

# IUCN – SSC -Iguana Specialist Group Cuba 2010

Door Evert Henningheim

Cuba is sinds jaar en dag een land gegrepen in een isolement. Het decennia lange en voortdurende economisch en financieel embargo van de Verenigde Staten tegen Cuba ligt daar onder andere ten grondslag aan. Dit heeft ook haar weerslag aangaande conservatie. Om een positieve conservatiebijdrage te kunnen leveren zijn we ten aanzien van *Cyclura nubila nubila* in Guanahacabibes Peninsula te Cuba neergestreken. We hebben onderzocht op welke wijze Cubaanse beschermde gebieden/nationale parken met conservatiedoeleinden worden beheerd en waar nodig ondersteuning geboden kan worden. De ecology van *Cyclura nubila nubila* is onder de loep genomen aangaande de 5 belangrijkste geografische leefgebieden van deze soort en de invloed van type habitat. De populatie *Cyclura nubila nubila* welke in het Guanahacabibes National Park leeft is in het bijzonder uitgelicht door onder andere schouwing en observaties in het veld. Hierbij is gekeken naar de populatiedichtheid, samenstelling habitat en gebruik van het leefgebied. Kweekmethodieken en resultaten van *Cyclura nubila nubila* zijn behandeld. Daarnaast hebben we de laatste onderzoeken betreffende *Cyclura ricordi*, *Cyclura pinguis*, *Cyclura lewisi*, *Brachylophus* sp., *Cyclura cornuta stejnegeri*, *Iguana delicatissima*, *Iguana iguana*, *Cyclura cychlura inornata*, *Cyclura cychlura figginsii*, *Ctenosaura oedirhina* en *Cyclura collei* behandeld.



Foto: *Cyclura nubila nubila*



Foto: *Cyclura nubila nubila* leefgebied te Guanahacabibes Peninsula, Cuba

## The National System of Protected Areas (SNAP) of Cuba

Maritza García García

*National Center for Protected Areas, Ministry of Science, Technology and Environment*

This report provides information about the current National System of Protected Areas of Cuba (SNAP), in relation to its structure, legal status, institutional and administrative structure, level of significance, management categories adopted in Cuba, coordination and control. The proposed protected area system in Cuba has 253 protected areas identified with values to be managed for conservation purposes under any of the 8 management categories established for Cuba, of which 91 are of national significance (APSN) and 162 of local significance (APSL). The area comprising the 253 protected areas identified represent 19.93% of the country, including the insular sea shelf to a depth of 200 m, leaving 16.85% of land cover within the System. Of the 253 protected areas identified for SNAP, 108 are coastal and marine protected areas and 89 on the sea surface, covering 24.81% of the length of the island platform. UNESCO's Man and Biosphere Programme (MAB) has recognized six Biosphere Reserves in Cuba: Sierra del Rosario (1985), Guanahacabibes, Cuchillas del Toa y Baconao (1987) y Buenavista y Ciénaga de Zapata (1999). The Ramsar Convention also declares La Ciénaga de Zapata as the first Ramsar site in our

country, and in 2002 incorporated five new areas: los Refugios de Fauna Río Máximo y Delta del Cauto y las Áreas protegidas de Recursos Manejados Gran Humedal del Norte de Ciego de Ávila, Ciénaga de Lanier, Sur de la Isla de la Juventud y el Humedal Buenavista.

### **The Guanahacabibes National Park: values, threats and potential.**

*Lic. Lázaro Marquez Llauger*

*Guanahacabibes National Park. Centro de Investigaciones y Servicios Ambientales ECOVIDA, Ministerio de Ciencia Tecnología y Medio Ambiente.*

