguana populations. (4) Threats posed by predation and habitat degradation will be prioritized and then progressively managed to reduce or eliminate the causative agents in protected areas. Restoration of endemic vegetation in degraded areas also will be attempted. (5) In order to effectively address the many issues likely to influence conservation management, additional research on distribution, abundance, and ecology will be conducted. (6) A feasibility study of captive husbandry and propagation will be implemented using the two adult pairs currently at ZooDom. If the animals successfully reproduce, offspring may be used in other locations in Santo Domingo and Parque Nacional Jaragua area to educate and enhance public awareness. (7) Funding for the Ricord's Iguana Species Recovery Plan will be obtained from local and international grants. In addition, the sale of retail products in the Dominican Republic and internationally may supplement funds acquired from other sources.

When approved, the Ricord's Iguana Species Recovery Plan will be administered by the newly formed Ricord's Iguana Recovery Group in the Dominican Republic, with support from the IUCN-SSC Iguana Specialist Group and the International Iguana Foundation (IIF).



(Above) *Cyclura ricordii* at ZooDom.  
Photograph by John Bendon.



(Left) Grazing donkeys pose ongoing problems for the recovery of natural vegetation on Isla Cabritos. The mountains in the background shelter the valley and the island from prevailing winds and contribute to the very hot, dry climate. Photograph by John Binns.

# Another Chance for the Turks and Caicos Rock Iguana

Numi Mitchell  
The Conservation Agency

**A**bout four hundred adult Turks and Caicos Rock Iguanas (*Cyclura carinata carinata*) are kissing the ground of their new home on Long Cay in the Caicos Bank. All of them were scooped out of the paths of bulldozers on Big Ambergris Cay, where a new resort development is in the early stages of construction.

Big Ambergris Cay supports one of the last large populations of these animals — and it literally teems with them. Iguanas occupy every suitable square inch of habitat on the island. Because all of the usable space is taken, iguanas that find themselves in the way of roadbeds, houses, and canals have nowhere to go as their habitat disappears.

Equally substantial populations existed only decades ago on Providenciales, North, Middle, East, and South Caicos, and on the smaller cays in

between. The mistake made again and again as each island was developed was to think: “No problem — we’re practically tripping over these lizards with every footstep. How could they ever become endangered?” Only in hindsight did we realize that populations of rough-and-tumble dinosaur-like lizards could actually be fragile. We now know that they cannot coexist with larger mammals, particularly cats, grazing animals, and humans. In fact, predation, competition, and habitat loss caused by these seemingly innocuous sources had wiped out 95% of the world’s population of the unique Turks and Caicos Rock Iguana by the mid-1900s.

In 1999, when development on Big Ambergris Cay began in earnest, the government was determined not to repeat the same iguana-extinction scenario that had already occurred on every large developed island in the Turks and Caicos (TCI). That year, TCI’s Department of



*Cyclura carinata carinata* (female). Photograph by John Binns

Environment and Coastal Resources (DECR) teamed up with The Conservation Agency and the Denver Zoo, who claimed they could find a home for some of the displaced lizards. The island's owner, Henry Mensen, agreed to help.

This was easier said than done. The problem was finding another, or several other, suitable islands. You couldn't just move iguanas to any island that currently had no iguanas. If the island had humans and the usual entourage of free-ranging cats, dogs, and livestock, it was immediately disqualified. The team needed to find islands without iguanas that also were otherwise uninhabited. Two types were found: (1) very small islands which, because of lack of fresh water, would not support cats, dogs, or livestock, and (2) larger islands with some fresh



*Cyclura carinata carinata* (young male). Photograph by John Binns

In June 2000, the Nation celebrated the return of the Turks and Caicos Iguana to Long Cay during Environment Week as Julia Jones, wife of his Excellency, Governor Mervyn Jones, ceremonially cut the ribbon and the iguanas raced across the line into the lush bush of their ancestral home. Numi Mitchell in the dark dress and Julia Jones in the light dress. Note the iguana running to Numi's right. Photographer: Beth Outten.



water that had free ranging cats or livestock that had been released and had survived.

