



**IUCN SSC Iguana Specialist Group Annual Meeting  
Jungle Bay Resort in Soufriere, Dominica  
6–11 November 2022**

**ORAL PRESENTATION ABSTRACTS**

**In alphabetical order by author's last name, presenter denoted by \***

**Demography of the Lesser Antillean Iguanas Throughout Its Range**

Angin, Baptiste<sup>\*1</sup>, Chloe Warret Rodrigues<sup>2</sup>, and Aurelien Besnard<sup>3</sup>

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The Lesser Antillean Iguana (*Iguana delicatissima*) is classified as Critically Endangered on the IUCN Red List of Threatened Species. The species is declining, mainly due to hybridization with the Common Green Iguana (*Iguana iguana*). Only a few viable populations remain throughout its range. Managing the Common Green Iguana is key to preserve the endemic iguana, but a good knowledge of the last populations is also necessary to guarantee their conservation. In this context, it is important to monitor the remaining Lesser Antillean Iguana populations continuously to evaluate demographic parameters on the species across its range. Our study, which is still in progress, brings together for the first time the existing databases on the species in its range, and uses the latest demographic modeling techniques. The objective of our work is to improve the conservation programs by proposing practical management protocols that will be easily implemented, and that obtain reliable indicators to adjust these existing programs.

**Conservation Update for the Anegada Rock Iguana (*Cyclura pinguis*)**

Bradley, Kelly\*

Fort Worth Zoo, Fort Worth, Texas, USA

The Critically Endangered Anegada Rock Iguana (*Cyclura pinguis*), from the island of Anegada in the British Virgin Islands, is the subject of a long-term conservation program centered on headstarting iguanas to combat high juvenile mortality due to the presence of feral cats. Working with our in-country partners, the National Parks Trust of the Virgin Islands, wild-caught hatchlings are collected each fall, reared in a safe environment, and released back to the wild at a larger, less vulnerable size. Because of the partnership between the Fort Worth Zoo and the British Virgin Islands National Parks Trust, over 260 animals have been released back to the

wild. We will highlight activities that have taken place during the 2022 field season including: nest surveys and hatchling collection, our annual burrow survey, camera trapping surveys, release of additional iguanas into a new site, and the eighth annual Anegada Iguana Fest. We will also share about a new collaboration with Paul Bunker from Chiron K9 and the introduction of a scent detection dog being deployed to locate nests and newly emerged hatchlings.

## **Overview of Iguana Conservation Efforts in Dominica**

Brisbane, Jeanelle\*<sup>1,2</sup>, Ira Pierre<sup>1,2</sup>, Walter Ferreira<sup>1</sup>

<sup>1</sup>WildDominique, Roseau, Dominica; <sup>2</sup>Forestry, Wildlife & Parks Division, Roseau, Dominica

Before Hurricane Maria in 2017, Dominica was considered the last large island haven (>2 km<sup>2</sup>) for the Lesser Antillean Iguana (*Iguana delicatissima*), absent from the threat of invasive iguana species. However, wildlife surveys post-hurricane revealed an established population of the Common Green Iguana (Striped-tail Iguana; *Iguana iguana*) nearby Dominica's main seaport, speculated to have arrived on the island from hurricane relief shipments. This finding launched an Iguana Monitoring Program to facilitate management measures through training persons on the ground and strengthening national, regional, and international partnerships. In the three years since the program's establishment, the team has removed over 400 non-native iguanas from Dominica's environment, prevented the spread of the Common Green Iguana beyond the boundaries of the invasion zone, and observed a significant decrease in the number of non-native iguanas. Continued eradication and education efforts are needed to ensure the long-term protection of the Lesser Antillean Iguana on Dominica and in the region.

## **Yucatán's Spiny-tailed Iguana (*Cachryx defensor*, Cope 1886) Distribution in Guatemala and Its Changes Under Different Climate Change Scenarios**

Chinchilla, Christian\*<sup>1</sup>, Johana Gil<sup>2</sup>, Frida Yanes<sup>1</sup>, Adriana Echeverria<sup>1</sup>, Rony Garcia<sup>3</sup>, Gilberto Salazar<sup>2</sup>, and Daniel Ariano<sup>1,2</sup>

<sup>1</sup>Universidad del Valle de Guatemala, Guatemala City, Guatemala; <sup>2</sup>Reserva Natural Heloderma, Cabañas, Zacapa, Guatemala; <sup>3</sup>Wildlife Conservation Society, Bronx, New York, USA

The Yucatán Thorntail Iguana (*Cachryx defensor*) is an endemic species from the Yucatán peninsula presently categorized as Vulnerable according to the IUCN Red List of Threatened Species (needs revision). Up until 2022, there was only one locality reported for Guatemala, and only two individuals of *Cachryx defensor* found. We conducted field work in various localities and generated distribution maps for the species both in the present and under climate change scenarios. We report a new locality for the species in Guatemala, 80 km west of the original reported locality, and four new individuals were found. The current distribution for the species was widened, and its future distribution was calculated using the software MAXENT. The data obtained showed a significant decrease in the species habitat and distribution for both scenarios analyzed. These findings provide a new insight to the species' distribution and the importance of conservation for the whole genus.