Guanahacabibes National Park is located in the westernmost portion of the island of Cuba (23,880 ha of land and 15,950 hectares of sea), formed by two flat, karst peninsulas (from “diente de perro”) of marine origin, with cliffs (20 m) in the south coast and mangroves in the north. It forms part of a phytogeographical district with 704 plant species (15 endemic local) and 20% endemic species in forest vegetation, bushes and vegetation complexes. Terrestrial vertebrates on the peninsula include 16 species of amphibians, 35 reptiles, 192 birds, 18 mammals; reptile species include *Anolis luteogularis*, *Ameiva auberi denticola*, *Leiocephalus carinatus*, *Leiocephalus macropus*, *Anolis quadriocellifer* (endemic to the district), *Cyclura nubila* and *Epicrates angullifer*. 109 species of algae, 27 gorgonians, 39 sponge, 38 corals, 755 of marine mollusks (10 Guanahacabibes exclusive) and 135 reef fish have been identified in the marine area. Among the historical and cultural values 42 different archaeological sites from different eras, ancient Aboriginal communities linked to pre-Mesolithic farming and pottery traditions. The value of nature and biodiversity of the area can not escape certain threats such as hunting, fishing and illegal logging, invasive species of flora and fauna, collecting, illegal commercial fishing and forestry and tourism development. The park has high conservation value and socio-economic potential, by the existence of numerous species of flora used as wood, medicinal and honey production. Species richness of mollusks with planktonic larval development makes Guanahacabibes a production center for larvae into the Gulf of Mexico and continental coasts of North America. It has spawning sites of fish species of economic value to coral reefs and provides opportunities for recreational diving.



Foto: *Cyclura nubila nubila*

### **Cuba: a land of reptiles and amphibians.**

*Luis M. Díaz Beltrán*

*National Museum of Natural History of Cuba*

Cuban amphibians comprise 62 species, of which 95 % are endemics. Reptiles are represented by 166 species, and 83 % are endemic to the island. Compared with birds and mammals, both groups constitute the most important part of the Cuban land vertebrates. This presentation is an overview of the herpetofauna of Cuba, focusing attention on the taxonomic composition, distribution, natural history, conservation and main threats.



## Overview of *Cyclura nubila nubila* studies in Cuba.

*Amnerys González Rossell MSc.*

*Centro Nacional de Áreas Protegidas, Ministerio de Ciencia, Tecnología y Medio Ambiente.*

The presentation integrates general work to date that has been conducted on the ecology of *Cyclura nubila nubila* in Cuba. These include the five main geographical areas where the species lives, but with different degrees of detail. The most frequent concerns are abundance (influenced by the type of habitat) and morphology. To a lesser extent there are studies on diet and reproduction in a few locations. One paper deals with the use and conservation of the species in detail and the other with their genetics and conservation. There are no studies regarding the life history of the species. The need arises to integrate all this work and focus on the conservation of the iguana populations.



Foto links en rechts: *Cyclura nubila nubila*

## Density of *Cyclura nubila nubila* in the cliff zone of Guanahacabibes National Park, Pinar del Río, Cuba.

*MSc. Dorka Cobián Rojas, Amnerys González Rossell Vicente Berovides Álvarez*

*Parque Nacional Guanahacabibes, Centro de Investigaciones y Servicios Ambientales ECOVIDA, Ministerio de Ciencia, Tecnología y Medio Ambiente. 2Centro Nacional de Áreas Protegidas, Ministerio de Ciencia, Tecnología y Medio Ambiente. 3Facultad de Biología, Universidad de La Habana, Ministerio de Educación Superior.*

Estimates are made of population density of *Cyclura nubila nubila* over two cliff areas (I and II), in Guanahacabibes National Park and human impacts associated with the economic development of the Peninsula are assessed. Direct counts were made for three years during the early stages of mating and oviposition. The abundance was estimated as iguanas/0.9 km (relative abundance, RA) and as individuals / ha (density, D). RA = 7.5 iguanas/0.9 km and D = 6.6 iguanas / ha were obtained for the total area. The correlation (r) between the two variables was  $r = 0.855$  ( $p < 0.001$ ). On cliff II density declined sharply in 2006. The differences between cliffs were statistically significant ( $p < 0.05$ ). The annual trend for the population of both cliffs was towards a decrease in density from 8.9 iguanas/ha in 2004 to 4.3 iguanas/ha in 2006. This result is explained by impacts from the construction of the road to Cabo de San Antonio. The start of construction coincided with the decrease in density. In 2004, density at the second escarpment was 17.2 iguanas/ha, and in 2006, at the start of construction of the road, was 4.0 iguanas/ha. These results are discussed in terms of conservation and management of the species in the protected area.