The Conservation Agency, Denver Zoo, and DECR were interested in a long-term solution, and the team was curious as to why the smaller cays that were obviously capable of supporting permanent populations of iguanas didn't already have them. They suspected that hurricanes were the major problem; during storms, small, lower-profile islands can overwash completely. The team chose to tackle a larger island with some topographic relief, in spite of the fact that the habitat would first have to be repaired.

One island stood out: Long Cay, neighboring South Caicos, a thin, unpopulated, 3-mile-long island with a backbone of 100-foot limestone cliffs, sandy scarps, and grassy plains and salt-marshes on the sheltered western side. The 260-acre island was government-owned and already part of the Admiral Cockburn Nature Reserve. The beauty of Long Cay was striking from the cliff tops and the habitat was perfect — except for one fatal flaw — it supported a population of hungry domestic cats whose unwanted ancestors had been released there years ago. Cats are very efficient predators and the relatively small Turks and Caicos Iguanas are quite vulnerable to them, particularly



Volunteer Virginia "Gingee" Brewer signed on for the expedition. On her first trip she coerced five of her associates to help with the effort. She is interested in both science and conservation but has an additional concern: she is a homeowner on Pine Cay. *Photographs by Numi Mitchell*

in the early morning when iguanas are cold and slow. A population of iguanas was known to have existed on Long Cay in the 1970s, and individuals had been seen sporadically as recently as the 1990s — but the introduction of cats had made it impossible for iguanas to survive on the cay.

The Conservation Agency and Denver Zoo conferred and concluded that things could be worse. Long Cay could have goats, sheep, pigs, cows, donkeys, dogs, and cats. It had only cats, and not many at that. They took a vote and decided that, with the help of the DECR, they could restore Long Cay and bring the iguanas home.

In June 1999, the team tackled the job of clearing the island of the 5–10 cats whose presence would make iguana recolonization impossible. Using a combination of toxic bait (1080, a plant derivative used successfully in New Zealand to control feral cats and Australian opossums) and box traps, they mounted an intensive campaign.

By January 2000, they were confident that all of the cats were gone. The island was safe for iguanas and, with the help of many game volunteers, the team began catching and moving groups of iguanas from Big Ambergris to the now pristine Long Cay. What kind of people like catching iguanas? You would be surprised. The Conservation Agency, Denver Zoo, and the DECR had no trouble finding "assistants" who enthusiastically agreed to be baked in the sun, serve as dart boards for thousands of mosquitoes, and be scratched, sometimes severely, by thorn scrub. Local volunteers came from South Caicos,



Grand Turk, Pine Cay, and Provo to steal around the bush "tossing" iguanas, as noosing is locally called. They used fishing poles with 200-lb-test monofilament loops at the end. Some folks claimed that a whistled rendition of "Yankee Doodle Dandy" would allow you to sneak up on iguanas more easily but, after noosing a couple of hundred myself, I can say it doesn't really make much difference. Nevertheless, people tended to stick with this method and, on capture days in the baking bush of Big Ambergris, one could always hear at least six asynchronous versions in at least three different keys.

Whistling or not, a hunter had to sneak up on an iguana and then distract it so it wouldn't notice the noose being slipped around its neck. That accomplished, with a flick of the wrist, the hunter tweaked the noose tight and lunged forward to grab the furiously flailing iguana. Males turned out to be relatively easy to noose because of their attitude — they stand their ground, even pumping themselves up on stiff legs to look larger as you approach. Females tended to be shy and more apt to try to slip away. Neither is shy when noosed, however. Hunters who made the mistake of putting their hands too close to the mouth of an

indignant noosed iguana became charter members of “The Bite Club.” People almost always became members of The Bite Club immediately after laughing at others who had become members just before them.

