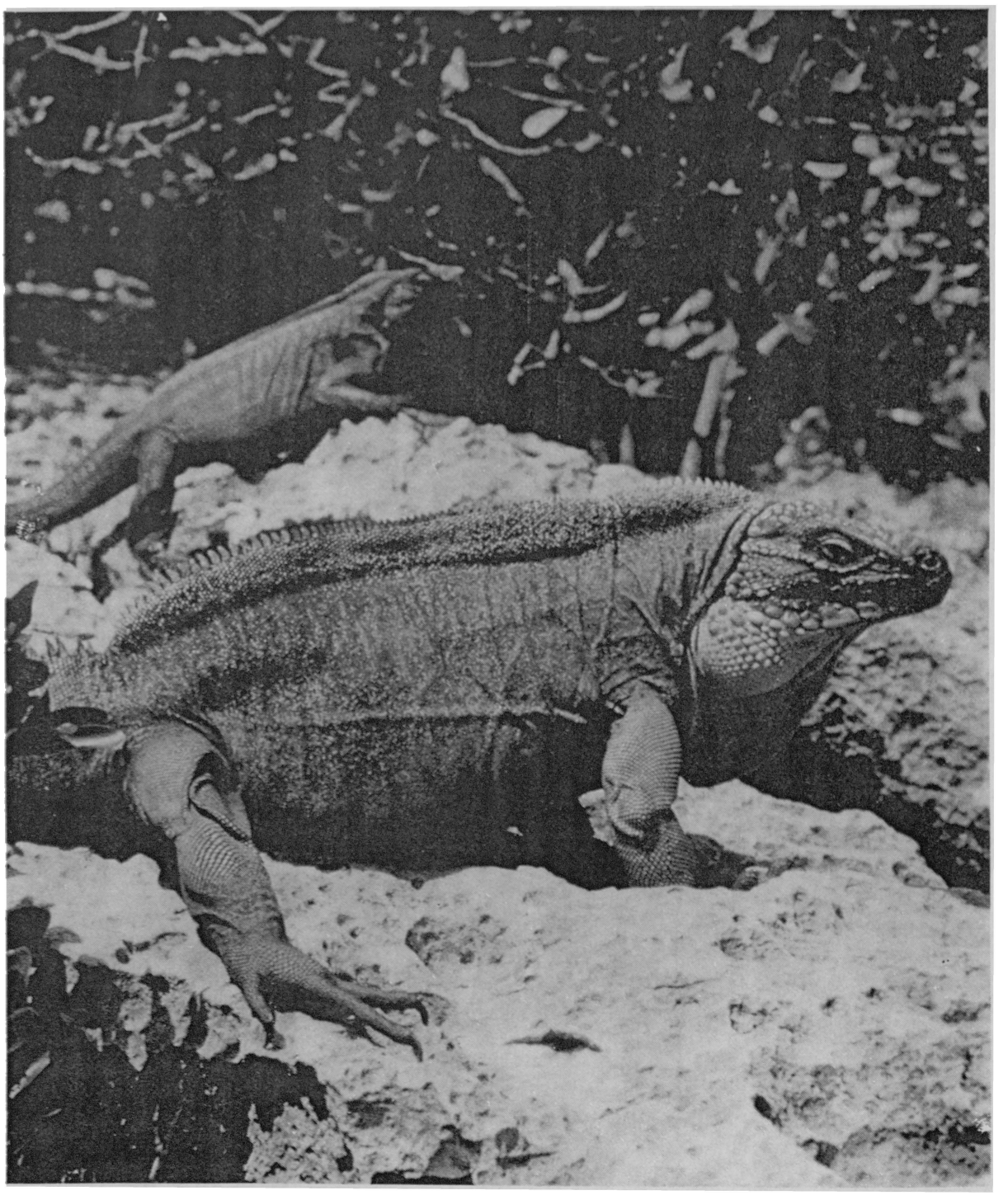
IGUANA TIMES

THE NEWSLETTER OF THE INTERNATIONAL IGUANA SOCIETY, INC.
$4.00

VOLUME 1, NUMBER 5
JUNE 1992



Allan's Cay Iguana on U-Cay, male and female. *Photography: Richard Moyroud*

A Cay by Any Other Name...

By David W. Blair

Updating the status of the Acklins Island rock iguana, *Cyclura rileyi nuchalis,* turned out to be a "game of names." To begin with, the Crooked Island group, where it is found, is usually referred to as a singular destination, but is in reality two separate islands lying in very close proximity. Together, they roughly form an upside down horseshoe situated between Long Island and Mayaguana in the Southern Bahamas. Crooked Island, on the west, covers 92 square miles with a human population of about 700. It is separated by less than two miles from Acklins Island, which is the larger and more populous, with almost 1,000 residents living within its 389 square miles. These two main islands surround a broad, shallow area of water known as the Bight of Acklins. Off the southern tip of Crooked Island is a twelve-mile-long narrow island called Long Cay. Only about thirty people reside on the Cay today, but at one time, several thousand lived there. Most came in the 1920's and 30's to sign aboard oceangoing freighters and "seek their fortunes" as laborers in Central America. Because of this, the Cay became known as "Fortune Island." The population has been dwindling since World War II and it is now almost a ghost town. Of great historical significance is the huge cathedral-like church where they still hold intimate Sunday services in one corner of the crumbling masonry and wood structure. There are dozens of abandoned houses and old foundations scattered throughout the bush and connected by the remnants of ancient paved roads.

Reggie had lived all of his life on Crooked Island and had the dubious distinction of having survived being struck by lightning.

Within the Bight of Acklins are about a dozen small remote Cays, some of which have been reported to harbor colonies of rock iguanas. But here is where the real confusion begins. The U.S. Department of the Interior, Publication 50 C.F.R., Part 17 (1983), lists "Fortune Island and Guana Cay" as their only habitat; Auffenburg (1976) names "Fortune Island, Guana Cay and Fish Cay"; The Red Data Book of the I.U.C.N. (1978) says, "Fortune Island and Guana Cay"; Barbour and Noble (1916) state, "Fortune Island, just to the south of Long Island, Bahamas"; Schwartz and Carey (1977) mention "Fortune Island, Fish Cay, and North Cay," as do Schwartz and Thomas (1975); Iverson and Auffenburg (1980) show two populations, but don't say on what Cays; Rabb and Hayden visited North Cay and Fish Cay in 1957, but saw no iguanas on either one!

