

Iguana Times

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Adult male, Spiny-tail Iguana, *Ctenosaura similis* in Yucatan, Mexico. Photograph: Bruce Elström

"MUY DIFICIL"

BY BRUCE ELFSTRÖM

I have had an interest and have kept *Ctenosaura* species for a number of years now. Besides devouring any literature on the genus, I have had the pleasure to see some fine examples in their home range in many areas of Mexico and central America. This year was no exception. Kacey (my wife), her mother, Mimi, and I took a trip to the Yucatan peninsula during the month of March. I had dreamed of this place for some time. Reasons for a visit were several, among them, a new cultural experience and, big surprise, the Yucatan is home to two species of *Ctenosaura*. The two species are *Ctenosaura similis*, the largest of the genus, and *Ctenosaura defensor*, the smallest of the genus, a small red, grey/blue and black species that I have always appreciated.

Ctenosaura similis range from the Isthmus of Tehuantepec, Mexico, to mid-Panama (Ethridge, 1982). Adult males reach a total length of approximately one meter and can weigh over 2.5 kilograms. *Ctenosaura defensor* ranges through the Mexican states of extreme eastern Tabasco, northeast through Campeche, Yucatan, and portions of central western Quintana Roo (Duellmann, 1965; Lee, 1980; Etheridge, 1982; Villa, et al. 1988). Adult males reach 25 centimeters total length and usually weigh less than 250 grams.

On March 5th we arrived at the city of Merida, the beautiful capital of the state of Yucatan. We stayed there for several days in a small bed and breakfast and explored the city. Some guests at the bed and breakfast had seen and photographed several "iguanas." From their description, "very large lizard, two or three feet long, greenish white and black," it had to be *Ctenosaura similis*, the only lizard that large in the area. They had seen the "iguanas" in the middle of Merida, a city with a population of more than 950,000. During our stay at Merida I saw no *Ctenosaura*. I also did not look too hard. The beauty of the people and the city itself, is enough to keep your attention. If you want to see an authentic post-Spanish period city, this is it. Do

not bother with the "city" most tourists see 300 kilometers to the west.

After our stay at Merida, we rented a small Nissan Sentra and headed west toward the Mayan ruins of Chichén Itzá. We stayed in a nearby hotel for three days. This area of the Yucatan is where the majority of *Ctenosaura defensor* have been collected, including the type locality by Bailey (1928). Upon arrival I set out to work. I had brought a copy of Philippe de Vosjoli's *Green Iguana Manual* (1992) along to show Jim Dougherty's photograph of *Ctenosaura defensor* to the local population starting with the hotel staff. With broken Spanish and nonexistent local Mayan, (there are many dialects of Mayan spoken throughout Mexico), I ended up speaking with Jorgé at the main desk, who acted as an interpreter of the constant flow of Maya and Spanish coming from a group of five or six staff members. I learned through this crowd, as well as from an old gentleman who worked as a gardener and farmer in Piste, a nearby village, that this lizard was not an iguana or garrobo (reserved for *Ctenosaura similis*) but went by the Mayan name for lizard. These men led me off the courtyard of the hotel to show me iguanas. After ten feet I saw, basking on a replica of the Mayan sacrificial statue Chac Mool, two large *Ctenosaura similis*, a male and a female. Male *Ctenosaura similis* can be differentiated from females by the presence of an enlarged crest, swollen jowls and large adult size. After buzzing off a few photos of the pair, I told the men they were right, indeed I was looking for the smaller red and black one. It seemed these men had not seen one for sometime, and it was generally "muy dificil" to find. They told me, "It lives in trees and ground, when you come near it will run and hide in the hollow of a tree. It lives in the jungle and does not like people — it lives in the jungle and is out when it is hot." My knowledge of *Ctenosaura defensor* seemed to match theirs, a common behavior of many "club-tails," is the use of hollow logs as retreat sites (The name "club-



Adult male, *Ctenosaura similis similis* on Chac Mool, near Chichén Itzá in the Yucatan, Mexico.

tail” is usually restricted to lizards formally grouped in the genus *Enyaliosaurus*. These include *C. clarki*, *C. defensor*, and *C. quinquecarinata*. *C. palearis* was also included in this genus but was rarely referred to as a “club-tail”). It also has a rather more wary attitude toward people than the larger *Ctenosaura* (“spiny-tails”), which seem to thrive in disturbed habitat. The jungle they referred to is a dry, tropical thorn and hardwood forest that surrounds the Chichén Itzá area and has not been used for agriculture in 50 years. The older gentleman told me that the lizard is used to cure very bad cases of gout and has been used this way “forever”; it is prepared in a soup or ground up and baked. I asked him if it is used often he said “No, very hard to find.” My fancies of finding *Ctenosaura defensor* waiting in the nearby ruins seemed more dream-like than ever.

I grabbed my bags and headed to the bungalow to join my wife. In a distance of 20 meters I saw seven medium to very large *Ctenosaura similis* basking in the hotel garden and moving only when approached to within a meter or so. Males seemed to hold territories less than eight meters in diameter. Each territory contained up to three females. When approached, individual lizards would vanish into a limestone hole usually located at or near the center of their territory. (Yucatan is a large flat shelf of limestone with a very thin layer of topsoil — there is no lack of holes and crevices for a lizard to hide.) Prime territories seemed to be dictated by the availability of a hole large enough to allow entrance of the territory holder. I witnessed some smaller to medium-sized males having quite a hard job trying to fit into their respective holes. In the hotel garden, as well as all areas I visited during the trip, I never saw a *Ctenosaura* retreat to a dug burrow. The chances were good that if you saw a large limestone hole, it would belong to a large male.