Boatloads of 25–100 iguanas, traveling with their overheated, sore-musclcd captors (most of whom were fantasizing about icy cold beer), were moved from Big Ambergris to the DECR lab on South Caicos, where they were held overnight. Animals were weighed, measured, and each received a unique internal transponder tag that would allow researchers to identify them if they were recaptured. The following day, they were released on Long Cay. Some sported radiocollars and were monitored for the next couple of months as they established themselves on their new island home.



*Cyclura carinata carinata*. Photograph by John Binns

While The Conservation Agency, Denver Zoo, and DECR provided the principal workforce, volunteers continued to help in many ways, particularly while radiotracking the new settlers and recapturing them to check their weights and conditions. Many offered to help — kids, fishermen, grandmothers, and government officials — anyone adventurous, curious, or concerned. Even his Excellency, Governor Mervyn Jones, and his wife Julia came to Long Cay to pitch in.

In June 2000, the nation celebrated the return of iguanas to Long Cay during Environment Week. Julia Jones cut the ceremonial ribbon and



*Cyclura carinata carinata*. Photograph by John Binns

the iguanas raced across the line into the lush bush of their ancestral home.


Since that summer celebration, the iguanas on Long Cay have been thriving. All rapidly found burrows (many of which were probably once occupied by their ancestors) and apparently found plenty to eat. Iguanas on the cay are proportionately fatter than those from Big Ambergris and are brightly colored (indicating that they are growing rapidly and frequently shedding their skin). One- and two-year-old babies are easy to see on the island — a fact attributable to the absence of cats.

Today, thanks to The Conservation Agency, the Denver Zoo, and the DECR, Long Cay is a Garden of Eden for the rescued iguanas and their offspring. In the big picture, though, it is only one



*Cyclura carinata carinata* (male). Photograph by John Binns

basket of eggs. We need numbers of other reserves, and initiatives like those by the Turks and Caicos National Trust in setting aside the Chalk Sound, Little Water Cay, and Little Ambergris Reserves, and current efforts by the San Diego Zoo to repopulate smaller cays, help to insure that the endemic Turks and Caicos Rock Iguana — found no where else in the world — survives. From the perspective of The Conservation Agency and the Denver Zoo, restoration work needs to continue. More candidate island homesites must be found and “repaired” by removing non-native wildlife that preys on, competes with, or otherwise undermines native or unique Turks and Caicos species.

Restoring habitat for iguanas will restore habitat for other native animals — local and migratory. We all will start to see a wider range of native wildlife reappearing in the TCI. For now, the homeless iguanas of Big Ambergris will continue to provide opportunities to restock many of the islands on which this endemic lizard belongs. 



Numi Mitchell photographed during a hike in mid-day heat. *Photograph by John Binns*



Long Cay,  
Turks and Caicos.  
*Photographs by  
Numi Mitchell*



## Studying the World's Most Endangered Rock Iguana, *Cyclura nubila lewisi*

Rachel M. Goodman  
University of Tennessee, Knoxville

**A**mong the jagged limestone rock and dry forest vegetation, I spot one of the world's most endangered lizards sprawled on a fallen palm frond and basking in the sun. This magnificent creature, with dramatic red eyes and nearly four feet of bright blue scales, is the endemic Grand Cayman Blue Iguana, *Cyclura nubila lewisi*. Hoping for a closer glance, I hold my breath and creep slowly forward until I am only a few feet away. No reaction yet... Step by step, I stealthily approach until — how's

this? — I am only inches away from this apparently bored iguana?! Though free to flee, Old Yeller, as one yellow bead in this iguana's crest identifies him, calmly lies there like a log as numerous staff and visitors to his home pass by on a regular basis.