In my continuing effort to assess and update the status of rock iguanas throughout the West Indies, I flew to Crooked Island in June of 1991. Of course, one of my primary objectives was to clear up the confusion surrounding which Cays actually still support populations of *C. r. nuchalis,* one of the smallest and least known form of rock iguanas.

My journey began with the 30-minute ride north from the small commercial airport on Crooked Island to Pittstown Point Landing, a "fly-in" hotel with its own private airstrip just a few steps from each room. This is the island's largest tourist accommodation, with just twelve rooms. I was greeted by Randy and Libby, the inn's husband and wife managers. They subsequently intro-

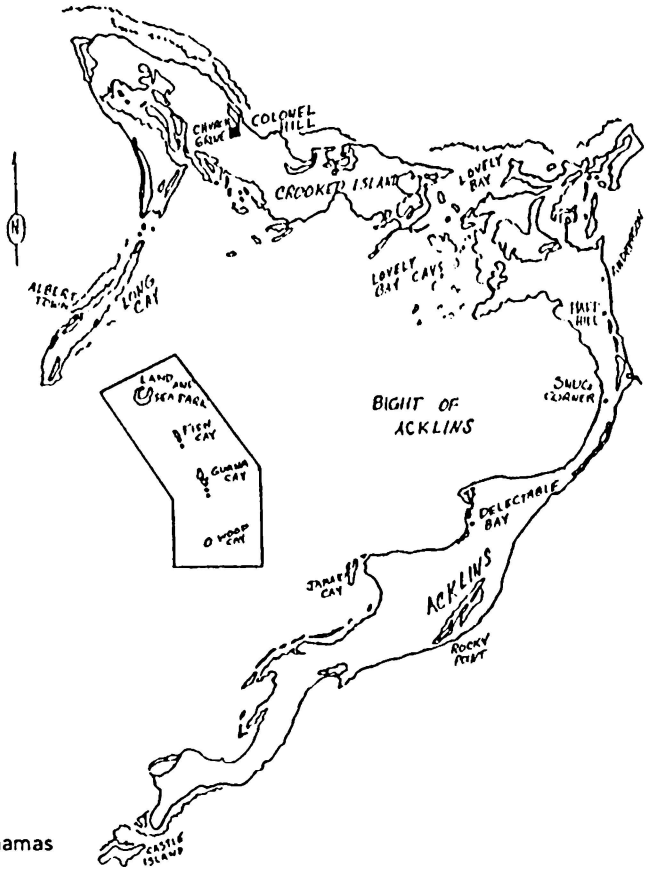
The Acklins Island rock iguana, *Cyclura rileyi nuchalis,* male on Fish Cay, or Guana Cay, as it is locally referred to.
Photography: David W. Blair

duced me to one of the owners and his family who had flown down in a private plane for a few days from their home in the U.S. The following morning his group returned to the States and I became the only guest in the entire hotel, a situation which did not change for the remainder of the week. My guide for the trips to the Cays in the Bight, 20-30 miles by boat south of the hotel, was a very personable young man named Reggie. Reggie had lived all of his life on Crooked Island and had the dubious distinction of having survived being struck by lightning. The bolt killed his companion that day and literally knocked Reggie out of his pants. This close call may have accounted, in part, for his easygoing style and apparent love of life.

We left early the next day in a small aluminum hull boat with a full tank of gas and a large ice chest filled to the top with sandwiches, watermelon, and cold drinks. About 90 minutes south, we made our first stop at the small settlement of Albert Town on Long Cay. Columbus passed between the northern tip of this island and the southern portion of Crooked Island which he named "Cape de la Laguna" on October 19, 1492. He attempted to cross the Bight of Acklins, but found it too shallow and was forced to turn back.

After a brief tour of Albert Town, we went to the home of Mr. Sidney Frazier. There was not nearly sufficient time for us to search the entire nine square mile island for iguanas and I was told Mr. Frazier, having lived on the Cay since 1934, had explored nearly every square foot of it. He told us that in all those years he had never seen any iguanas on Long Cay. If they ever existed on the island at all, he said, it was probably on the sandy southern portion and must have been many, many years ago. He was aware, however, of the existence of iguanas on two small nearby Cays in the Bight. He remembers as a young child landing on one of the Cays with his father and catching a large iguana. His father skinned and gutted the lizard, then roasted it on a stick over an open fire. Fortunately, he also added that very few, if any, residents still eat iguanas today.

The Acklins Island rock iguana, *Cyclura rileyi nuchalis*, female in a tree. *Photography: David W. Blair*



Acklins Island - Crooked Island, Bahamas

After talking with Mr. Frazier and others on the island, it became clear that much of the confusion as to the distribution of *C. r. nuchalis* stems from the fact that the local residents name the Cays differently than the official government maps. The first Cay south is officially listed as North Cay, but Fortune Islanders know it as Fish Cay. Mr. Frazier states that iguanas only appeared on this Cay in recent years—there were none present when his family had first arrived in the 1930's and for many years thereafter.

Thanking Sidney for all his helpful information, we returned to our boat and headed into the Bight of Acklins toward North Cay. As we approached the small U-shaped Cay, the water became very shallow and the numerous sandbars quite difficult to maneuver around. A few hundred yards off shore we noticed a small flock of 40 or 50 Caribbean Flamingos, the first I had ever seen in the wild throughout all of my previous trips to the Bahamas. We pulled the boat close to shore and I walked the long rope and anchor up the beach and firmly planted it in the sand. Reggie was already wading back out to investigate the half-dozen, six-foot sharks we had seen swimming lazily in the shallow warm water offshore. He had a large chunk of coral rock in each hand—apparently, he was going to attempt to knock out a shark and capture it by hand. I readied my cameras and began to walk the perimeter of the Cay, immediately sighting several iguanas. Acklins' rock iguanas are perhaps the smallest members of the genus; females average about two feet in length, with males about 30 inches overall. Adult coloration is greyish-brown with brown to orange-brown vermiculation and males are somewhat more colorful than females.

Reggie soon joined up with me, apparently unsuccessful with his shark hunting technique. We spent the next several hours on the Cay, counting more than 60 iguanas. Most animals sighted were adults and sub-adults; there were very few young iguanas present.

While exploring North Cay, the tide had dropped and we were surprised to discover, upon our return, that our boat was now high and dry. It took about 30 minutes of pushing, pulling, and digging a channel by hand in the sand beneath it to float the 500-pound craft again. Skirting the sand bars, the boat was headed southeast toward the next Cay in this mini-archipelago. It was just a speck of land completely surrounded by shoals and very difficult to approach. I spent a short time on the Cay and found no iguanas; the stunted vegetation and lack of adequate retreats probably indicate that it has never been able to support lizards of that size. Since it has no name on any map, I would like to hereby officially name it, "Reggie and Dave's Cay."

