Any Hope for Grand Cayman's Blue Iguana?

By Fred Burton, Scientific Programs Manager
National Trust for the Cayman Islands
P.O. Box 31116 SMB, Grand Cayman

It's soon after dawn in the Cayman Islands, and I'm working my way through the dense rocky thickets of eastern Grand Cayman, heading into the Salina Nature Reserve to track down Zadok.

Zadok is a male Blue Iguana, *Cyclura nubila lewisi* (the Grand Cayman subspecies of the Cuban Rock Iguana), who was released with a radio transmitter early in 1994. As I strain to hear his faint radio signal over the chorus of bird song, a pair of parrots launch into a vocal protest at my presence. These thickets and woodlands are undisturbed by man, teeming with the plant and animal life which has evolved into many unique forms on these isolated Caribbean islands.

As I step out into the first open glade at the release site, Zadok's signal strengthens and I see from a fresh tail drag that he's already moved out from the pile of rocks he's been using as an overnight retreat for the past few days. It doesn't take long to find him, spread-eagled on a patch of red earth, soaking up the early morning sun. As he warms, his skin turns pale blue, highlighting the blood-red color of his eyes. He licks up a few fallen Lancewood flowers and lumbers off into the thicket. I follow and record: another day's tracking is under way.

It's hard to believe, looking at this powerful, alert animal, protected in a 625-acre nature reserve, that I am looking at a classic endangered species story. Yet this magnificent reptile, which once roamed throughout Grand Cayman, now survives only as a remnant population of about a hundred individuals, scattered over a mere 3 square miles at the eastern end of the 92 square mile island.

Before humans first settled Grand Cayman, about 300 years ago, the Blue Iguana roamed throughout Grand Cayman; it was the island's largest land animal. An adult male could weigh 20 lbs. and measure over 5 ft. long. As an adult, such a creature had no worries about predators, and the females's production of 15 to 20 eggs a year yielded enough surplus young to allow for some loss of hatchlings to native birds and snakes.

People have changed all of that. It's a familiar story, with the combination of habitat destruction, the introduction of dogs and cats, trapping and now road kills, combining to bring a once healthy population down to the brink of extinction. The Blue Iguana is now classified as critically endangered and is strictly protected both under local legislation and through CITES (the

A released 3-year-old, after a lifetime in captivity, soon finds food in the wild (here eating leaves of *Capparis flexuosa*). *Photograph: Fred Burton*

Projects for the National Trust of the Cayman Islands

- **Environmental programs:** The Trust owns and protects 1,300 acres of conservation land, distributed between all three of the Cayman Islands. On Grand Cayman the principal Trust nature reserves are the Salina Reserve (referred to in this article), the Mastic Reserve (a diverse old growth forest), and the Queen Elizabeth II Botanic Park. On Little Cayman the Booby Pond Nature Reserve protects a huge breeding colony of Red-footed Boobies, and on Cayman Brac diverse woodlands are protected in the Brac Parrot Reserve.

  In addition to the Blue Iguana, priority endangered species programs include monitoring populations of the Cayman Islands' Amazon Parrot and West Indian Whistling Duck, and conservation programs for several endemic plants. The Trust maintains an active herbarium and insectarium, and hosts visiting scientists in an effort to increase understanding of the islands' biodiversity.
- **Historic programs:** The Trust is developing an inventory of the Cayman Islands' historic buildings, and owns or manages several sites of historic significance.
- **Education programs:** Both historic and environmental efforts are backed by ongoing public education efforts, including publications, school programs and involvement with school curriculum development.

C. n. lewisi egg hatching at the National Trust's breeding facility. *Photograph: Fred Burton*

Convention on the International Trade in Endangered Species), but sadly the destructive pressures continue to mount.

Grand Cayman is in the midst of a rapid development boom, with human population and land use accelerating at an alarming rate. The western half of the island is now dominated by man-made landscapes, and the destruction of natural habitats is moving inexorably eastward. For native plants and animals this is a gloomy scenario indeed, but the threatened loss of Cayman's natural heritage is beginning to alarm many local residents.

In 1987 a conservation organization, the National Trust for the Cayman Islands, was established. In 1988 its founding members joined, and in 1990 it embarked on a conservation program for the Blue Iguana, one of a series of programs directed at preserving natural environments and places of historic significance in the Cayman Islands (see Box).

The Trust's Blue Iguana program is an integrated one, meaning that it has many different elements all directed towards the same goal. We want to re-establish a stable wild population of Blue Iguanas in Grand Cayman, capable of perpetuating itself indefinitely without needing constant intervention. Five years into the program, it's still unclear whether that goal can really be achieved.