Having traveled a linear distance of 20 meters in two hours, I unpacked and sat down to take notes on the four territories of males within view of my front step. Two identical bright blue males seemed to share a retreat under the cement foundation of our bungalow. The hole to the retreat was between limestone and cement, but seemed to open up after the entrance. Most likely just the

entrance and not the retreat itself was shared. This in itself is hard to imagine due to the extreme territoriality of the species. Availability of suitable retreats may be a limiting factor to population densities — without data I can not say. Of the three large males and the five females in sight, some generalizations of behavior can be made. The *Ctenosaura* would spend the morning hours from approximately 9 a.m. to 11:30 a.m. basking, females seemed to appear slightly later than males. The large males would watch the movement of females and other males, attending to any “out of place” male with a series of slow exaggerated head bobs followed by a shudder, or a chase if the male was smaller and not responding to head bobs. Conflict between similar-sized males was not observed. Head bobs seemed to be sufficient to re-affirm territory boundaries. The smaller to medium-sized males seemed to move through and around the larger male territories, perhaps having no territory of their own. After basking, the lizards would then begin to forage in a leisurely fashion. The males moved within their territories periodically displacing females and smaller males. In one instance a large male was out of sight of his hole where one of “his” females was basking. A male 1/3 the size of the female approached the female and attempted to grab the scruff of her neck, causing the female to disappear into the nearby hole. The small male then followed the female into the hole returning within a few seconds at full speed only to be caught 1/2 meter from the hole by the female in hot pursuit. She proceeded to grab the male mid-body, shake him twice, and fling him some two meters. The little male returned within 30 seconds to a repeat of the behavior. This time with blood drawn from the dorsum of the male, he did not return again. At the hottest part of the day most *Ctenosaura* would retreat into their holes. If this disappearance was caused by the heat (app. 85-90°F) or the inundation by bus loads of lunch-eating Cancun tourists. It can not be said, since *Ctenosaura similis* seem very tolerant of human presence. I as well, after a share of piña coladas, would retreat to my hole, the bungalow. Around 3 p.m., they would reappear, and bask and forage until sunset.



Juvenile male, *Ctenosaura similis similis*, Sian Ka'an Biosphere Reserve, Quintana Roo, Mexico. Photograph: Bruce Elfström

You may be asking yourself, "Didn't this idiot go and see the Mayan ruins?" Yes I did, thank you. The above generalizations were made after a few days interspersed with much sight-seeing of ruins and bushwhacking of the "jungle."

The ruin of Chichén Itzá is a sight to be seen by everyone and is only a 1.5 hr. bus ride from Cancun. (Cancun is reached without spending a king's ransom and may be within many people's means.) Every ruin, of which there are over 50, in differing states of reconstruction, are watched over by at least two large male *Ctenosaura similis*. The sight of these awe-inspiring temples and buildings is in itself worth a trip costing much more, and is all the more exhilarating when a beautiful one meter long yellow, blue, white and gray monster of a *Ctenosaura* is silhouetted against the ruins and sky. *Ctenosaura* of all sizes and both sexes are throughout the ruins and are quite approachable.

The "jungle" proved to be much harder to move through than most other classic rain forest jungles I had been in, being more like the vegetation of the dry forests of the Caribbean islands. After many hours, scratches and a run-in with some violent ants, I came out short some blood and not a single glimpse of a *Ctenosaura defensor* wiser. I thought I would stack the cards in my favor. I offered the hotel staff, local farmers, and ruins' tour guides \$50 for every live unharmed *Ctenosaura defensor* they brought me. I told them to tell all their relatives and friends. I sat back and waited for the lizards, correct and incorrect, to appear. This "technique" usually works wonderfully when looking for any harmless reptile or amphibian in an unfamiliar area. Time went by and not a single specimen was found! I upped the reward to \$100 and still nothing. On the way out of the hotel leaving for our next stop in Quintana Roo, Jorgé, at the main desk looked at my cuts and scrapes and lack of *Ctenosaura defensor* and said with a grin, "You see, this one is hard to find."

To drive from Chichén Itzá to our last stop near the Tulum ruin in the state of Quintana Roo, you must drive to Cancun, then down the coast. Well, you can't tell this rental car driving New England boy to avoid the interesting small village roads and stay on a large highway which takes


you 200 km out of the way, when the map shows a road which goes right where we want to be without sending us in the wrong direction. On the pay highway between Chichén Itzá and Cancun, we slowly came to realize there were no exits and no way off the highway to pick up the short cut we had planned to use. By estimating the number of kilometers to where the road should be, we left the highway at the nearest "road." After a few minutes, and some lifting of a wire fence later, we were off down a limestone road heading somewhere. In twenty minutes we happened upon a farm and asked directions to the town of Victoria, which should have been on the road, if our calculations were correct. The farmer nodded his head and pointed in the direction we were going. We had the right road! To make a long story less so, if you want to see some of the real Yucatan, and see some beautiful forest with a variety of reptiles, including many *Ctenosaura similis*, and travel with two beautiful adventurous women, then by all means travel this road. However, if going an average of 25 kilometers/hour for two hours in a small car, with little ground clearance, and three adults, one of which is over 215 pounds and 6' 4", and finding the road does not go through to your destination, and having ended around 3/4 of the distance to your destination, and having to turn around to use the bloody pay highway two bumpy hours away, and having to face three villages of laughing people, is not your idea of fun, then by all means don't take this road! Funny as it seems, I would do it the same way next time, only with a new short cut and a different set of people laughing at me turning around.

The trip ended with a relaxing five days on the beach near Tulum. We watched the largest *Ctenosaura similis* I have ever seen, walk, mate and do lizard stuff all through the ruins of Tulum. A drive into the Sian Ka'an Biosphere Reserve showed off some taller, slightly more moist forest teeming with wildlife. A visit to the Maya ruins of Coba, stuck in the middle of some very old secondary and some primary forest, is a requirement. Who knows—you might find a few coral snakes, much to the dismay of your fellow travelers. With better luck than I, you may turn up the very special lizard named "*Muyus difficila defensor*."



Mating pair of *Ctenosaura similis similis*, Tulum, Quintana Roo, Mexico. Photograph: Bruce Elfström

Acknowledgments

My deepest thanks to all the people who helped in the search. I have traveled extensively and have not often met such kind and open minded people. Thanks to my travel companions for putting up with an obsessed reptile nut, and to Steve Hagar for his editorial comments. 