### **Diversity, Morphometry, and refuges of *Cyclura nubila nubila* in The Picúas-Cayo Cristo Wildlife Refuge, Villa Clara.**

*Lic. José Luis Collazo*

*Refugio de Fauna Las Picúas-Cayo Cristo, Empresa Nacional para la Protección de la Flora y la Fauna, Ministerio de la Agricultura.*

Abundance dynamics of *Cyclura nubila nubila* were analyzed considering the effects of year, quarter, and locality. Size measurements were compared in three populations, taking into account differences in habitat and size of refuges dug in the sand, between localities, and the size of the occupant were correlated to said dimensions. Density estimates (iguanas/ha) were conducted in Cayo Obispo, Green Cay and other small keys for three quarters (January-March, July-September October-December) and four years (1997-2000) by counting shelters (indirect) and through counting individuals in transects bands (direct). Measurements were taken for 28 individuals and compared between two habitats (Yanal and Manigua Coast), habitat type and sex. Five variables were measured in 93 shelters (minimum and maximum height of the entrance, the entrance width, length and depth, all in centimeters), which were compared among sites and habitats (Yanal and Manigua Coast). The result is that the densities (individuals/ha) ranged between 14.6 and 21.5 and there were no significant changes between keys, years or seasons. The most marked changes in density between years were the least among quarters. The analysis of the effects of habitat on morphometric measurements shows that regardless of sex, the Yanal iguanas were smaller in size and in terms of allometry had shorter tail and femur lengths, with statistically significant differences ( $F = 3.95$ ,  $P < 0.05$ ). All dimensions of the shelters were affected by the location and habitat, except for the minimum height of the entrance.

### **General characteristics of the population of iguanas in the Monte Cabaniguán Wildlife Refuge, Delta Cauto, Las Tunas.**

*Manuel Alonso Tabet*

*Refugio de Fauna Monte Cabaniguán, Empresa Nacional para la Protección de la Flora y la Fauna, Ministerio de la Agricultura.*

Iguana populations in the Monte Cabaniguán Wildlife Refuge, live in an atypical habitat for the species, made up of mangroves and vegetation in patches of sand. In this paper we analyze the morphometry, abundance and reproduction of this population. Morphometry took into account 6 morphometric and 4 meristic characters, abundance is determined by the transect methods and reproduction was evaluated on the basis of the dimensions of the nests and the number of eggs. This population was found to be intermediate in morphological characters in relation to those on keys and the Island of Cuba. The average density was 24.2 iguanas/ha, similar to the keys. The dimensions of the nests were associated with annual changes in water level on the substrate.

### **Results of the management and reproduction of *Cyclura nubila nubila* in captivity.**

*José Luis Polo Leal*

*Alexander Arango Leyva*

*Lic. Raúl Campos Talavera*

*National Zoological Park, National Empresa for the Conservation of Flora and Fauna, Ministry of Agriculture. Zoological Garden of Havana*

The Cuban iguana, *Cyclura nubila nubila*, demonstrates good adaptability to the conditions of captivity in the 24 zoos of the island. Their diet consisted of fruits, vegetables, concentrates, live prey, and foliage. Maintenance conditions were based mainly on external displays and small pits where cases of egg-laying have been recorded but without the survival of offspring. The reproduction of this species in Cuba's National Zoo was achieved from two pairs of *Cyclura n. nubila* over a study period of three years with

management changes of exhibit conditions in the reptile area. The eggs were collected and artificially incubated in the herpetarium rescue center, obtaining 80% hatch rate with an incubation of 113 days and 100% viability. Animal health management of the specimens found parasitic and bacterial pathogenic specimens. Parasitic diseases found were caused by ectoparasites and endoparasites. Among the first causal agents were ticks of the genus *Rhipicephalus* and *Boophilus* and among the second we found species in the family Oxyridata and the genera *Eimeria* and *Isospora*. Other diseases were bacterial in origin, produced by different species such as *Salmonella* sp., *Staphylococcus aureus*, *Pasteurella haemolytica*, *Pseudomonas fluorescens*, *Pseudomonas aeruginosa*, *Citrobacter* sp., *Klebsiella pneumoniae*, *Klebsiella oxytoca*, *Edwardicella tarda*, *Aeromonas hydrophila*, *Arizona* sp., *Salmonella newport* and *Salmonella saintpaul*.