It was an early priority for us to learn more about the Blue Iguana in the wild, a difficult proposition since even in the best iguana areas you can go for days without seeing a single individual! Still, the Trust has been fortunate to receive generous support for field work from the Smithsonian Institution's National Zoological Park, in Washington, D.C., with technical backing and advice coordinated by the Zoo's Curator of Herpetology, Dale Marcellini. Steady financial support has come from the Friends of the National Zoo, including funding for field assistance by a student researcher, Kevin Gould. With that backing, we have been able to gradually accumulate enough information about the Blue Iguana's diet, habitat needs and behavior to be able to plan meaningful conservation strategies.

Adult male *C. n. lewisi* sunning in a thicket in eastern Grand Cayman. *Photograph: Fred Burton*

At the same time the Trust has been breeding increasing numbers of Blue Iguanas in captivity, gradually incorporating animals illegally held captive in various parts of the island, and bringing in hatchlings which roam into extremely high risk areas among traffic and domestic dogs and cats. The captive program is increasing in sophistication—DNA profiles carried out by Scott Davis' team at Texas A&M University have helped to optimize the genetic diversity of captive bred young. Thirty *C. n. lewisi* are now in the Trust's captive breeding facility, and a pair of yearlings were recently released in the Queen Elizabeth II Botanic Park.

Captive Blue Iguanas, particularly males, soon become very tame. That's a real bonus for publicity and education: our tamest males are local media personalities, and meet literally thousands of school children at the annual Trust Fair. Curiosity usually overcomes the traditional fear of reptiles, and a generation of Caymanian school children are growing up with some knowledge, understanding and love for a beast which is regarded by many of their grandparents with fear and revulsion.

The whole program really came into focus in July 1993, when we released our first captive bred iguana to the wild. It was a three-year-old male, a sterilized hybrid excluded from the breeding program, with a radio transmitter implanted into his body cavity by zoo veterinarian Lisa Tell (then at the National Zoological Park). Hybrids resulting from a pairing of *C. n. lewisi* with *C. n. caymanensis* (the Little Cayman subspecies of the Cuban Rock Iguana) in the U.S. some years ago are now widely distributed in captivity, and it has taken painstaking genetic analyses to untangle the resulting confusion. In our efforts to conserve Grand Cayman's unique subspecies, we were anxious to avoid further interbreeding of the distinct bloodlines on Little Cayman and Grand Cayman. We had no idea what to expect from our preliminary repatriation study, so by using the sterile hybrid we played it very safe!

Kermit (as he later became known) was blocked into an artificial retreat at sundown, in the heart of the Trust's Salina Reserve, where we had identified apparently suitable iguana habitat. At 3 am, with Kermit cold and inactive, I opened the door so that as the morning sun rose he would wake up free to explore a new home. Marcellini, Gould and I watched him every waking hour for the next week, and we soon began to realize that a captive reared iguana can rapidly adapt to the wild, finding food and retreats without difficulty. We released two more sterile hybrids over the next month and observed the animals establish mutually exclusive territories and engage in classic ritualized fighting. The Blue Iguana's future was looking brighter with every passing day.

Kermit was the largest of the three, and unlike the other two he periodically wandered far away from the release site. Eventually he wandered right out of the reserve, and was bitten to death by a dog when he tried to raid its food bowl: a tragic illustration of how these animals have no innate fear of man's domestic animals. The other two iguanas survived a full year before we recaptured them, demonstrating that release of captive bred iguanas can work, and proving to us that the Salina Reserve study site can support at least a few free-ranging iguanas.

Kermit's fate turned out to be a warning. The following winter we released Zadok and an adult female into the same study site. The female established a fairly small, defined territory, but Zadok, like Kermit, roamed far and wide. He often returned to the release site and during the mating season he guarded the female closely. But at other

Iguanas no more: habitat destruction is threatening all of Cayman's wildlife. *Photograph: Fred Burton*

Slung aside after being left to die in a trap — *C. n. lewisi* are still occasionally persecuted by farmers. *Photograph: Fred Burton*

3-year-old *C. n. lewisi*, in the wild after being released from captivity with an internal radio transmitter. *Photograph: Fred Burton*

times we tracked him down half a mile away or more. He spent a significant amount of time well outside the boundaries of the Reserve, and often wandered perilously close to a major road.

From observations of other adult males in the wild, this seems to be entirely normal behavior. It means that adult males wander miles over the east end of the island, and are unlikely to remain in the safety of relatively small protected areas. Zadok's radio transmitter failed prematurely, and he hasn't been seen for almost a year; the chances are that, if he still survives, he is spending little of his time on protected property.

This poses a serious challenge for the Blue Iguana conservation program. Although the National Trust now owns and protects some 1,200 acres of conservation land in the Cayman islands, very little of this is suitable for iguana breeding. Perhaps at most 4 acres in the Salina Reserve offer pockets of nesting substrate. There just isn't enough protected land in the Blue Iguana's remaining habitat to secure a future for this struggling remnant population.