Old Yellow is one of about twenty free-roaming Blue Iguanas at the Queen Elizabeth II Botanic Park (QEIBP) on Grand Cayman. These animals were bred onsite and released at 2–3 years of age. The iguanas in this population are few, young (the oldest is eight years old), live in an



Female Grand Cayman Blue Iguana (*Cyclura nubila lewisi*) named Carley. This animal was hatched in the wild and captured by a local Caymanian who kept her until he recently donated her to the breeding facility at Queen Elizabeth II Botanic Park. Photograph by Fred Burton

unnatural setting, and are, for the most part, highly habituated to humans. Despite these oddities, the study of these iguanas is critical for the survival of *C. n. lewisi*. The released QEIIBP iguanas are the only Blue Iguanas left living outside of captivity other than an estimated 7–25 iguanas remaining in the wild.

While working on a master's degree at the University of Tennessee, Knoxville, I collaborated with the National Trust for the Cayman Islands (NTCI) in studying the released population in QEIIBP during the fall of 2001 and the summer and fall of 2002. At the IUCN/SSC Iguana Specialist Group meeting held on Grand Cayman in 2001, I participated in a workshop to develop a Species Survival Plan for the Blue Iguana. One component of this plan, addressed by my current research, was a detailed field study of the released animals, including an analysis of spatial distribution, to estimate the carrying capacity of QEIIBP and the required area for a proposed iguana reserve. Additionally, I identified habitats and specific resources which are important to the iguanas in order to improve living and breeding conditions for the released and captive iguanas within the park and to assess potential sites for the proposed iguana reserve.

My project focused on determining the spatial distribution and habitat utilization of the released iguanas by radiotracking and conducting focal animal observations of 12 individuals. Because of the low density of iguanas, I followed each iguana continuously for one day at a time to conduct

observations. While watching iguanas sleep motionless for hours on end and trying to remain similarly motionless but alert, I repeated to myself my mantra (borrowed from Beverly Dugan): "Iguanas are not dull; they are just very subtle." I often recorded tens of park visitors and staff passing or driving within three meters of an iguana without so much as a lift of the head from the happy blue basker. For iguana enthusiasts who have patience and luck with weather, up-close experiences and photographs of Blue Iguanas at



Old Yeller rests on a man-made pile of rocks next to a favorite food item, *Asystasia gangetica*. Photograph by Rachel Goodman

An iguana's head pokes out from the manicured lawn of the Colour Garden in the Queen Elizabeth II Botanic Park. Biter basks on top of a pile of discarded wooden beams which also serve as her usual retreat. These are decidedly unnatural habitats. In stark contrast is some of the natural shrubland which iguanas inhabit in the mostly undisturbed portion of the park. Photographs by Rachel Goodman





Slugger models his radio transmitter. *Photograph by Rachel Goodman*



Slugger regularly sunbathes on the road near the staff office, refusing to budge even when cars pass at less than 3 m away. *Photograph by Rachel Goodman*

the park are guaranteed. The habituation of the released iguanas also proved to be a real asset for my research, as I was able to follow iguanas at a very close range without interfering with their behavior. One exception to this was Pink (also identified by a bead), who, accustomed to being fed by park staff, followed me and begged for food if I approached too closely.

Some limitations and quirks of the QEIBP population were frustrating for me as a researcher, but emphasize the critical need for research and monitoring of this population. For example, iguanas who were supplementally fed moved shorter distances to forage, leading to a confounding variable in my analysis of home range size which my small sample size cannot address. However, the suggestion that iguanas may center their home ranges around supplemental foods is strong enough for management plans to include a consideration of feeding sites as a tool for encouraging settlement of newly released iguanas, which otherwise might disperse into unprotected areas. The presence of feeding sites also may lead to a



The author monitoring movement of iguanas with telemetry equipment. *Photograph by Sandy Echternacht*



Park staffer John Lawrus laughs at the common sight of Pink, a released iguana, begging for handouts on the porch of the staff office. Iguanas have gone so far as to run into this office or attempt to jump into cars or onto people in the park. *Photograph by Rachel Goodman*

decrease in the size of existing home ranges, thereby increasing the number of iguanas that can be packed into the park.