## Should Iguanas be Returned to Redonda?

Daltry, Jennifer<sup>\*1,2</sup>, Johnella Bradshaw<sup>3</sup>, and Kevel Lindsay<sup>3</sup>

<sup>1</sup>Re:wild, Austin, Texas, USA; <sup>2</sup>Fauna & Flora International, Cambridge, UK; <sup>3</sup>Environmental Awareness Group, St John's, Antigua

Redonda is a rugged and uninhabited 65-hectare island that is politically part of Antigua and Barbuda and lies approximately halfway between Nevis and Montserrat in the Lesser Antilles. Redonda is internationally recognized as an Important Bird Area and Key Biodiversity Area owing to its significant numbers of seabirds and rare endemic lizards and other species. Until recently, however, Redonda was in a severely degraded condition as a result of intensive guano mining, coupled with the impacts of feral goats and rats. Most of its vegetation cover was lost and many species, including an endemic skink and unidentified iguana, were extirpated. In 2017, the goats and rats were successfully removed by the Redonda Restoration Programme: a consortium of local and international groups. Removing the non-native mammals has sparked rapid improvements in habitat quality, including the natural regeneration of thousands of shrubs and trees. Redonda is currently being designated as a strict protected area to safeguard its rare and endemic biodiversity, and discussions are underway on whether to reintroduce extirpated species, or closely related analogues, to more fully restore the island's ecology. This raises the intriguing possibility of bringing iguanas back to the island. This paper will describe how the island is being restored, examine the clues to which species of iguana was native to Redonda, and considers whether, when, and how native or similar iguanas could be returned to the island.

## Fighting the Spread of the Common Iguana: the French West Indies Case

Duporge, Nathalie\*

Nathalie Duporge Wildlife Consultant, Le Carbet, Martinique, French West Indies

The French West Indies stretch from north to south of the Lesser Antilles arc. They shelter a rare and specific biodiversity, threatened by the proliferation of invasive alien species (IAS) such as the Common Green Iguana (*Iguana iguana*). The latter, introduced on different islands by various historical or modern ways, is currently considered as the major threat for the conservation of the Lesser Antillean Iguana (*Iguana delicatissima*). Thus, the situation of colonization of the environment by the Common Green Iguana are different for Saint Barthélemy, St Martin/St Maarten, and the archipelago of Guadeloupe and Martinique.

We propose here to draw an overview, by the stakeholders engaged in conservation networks, of the presence of the Common Green Iguana in these territories, the measures for knowledge and control that are implemented, as well as the short- and medium-term perspectives for the management of the Common Green Iguana risk. Therefore, we will detail the status of the known Common Green Iguana populations for each territory, their local and regional situations and impacts on the conservation of the Lesser Antillean Iguana, as well as the frameworks, methodologies, and tools for control in each territory. Finally, the perspectives and future projects for the management of this IAS will be presented.

## **Associations Among Tourism, Health, and the Microbiome: Lessons From the COVID Pandemic and Laboratory**

French, Susannah\*<sup>1</sup>, Charles Knapp\*<sup>2</sup>, Karen Kapheim<sup>1</sup>, and Erin Lewis<sup>1</sup>

<sup>1</sup>Utah State University, Logan, Utah, USA; <sup>2</sup>John G. Shedd Aquarium, Chicago, Illinois, USA