Foto: *Cyclura nubile nubile*



Foto: Habitat *Cyclura nubile nubila*

### **Local Community Empowerment for the conservation of *Cyclura ricordi* in the Dominican Republic and Haiti**

*Accimé, Masani*

The presentation is an update on the Ricord's iguana (*Cyclura ricordi*) Species Recovery Program in the Dominican Republic (D.R.) and Haiti. The species is ranked Critically Endangered by the IUCN and has an extremely limited distribution, known only to exist in south-central Hispaniola. The total range of *C. ricordi* is under 100 km<sup>2</sup> and they live in sympatry with Rhinoceros iguanas (*Cyclura cornuta*). The *C. ricordi* population is divided into four disjunct subpopulations and the total adult population is estimated to be between 2,000 and 4,000. In 2002, the Ricord's Iguana Species Recovery Plan (SRP) was produced at an Iguana Specialist Group workshop. The Indianapolis Zoo, ZooDOM, IIF, and Grupo Jaragua initiated activities for the conservation program. We have been working to meet insufficient strategic and logistical support to local grassroots organization to achieve conservation goals both in D.R. and Haiti. The goal in Haiti this year has been to establish habitat monitoring and surveillance and working to attain Municipally Protected Status for the species and its habitat to prevent its disappearance. We've begun documenting hatchling movement and survivorship using telemetry and camera-traps and applying methods of estimating population density. In Pedernales, key Ricord's nesting habitat was purchased to secure the future of Ricord's.

### **Anegada iguana (*Cyclura pinguis*) conservation program - 2010**

*Bradley, Kelly; Glenn Gerber*

The Anegada iguana headstart program is in its 14th year. Because of the partnership between the Iguana Specialist Group and the British Virgin Islands National Parks Trust, 125 animals have now been released back to the wild at three locations. We will highlight

activities that have taken place during 2010 including: nest surveys and hatchling collection, our annual burrow survey, a tour with the Governor of the BVI, a release of headstarted iguanas into a new site, and preparations for an upcoming importation of iguanas from the headstart facility to the US in order to supplement the SSC captive breeding program.

#### **Investigating Intra-Island Translocation as a Conservation Strategy for the Turks and Caicos Iguana: Pilot Study March/April 2010**

*Bradley, Kelly for Tarren Wagener; Glenn Gerber*

In preparation for the project "Investigating Intra-Island Translocation as a Conservation Strategy for the Turks and Caicos Iguana," pilot data was conducted in spring, 2010. The objective was to test transmitter attachment methods and obtain preliminary iguana movement data. Six individuals at each of two study sites were processed and equipped with an externally attached radio transmitter adhered by one of two types of glue (3M 5200 marine caulk or eyelash glue). Both glues were tested at each study site with each age and sex class. Following release, all individuals were located at least twice daily for 14 days. Upon recapture, transmitters were removed and the holding ability of the glues was scored. Average transmitter attachment score was 2.25 for eyelash glue (range 0-3.5) and 3.95 for 3M 5200 (range 1.25-5). Preliminary data were obtained on activity patterns, behavior patterns, retreat locations, and retreat use across age and sex classes. A full field season utilizing 24 subjects and an intra-island translocation is planned for spring, 2010.