Another quirk of my study was the constant human disturbance of iguanas and researcher alike. I often interrupted my observation sessions, during which I strived to minimize disturbance, to jump in front of a car threatening to run over my subject or to prevent an iguana from eating a plastic bag or a tourist's berry-colored toenails! Also, convincing park visitors and staff to ignore and not talk with me while I conducted behavioral observations was a constant challenge. Visitors were satisfied receiving a small informative pamphlet I wrote up, but some staff could never accept the fact that I was on duty while watching a motionless iguana and not interested in joining their smoking break.

In addition to my study of spatial distribution and habitat use in the park, I collected data on the diet and demographics of the released iguanas. The first successful reproduction in the released population had been confirmed in 2000 by the appearance of yearlings the following spring. In fall 2001, Fred Burton, director of the Blue Iguana captive breeding and release program, and I built enclosures around five nests of released females to examine nest structure and success. Two nests were successful and an evalu-

ation of a third was inconclusive. These findings and the recensusing of the wild population in summer 2002 indicated a need for headstarting juveniles produced by the released QEIBP iguanas. In 2002, I monitored nesting of released females. Fred subsequently excavated clutches for incubation, resulting in a total of 25 hatchlings for headstarting in the captive facility.

Fred and I collected and identified plants that Blue Iguanas were observed eating and examined a limited number of freshly collected scats. We found that the released iguanas eat the leaves, seedlings, fruits, and flowers of many species of exotic plants in the park's colorful gardens in addition to native species in the park's natural habitats. They also occasionally take some animal matter in the form of slugs and invertebrate larvae. One six-year old male, Slugger,



The author holds Cagerat (three years old when this photo was taken), who has grown nearly twice as fast as the other released iguanas, presumably because of his double-life as both a well-fed pseudo-captive and a free-roaming forager and basker.  
*Photograph by Fred Burton*



Cagerat, who was released near the captive breeding compound in the spring of 2002, found a hole in an empty cage shortly thereafter, and has remained resident ever since. He rarely ventures far outside of the compound, but often climbs on top of the cages to bask and display at the captives.  
*Photograph by Rachel Goodman*



Biter, here five years old, rests for a moment after digging her nesting burrow in a pile of discarded potting soil. *Photograph by Rachel Goodman*


acquired his nickname by searching for and consuming at least six live slugs during one spree.

I also often served as an informal monitor of the captive and released populations at QEIBP, alerting and aiding when a captive iguana escaped from its cage or when a released iguana's favored retreat was in danger of being destroyed (potentially with the iguana in it). Before my arrival at the park, the general assumption was that released iguanas were not fed heavily by humans, as park staff were explicitly instructed not to feed them. I discovered that nearly all of the released iguanas were supplementally fed, either directly or indirectly — and most commonly by the staff. In fact, several iguanas regularly traveled to the staff office just before lunch to wait on the front steps for their regular meal of fruits, fish, meats, and, most commonly, rice and beans. Besides the obvious potential for nutritional problems, uncontrolled supplemental feeding has led to decreased wariness of and increased aggression toward people. If iguana attacks on park visitors, which currently occur, though infrequently, are to be eliminated, direct feeding by humans must be stopped and signs warning visitors not to approach or pet the iguanas must be erected. The latter will be accomplished this year, thanks to IIS-member John Bendon's donations of two signs for the park.