Wildlife feeding by tourists is a widespread phenomenon across various species and environments. While it provides important economic benefits to countries and local communities, it can also pose challenges for affected wildlife. These widespread practices may alter behavior, affect animal health, and even reduce survival, which can affect population persistence. However, the ability to control for extraneous factors in tourism-related wildlife feeding conditions is often difficult if not impossible, rendering scientific study challenging. The unprecedented cessation of tourism and food provisioning due to the COVID-19 global pandemic created a natural experiment and allowed us to directly test the effects of this phenomenon on rock iguanas in The Bahamas. We tested both the effects of pre-pandemic food provisioning by tourists and of the cessation of supplemental feeding on the diet, microbiome, and physiology of a long-lived rock iguana. We found that previous physiological differences from high-tourist sites were no longer present in most cases, where markers for energy and stress were reduced at the high-tourist sites following the pandemic. These physiology measures are also correlated with a broad range of bacterial families, including those that differ between islands with different tourism levels. We also found persistent differences in the microbiome across populations exposed to different levels of tourism and feeding, even after the significant reduction of tourism in 2020. Specifically, we found that iguanas from islands that have historically been visited by tourists have significantly higher diversity in their gut microbiomes than iguanas from islands with no tourism. Finally, we experimentally tested these relationships in captive Common Green Iguanas (*Iguana iguana*) to discern mechanisms. Overall, the findings of this research have direct implications for conservation of endangered species and ecotourism management.

## **Conservation Initiatives for the Grenadines Green Iguana (*Iguana iguana insularis*)**

Gaymes, Glenroy\*

Forestry Department, Saint Vincent and the Grenadines (SVG)

In 2016, while conducting conservation work on the Union Island Gecko, *Gonatodes daudini*, tissue samples were collected from iguanas on Union and Palm Islands. DNA results were suggestive that this is a new species. Consequently in 2018, the SVG Forestry Department, in collaboration with other partners, photographed and collected samples from a much larger number of wild iguanas from 24 islands (out of the 32) across Saint Vincent and the Grenadines. Further genetic analysis revealed that we have a new species and that the subspecies *Iguana iguana insularis* or Grenadines pink rhino iguana is unique to the Grenadine islands. Although the species is protected on some islands, there is still the persistent threat of illegal international trade of wild-caught iguanas, hunting for eggs and meat, and having to relocate some individuals from Palm Island to other islands because of complaints from tourist guests. Awareness training with border control, forestry

officers, police, and other enforcement personnel was conducted in response to proving illegal international trade. On Union Island, community wardens are employed for protection of critical forest habitat and awareness campaigns, and are on-going. A population survey for the species is on the way and plans are being made to include this species on the CITES list.

## **Expanding Conservation Capacity Through the Global Center for Species Survival**

Geschke, Julia\*

Global Center for Species Survival, Indianapolis Zoo, Indianapolis, Indiana, USA

As human pressure continues to drive biodiversity loss, the work of conservationists from around the world becomes more vital in protecting and restoring nature. The International Union for Conservation of Nature (IUCN) connects thousands of dedicated individuals under the Species Survival Commission (SSC). To expand conservation capacity, the SSC partnered with the Indianapolis Zoo to create the Global Center for Species Survival.

The new Global Center for Species Survival at Indianapolis Zoo will provide crucial capacity to support, connect, and communicate the work of the more than 10,000 conservationists of the International Union for the Conservation of Nature's Species Survival Commission (SSC). Aligned with the structure of the SSC, the Global Center has recruited seven taxon-specific coordinators to provide support to relevant IUCN SSC Specialist Groups and Conservation Committees: for plants and fungi; invertebrates; amphibians and reptiles; birds; mammals; marine species; and freshwater species. Additionally, their work will be supported by a media specialist and behavioral change specialist.

One of the main tasks for the Global Center will be to effectively network conservationists across the globe and help fill geographical and skills gaps within the network. This presentation will explain the goals of the Global Center and the role of the Reptile & Amphibian Conservation Coordinator in helping the Iguana Specialist Group with its conservation objectives.

## **Iguana Populations on Saint Lucia and Montserrat — A Brief Status Update**

Goetz, Matt\*

Durrell Wildlife Conservation Trust, Jersey, Channel Islands

Most Lesser Antillean islands harbor native, adapted populations of the genus *Iguana* with extant populations nowadays under increased pressure. The gravest and most immediate threat stems from hybridization with non-native, introduced mainland forms of *Iguana*. This talk presents a brief update on the situation for iguanas on Saint Lucia and Montserrat. First results of still ongoing genetic testing trials on Montserrat did not prove the presence of alien or hybrid iguanas, even though local farmers had recently reported an unexplained increase of iguana numbers. On Saint Lucia, hybrids between native and mainland iguana forms are present in the native iguana's relatively small area of occurrence. Current plans and thoughts on the ways forward to preserve native iguana forms on both island are briefly discussed.