The engine was started again and we resumed our course toward Fish Cay, called locally, "Guana Cay." About halfway there, the outboard motor began to make a grinding noise and Reggie quickly shut it down. He removed the engine cover and we could see that the pull-start mechanism had become loose. Having no wrenches or tools with us at all, he tightened the bolts as best he could by hand and started it up again. The unit became loose almost immediately and began to grind quite loudly. After shutting down the motor once again and a few minutes of experimentation, we found that we could secure the bolts by hand, pull-start the engine and then carefully remove the entire mechanism and bolts. The engine functioned fine this way and we were able to continue the voyage, but it proved to be very time consuming and inconvenient each time we had to stop and then restart the engine at each Cay.

Table 1

Cays of the Acklins listed from Northwest to Southeast

Official Name	Local Name	Iguanas Present	Comments
Long Cay	Long Cay	No?	Information provided by local residents, but not confirmed this study
North Cay	Fish Cay	Yes	Est. 200-300 iguanas; Few juveniles present
None	None	No	Too small to support iguanas
Fish Cay	Guana Cay	Yes	Est. 200-300 iguanas; all sizes & classes present
Guana Cay 1st Cay	Wood Cay	No	None present this study
2nd Cay	None	No	None present this study
3rd Cay	None	No?	Information provided by local residents, but not confirmed this study; Cays likely too small to support iguanas
4th Cay	None	No?	
Wood Cay	None	No?	Information provided by local residents, but not confirmed this study; Cays likely too small or with insufficient dry land to support iguanas

Soon we were exploring Fish Cay and sighting iguanas of all ages from juveniles to adults. In one area, two large males were engaged in a bloody battle over territory or mating rights and provided quite a show. This Cay appears to support the most viable, reproducing population of *Cyclura rileyi nuchalis*, and in the relatively short time there, we observed over 65 iguanas.

It was now late afternoon and Reggie indicated his desire to turn back, but we had come such a long way and there were still several more Cays to survey, so I convinced him to continue further. The next Cay in line is shown on government maps as Guana Cay, but again, local fishermen name it differently as "Wood Cay." Indeed, the vegetation there is higher and much "woodier" than on the two previous Cays with many dead branches scattered on the ground. In reality, this is not one but a series of four Cays lying in very close proximity and separated by shallow channels. I briefly explored the first two and saw no signs whatsoever of iguanas.

At this point, it was quite late in the afternoon and I knew that, at best, we were more than three hours from the hotel. My map still showed four more very small Cays to the southeast that I wanted to visit, but the late hour, coupled with the engine problems we were experiencing, dictated that we reluctantly return. I subsequently interviewed several of the fishermen from Long Cay (Fortune Island) who regularly visit the Cays in the Bight of Acklins and none had ever seen iguanas on any Cays other than the two where we had found them on this trip.

I felt a sense of success in finally clearing up the confusion as to which Cays actually support colonies of the Acklins rock iguana. Populations on both Cays where they occur are quite dense and probably near the carrying capacity for such small land masses. We believe there are at least 200 to 300 iguanas on each Cay, but are somewhat concerned that there were very few young animals on North Cay. These populations certainly deserve further investigation and will continue to remain very vulnerable to disturbance by man and the exotic plants and animals that he is responsible for introducing to innumerable other islands throughout the Bahamas.

Literature Cited

Auffenburg, W. 1976. Bahama Rock Iguanas, Part Two. Bahamas Nat., Summer 1976:p.9-16.

Barbour, T., and Nobel, G.K. 1916. A Revision of the Lizards of the Genus Cyclura. Bull. Mus. Comp. Zool. 60(4):p.139-64.

Blair, D.W. 199? Northern Cal. Herp. Soc., Special Pub. #6, West Indian Rock Iguanas (Genus Cyclura), Their Status in the Wild and Efforts to Breed Them in Captivity (in prep).

I.U.C.N. 1978. The Red Data Book of Reptiles and Amphibians.

Iverson, J.B., and Auffenburg, W. 1980.

Rabb, G.B., and Hayden, E.B., Jr. 1957. The Van Voast-American Museum of Natural History, Bahamas Islands Expedition Record of the Expedition and General Features of the Islands. Amer. Mus. Novitiates (lB36):p.1-53.

Schwartz, A., and Carey, M. 1977. Systematics and Evolution in the West Indian Iguanid Genus Cyclura. Stud. Fauna Curacao and Carib. Is. 53(173):p.15-97.

Schwartz, A., and Henderson, R.W. 1991. Amphibians and Reptiles of the West Indies: Descriptions, Distributions, and Natural History. University of Florida Press:p.401.

Schwartz, A., and Thomas, R. 1975. A Check-List of West Indian amphibians and Reptiles. Carnegie Museum of Natural History, p.114.

U.S.D.I. 1983. Publication 50, C.F.R., Part 17.

THE CAPTIVE HUSBANDRY AND PROPAGATION OF THE CUBAN ROCK IGUANA, CYCLURA NUBILA PART 3. DIET AND FEEDING

BY ROBERT W. EHRIG

Cuba, the largest island of the West Indies, has an extremely large and diverse flora. The Cuban Rock Iguana, *Cyclura nubila* would be expected to have a natural diet utilizing many of these plant species. Feeding the Cuban Iguana, in most respects, is identical to feeding the Green Iguana, *Iguana iguana*, in captivity. The Cuban Iguana, coming from a drier habitat, appears to have lower water requirements than *Iguana iguana*. Cuban Iguanas extract sufficient moisture for their needs from their diet. Our animals rarely drink, except for females preparing for egg laying. This is when all iguana species are most vulnerable to dehydration.

No other aspect of iguana husbandry is more controversial than diet. We have attempted to simulate a natural diet by providing a large variety of food items. Most iguanas will readily accept food items that are familiar to them. Many will shun unfamiliar ones. So it is advantageous to introduce new items to their diet with familiar ones. A hungry iguana will eat favorite foods readily and is stimulated to try new foods.

Most published diets contain greater protein quantities than I am comfortable using. Iguanas have thrived for us on a diet consisting of 94 - 98% vegetable and fruit and 2 - 6% prepared animal food or animal protein. This was based on years of personal observations of iguanas feeding in the wild. Large quantities of low-calorie fibrous plant materials are consumed. When seasonal fruit supplies become available, iguanas travel to the sources and consume large quantities while they last. Animal protein (carrion) is consumed readily, but it is only rarely available.