After wrapping up my last field season in December 2002, I found that I did not want to leave the botanic park, where the Blue Iguanas are still in need of much help and greater understand-



Fred Burton and the author built enclosures in 2001 to catch hatchlings as they emerged from nests of released female iguanas in QEIBP. *Photograph by Sandy Echternacht*

ing. Formerly, Fred Burton, park staff, and volunteers organized through the NTCI fed and cared for the captive iguanas, and I was often the only daily monitor, particularly of the released population. This year, a part-time employee has been hired by the Blue Iguana Conservation Program to feed and care for the released and especially the captive iguanas at QEIBP. Although I'm sure they are in good hands, I had a hard time saying goodbye to those funny blue lizards: Cagerat, who was released but refused to leave the captive compound; Biter, named for splitting open a finger; Slugger, who thankfully survived vehicular crushing; and Pink, infamous for his assaults on cars and women. Each iguana has a unique personality, and all became my dear friends. I have hope that the Grand Cayman Blue Iguana will survive its current brush with near-extinction and flourish, so that future generations will have the chance to experience this iguana's unique beauty and charms. 

### Acknowledgments

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An iguana stands in front of one of the park's golf carts and contemplates crawling under for some refuge from the hot midday sun. To date, two released iguanas have been run over after doing just that, though luckily one survived. *Photograph by Rachel Goodman*



Billy, a member of the captive breeding program, opens wide for a big yawn. *Photograph by Rachel Goodman*

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## SPECIES PROFILE: Grand Cayman Blue Anole: *Anolis conspersus*

The more than 200 species in the genus *Anolis* differ in size but share a similar body plan variously modified to take advantage of specific habitats. With the exception of *A. carolinensis*, which ranges far into temperate parts of the southeastern United States, anoles are subtropical or tropical and are widely distributed throughout the Neotropics. Anoles occur on virtually all islands in the West Indies. Small islands may have just one species but large islands may have many: Cuba has over 50 and Hispaniola over 40. All anoles are arboreal to some degree and possess expanded subdigital lamellae (toe pads) that assist in climbing and variously colored dewlaps (throat fans) used in behavioral displays.

The Grand Cayman Blue Anole, *Anolis conspersus*, is restricted to Grand Cayman Island, where it is the only native anole. Inhabiting all but the most open habitats (including the walls of buildings), it is the island's most abundant and visible reptile. Adult males reach a maximum body length over 75 mm and exhibit at least three distinct color patterns, although some individuals have intermediate or mixed patterns. Those in most populations on the west end of the island are predominantly blue with white spots but, in some populations, they are green, and in some of the latter, the head is yellow. Males from the eastern half of the island are brown with black or dark brown vermiculations. In the dark phase, all color varieties become nearly black. In all populations, the dewlap is blue. Females are strikingly different in appearance; they are much smaller (maximum body length about 50 mm) and are, in all populations, light brown with a white middorsal stripe that is punctuated by black chevrons.

Adult female *Anolis conspersus* from near East End, Grand Cayman Island. Photograph by A.C. Echternacht



The Brown (or Cuban) Anole, *A. sagrei*, has recently been introduced on Grand Cayman, probably with foliage plants imported from Florida, and may pose a threat to native *A. conspersus* where the species co-exist. Adult *A. sagrei* will eat hatchling *A. conspersus*. Both species use many of the same habitats, but *A. sagrei* also will inhabit more open areas, whereas *A. conspersus* actively excludes *A. sagrei* from more shaded regions.

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Adult male *Anolis conspersus* from Georgetown, Grand Cayman Island. Photograph by A.C. Echternacht

## LETTER FROM THE PRESIDENT

The 16th annual meeting of the IUCN/SSC Iguana Specialist Group (ISG) was held in Santo Domingo, Dominican Republic (see the article on p. 3 of this issue). During the two-day meeting, presentations were made on the status of the 16 taxa in the genus *Cyclura* found throughout the Caribbean. Many of the species are declining due to multiple factors. On the positive side, many species have people and institutions who have developed specific programs aimed at reversing those trends.

Immediately following the meeting, a two-day workshop was held to develop a species recovery plan for one of the two species endemic to Hispaniola, Ricord's Iguana (*Cyclura ricordii*). Combining the broad range of expertise from participating ISG members with local knowledge of the species' distribution and natural history, a recovery plan was formulated and will soon be published (see p. 9 for a draft of the recovery plan). Implementation hopefully will lead to a resurgence in Ricord's Iguana population numbers.