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The Iguana Widow

By Sheila Aumiller

He's off like a shot, when he sees a green spot
Move in the bushes or dart up a tree.
In each destination, he forgets conversation,
In search of the prize - iguanas, naturally.

My husband's obsessed and he's always dressed
In iguana T-shirts and one on a chain.
Whatever island, flat beaches or highland,
He'll seek them out, again and again.

I can't complain, he's not chasing dames
But he pets lizards whenever he can.
So spare me a thought - for the lizards he's caught
Made me the 'Iguana Widow' I am.

Ctenosaura Husbandry Notes

THE EDITORS

Ctenosaura occur in a variety of habitats. Their preferred habitat is dry open woodlands with rock outcroppings and an abundance of dead wood and standing hollow snags. Most species are adaptable iguanas, able to survive well in secondary habitats, farmland, cemeteries, and sometimes vacant lots. The *Ctenosaurs* range from northern Mexico to Panama in Middle America. The areas they inhabit are dry, with heavy seasonal rainfall. They can occur in wet areas, but only in dry ecotones such as beachfronts (Manuel Antonio, Costa Rica).

In captivity, as with all iguanas, the larger the enclosure the better. Enclosures should be furnished with driftwood, hollow logs, and large rocks. *Ctenosaurs* seem to have a strong need for privacy. The more hiding areas they have available the more secure they appear. In their native environments predators are a constant threat.

Ctenosaura are primarily vegetarian. They are known to feed on bean crops and browse a variety of native shrubs. Flowering and fruiting trees are important seasonal food sources. *Ctenosaurs* are at times predators. This is the most pronounced difference between them and the green iguana. They feed on a variety of insects, small lizards, hatchling birds, and small rodents.

Hatchling and juvenile *Ctenosaurs* eat a higher percentage of animal food than adults. Adults may be almost totally vegetarian. In captivity they should be fed a varied vegetable diet heavy on greens such as collards. Waxworms, mealworms, crickets, and pinkie mice should be offered. Fruit will also be accepted. *Ctenosaura* are heliothermic. They only emerge from their burrows when the sun is shining. Body temperatures of 36°-37°C is preferred, and maintained by thermoregulation (Fitch 1983). In captivity, an effective full spectrum UV light system is necessary. *Ctenosaurs* should be able to bask within 6 inches (15 cm) of the UV lights above the screen top. A hot spot should be available at a prominent location at one side of the enclosure. One male may be kept with several females.

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THE INDIANAPOLIS ZOO'S CYCLURA MANAGEMENT PROGRAM

BILL CHRISTIE
CURATOR OF FORESTS AND DESERTS, INDIANAPOLIS ZOO

The Indianapolis Zoo's involvement with *Cyclura* began in 1982, when we imported 2.3 adult Cuban ground iguana *Cyclura n. nubila* from Isla Magueyes, Puerto Rico. This was my first introduction to the genus. I may have seen Rhinoceros iguanas at other facilities at other times, but had not really paid much attention to, or knew much about, them. I had prepared adequately for their arrival from Puerto Rico. I had a large exhibit area ready for them, complete with identification labels. After acclimation and quarantine the exhibit would be opened and ready for public viewing. As always with something that is greatly anticipated, there was a snafu with their arrival. They supposedly arrived too late at the Indianapolis International Airport for me to pick them up until the next day, or so the air cargo clerk told me. This was unacceptable to me. So my boss

called his boss and things got worked out so that I was able to pick them up late that night. These were magnificent animals; large; heavy bodied; and they had red eyes! So began my professional work with this very interesting genus. My boss Julian Duval, had worked with Rhinoceros and Ricord iguanas while working at ZOODOM, the national zoo in the Dominican Republic. His interest soon rubbed off on me.

We apparently had done okay with our new exhibit, because we received two clutches of eggs and successfully hatched Cuban ground iguanas. The interesting thing about this is that this occurred in an indoor enclosure. To our knowledge, that was the first indoor reproduction of a *Cyclura* species. We continued to work with this species for the next several years, trying to perfect indoor management of them. We had some



Hatchling Cuban iguana, *Cyclura nubila nubila*. Photograph: Bill Christie



Captive exhibit at zoo, *Cyclura nubila nubila*. Photograph: Bill Christie

success and some failures, but continued to learn. In 1987 we succeeded in breeding one of our 1982 hatched females. We were recognized by the American Association of Zoological Parks and Aquariums for this feat and received a significant achievement award. Jeff Wines, (who attended the International Iguana Society meeting in 1993) started with the zoo at this time and began his introduction to *Cyclura*. Apparently some of my interest had rubbed off on him.

Simultaneously to all this, the Indianapolis Zoo was in the process of designing and constructing a brand new zoo near the cities downtown area. We decided to make a major commitment to *Cyclura* and design into the new facility, some major holding and exhibit space for these lizards. The accompanying diagram shows some of our *Cyclura* space. We also have an additional building in which we hold 1.3 Grand Cayman iguana *Cyclura n. lewisi*. We have continued to work with the Cuban iguana and in 1993 hatched 11 of them.

In our attempts to broaden our knowledge and experience with *Cyclura* we imported valuable founder Rhinoceros and Ricord iguanas from the

Dominican Republic. These are now exhibited in our Living Deserts of the World Exhibit. Ricord iguana *Cyclura ricordi* are not often seen and not well studied. With the Rhinoceros iguana they are the only sympatric species of the *Cyclura* and are exhibited together at the zoo. Both of these have reproduced for us in the indoor setting. We have also received fertile eggs from our Grand Cayman iguanas but have not been able to hatch them as of yet.