#### **Health Evaluations of Grand Cayman Iguanas (*Cyclura lewisi*)**

*Calle, Paul P. ; Bonnie L. Raphael ; Catherine McClave ; Fred Burton*

Due to the Blue Iguana Recovery Programme's success, the Grand Cayman iguana (*Cyclura lewisi*) has returned from the brink of extinction in the wild less than ten years ago. The free-ranging population in three locations is expanding, and may reach the species recovery goal within a few years. The Wildlife Conservation Society's Global Health Program has provided veterinary support for the program since 2001. This includes annual health assessments of 10% of the Grand Cayman captive population, emergency and routine medical care, quantitative parasite monitoring of the breeding population and treatments as necessary, annual pre-release health evaluations, and occasional necropsies. Annual health assessments include fecal culture and parasite screening, complete blood count (CBC), biochemical screen, and physical examination. Pre-release health assessments include packed cell volume (PCV), total solids (TS), white blood cell count (WBC), and physical examination. Health assessments have also been conducted on free-ranging iguanas, including quantitative parasite screens, and some necropsies have been performed. Samples for genetic analyses have been obtained from any individual or lineage in need of evaluation. Importation of biological samples has been conducted in conjunction with the IUCN Iguana Specialist Group and the San Diego Zoo Institute for Conservation and Research.

### **Captive Fijian Iguana Genetics and Conservation Management**

*Davis, Heidi A. ; Leona G. Chemnick<sup>1</sup>; Robert N. Fisher; Oliver A. Ryder*

Accurate evolutionary systematics and taxonomy of the species of interest is a vital component in successful conservation management programs. At the San Diego Zoo, two Fijian iguanas identified as *Brachylophus fasciatus* were morphologically different from other *B. fasciatus* in the collection. We were asked to determine genetically whether these individuals were a variant of *B. fasciatus*, a hybrid with *B. vitiensis*, or an unknown species. Mitochondrial sequencing of captive *Brachylophus* samples from San Diego and Taronga Zoos and two wild samples collected by Robert Fisher showed these iguanas to be unexpectedly polyphyletic. Recently a paper by Keogh et al. using samples from known islands described a new species of *Brachylophus*. Comparison of our mitochondrial data with theirs showed that our captive founders grouped with *B. vitiensis* or the new species *B. bulabula* instead of *B. fasciatus*, and therefore we believe species identification of captive Fijian iguanas needs further study. Since mitochondrial DNA only reveals matrilineal inheritance, and the few available nuclear microsatellites were not sufficient to assign species in our samples, we propose to analyze new genus-specific microsatellites on captive and additional wild animals. These studies will provide a fuller picture of diversity in *Brachylophus* to inform conservation management strategies.

### **Rapid Assessment for Fijian Iguanas (*Brachylophus* sp.) in the Northeastern Fijian Islands**

*Fisher, Robert; Peter Harlow; Jone Niukula; Pita Biciloa; Sipiriano Qeteqete*

Currently three living species of endemic iguanas in Fiji in the genus *Brachylophus* are known. These species have restricted distributions within Fiji; although many records are plotted on maps for iguanas elsewhere within Fiji that lack validation of their species identification. Recent records of an invasive large lizard from Qamea Island were confirmed (in 2008) through photographs to be the green iguana (*Iguana iguana*). In early 2010 we undertook surveys for the status of native and invasive iguanas northeastern Fiji. We were able to conduct assessments on 15 islands. We confirmed living populations of two species of *Brachylophus* iguanas on a few islands north of Vanua Levu and discovered that the majority of islands in that region are now not suitable for iguanas. Invasive green iguanas were found to occur on two islands to the east of Taveuni; in sympatry with *Brachylophus* on one island. Relatively large populations of *Brachylophus bulabula* were found for the first time and these were on two islands located between Viti Levu and Vanua Levu; these islands could serve as a protected area for this endangered species. These surveys confirm that the endemic *Brachylophus* habitat is continuing to decline and few populations appear large or stable.

### **The Recovery of the Mona Island Iguana - Now and Next**

*García, M.A.; N. Pérez-Buitrago; A.O. Alvarez; M. E. Pérez; R. L. Tremblay; P.J. Tolson; C. Figuerola*

The Mona Island Iguana is an endemic subspecies classified as endangered of extinction. Consequently, several initiatives have been implemented for its recovery, including a headstart program and an invasive mammal control program. In addition, comprehensive research has been aimed at assessing critical biological parameters. These approaches seek to prioritize conservation actions and budgets to improve our capabilities of saving this species from extinction. Today, after more than 10 years of relatively intensive recovery efforts, it is necessary to decide to which specific actions will be targeted to receive the limited funding allocated to keep this species from disappearing.