## **Update on the ISG, IUCN Red List of Threatened Species, and Green Status of Species**

Grant, Tandora\*

San Diego Zoo Wildlife Alliance, San Diego, California, USA

The IUCN Green Status of Species (GSS) represents the first standardized method to quantify a species' conservation efforts (or lack thereof) and its potential for recovery. This new assessment measures the impact of past conservation, a species' dependence on continuing support, how much a species stands to gain from continued conservation action within the next ten years, and the potential for it to recover over the next 100 years. The GSS was created as an adjunct tool to the IUCN Red List of Threatened Species and resides on the website adjacent to a species' Red List assessment. Since first web launch in 2021, we have contributed GSS assessments for two iguana species — the Critically Endangered Jamaican Rock Iguana (*Cyclura collei*) and the Endangered Roatán Spiny-tailed Iguana (*Ctenosaura oedirhina*). These examples will be shared, as well as the ISG's year in review.

### **Forest Restoration on a Fijian Crested Iguana Island** *(late cancellation due to travel complications)*

Harlow, Peter\*<sup>1</sup>, Marica Vakacola<sup>2</sup>, Alifereti Naikatini<sup>3</sup>, Steven Andrews<sup>4</sup>, Joeli Vadada<sup>5</sup>, Rory Keenan<sup>6</sup>, and Aquila Lati<sup>7</sup>

<sup>1</sup>Taronga Conservation Society Australia; <sup>2</sup>Mamanuca Environment Society, Nadi, Fiji; <sup>3</sup>South Pacific Regional Herbarium, University of the South Pacific, Suva, Fiji; <sup>4</sup>Castaway Resort, Mamanuca Islands, Fiji; <sup>5</sup>Yanuya Village, Yanuya Island, Fiji; <sup>6</sup>Melbourne Zoo, Victoria, Australia; <sup>7</sup>Turaga na Taukei Yanuya, Yanuya Island, Fiji

The uninhabited Fijian island of Monuriki (40 ha) is the second most important island for the long-term survival of the arboreal Fijian Crested Iguana, with between 100–150 iguanas surviving there today. It has been subjected to almost 50 years of intensive goat grazing and regular forest fires. Unfortunately, the favorite food tree species for goats are also the preferred food species for the herbivorous crested iguana, and these trees have had 50 years with no seedling recruitment, plus many species are fire sensitive and are killed by a single fire. The forest on Monuriki today consists of 98% trees with toxic and unpalatable foliage, which are not eaten by crested iguanas. Although goats were removed in 2011, many native tree species important in the diet of Fijian Crested Iguanas are now locally extinct on Monuriki, but these species still occur on nearby Castaway Island.

Fruit bats, birds and seed floatation might eventually disperse the seeds of some of the 'missing species' across the 17 kilometers of sea required to reach Monuriki from Castaway Island. The extant species of native fruit pigeons in Fiji are the most important inter-island dispersers of small- to medium-sized seeds, however these pigeons are rare today. The giant fruit pigeon (slightly smaller than the Dodo) and at least five species of large mound-nesting megapode birds that were hunted to extinction shortly after humans arrived 3,200 years ago were probably important dispersers of large seeds. Today, many trees with large seeds have no apparent dispersal mechanism between islands. This International Iguana Foundation funded

project is reintroducing native tree species that have been extirpated on Monuriki, starting with those most important in the diet of the Fijian Crested Iguana, as well as tree species with no across-water seed dispersal mechanism.

### **Safeguarding the Cayman Sister Islands From Invasive Species — Biosecurity and More**

Laaser, Tanja\*<sup>1</sup>, Jane Haakonsson<sup>2</sup>, Marique Cloete<sup>1</sup>, Sarah Havery<sup>3</sup>, and Frederic Burton<sup>2</sup>

<sup>1</sup>Royal Society for the Protection of Birds, Grand Cayman, Cayman Islands; <sup>2</sup>Department of Environment, Grand Cayman, Cayman Islands; <sup>3</sup>Royal Society for the Protection of Birds, UK

The largely undeveloped Cayman Sister Islands are of global significance and serve as Cayman's environmental flagships. Home to the endemic Sister Islands Rock Iguana (*Cyclura nubila caymanensis*), an Endangered population of Brown Booby birds (*Sula leucogaster*), the largest Red-footed Booby (*Sula sula*) breeding colony in the Western Hemisphere, and many other significant native and endemic species, the Sister Islands' ecosystems are threatened by increasing invasive alien species (IAS) populations such as the Common Green Iguana (*Iguana iguana*), feral cats (*Felis catus*), and rodents (Rodentia).