Allan's Cay Iguanas, *Cyclura cyclura inornata*, are frequently fed scraps of conch (a marine snail) by boaters cleaning their catch. Most accept a few morsels and quickly lose interest. But a yachtsman with a loaf of white bread will have an entourage of iguanas as long as the supply lasts.

In the wild, an iguana emerges from its retreat after sunrise. It basks in the sun long enough to raise its body temperature to begin daily activities. Basking spots are usually prominent areas, centrally located in the iguana's territory that receive early, full sunlight. Not only does the ultraviolet light stimulate the iguana to eat, it facilitates the absorption of nutrients from the food.

In captivity, these situations are simulated by artificial habitats described earlier (Iguana Times, Volume One, Nos. 3 & 4). Lighting systems optimally commence at 730 — 800 hours with food introduced at 930 hours. We feed iguanas daily, but do not feed on rainy days. Volume of food varies seasonally. Substantially more food is consumed in summer than winter months.

Feeding portions are based on the amount of food each iguana will readily eat. If the animals are still hungry, more food is offered. In groups, two feeding dishes are sometimes necessary to insure subordinate animals receive their fill. Some animals will eat heavier on alternate days. This is especially true of hatchlings. The diet of hatchlings is essentially the same as adults, except that it is chopped or shredded to a finer consistency.

We also feed animals *coccothrinax* palm fruits, carambolas, sugar apples, sapadillas, papaya leaves, guanabanas, and other tropical fruit. We don't mention them in the table as these are not available in most temperate regions, we utilize *plumeria* and *hibiscus* flow-

ers and leaves as foods. In temperate areas, honeysuckle or dandelions would be good substitutes. Any local fruit or flower might prove to be a valuable addition to the iguana diet. All foods should be acquired from sources known to be pesticide free.

Basic Iguana Diet

Greens (30-40% of volume)

Romaine	Kale	Leaf Lettuce	Collards
Spinach	Escarole	Mustard Greens	Parsley, etc.

Handling: *All greens thoroughly rinsed and chopped or diced. Hatchling or juveniles need finely chopped food to aid digestion. Gut fauna in young iguanas can be overwhelmed by large pieces of food.*

Bulk Vegetables (30-40% of volume)

Frozen mixed vegetables (carrots, corn, peas, green beans, limas)	Green beans Peas Broccoli	Zucchini Yellow squash Yams	Cabbage Avocado

Handling: *All vegetables should be fresh or frozen, frozen: thawed and served room temperature or slightly warm, chopped.*

Fruit (10-30% of volume)

Banana	Melon (Honey dew, Cantaloupe, etc.)	Kiwi
Grapes	Papaya	Mango
	Strawberries, cherries, blueberries, peaches	

Handling: *All fruit washed and chopped into small pieces designed to be bite-sized for various size iguanas. Bananas served with skin.*

Protein (2-7% of volume)

Raw chicken	Dog, cat, or monkey chow

Handling: Chicken meat chopped. Process food soaked.

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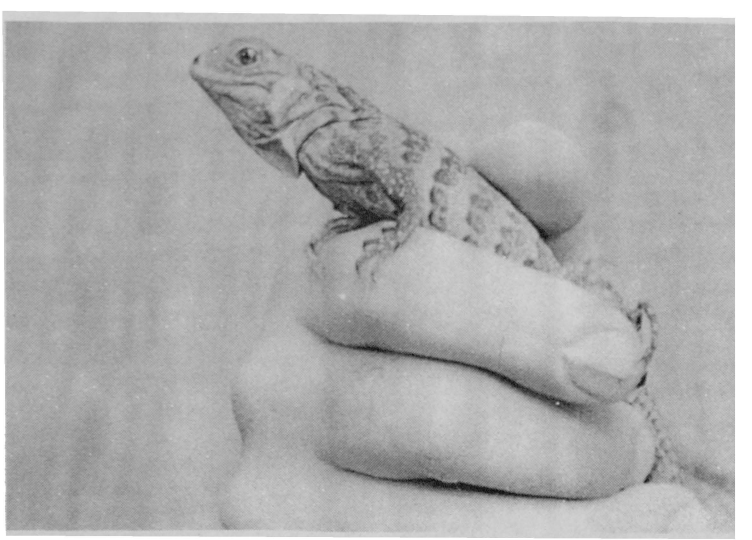


Cuban Rock Iguana, *Cyclura nubila.*
Photography: Ron Harrod

The Vegetation of a Bahamian Cay Inhabited by a Population of Rock Iguanas

By R. Ehrig and R. Moyroud

The Allan's Cays are a group of very small islands at the northern end of the Exumas Island chain in the central Bahamas. The group consists of three cays: Allan's Cay, Leaf Cay, and Southwest Allan's or U-Cay.

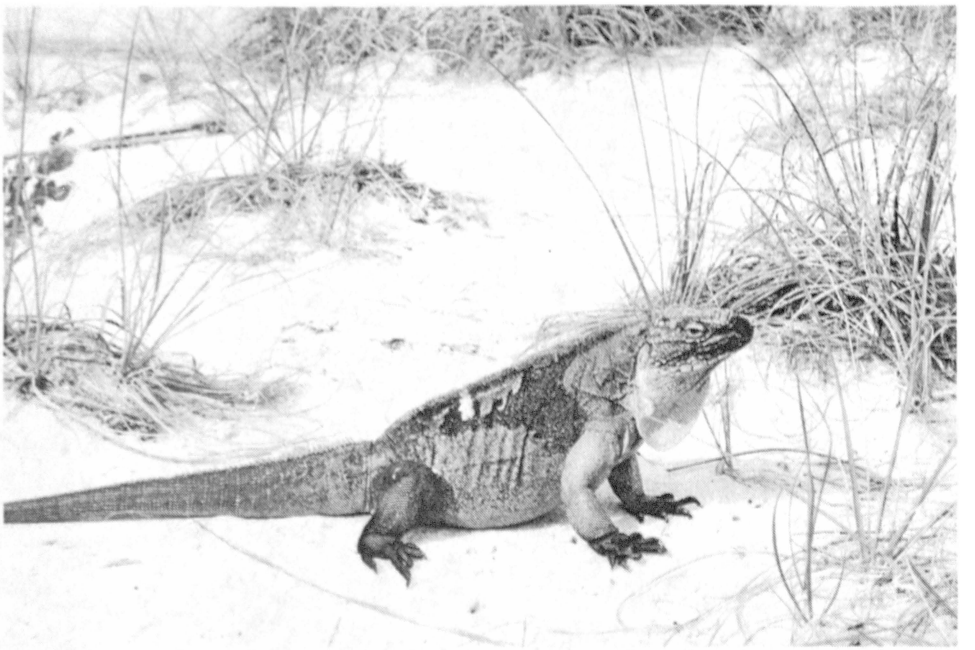
The Allan's Cays are the entire natural range of the Allan's Cay Iguana, *Cyclura cychlura inornata*. It is unknown if the range of this iguana was larger in the past.