### **Fijian Crested Iguana Recovery Plan Update**

*Harlow, Peter; Jone Niukula; Ramesh Chand*

In 2004 the Iguana Specialist Group met in Fiji and a Recovery Plan for the Fijian crested iguana (*Brachylophus vitiensis*) was produced. Not until 2009 did the National Trust of Fiji received funding from the Critical Ecosystem Partnership Fund to implement this Recovery Plan. Two major components of the Recovery Plan are to translocate crested iguanas from their stronghold island reserve of Yadua Taba to new islands, and to capture and breed those genetically distinct crested iguanas from islands where they are at imminent risk of extinction. In the first year of this project the previously identified island of Namenalala (43 ha) has been surveyed and found to have suitable vegetation for crested iguanas, and 15 crested iguanas from the island of Monuriki (40 ha) have been captured and are being held for breeding at Kula Eco Park. Additionally, the landholders of Monuriki have agreed to remove goats from the island; 87 goats have been removed so far, with less than 50 still to be captured. Once all goats are removed regeneration of island vegetation is expected to be rapid, and we hope to be releasing head-started, captive bred crested iguanas back to Monuriki within a few years.

### **A Feral Green Iguana Eradication Program for Fiji**

*Harlow, Peter; Nunia Thomas*

A feral population of green iguanas (*Iguana iguana*) is now well established in Fiji. At least 11 hatchlings were illegally imported and released by a foreigner living in Fiji in 2000, and are now widely dispersed and breeding in two separate areas on the 34 km<sup>2</sup> inhabited island of Qamea. There is also a breeding population on the small neighbouring island of Matagi (94 ha), and occasional adults have been seen on the large island of Taveuni, which is only 2.5 km from Qamea. The potential for green iguanas to out-compete the native Fijian banded iguanas is unknown, but when green iguana populations reach large numbers they will certainly be a threat to the subsistence vegetable gardening that is fundamental to the Fijian village way of life. The Fijian government and the Critical Ecosystem Partnership Fund have supplied emergency funding for community consultation and preliminary field surveys, under the direction of the 'Iguana Eradication Campaign Task Force'. The eradication program will concentrate on stopping the human transport of green iguanas to new islands, identify and target iguana nesting areas and use the network of local residents to report iguana sightings to local project coordinators.

### **Life history variation between disturbed and non-disturbed populations of *Iguana delicatissima* on Dominica**

*Knapp, Charles; Carolina Perez-Heydrich*

The Lesser Antillean Iguana (*Iguana delicatissima*) occupies less than 10 main Caribbean Islands of the northern Lesser Antilles. Few populations are considered stable and most are in decline. Habitat degradation, non-native predators and competitors, hunting, road mortality, and genetic introgression with common green iguanas (*I. iguana*) threaten Lesser Antillean iguanas with extinction across their range. In 2006, the San Diego Zoo's Institute for Conservation Research initiated a study on Dominica to investigate survival and life history variation between coastal populations under varying degrees of anthropogenic disturbance. Since 2007 we have captured and processed over 1430 iguanas including 300 recaptures. From this data set we investigated life history parameters (e.g., asymptotic body size, growth rates, sex ratios, and body condition) between iguanas inhabiting disturbed areas (i.e., villages) versus non-disturbed habitat. Contrary to our hypothesis,



iguanas inhabiting disturbed areas demonstrated a significantly larger asymptotic body size and near significant faster growth rates. We also tested the efficacy of road signs and outreach campaigns in reducing vehicle collisions with iguanas. Our results indicate that road signs and outreach campaigns do have an effect on reducing vehicle collisions but a prolonged study is needed to determine if the effect is transient.