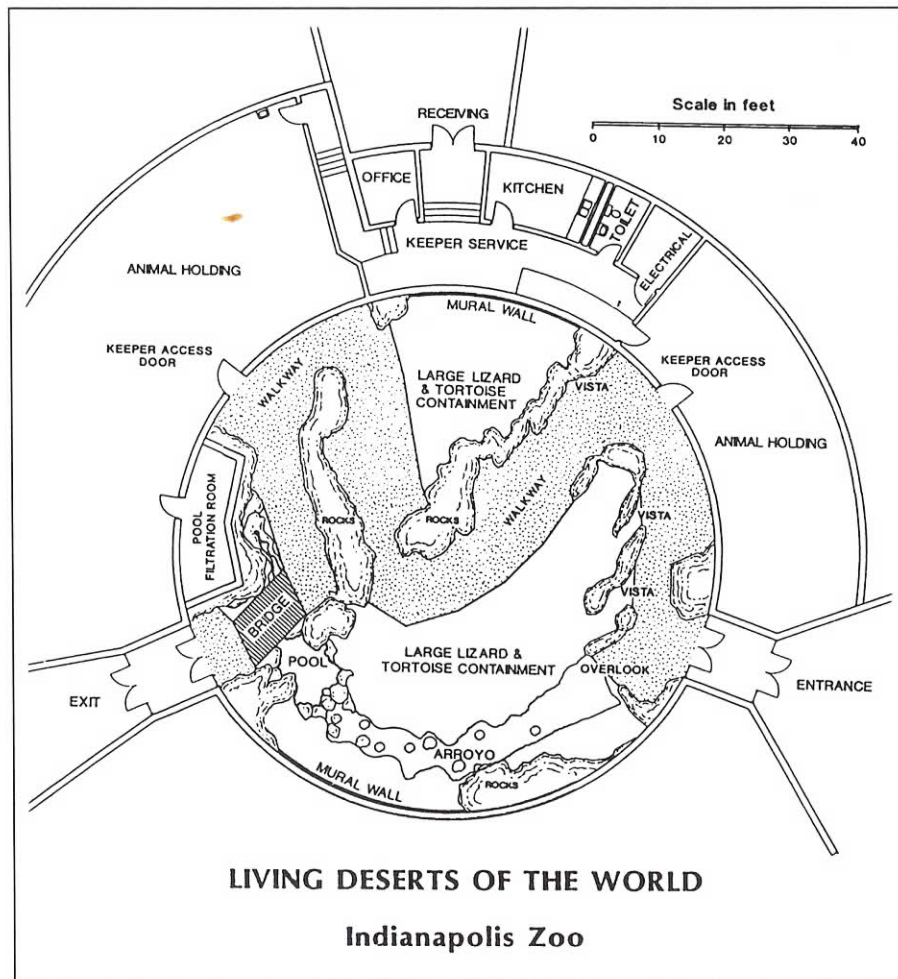
Some of our other *Cyclura* endeavors include receiving a grant from the Nixon Griffis Fund for Zoological Research in conjunction with Texas A&M University to continue research entitled "Subspecific Identification of the Grand Cayman Iguana." This allowed us to clear up the subspecific hybrid problem that existed in the *Cyclura nubila* subspecies captive population. I have been named the studbook keeper for the genus *Cyclura* by our parent organization. This, I am finding out is a more formidable task than what I had envisioned! We have also financially aided Jamaican iguana *Cyclura collei* field research. In conjunction with this we have also helped fund, sponsor and participated in the Jamaican iguana

Population and Habitat Viability Analysis Workshop in Kingston, Jamaica. This was a workshop that brought together experts in West Indian island ecology, local government officials, *Cyclura* experts and population biologists to study the newly rediscovered Jamaican iguana. Together, we tried to formulate a plan that would help insure the survival of this unique lizard. Part of the plan is to remove some of the hatchlings from the Hope Zoo in Kingston, Jamaica so as to not have “all of our eggs in one basket” so to speak. To this end the Indianapolis Zoo has applied for the necessary USDI permit to import 12 juvenile *Cyclura collei*. These will be distributed between us, the Fort Worth Zoo and The Gladys Porter Zoo in Texas. We continue to support the Jamaican iguana program financially. The Fort Worth Zoo is spearheading the construction of head start facilities for hatchlings in Jamaica. All this will hopefully allow the continued existence of the Jamaican iguana in the wild.

I am proud of the Indianapolis Zoo’s accomplishments with *Cyclura*. It is not easy for a Northern zoo to be active in intensive *Cyclura* management, and this I believe has steered some institutions away from these interesting lizards. We have been successful with this program despite doing everything indoors, without the benefit of natural UV lighting. We have had animals live normal lives, reproduce into the second generation and continue to thrive in our conditions. Our philosophy of giving adequate

space, proper diet and the right social settings seem to be on the right track, and hopefully Jeff, Julian and I will continue to expand our knowledge and the Indianapolis Zoo’s involvement with these magnificent creatures in the years to come.

Indianapolis Zoo
 1200 West Washington Street
 Indianapolis, Indiana 46222



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I.I.S. VEGETATION STUDIES

RICHARD MOYROUD AND ROBERT W. EHRIG

The International Iguana Society Inc. in cooperation with the Gemini Botanical Garden in Palm Beach County, Florida has been conducting a study of West Indian vegetation of islands and cays which support or have supported populations of rock iguanas. To date, 13 Bahamian islands have been inventoried and cataloged. Species of vegetation are ranked according to their abundance. A description of each island, its estimated size, and highest elevation is recorded. Iguana droppings are examined to determine what the iguanas are eating and browse patterns are noted. As an increasing number of islands are inventoried a tremendous amount of practical information will be gained. A greater understanding of the ecology of the rock iguanas and their islands will result. The nutritional requirements of the iguanas and their ability to survive in these harsh environments will be better understood.