The trip to the Dominican Republic wasn't all work. Prior to the meeting, some of us arranged to take a field trip to Lago Enriquillo. From the ranger station, a boat took the participants to Isla Cabritos, an island where Ricord's Iguanas and Rhinoceros Iguanas (*Cyclura cornuta*) live sympatrically. Rhinoceros Iguanas are quite common and habituated to people. Several dozen individuals hang out at the ranger station and at the boat dock, where they patiently pose for photos. In contrast, *Cyclura ricordii* is very flighty, rare, and rarely seen. One can only imagine the excitement and anticipation of encountering these animals in the wild.

Much of my work and lecturing activity centers around conservation techniques and, upon arrival on



Rhinoceros Iguanas are quite common and habituated to people. Photograph by Joe Wasilewski



Ricord's Iguana on Isla Cabritos. Photograph by Joe Wasilewski

the island, we observed a very successful conservation technique — an armed guard patrolling the area. The Dominican Republic takes the concept of wildlife conservation very seriously.

Even though I was representing the IIS and the organization is dedicated to iguana conservation, I must admit to feeling a little more anticipation at the thought of viewing American Crocodiles (*Crocodylus acutus*), a population of which survives in Lago Enriquillo. As a wildlife biologist working with endangered crocodiles in Florida, seeing the species in a different country would be a special treat. I must admit that I asked the ranger to show us where the crocodiles were (even before the iguanas), and we soon were observing approximately 20 individuals.

The group (people, not crocodiles) then split up to search for the elusive Ricord's Iguana. After seeing many fresh drags and burrows, I came upon a huge male and snapped a few photos, but as I attempted to maneuver for a better shot, he retreated into his burrow. We saw two other Ricord's Iguanas and heard several more crashing through the brush, apparently impervious to the cacti. In fact, the cacti on the island were so abundant that we renamed it the "Isla de Needles."

The subsequent conference was successful and memorable for all the participants. The hospitality and food were excellent — and I, for one, had to diet after returning home.

*Joe Wasilewski*

# OBITUARY

**Dr. Timothy Durkins, D.P.M.**

1953–2002



Of all the wonderful friends I have made through the International Iguana Society, I will always remember the remarkable Dr. Timothy Durkins (“that’s DPM, not DVM! I’m a podiatrist, not a veterinarian!”).

Many who attended the IIS barbecue at the CT Iguana Sanctuary some years back will fondly remember “Dr. Tim,” who sat serenely on my back porch and regaled visitors with tales of his many eccentric extended family members and the love of his life, the irascible Miss Sukieman Bardudi. Suki was a six-year-old female Rhinoceros Iguana, who Tim regarded as part goddess, part spiritual familiar, and part demanding roommate. When Suki died of a pervasive liver infection, Tim was devastated. With chronic health problems that had left him unable to work for many years and a diagnosis of cancer, Tim needed another animal to fill his life. That animal was Dash, a four-year-old male Rhinoceros Iguana that I had raised. Dash was never able to actually live with Tim as endless chemotherapy sessions left him weaker and repeatedly hospitalized. To the very end, Tim believed that his disease would simply go into remission at some point and he and Dash would go home together. A copy of the *Iguana Times* was always in Tim’s hospital room and iguana photos at his bedside. He would occupy himself with ideas to raise funds for the IIS and iguana conservation, and with producing handwritten manuals for me on how to care for the various rescued reptiles that end up in my house. The animals and I will all miss Dr. Tim dearly. A donation to the Blue Iguana Fund has been made in his honor.

*AJ Gutman*

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Male *Cyclura carinata carinata*, Turks and Caicos Iguana. Photograph taken in the Turk and Caicos Islands 2002 by John Binns.