#### **Health Assessment for Exuma Island iguanas (*Cyclura cychlura inornata* and *C. c. figginsi*)**

*Knapp, Charles; Kirsten Hines; Trevor Zachariah; John Iverson; Sandra Buckner*

Recently in the Bahamas, tourism and associated food provisioning has emerged as a threat to wildlife because this activity is increasingly common and may pose a risk to the long-term survival of native iguanas. In order to manage and ensure long-term, viable iguana populations we must understand the precise impacts that these activities will have on these animals. In 2010 we expanded an investigation conducted originally in 2008 to investigate the physiological effects of tourism and food provisioning on five populations of iguanas in the Exuma Islands living under different degrees of visitation pressure. Blood samples were collected within three minutes of capture and analyzed immediately using an i-STAT blood gas analyzer to examine several physiological parameters including, but not limited to, glucose, sodium, potassium, ionized calcium, hematocrit, hemoglobin, and pH. At our mobile laboratory we also assessed general physiology using manual complete blood counts (CBC), total solids, and packed cell volume. Plasma was collected and frozen for later analysis of stress hormone level (i.e., corticosterone), biochemical concentrations, and nutritional parameters (e.g., mineral and vitamin panels). Our preliminary results reveal no differences between iguana populations in corticosteroid levels but differences in other blood chemistries including glucose, sodium, and hemoglobin levels. We also expanded our education role in the Bahamas by erecting signs on beaches and visiting Bahamian schools to raise awareness about the conservation concern for native Bahamian iguanas.

#### **A conservation programme for the Lesser Antillean Iguana (*Iguana delicatissima*) in Martinique: 2010 actions' report**

*Legouez, Caroline*

The 2010-2015 national actions' plan for the Lesser Antillean iguana is finished and has been approved by the French committee for protection of nature in June 2010. In November 2010, a scientific team will conduct a mark - release - recapture study on Islet Chancel. In addition to tagging new recruits, the field team will draw blood samples and collect biometric data. Do you remember Islet Ramiers and its nine iguanas introduced in 2006? In April, Dr. Charles Knapp and his field assistant, Mr. Lindon Prince, came to Martinique to assist and locate these iguanas. Three of them were observed and several were heard, no newborn were found. A cat was seen during this fieldwork and was removed from the island soon after. In April 2010, the National Wildlife and Hunting Agency (ONCFS) launched a survey programme, which has as its goal the collection of iguana sighting information from people residing in the North of Martinique. To limit the proliferation of *Iguana iguana* residing on Fort Saint-Louis at Fort de France, the ONCFS organized several days of destruction of eggs on site. As planned in the actions' plan for the Lesser Antillean iguana, an *Iguana iguana* control plan for the French West Indies is in the process of being created. To complete these actions, many communication tools are being created. The ONCFS will participate in the 2010 biodiversity meeting and annual science festival.

## **The Perils of Planning - The Good, the Bad and the Ugly of Species Recovery**

### **Plans**

*Pagni, Lee*

Over the past eight years, the IUCN Iguana Specialist Group has supported workshops to help produce Species Recovery Plans for six species of endangered iguanids. The plans are meant to both guide recovery efforts and document needs for proposals to fund these efforts. In 2007, the International Iguana Foundation (IIF) funded a one-year project to help implement two previously published species recovery plans (for *Cyclura pinguis* and *Cyclura carinata*) and to complete the publication for one species (*Cyclura cychlura cychlura*). With the recent publication of the Andros Iguana Conservation Action Plan 2005-2011, the results of the now completed IIF project can be discussed. The similarities and differences of the challenges and outcomes of these three different planning efforts will be presented. The goal of this presentation is to create a discussion with audience members whose experience with the creation and implementation of species recovery plans is vital to help guide and improve future planning efforts.

## **Conserving Roatan's Spiny-tailed Iguana, *Ctenosaura oedirhina*, through research, outreach and education**

*Pasachnik, Stesha*

*Ctenosaura oedirhina*, Roatan's spiny-tailed iguana, is listed as Endangered under the IUCN Red List due to harvesting for consumption and its limited and fragmented geographic range. *C. oedirhina* has just been included in CITES Appendix II due to the recent appearance of this and closely related species in the international pet trade. Currently no active means of protection or management exists. Little is known concerning the basic biology and threats to this species. The introduction of a wide ranging congener, *C. similis*, on a satellite island just off of Roatan, poses a threat to the *C. oedirhina* population, as there is the potential for extreme competition and hybridization if this invasive colonizes Roatan itself. It is crucial that *C. oedirhina* be studied and managed immediately. This entails collecting life history data on this species, including a population estimate and an evaluation of its distribution, evaluating its current threats, creating a management plan in cooperation with local and national organizations, and creating a long term education and outreach project on Roatan.