Flora Investigation Team

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Tina Henize, Chuck Knapp, Shedd Aquarium, Chicago,
Illinois, and **Ron Harrod**
(*Exumas*)

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Bahamas, Wildlife Division

Capt. Ron Harrod, the research vessel, *The Essence*

● = Very abundant ■ = Moderate ▲ = Uncommon ? = uncertain identification x = non-native

31 May 94

Richard Moyroud & Robert W. Ehrig
Green Key (San Salvador)

Estimated size: 11 acres, Elevation: 23 ft., Moderate population

- | | |
|--|----------------------|
| ● <i>Borrchia arborescens</i> | Sea Ox-eye Daisy |
| ▲ <i>Casasia clusiifolia</i> | Seven-year Apple |
| ■ <i>Coccoloba uvifera</i> | Seagrape |
| ● <i>Conocarpus erectus</i> var. <i>sericeus</i> | Silver Buttonwood |
| ▲ <i>Hymenocallis</i> sp. | Spider Lily |
| ● <i>Opuntia stricta</i> var. <i>dillenii</i> | Common Prickly-pear |
| ■ <i>Rhachicallis americana</i> | Hog-bush |
| ● <i>Sesuvium portulacastrum</i> | Seaside Purslane |
| ▲ <i>Spartina patens</i> | Saltmeadow Cordgrass |
| ■ <i>Sporobolus virginicus</i> | Seashore Dropseed |

NOTE: An alarming discovery was the presence of *Cactoblastis cactorum*, a species of moth that consumes pads of *Opuntia* cactus. Larvae of *Cactoblastis* were found on several colonies of cacti. Since cactus fragments were present in iguana droppings, the implications of this discovery are important since *Cactoblastis* c. could decimate the prickly-pear population on Green Cay. Most cactus pads infested were removed from plants and destroyed in an attempt to control this predator of the food plant of the islands.

27 May 94

Richard Moyroud & Robert W. Ehrig
Man Head Key (San Salvador)

Estimated size: 10 acres, Elevation: 34 ft., Small population

- | | |
|---|---------------------|
| ● <i>Ambrosia hispida</i> | Coastal Ragweed |
| ■ <i>Borrchia arborescens</i> | Sea Ox-eye Daisy |
| ■ <i>Casasia clusiifolia</i> | Seven-year Apple |
| ■ <i>Coccoloba uvifera</i> | Seagrape |
| ● <i>Cyperus</i> sp. | Sedge |
| ● <i>Erithalis diffusa</i> | Low Black Torch |
| ● <i>Jacquinia keyensis</i> | Joewood |
| ■ <i>Manilkara bahamensis</i> | Wild Dilly |
| ■ <i>Opuntia stricta</i> var. <i>dillenii</i> | Common Prickly-pear |
| ■ <i>Sporobolus virginicus</i> | Seashore Dropseed |
| ■ <i>Strumpfia maritima</i> | Strumpfia |

28 May 94

**Richard Moyroud & Robert W. Ehrig
Guana Key (San Salvador)**

Estimated size: 4.5 acres, Elevation: 14 ft., Very small population

▲ Argythamnia sp.	—
■ Borrchia arborescens	Sea Ox-eye Daisy
▲ Bourreria ovata	Strong-back
▲ Bumelia americana	Wild Saffron, Milk-berry
■ Casasia clusiifolia	Seven-year Apple
● Cephalocereus bahamensis	Torch Cactus
▲ Chiococca sp.?	—
■ Cocoloba diversifolia	Pigeon-plum
■ Conocarpus erectus	Green buttonwood
■ Conocarpus erectus var. sericeus	Silver Buttonwood
▲ Cyperus sp.	Sedge
■ Diospyros crassinervis	Boa-wood
▲ Distichlis spicata	Salt-grass
▲ Drypetes diversifolia	Milkbark, Whitewood
▲ Echites umbellata	Devil's Potato-root
■ Erithalis fruticosa	Black Torch
■ Eugenia foetida	Spanish Stopper
▲ Eugenia sp.	—
■ Euphorbia gymnonota	—
▲ Guapira discolor	Bolly
■ Hippomane mancinella	Manchineel
▲ Jacquinia keyensis	Joewood
▲ Lasiacis divaricata	Wild Bamboo
■ Manilkara bahamensis	Wild Dilly
■ Metopium toxiferum	Poisonwood
▲ Opuntia nashii	Nash's Prickly-pear
▲ Opuntia sp.	Prickly-pear
▲ Pavonia bahamensis	Bahama Swamp-bush
■ Phyllanthus epiphyllanthus	Hardhead
▲ Picramnia?	Bitterbush
▲ Pithecellobium keyense	Black Bead
▲ Pseudophoenix sargentii	Cherry Palm (one plant)
■ Reynosia septentrionalis	Darling Plum
■ Rhachicallis americana	Hog-bush
▲ Rhizophora mangle	Red Mangrove
■ Sesuvium portulacastrum	Seaside Purslane
▲ Smilax auriculata	Green-brier
■ Sporobolus virginicus	Seashore Dropseed
▲ Sporobolus sp.?	—
● Thrinax morrisii	Thatch Palm
■ Tillandsia utriculata	Giant Wild Pine
▲ Zizyphus taylori	—