Allan's Cay is the largest of the three islands (18 acres). It is long, narrow, and extremely rocky with an undulating ridge running most of its length. The ridge rises to 45 foot (14.6m) elevations at several points and supports a stunted, wind-blown forest growing out of most of the crevices in the bare limestone. It has the most cacti of the three islands. Only six iguanas are confirmed living on the cay. All appear to be mature males. No areas suitable for nesting exist on this island.

U-Cay (10 acres) is a horseshoe shaped island with two long rocky ridges and a broad sandy area in the center. In many respects, this island is a cross between the other two. U-Cay supports a dense population of iguanas. The sandy plain offers some nesting opportunities.

Leaf Cay (11 acres) is the most heavily visited island in the group. It has several beautiful beaches, rocky shoreline and much of the interior is a sandy plateau rising to 25 feet (8m) above sea level. Leaf Cay has a dense iguana population. The island has many suitable areas for nesting, especially the dune along the northeast coast. Leaf Cay has a diverse flora for such a small island. Substantial feeding of iguanas occurs here because of the popularity of this anchorage with boaters. This supplemental feeding probably reduces some of the impact the iguanas have on the native vegetation.

Allan's Cay Iguana, *Cyclura cychlura inornata*, male near burrow on U-Cay. *Photography: R. Ehrig*



Young male Allan's Cay Iguanas, *Cyclura cychlura inornata*, among the sea oats, white spot indicates that the iguana has been censused. *Photography: R. Ehrig*

Allan's Cay Group (Bahamas) Plant List
The Vegetation of Leaf Cay

● = Very abundant ■ = Moderate ▲ = Uncommon

■	Acacia choriophylla	Cinnecord
▲	Amyris elemifera	Torchwood
■	Antirhea myrtifolia	Antirhea
▲	Argythamnia lucayana	Argythamnia
■	Bumelia americana	Wild Saffron, Milk-berry
▲	Calliandra formosa	White calliandra
●	Casasia clusiifolia	7-year apple
■	Coccoloba diverifolia	Pigeon plum
●	Coccothrinax argentata	Silver palm
▲	Cocos nucifera	Coconut
▲	Conocarpus erectus	Green buttonwood
●	Conocarpus erectus var. sericeus	Silver buttonwood
▲	Crossopetalum rhacoma	Wild cherry
▲	Cyperus sp.	Sedge
▲	Distichlis spicata	Salt-grass
■	Erithalis fruiticosa	Black torch
■	Ernodea littoralis	Golden creeper
▲	Eugenia foetida	Spanish stopper
■	Eugenia axillaris	White stopper
■	Guaiacum sanctum	Lignum vitae
●	Guapira discolor	Blolly
▲	Hymenocallis sp.	Spider lily
▲	Iresine flavenscens	Coastal iresine
●	Jacquinia keyensis	Joewood
▲	Laguncularia racemosa	White mangrove
●	Manilkara bahamensis	Wild dilly
▲	Mastichodendron foetidissimum	Mastic
▲	Opuntia nashii	Nash's prickly-pear
▲	Opuntia stricta var. dillenii	Common prickly-pear
▲	Paspalum distichum	Knot grass
■	Pithecellobium bahamensis	Bahama Cat's claw
■	Pithecellobium guadalupensis	Blackbead
■	Pseudophoenix sargentii	Cherry palm
▲	Psidium sp.	Stopper
■	Randia aculeata	Randia
●	Reynosia septentrionalis	Darling plum
●	Rhachicallis americana	Hog-bush
▲	Sesuvium portulacastrum	Seaside purslane
▲	Solanum bahamense	Bahama nightshade
■	Sophora tomentosa	Necklace pod
▲	Spartina patens	Saltmeadow cordgrass
▲	Sporobolus virginicus	Seashore dropseed
▲	Strumpfia maritima	Strumpfia
●	Suriana maritima	Bay cedar
●	Thrinax morrisii	Thatch palm
▲	Uniola paniculata	Sea oats
▲	Uniola virgata	Spike-grass
▲	Ximenia americana	Hog plum

There is very compelling evidence for the effect of the herbivorous land iguanas on the distribution and frequency of the species present on these isolated islands. The main sources of food and water for the iguanas are leaves, fruit, and flowers. Iguana scats resemble cigars, and appear to be mostly leaf matter, but some seeds were distinguishable. Only *Casasia* had appreciable quantities of fruit at the time of our visit.

All of the vegetation is evergreen, but there are seasonal flushes of growth, generally coinciding with the rainy season. In severe droughts, some plants may drop so many leaves that they appear to be dead. Fruit production is seasonal in most genera *(Bumelia, Coccothrinax, Coccoloba, Manilkara),* but are essentialiy year-round in others *(Casasia).*

Among the most obviously grazed plants are: *Ernodea littoralis* (golden creeper), *Reynosia septentrionalis* (darling plum), and *Guapira discolor* (blolly). Some individual plants were so heavily cropped as to be almost unrecognizable. Iguanas have been seen up in the taller branches of blolly and darling plum, where they can reach new growth; their weight eventually bends the treetops to the ground, allowing the animals to "step off" after having eaten their fill. Both blolly and darling plum produce fleshy fruits that are probably eaten as soon as they are ripe. Their hard seeds are not digested, resulting in favored conditions of dispersal for these species (scats provide fertilizer and humus).

The foliage of other species shows no sign herbivory; these species produce fruits of large size, or small fruits in large quantities, and include the palms: *Coccothrinax argentata, Thrinax morrisii, Pseudophoenix sargentii,* and two of the most abundant hardwood trees, *Casasia clusiifolia* (seven-year apple), and *Manilkara bahamensis* (wild dilly). The other principal woody species is *Conocarpus erectus* (buttonwood), which does not appear to be browsed; its small woody fruits are designed for wind and water dispersal. Buttonwood may be unaffected by the iguana population; it thrives in harsh conditions and is widespread in the Bahamian region.