## **The outcome of the Appendix II CITES listing for the *C. palearis* clade**

*Pasachnik, Stesha; Daniel Ariano*

Given that trade was identified within the *Ctenosaura palearis* clade (*C. bakeri*, *C. oedirhina*, *C. melanosterna*, *C. palearis*) we evaluated the potential for listing these species within the appendixes of CITES. Our goal was to determine which appendix was most applicable for these species and to evaluate the viability of a CITES proposal for the entire clade, the entire genus or only selected species (i.e: *Ctenosaura palearis* and *Ctenosaura melanosterna*). In order to achieve these goals we collected data to determine the historical and current quantities of trade and held meetings with the local scientific and administrative authorities to sensitize them to the importance of a CITES proposal. During these meetings we discussed which strategy would be most efficient for submitting a *Ctenosaura* proposal to the next CoP of CITES and obtained feedback regarding support for this action. These investigations lead us to create a proposal for the *C. palearis* clade, split between Guatemala and Honduras. At the most recent CITES meeting in Qatar our proposals were successful.

### **Iguana Exploitation and Conservation in the CAFTA Countries – an Overview**

*Stephen, Catherine; Paola Mosig; Stesha Pasachnik; Leslie Ruyle; Lee Fitzgerald; Adrian Reuter*

We conducted a broad scale survey of various activities surrounding iguana species in the 5 CAFTA signatory countries from May 2009 – May 2010. The purpose of the project was to bring into one document, relevant information to inform future conservation efforts, management actions, and research directions. To this end we conducted market and breeding facility visits; contacted academics, NGO's, professionals, and government authorities; collected international trade data; and searched the available scientific and grey literature. Findings are compiled, wherever possible, into tables and figures and gaps in available information are identified. Highlights of the project are presented.

### **Mating system, inbreeding depression, and the dynamics of a 'natural' population**

*Welch, Mark E.; Jamen W. Berk; Glenn Gerber*

The negative effects of inbreeding depression include heightened mortality and decreased fecundity. In the long-term, selection acting against inbred individuals will hamper a population's potential to adapt. Captive and domesticated populations, frequently exhibit clear evidence of inbreeding depression while in wild populations it is not as common or more difficult to diagnose. This has led many conservation biologists to argue against its general relevance to population persistence except in extreme cases of reduction in population size. Homozygosity can be used as a measure of inbreeding. In this study it was found that heterozygosity in *Cyclura carinata* at 13 microsatellite loci increased significantly between hatchlings and adults on Little Water Cay in the Turks and Caicos Islands. Further, mass, head-width, and snout-vent length were all positively correlated with heterozygosity in adults. These findings demonstrate that inbreeding depression is a major factor limiting the adaptive potential of this population, and may provide insight to the population dynamics of iguanas in general.

### **Jamaican Iguana Recovery Programme: November 2009-October 2010**

*Wilson, Byron; Rick van Veen*

Fieldwork was conducted during every week of the period, including the continuous (daily) operation of our invasive predator-trapping programme, which resulted in the removal of numerous mongooses, cats, and pigs from the core iguana area. Other annual activities such as the release of headstarters and pitfall trap monitoring were also completed. The pitfall trapping experiment has now generated 14 consecutive years of data that will soon be analyzed the context of global climate change. The 2010 nesting season again demonstrated the dramatic increase in the core nesting population, from a total of 8 in 1991, to 28 in 2009 and 2010. The 2010 hatching season was similarly encouraging, with a record of 213 hatchlings captured and processed. A major new focus has been the deployment of camera traps, both in the Hellshire Hills and on the Goat Islands. In Hellshire, traps are generating relative abundance measures of native and non-native species, both within and outside of the predator-controlled area; on the Goat islands camera traps are used to document the presence/absence of both targeted and non-targeted species, in relation to planned eradication efforts.



Foto: Cyclura nubila nubila