29 May 94

**Richard Moyroud & Robert W. Ehrig
Low Key (San Salvador)**

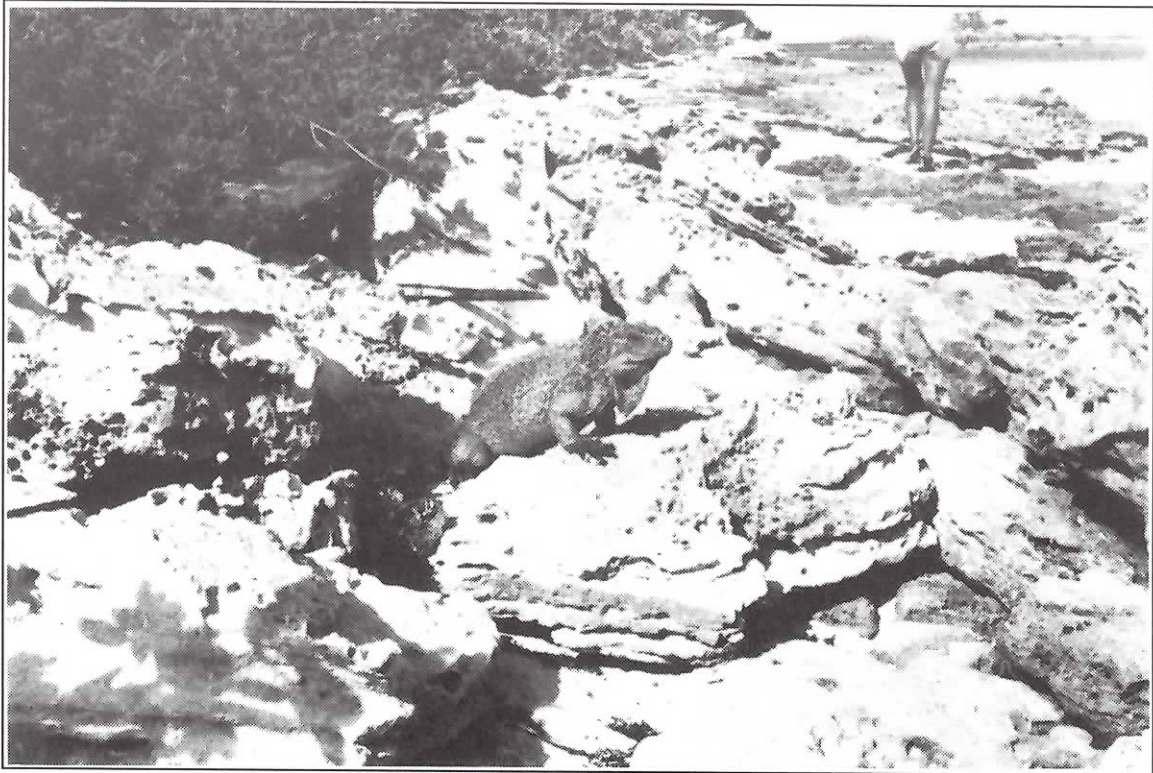
Estimated size: 24 acres, Elevation: 12 ft., Moderate population

■ Agave sp.	Agave
● Ambrosia hispida	Coastal Ragweed
▲ Argusia gnaphalodes	Sea Lavender
▲ Avicennia germinans	Black Mangrove
■ Borrchia arborescens	Sea Ox-eye Daisy
▲ Bumelia americana	Wild Saffron, Milk-berry
■ Cenchrus incertus	Sandspur
▲ Chamaesyce mesembryanthemifolia	Spurge
▲ Chamaesyce sp. 1	—
▲ Chamaesyce sp. 2	—
■ Cocoloba uvifera	Seagrape
▲ Conocarpus erectus	Green buttonwood
▲ Cynanchum bahamense	—
▲ Cyperus sp.	Sedge
▲ Distichlis spicata	Salt-grass
▲ Eleusine indica?	Goosegrass
▲ Guapira discolor	Bolly
▲ Ipomoea imperati	Fiddleleaf Morning Glory
● Ipomoea violacea	Coastal Moon-vine
▲ Manilkara bahamensis	Wild Dilly
▲ Opuntia nashii	Nash's Prickly-pear
● Opuntia stricta var. dillenii	Common Prickly-pear
▲ Pithecellobium keyense	Black Bead
▲ Scaevola plumieri	Inkberry
● Sesuvium portulacastrum	Seaside Purslane
■ Spartina patens	Saltmeadow Cordgrass
■ Sporobolus virginicus	Seashore Dropseed
▲ Suriana maritima	Bay Cedar
● Uniola paniculata	Sea Oats
■ Ximenia americana	Hog Plum

NOTE: Evidence of the past presense of *Cactoblastis cactorum*, was found on the east end of the island. Several large skelotonized trunks of *Opuntia nashii* were examined. No active infestations were found.



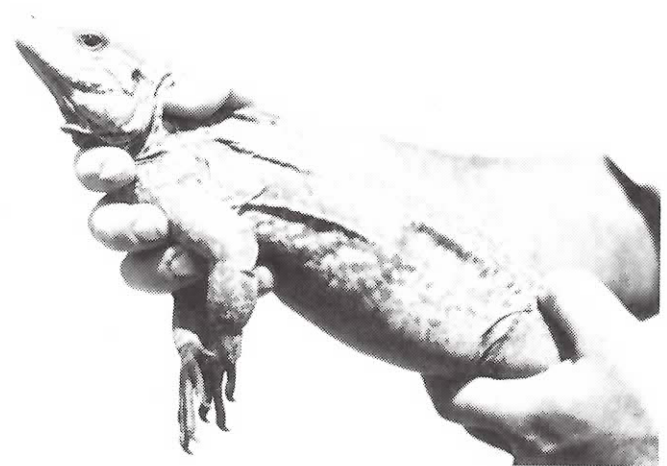
● = Very abundant ■ = Moderate ▲ = Uncommon ? = uncertain identification x = non-native



29 May 94
Richard Moyroud
Middle Key (San Salvador)

Estimated size: 9 acres, Elevation: 21 ft., No population

- | | |
|---|---------------------|
| ● <i>Ambrosia hispida</i> | Coastal Ragweed |
| ■ <i>Argusia gnaphalode</i> | Sea Lavender |
| ■ <i>Borrchia arborescens</i> | Sea Ox-eye Daisy |
| ■ <i>Casasia clusiifolia</i> | Seven-year Apple |
| ■ <i>Chamaesyce</i> sp. | Spurge |
| ▲ <i>Cyperus</i> sp. | Sedge |
| ▲ <i>Distichlis</i> sp.? | — |
| ▲ <i>Erithalis diffusa</i> | Low Black Torch |
| ▲ <i>Ipomoea pes-caprae</i> | Railroad Vine |
| ■ <i>Ipomoea violacea</i> | Coastal Moon-vine |
| ■ <i>Opuntia stricta</i> var. <i>dillenii</i> | Common Prickly-pear |
| ▲ <i>Portulaca</i> sp. | Purslane |
| ▲ <i>Rhizophora mangle</i> | Red Mangrove |
| ▲ <i>Scaevola plumieri</i> | Inkberry |
| ■ <i>Sesuvium portulacastrum</i> | Seaside Purslane |
| ▲ <i>Solanum bahamense</i> | Bahama Nightshade |
| ▲ <i>Suriana maritima</i> | Bay Cedar |
| ▲ <i>Uniola paniculata</i> | Sea Oats |



Thanks to Scott Delay for logistical support.