To safeguard the unique ecosystems of the Cayman Sister Islands from invasive species, the 2.75-year Darwin Plus project was launched in 2021, and is led by the Royal Society for the Protection of Birds (RSPB) in close partnership with the Cayman Islands Government and the University of Aberdeen. The four priority project objectives are to: 1) enhance biosecurity resources of key agencies and develop a multi-agency inter-island biosecurity plan; 2) increase community awareness, engagement, and support; 3) develop a better understanding of local wildlife and invasive species impacts; and 4) implement effective invasive species management.

In this presentation, we highlight the importance of biosecurity and community engagement for environmental and species protection on two small Caribbean islands and share information on the project's progress, successes, and challenges.

### **Saving the Swamper – Updates From Útila**

Maryon, Daisy\*, Tom Brown, and Ana Daniela Sansur

Kanahau Wildlife Conservation, Kanahau Útila Research & Conservation Facility, Útila, Bay Islands, Honduras

The Útila Spiny-tailed Iguana is a Critically Endangered species endemic to the small 41 km<sup>2</sup> island of Útila in the Bay Islands of Honduras. In late 2019, a species conservation action plan was developed to help conserve the species. In this presentation, we will outline actions already in place and new initiatives to save the species, along with an update on population monitoring and reproductive studies.

## **Results From Previous Studies Within the *Iguana* Genus and Their Implications for a Novel Study on Invasive Iguanas in Florida**

Mitchell, Blaklie\* and Mark Welch

Mississippi State University, Starkville, Mississippi, USA

The Common Green Iguana (*Iguana iguana*) has been introduced and is highly invasive in multiple regions outside of its native range, prompting tandem monitoring and eradication efforts across these areas. Culling programs have been implemented in various regions, which have aided in the short-term management of this invasive species. However, prior studies of invasive iguana populations suggest that this species might not be easily managed if propagule pressures remain high. To aid in the long-term management of this invasive, additional studies that pair genetic, ecological, and physiological techniques to investigate the origin, structure, and adaptive potential of non-native iguana populations could be used to guide removal and prevention efforts. Currently, there are no species-specific genetic tools developed for *Iguana iguana*, but molecular techniques developed for closely related species have proven to be equally informative. I have conducted multiple investigations that have further solidified the practicality of these laboratory methods to characterize various genetic indices across three different *Iguana* species, including *I. delicatissima*, *I. iguana*, and *I. melanoderma*. These projects answered various questions regarding the genetic integrity, structure, and origin of these different populations, further emphasizing the effectiveness of these molecular techniques for use in non-target species. It is my intention to build upon these prior studies and their respective benchwork techniques to assess the invasive Common Green Iguana population in Florida. There are three primary objectives for this project: 1) characterize the structure, origin, and estimated size of the invasive iguana population in Florida, 2) pair genetic analyses with individual measures of fitness to determine if admixture increases individual fitness and contributes to invasive establishment in non-native regions, and 3) evaluate the potential environmental or anthropogenic variables that contribute to colonization success. Ultimately, the results of this project could be applicable and resourceful in other regions where invasive iguanas are now established.

## **Conserving Anguilla's *Iguana delicatissima* Population Through Translocation and Regional Collaboration**

Mukhida, Farah<sup>1</sup>, Louise Soanes<sup>1</sup>, Devon Carter<sup>1</sup>, Giovanni Hughes<sup>1</sup>, Jonas Hochart<sup>1</sup>, Clarissa Lloyd<sup>1</sup>, Matt Goetz<sup>2</sup>, and Olivier Raynaud<sup>3\*</sup>

<sup>1</sup>Anguilla National Trust, The Valley, Anguilla; <sup>2</sup>Durrell Wildlife Conservation Trust, Jersey, Channel Islands; <sup>3</sup>Fauna & Flora International, Antigua and Barbuda

In 2015, the Anguilla National Trust, Fauna & Flora International, and Durrell Wildlife Conservation Trust launched an ambitious program to protect Anguilla's remaining Lesser Antillean Iguana, *Iguana delicatissima*, population by translocating 21 individuals to Prickly Pear East, an offshore cay free of invasive Common Green Iguanas, *Iguana iguana*. In recognition that this small founder population was likely to have reduced genetic diversity that may impact



the population's long-term survival, in 2021, an additional ten individuals were donated by the Government of Dominica and translocated to the offshore cay. This presentation provides an overview of the translocation program and an update on the Prickly Pear East *I. delicatissima* population following a first post-translocation population assessment conducted in July 2022.