Plant list is based on surveys by R. Ehrig, March 20—26, 1990 and May 15—20, 1990 and R. Moyroud, March 19—25, 1992.

ALLAN'S CAYS SIGNS

The Allan's Cays informational signs were installed on Tuesday, 24 March, 1992. This project on behalf of the Allan's Cay Iguana, *Cyclura cychlura inornata,* proved to be much more complicated than anyone expected. The International Iguana Society wishes to thank the following individuals for their help and perseverance in accomplishing this worthwhile feat.

Peggy Hall
Tropical Lettering of Big Pine Key, Florida
Capt. Ron Harrod
Richard Moyroud
Linda Aurenhammer
Ann Fremont
Capt. Howard Whitney
Marcie Ehrig
Capt. Dan Doyle
Sandra Buckner
Nevin Krishna
Thomas Akre
Capt. Ron White

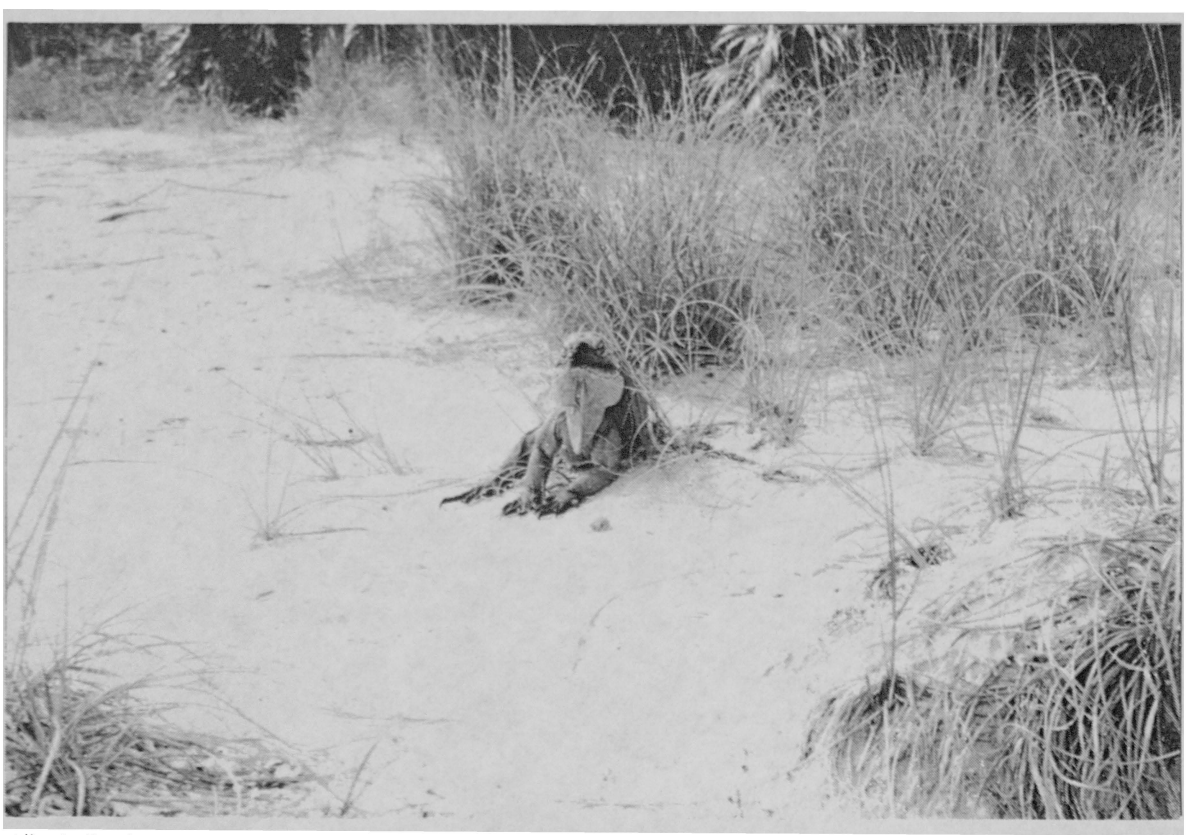
ALLAN'S CAY EXPEDITION

BY R. EHRIG AND R. MOYROUD

On Friday, 20 March 1992, Dr. John Iverson of Earlham College in Richmond, Indiana commenced his seventh trip to the Allan's Cays in the Bahamas. The purpose of the visit was to capture as many of the Allan's Cay Iguanas, *Cyclura cychlura inornata*, as possible on Leaf Cay and S.W. Allan's or U-Cay. As on previous expeditions, the animals are captured, weighed, probed, marked and released. Iguanas are painted with white nail polish on the crest to identify animals which have already been inventoried.

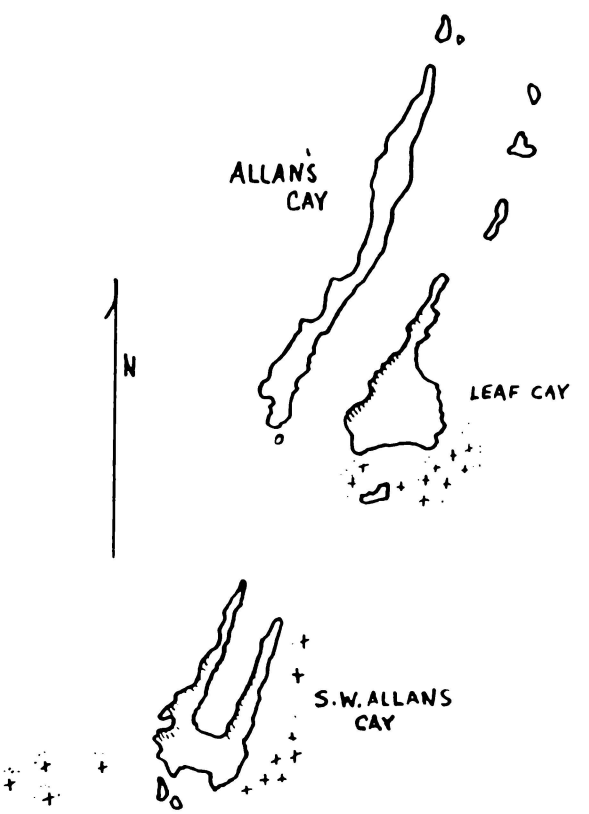
This was the most successful trip John has had since he started his research in March 1980. 272 iguanas were captured and inventoried (148 on Leaf Cay, 124 on U-Cay). Recapture rate was close to 70%. On the last trip in 1990, 248 iguanas were captured. All work is performed under permit from the Bahamas Department of Agriculture.