1 June 94

**Richard Moyroud
High Key (San Salvador)**

Estimated size: 28 acres, Elevation: 62 ft., No population

● Ambrosia hispida	Coastal Ragweed
▲ Argusia gnaphalodes	Sea Lavender
● Borrchia arborescens	Sea Ox-eye Daisy
▲ Capraria biflora	Goat Weed
● Casasia clusiifolia	Seven-year Apple
■ Cassytha filiformis	Love Vine
■ Cenchrus incertus	Sandspur
■ Chamaesyce mesembryanthemifolium	Spurge
■ Chamaesyce sp.	Spurge
● Cocoloba uvifera	Seagrape
▲ Cocos nucifera (x)	Coconut
■ Commicarpa scandens	—
■ Croton (2 spp.)	—
■ Cynanchum bahamense?	—
■ Cyperus (2 spp.)	Sedge
▲ Echites umbellata	Devil's Potato
▲ Erithalis diffusa	Low Black Torch
■ Erithalis fruticosa	Black Torch
▲ Eupatorium sp.	—
▲ Eustoma exaltatum	Seaside Gentian
▲ Ficus citrifolia	Shortleaf Fig
▲ Guapira discolor	Bolly
■ Gundlachia corymbosa	Horse Bush
● Hymenocallis sp.	Spider Lily
● Ipomoea pes-caprae	Railroad Vine
● Ipomoea violacea	Coastal moon-vine
■ Iresine flavescens	Coastal Iresine
■ Iva imbricata	Beach Elder
■ Jacquemontia havanensis	—
■ Lantana involucrata	Wild Sage
▲ Opuntia nashii	Nash's Prickly-pear
■ Opuntia stricta var. dillenii	Common Prickly-pear
▲ Paspalum distichum?	Knot Grass
■ Paspalum sp. (RED)	—
▲ Portulaca sp.	Purslane
● Scaevola plumieri	Inkberry
● Sesuvium portulacastrum	Seaside Purslane
■ Solanum bahamense	Bahama Nightshade
■ Spartina patens	Saltmeadow Cordgrass
● Sporobolus virginicus	Seashore Dropseed
■ Suriana maritima	Bay Cedar
■ Uniola paniculata	Sea Oats
■ Urechites lutea	Wild Allamanda
▲ Ximenia americana	Hog Plum

Thanks to Tim Haack for logistical support.


● = Very abundant ■ = Moderate ▲ = Uncommon
? = uncertain identification x = non-native

I.I.S. Bookstore

As a service to our members, a limited number of publications will be distributed through the I.I.S. Bookstore. The following publications are now available:

The Green Iguana Manual, by *Philippe de Vosjoli*. 1992. **\$7.00** (including postage); **\$8.75** (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)

Schwarze Leguane, by *Gunther Köhler*. 1993. **\$19.00** (including postage); **\$24.00** (non-members). Excellent Ctenosaur guide book, photographs, range maps, text in German. 

Send check or money order (payable to International Iguana Society) **to:**

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I.I.S. will have a booth.
For more information,
contact Wayne Hill at 813-294-2235.

IGUANA SMUGGLING

A sign of the times — we hope not...

Reptiles Magazine, Fancy Publications new herp magazine, featured a story on rock iguanas in the 4th issue. Although we were happy to see the interest in iguanas. The cover photograph and the photo on page 60-61 featured recently smuggled San Salvador rock iguanas, *Cyclura rileyi*. These critically endangered iguanas are in very serious trouble and in danger of extinction in the near future. We were saddened to see contraband iguanas featured on a national pet trade magazine. USFWS have questioned the photographer and what action takes place remains to be seen.

RHINO IGUANAS SMUGGLED

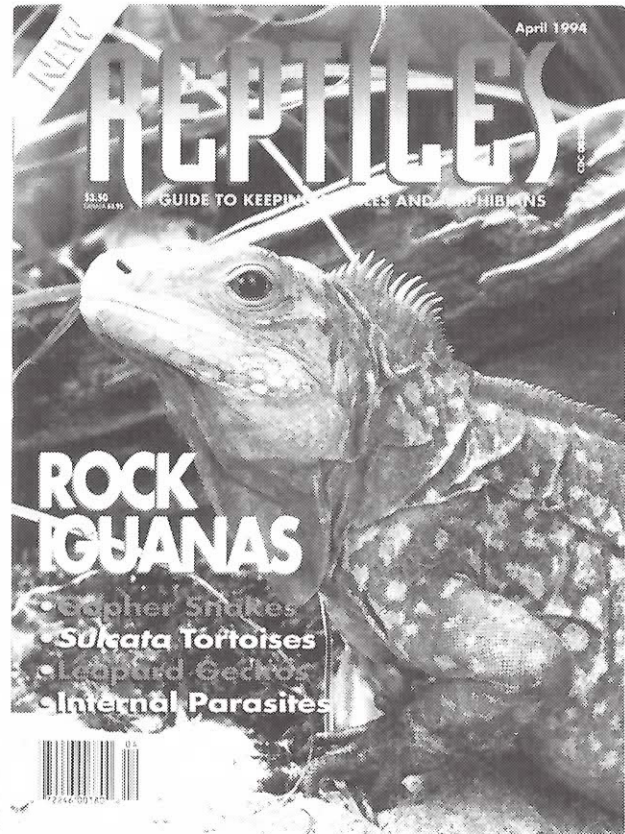
IIS has received many reports of recent large shipments of smuggled Rhino Iguanas, *Cyclura cornuta*. The first shipments entered New York and recent shipments through Miami are being distributed to reptile dealers throughout the U.S. Taking advantage of turmoil in Haiti, unscrupulous smugglers are decimating some of the last populations of iguanas in a country that has already lost most of its iguanas in recent history.