### **Anthropause Outcomes: Neutral Effects on a Population of Spiny-tailed Iguana, *Ctenosaura similis***

Nash, Ann-Elizabeth\*<sup>1,2</sup>

<sup>1</sup>University of Northern Colorado, Greeley, Colorado, USA; <sup>2</sup>Colorado Reptile Humane Society, Longmont, Colorado, USA

Anthropause offers an opportunity to understand how animals behave experiencing a sudden reduction of human activities. In March 2020, the pandemic resulted in the closure of Costa Rican national parks. At Palo Verde National Park, all Organization for Tropical Studies (OTS) visits were cancelled, and staffing was greatly reduced. A stable aggregation of Spiny-tailed Iguana, *Ctenosaura similis*, living on the OTS station and studied since 2013, was assessed to understand the effects of the anthropause. With reduction of human workers and visitors, animals including Ocelot, Grey Fox, and White-tailed Deer began using station areas. When the park reopened to visitors, some marked lizards were absent during surveys and lizards had endured bodily trauma. Data analysis determined the persistence of individuals from first capture to current capture period. While the number of first-time captures varied across years, the quantity of known animals captured from each previous period was significantly consistent. For Spiny-tailed Iguanas, in the absence of suspected predator release, and in the presence of predator congeners, the anthropause did not change persistence for this population.

### **Update of Implementation of the Lesser Antillean Iguana National Action Plan in Guadeloupe and Martinique (French West Indies)**

Paranthoën, Nicolas\*<sup>1</sup>, Melvin Beatrix<sup>2</sup>, Alexis Guilleux<sup>2</sup>, Simon Martin-Pigeonnier<sup>1</sup>, and Marina Moutou<sup>1</sup>

<sup>1</sup>Office National des Forêts, Basse-Terre, Guadeloupe, France; <sup>2</sup>Office National des Forêts, Fort-de-France, Martinique, France

The Lesser Antillean Iguana (*Iguana delicatissima*) is listed as Critically Endangered on the global (2018) and local — Martinique (2020) & Guadeloupe (2021) — IUCN Red List of Threatened Species. This species occurs in these French territories where it has been protected since 1989. Since 2018, after a first conservation action plan started in 2011 and ended in 2016, this species is benefitting from a second National Action Plan in Guadeloupe and Martinique. Two years after the presentation given at the 2020 ISG annual meeting, this presentation is giving an update of the implementation of the main actions by the network of partners including NGOs, governmental bodies, local authorities, scientists, and citizens. Two other presentations will focus on *Iguana iguana* regulation and capture-mark-recapture data analysis after eight years

of implementation, which are two of the 13 actions of the plan. We will then focus on mortality reduction including rodent regulation, historical overview of genetics studies, knowledge and prospects, and education and outreach.

### **Conservation of the Jamaican Rock Iguana, *Cyclura collei***

Pasachnik, Stesha<sup>\*1</sup>, David Reid<sup>2</sup>

<sup>1</sup>Fort Worth Zoo, Texas, USA; <sup>2</sup>National Environmental Planning Agency, Kingston, Jamaica

The endemic Jamaican Rock Iguana (*Cyclura collei*) was considered extinct by the 1940s, due to habitat conversion and invasive alien species (IAS). Its rediscovery in 1990 galvanized the zoo and conservation community to develop an extensive recovery effort focused on headstarting hatchlings for reintroduction, habitat and nest site protection, and IAS control in the iguana's core range. These initial efforts prevented the extinction of the species, but IAS incursions into the core area were still a regular occurrence and the lack of natural recruitment was preventing population growth in the wild. Recently, efforts over the last five years have greatly improved the program. The headstart facility at the Hope Zoo in Kingston has been expanded; now having the capacity to house 50% of the annual hatchlings. The turnover rate within the headstart facility has decreased and nearly 600 individuals have been released back into the wild. Intensive research efforts within the Hellshire Hills have occurred over the past five years and a buffer zone has now been installed that more than doubles the protected area. This will ensure the level of protection needed for natural recruitment and population growth. Novel nest sites have been identified and protected, and hatchlings from these sites have been incorporated into the headstart program to ensure enhanced genetic diversity of the wild population. Outreach and education activities are bolstered with collaboration from local organizations. Together these actions have greatly enhanced the program and opened the door for continued improvement.

### **About WePlanet Inc.**

Paul, Christianna\*, Kyanna Dyer, ZebadiJah Maxwell, Mhea Bardouille, and Kyra Edwards  
WePlanet Inc., Roseau, Dominica

WePlanet Inc. is a non-profit corporation and social enterprise that acts on its motto 'Small Actions. Big Change.' by developing innovative, incentive-based solutions that tackle environmental issues and raise environmental consciousness amongst citizens in Dominica, and the Caribbean by extension. This social enterprise values learning, earning, and making an impact!