Participants were comfortably working from the sailing vessels *"Heart's Desire"* and *"Good Fortune"*. IIS members Richard Moyroud, Linda Aurenhammer, Geoff Smith, Tom Akre, Marcie and Bob Ehrig participated. Five iguana carcasses were discovered on this trip, probably a result of 1990's severe drought in the area. Remains were turned over to the Bahamian government.



Allan's Cay Iguana, *Cyclura cychlura inornata*, resting on U-Cay beach. *Photography: R. Ehrig*

Allan's Cay Iguanas, *Cyclura cychlura inornata*, patrol Leaf Cay with sandpipers. *Photography: R. Ehrig*



The Allan's Cays

SALMONELLOSIS: WILL IT POSE A PROBLEM FOR IGUANA HUSBANDRY?

BY GREGORY Z. SCOTT

On 21 December 1991, I picked up two three-year-old female Rhinoceros iguanas, *Cyclura cornuta* at the Miami International Airport. They were captive-bred animals raised by Terry Gentry in Mt. Laurel, New Jersey. Terry sent them down for boarding and possible breeding purposes. The next leg of the trip was a three hour car drive to my home in Big Pine Key, Florida. Within thirty minutes of arriving home, Bob Ehrig of Finca Cyclura came over to examine the animals and choose which of the two he would house. Both animals were in apparent exquisite condition.

The female I would board was placed in a habitat cage. Dimensions of the habitat cage are: floor area = 7 square meters (76 square feet); height = 3.04 meters (10 feet). She would share these quarters with a trio of *Cyclura cornuta*, one adult male, a three-year-old female, and a four-year-old female. The new female was accepted by the group with no hostility ever noticed, however, the new arrival was quite belligerent towards me. To give reference to her behavior, I could no longer enter the cage in shorts and flip-flops. On one occasion she jumped approximately one meter and grabbed my pant leg at the knee with her mouth and had to be physically pulled free. From the day after her arrival to the day she died, she ate, basked with the other rhinos and even shared the same den at night.

On 28 January, 1992, she was her usual aggressive self at feeding time, and she was looking fine when I did my noon checks of all the cages. Shortly after 5:00 p.m., however, I found her in a very lethargic state. Her only response was to open her mouth when I picked her up. On closer examination I noticed her eyes were partially sunken with fully dilated pupils, no movement in any limbs, and shallow breathing.

I immediately brought her into the house and treated her for dehydration by feeding a mixture of romaine, banana and carambolla liquified in a blender with water. She swallowed five teaspoons of the mixture and within ten minutes regurgitated. I repeated the procedure with the same results. After that I placed her in a large dog carrier with a heating pad. She died that night between 7:00 p.m. and 7:30 p.m.

On 29 January 1992, I took her to Cruz Animal Clinic, Ramrod Key, Florida, for a necropsy and histopathology exam. Blood smears revealed high levels of bacteria commonly found in cases of acute septicemia which was the cause of death. Upon examination of the internal organs Dr. Rene Cruz found the liver to be seriously damaged with yellow granular necrotic tissue. For lack of a name to describe the condition, Dr. Cruz named it pyrogranuloma. A section of liver with a granuloma was placed in 10% formalin and sent to the State Diagnostic Lab in Kissimmee, Florida, to determine the possible causative agent. A sensitivity culture was started using a swab of the cloaca. Palpation of the intestines showed they were full of gas. There are only three types of bacteria that produce septicemia in reptiles: *Pseudomonas, Aeromonas*, and *Salmonella* (Wallach and Boever, 1983). They are all rod shaped, gram-negative, motile bacteria. Dr. Cruz suspects *Salmonella* as the causative agent in this death after close comparison of the blood smears with examples in the text. The text also listed "enteritis, septicemia, and necrotic foci in the liver" as results of *Salmonella* infections. Several antibiotics have been used for treatment of *Salmonella* with limited success (Wallach and Boever, 1983).

Salmonella bacteria (named for Dr. Salmon) are gram-negative, non-endospore forming, motile rods. They ferment glucose, producing acid and gas with an incubation period from twelve hours to two weeks and the normal habitat is the intestinal tracts of animals and humans. To date, seventeen strains have been identified (Tortora et al. 1982). *Salmonella* infections are often subclinical in reptiles and become clinical when there is some degree of stress in the reptile (Wallach and Boever, 1983).

By the time clinical signs are noticed, death usually follows within hours. Septicemia is probably the cause of sudden unexplained death in otherwise healthy looking animals. The change from small indoor housing to a large outdoor habitat cage could have been the stress factor involved in this case.

I was informed of two cases of children contracting salmonellosis from handling iguanas that were documented by the Centers for Disease Control (CDC), Atlanta, Georgia. To avoid problems with pathogenic bacteria, we should practice good hygiene and keep relative humidity down (Fowler, 1986). After handling iguanas or working with their cages, be sure to wash your hands thoroughly with warm water and soap. Any scratches or bites from your animals should also be washed and disinfected. Such precautions are well advised because salmonellosis in humans is an unpleasant experience and difficult to treat.

Literature Cited

Fowler, M.E. editor. 1986. Zoo and Wild Animal Medicine, 2nd edition. W.B. Saunders Co.

Tortora, G.J., B.R. Funke and C.L. Case. 1982. Microbiology: An Introduction. Benjamin/Cummings Publishing Co., Inc.

Wallach, J.D., DVM and W.J. Boever, DVM 1983. Diseases of Exotic Animals-Medical and Surgical Management. W.B. Saunders Co.

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Young female Rhino Iguana, *Cyclura cornuta*, in captivity in the Florida Keys. *Photography: R. Ehrig*

TREASURER'S REPORT

DAVID EHRLICH

The International Iguana Society is a non-profit non-governmental conservation organization. IIS is international in scope and membership and dedicated to the preservation of the iguanas, consisting of the following genera: *Amblyrhynchus, Brachylophus, Conolophus, Ctenosaura, Cyclura, Dipsosaurus, Iguana, and Sauromalus.*

IIS is tax exempt under Section 501(c)3 of the IRC. Contributions are tax deductible to the extent provided by law.