The hope now lies in designing and securing a larger protected area for eastern Grand Cayman. Perhaps by integrating some extensive Government land with the purchase of key, privately-owned parcels, we may be able to protect core nesting and foraging areas within the existing mosaic of agricultural and wooded land. High land costs and competing conservation priorities are likely to be severe constraints.

Whether an adequate Blue Iguana Reserve can be established before real estate development alters the entire landscape is the fundamental issue. In the end it is protection of its habitat which will determine whether Grand Cayman's unique Blue Iguana has a future. The wild rocky interior of this small, fragile island is its one and only home.

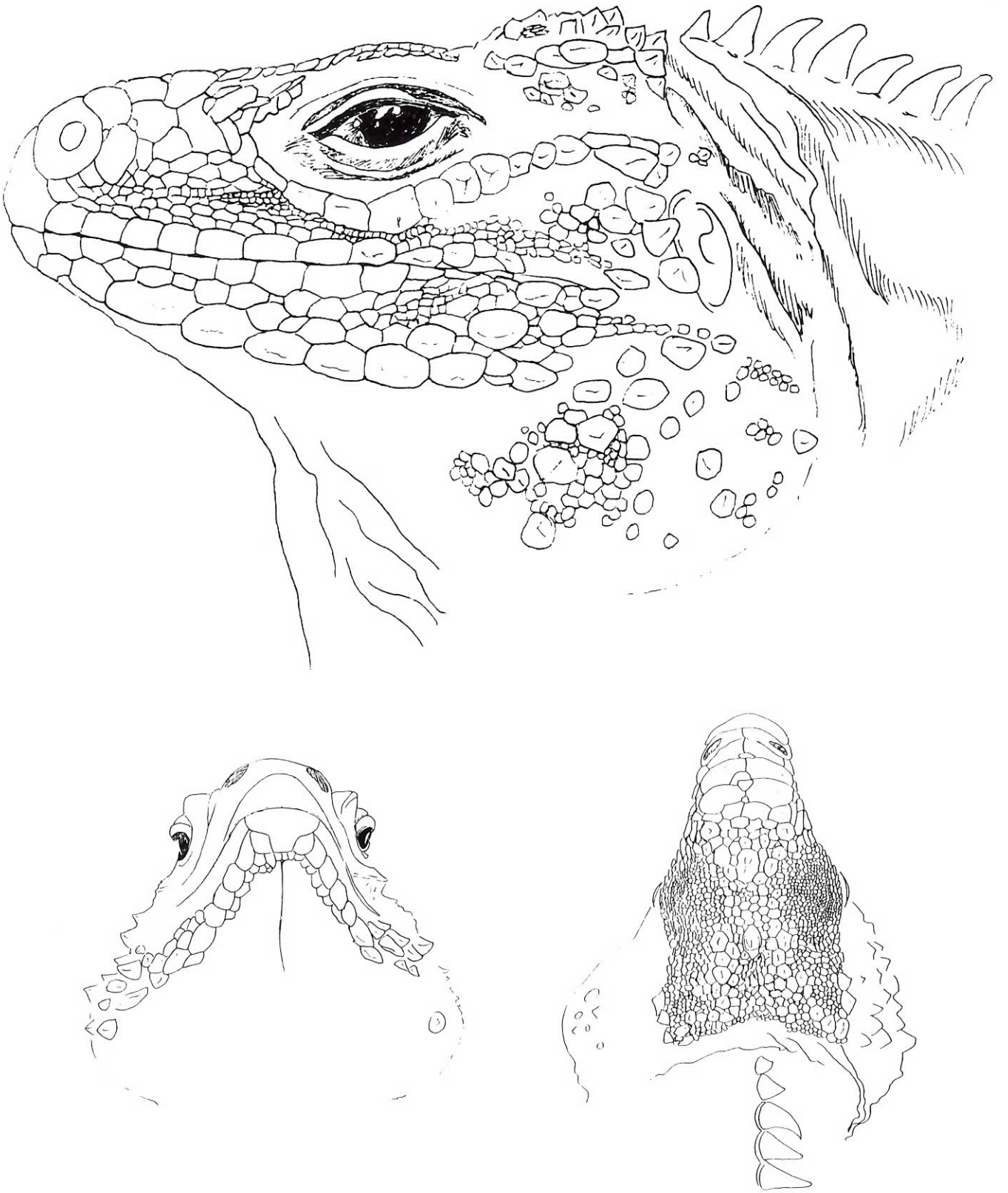
If you are interested in contributing to the Trust's Blue Iguana conservation fund, write to:

National Trust for the Cayman Islands
P.O. Box 31116 SMB
Grand Cayman

or call the Trust at (809) 949-0121.

Scalation Rendering of *Cyclura nubila lewisi*

By John Bendon



Scalation Rendering of *Cyclura nubila nubila*

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