One of these solutions is the creation of a progressive mobile web application to encourage and reward citizens for living eco-friendly lifestyles. The functionalities of the mobile web app are specially curated to motivate, educate, and encourage everyone, including businesses in the private sector, to implement eco-friendly strategies and choices. App users earn points and are

rewarded for doing simple actions such as shopping with a reusable bag instead of disposable plastics, buying an eco-friendly product, and even participating in the app's Eco-Challenges. One of the main issues WePlanet tackles is the overuse and misuse of non-biodegradable items in the environment. By addressing such important environmental issues, the enterprise actively supports conservation, by not only educating citizens on how their actions influence natural life, but also by providing incentives to those who take eco-friendly action.

### **Habitat Use, Nesting Biology, and Demographic Trends of the Pink Land Iguana (*Conolophus marthae*) and the Galápagos Land Iguana (*Conolophus subcristatus*) at Wolf Volcano, Isabela Island**

Ramirez Kastdalen, Johanes\*, Jean Pierre Cadena, and Luis Ortiz  
Parque Nacional Galapagos, Puerto Ayora, Galápagos, Ecuador

This presentation consists of a compilation of the main results of the nesting ecology study project that has been carried out permanently between the Directorate of the Galápagos National Park and conservation organizations from December 2021 to September 2022. Among the main results, we describe the capture of juveniles and neonates of *Conolophus marthae* for the first time. Additionally, we characterized morphology by age classes and their transformation, distribution, breeding areas, main threats, hatching times, nesting times, and distribution of nesting areas for *Conolophus marthae* and *Conolophus subcristatus*. We also studied the characteristics of nesting areas, nests, eggs, and competition for mating and nesting areas between the two species. Feral cat feces found within the home range of *C. marthae* was analyzed and evidence of predation on juvenile iguanas was found. Lastly, we will describe our main logistical, technical, and financial challenges in this project, the actions currently being implemented, and our next steps to follow.

### **IUCN Species Survival Commission: Mobilizing Experts to Address the Biodiversity Paradox**

Rodríguez, Jon Paul<sup>\*1,2,3</sup>

<sup>1</sup>IUCN Species Survival Commission; <sup>2</sup>Venezuelan Institute for Scientific Research; <sup>3</sup>Provita, Caracas, Venezuela

The IUCN Species Survival Commission is an evidence-based global network of more than 8,000 volunteer experts in over 170 countries. Many of our activities focus on providing the knowledge base that underlies the IUCN Red List of Threatened Species, but our work spans the five components of the species conservation cycle: Assess, Plan, Act, Network and Communicate. A major challenge ahead is the biodiversity paradox: biological diversity predominantly concentrates in the tropics, while human, institutional, and financial resources are primarily located at higher latitudes both north and south. Reverse the Red is a global movement that ignites strategic cooperation and science-based action to ensure the survival of wild species and ecosystems. SSC contributes to Reverse the Red through two primary strategies: National Species Specialist Groups and Centers for Species Survival. By building on existing expert networks and

catalyzing efforts with established local institutions, we aim to significantly expand capacity to implement conservation action at the national level and reverse the negative trends indicated by the IUCN Red List of Threatened Species and the Red List of Ecosystems.

### **The Movement and Dispersal of Green Iguanas (*Iguana iguana*) Along With Several Herpetofaunal Species Throughout Florida, The Bahamas, and the Caribbean**

Wasilewski, Joe\*

Natural Selections of South Florida, Homestead, Florida, USA

Common Green Iguanas, *Iguana iguana*, are quickly expanding their distribution throughout the state of Florida and are now commonly observed up to Martin County, north of Palm Beach. There are 56 species of documented, foreign, invasive types of herpetofauna residing in Florida. There are Common Green Iguana sightings on several Bahamian islands and the fear exists of their distribution becoming out of control unless steps are taken to begin removal efforts. The alien Common Green Iguana populations are well known on Grand Cayman and Puerto Rico. They have also been observed on several islands home to the Lesser Antillean iguana, *Iguana delicatissima*. Common Green Iguanas have made their way to Fiji, where there are continued efforts to slow down further in-country dispersal.

In addition to this well-known and publicized environmental issue, many other types of herpetofauna are beginning to establish populations on several islands. Aruba is being invaded by Red-tailed Boa Constrictors, *Boa constrictor constrictor*, which are competing with the endemic rattlesnake. There has been reports from Puerto Rico of Reticulated Pythons observed crossing roads throughout the island. This news is not confined to Caribbean islands, as the Canary Islands have also been overtaken by California Kingsnakes, *Lampropeltis getula californiae*. The time is coming for scientists to begin learning techniques for halting or slowing down these introductions.