Bank Balance: 1 May, 1992		$4,274.16
Total Bank Debits		2,816.00
Total Bank Deposits 2 August 1990 - 1 May 1992		7,090.16
Society Expenses		
Printing Costs: Iguana Times, Vol. One, Nos. 1-4		1,471.40
Postage (550.17 check, 240.00 cash)		790.17
Assistance to the Jamaican Iguana Programme (reference literature for project and salaries)		195.00
Bahamas Projects		
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Dissemination of information and conservation assistance	TOTAL	$2958.57

Statement of Purpose

The International Iguana Society, Inc. is a non-profit, international organization dedicated to the preservation of the biological diversity of iguanas through habitat preservation, active conservation, research, captive breeding and the dissemination of information.

The Iguana Times, the newsletter of the society, is distributed quarterly to members and member organizations. Additional copies are available at a cost of $4.00 including postage. Annual dues for The International Iguana Society are $25.00 for individuals and $30.00 for organizations which receive double copies of the newsletter.

Write to:
The International Iguana Society, Inc.
Route 3, Box 328
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Members of the I.I.S. are encouraged to contribute articles for publication in the Iguana Times, following a format like that shown in the first issue. The articles can deal with any aspect of iguana biology, ecology, behavior, husbandry, systematics, etc. Members are also welcome to submit letters to the Editor for publication in future issues of the newsletter.

The Editor

I.I.S. Bookstore

As a service to our members, a limited number of publications will be distributed through the I.I.S. Bookstore. We believe this will become a valuable source of information. The following publications are now available:

The General Care and Maintenance of the Green Iguana, *by Philippe de Vosjoli.* 1990. **$4.40** (including postage); **$5.50** (non-members)

Guide to the Identification of the Amphibians and Reptiles of the West Indies (Exclusive of Hispaniola), *by Albert Schwartz and Robert Henderson.* 1985. **$19.00** (including postage); **$27.00** (non-members)

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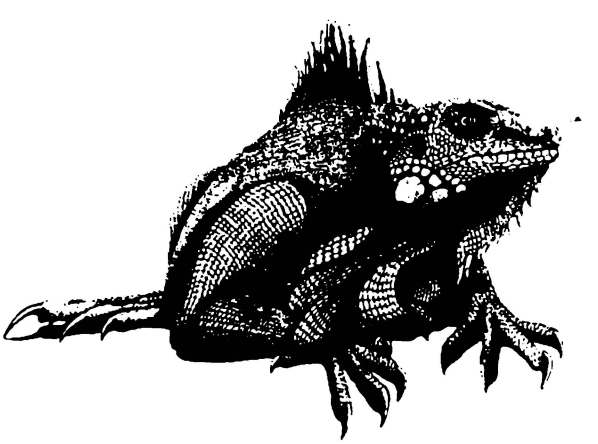

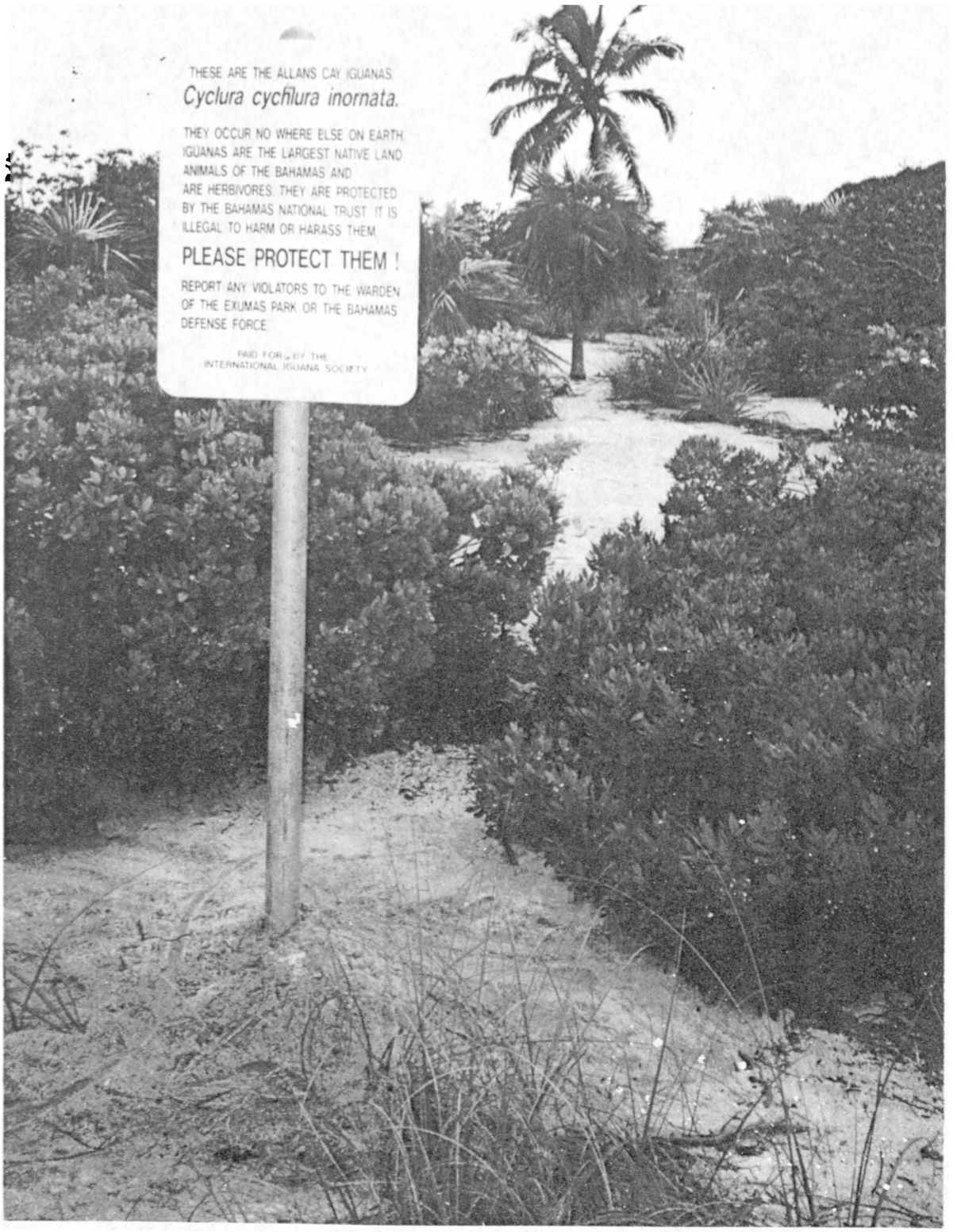
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