These events also will lead to a loss of rights of herpetoculturists to own animals if it continues.

The shipments of smuggled rhino iguanas contain animals of all sizes. Many animals are in poor condition.

We urge IIS members to not buy any questionable iguanas and report obvious violations to your local office of the United States Fish and Wildlife Service.

IIS Editors



IGUANA NEWSBRIEFS

SOUTHWEST FLORIDA SPINY-TAIL IGUANAS

Gasparilla Island is a barrier island on Florida's Gulf coast. The town of Boca Grande on the island is becoming known for more than its beaches. Spiny-tail iguanas are appearing more frequently sunning themselves along the bike paths and eating flower blossoms.

Several iguanas have found their way into resident's attics causing some excitement. While some residents have been upset and frightened, the iguanas have also acquired some supporters. Dolores Heimann, former director of Boca Grande's Friends of Wildlife, led a 1992 petition drive to get legal protection for the spiny-tails. This was a response to outsiders coming to the island to catch iguanas to sell. Over 800 signatures were presented to Lee County Commissioner John Manning, who had offered to try to come up with a county ordinance to protect the iguanas.

After studying Manning's proposal, county staff recommended that the county not consider enacting a law protecting the harmless lizards. The Florida Game and Fish Commission stated that it is highly unlikely that an exotic species can be offered protection under state law.

The Ctenosaurs were apparently brought to the island 14 years ago from Mexico. Photos were received from Capt. Ron Harrod in which the iguanas appear to be *Ctenosaura pectinata*. But the identity is not certain.

Source: Ron Harrod and Boca Beacon, 11 March 1994

GALAPAGOS ISLAND FIRE

A wildfire raged across southern Isabela, the largest of the Galapagos Islands, which lie 600 miles off the coast of Ecuador. More than 20,000 acres of forest on Isabela burned as a result of a fire that started in late April and burned for several weeks. Like another wildfire in 1985 that burned more than 50,000 acres, this one was started by humans.

Immigration from Ecuador is out of control in the islands, with increasing numbers of settlers arriving to seek jobs. Wages are higher in the islands than on the mainland. Unfortunately, the new arrivals have little knowledge or respect for the spectacular wildlife of the islands. In 1982 the census recorded 6,201 residents. Current estimates put the current Galapagos population at over 25,000 residents.

All the basic necessities of human life are in short supply. As the job market tightens and frustration

grows over living conditions, respect for nature has eroded.

The fires on Isabela were finally brought under control after drawing worldwide attention because it threatened the giant land tortoises and important nesting sites.

In February, settlers attacked a colony of tortoises east of the Sierra Negra volcano killing 31 tortoises. On 23 April, 1994, scientists found another eight tortoises remains which had been eaten. Historically, small numbers of tortoises have been killed on Isabela but recent events demonstrate how social tensions are threatening the protection of Galapagos wildlife.

In the April attack one of the tortoises was seriously injured. Darwin Station scientists wanted to fly a veterinarian from the University of Florida to amputate the animal's left rear foot. The park director refused to allow this. He feared angering local residents for operating on the tortoise in a human operating room in the Puerto Ayora Clinic. The tortoise was finally airlifted to University of Florida in Gainesville for treatment. I.I.S. member, Dr. Elliott Jacobson, a professor of veterinary medicine, performed surgery. It will be returned to the islands.

Populations of the land iguana, *Conolophus*

subcristatus, are extremely endangered on Isabela. No more than several hundred iguanas remain scattered among 2 or 3 populations. Many feral dogs have been eliminated, but feral cats are a serious threat and few hatchlings survive.

Source: Miami Herald, M. Hoyos

TURTLE HOSPITAL INSTRUMENTAL IN RESEARCH PROJECT

The Hidden Harbor Turtle Hospital in Marathon, Florida, site of the 1993 I.I.S. Iguana Conference, has made studies possible into the cause of a debilitating disease that has affected most of the world's endangered green sea turtles. The disease, fibropapillomas, has been identified as a virus as a result of four years of study by Dr. Larry Herbst and Dr. Elliott Jacobson of University of Florida, Gainesville.

These studies would not have been possible without the facilities at the Turtle Hospital and the contributions made by owner and I.I.S. member Richie Moretti and associate Capt. Tina Brown.

I.I.S. Board congratulates them.

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 \$6.00 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:

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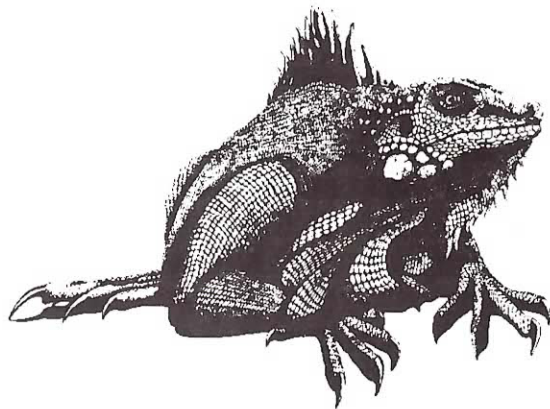
Solicitations

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 most recent issue of the newsletter. Articles can deal with any aspect of iguana biology, ecology, behavior, husbandry, systematics, etc. Manuscripts must be typed, DOUBLE-SPACED, with wide margins, on 8 1/2" x 11" paper. Include your address and telephone number on the manuscript. Members are also welcome to submit letters to the Editor for publication in future issues of the newsletter. Authors of one page or more of print are entitled to three copies of the issue in which their article appears.

The Editors

Advertising policy of Iguana Times

We advertise only non-living products (except feeder insects). All products have been examined and been found to be high quality and fairly priced. Contact I.I.S., RT 3, Box 328, Big Pine Key, FL 33043, for more information.



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Harsh environment. Vegetation appears dead on U-Cay in the Allan's Cays, Bahamas, but with the return of the rains in May the food supply will become abundant for this male, Allan's Cay Iguana, *Cyclura cyathura inornata*. March 1990. Photograph: R.W. Ehrig