### **Using the Movement Ecology Framework to Improve Conservation Efforts of Caribbean Rock Iguanas**

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In recent years, students of animal ecology have integrated various aspects of movement behavior into a single paradigm now known as “Movement Ecology”. The movement ecology framework addresses interactions between four mechanistic components of animal movement: internal state, motion capacity, navigation capacity, and external factors. Here we implemented this integrated framework using available data collected from Caribbean Rock iguanas (Genus: *Cyclura*). Our goals were to evaluate the utility of this integrative approach, review published studies of movement in *Cyclura*, and to enhance our understanding of the causes, mechanisms, and outcomes of movement behavior in these endangered lizards. By

approaching the review of these materials from the perspective of these four mechanistic components of movement, we are also able to illustrate similarities and differences in movement among the *Cyclura*. A total of 60 relevant studies were reviewed. The internal drivers (e.g., foraging and predator avoidance) and timing of large-scale movement in the genus generally show similar patterns (mating/nesting seasons), with a few notable exceptions. However, *Cyclura* is highly variable across the board in home range size, spatial distribution across a landscape, and constraints on movement capacity. There are in-depth records of movement behavior for the majority of the genus, however some species have no published information on movement (*C. ricordii* and *C. cornuta*) and others may need to be re-evaluated given shifting population dynamics or methodological discrepancies (*C. pinguis*, *C. collei*, and *Cyclura rileyi rileyi*). The most serious gap in the literature is hatchling ecology — there have been hatchling studies in only 20% of the *Cyclura*. In addition to achieving our goals stated above, this summation of movement ecology in *Cyclura* will also provide crucial management information such as guidelines for determining the appropriate size and location of wildlife reserves based on the spatial and temporal trends in different species.

## **VIDEO and POSTER PRESENTATION ABSTRACTS**

### **VIDEO: Dragon of the Trees**

Burghardt, Gordon

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This is an archival 27-minute film made by the Smithsonian Institution's Office of Telecommunications on the field research in Panamá on Common Green Iguanas led by A. Stanley Rand and Gordon Burghardt in the 1970s. It contains film taken by both, as well as by professionals. Released in 1980 and narrated by Edward P. Morgan, it covers territorial defense, courtship, mating, communal nesting, predation, hatching, juvenile sociality, dispersal, and other behavior with a focus on conservation. While this film was the first to depict previously unknown aspects of iguana behavior, viewing this film today raises issues of how far we have come in these 40-plus years in understanding comparative iguana behavior and in confronting the changed status of Common Green Iguanas in light of their invasive potential. Discussion of the film can lead to both an assessment of current research strategies and what a film made today might focus on to both celebrate the complex lives of iguanas and draw attention to the many current crises facing iguanas, especially in the Caribbean.

### **POSTER: Galápagos Land Iguanas — An Illustrative Comparison**

Bendon, John

IUCN-UK Committee

**POSTER: Modelling Habitat Selection of the Critically Endangered Útila Spiny-tailed Iguana, *Ctenosaura bakeri***

Harding, Courtenay\*<sup>1</sup>, Tom Brown<sup>2</sup>, and Josiah Townsend<sup>1</sup>

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The Útila Spiny-tailed Iguana, *Ctenosaura bakeri*, is endemic to the island of Útila, Honduras. In 2004, this species was listed as Critically Endangered on the IUCN Red List of Threatened Species. A Conservation Action Plan was developed for this species in 2021 by the IUCN Species Survival Commission Iguana Specialist Group, based on over a decade of continued research and conservation efforts by Kanahau Útila Research and Conservation Facility, IRBS Útila Iguana Station, and others. These iguanas are mangrove-obligates and are rarely found outside of mangrove habitat. Increased habitat loss, poaching, and invasive species are continuing to negatively impact this species. Previous studies and surveys of *C. bakeri* have indicated a preference for mangrove trees with open cavities in them, but specific habitat preferences have not been quantified. Here, we model abundance of *C. bakeri* using 20 habitat variables on Útila. An N-mixture model was used to relate iguana abundance to our habitat variables. We conducted our surveys at five sites across the island in July 2022 (10 transects total). Modelling results suggest that *C. bakeri* abundance increases with the number of trees with cavities and average tree height. These results can be used to inform habitat management for this species. Provided that *C. bakeri* requires taller, older trees and cavities in their home range, these areas of Útila should be prioritized for conservation. Future research into artificial cavity use by wild *C. bakeri* may prove beneficial to the species.

**POSTER: Establishing Baseline Hormone Levels in Fiji Crested Iguanas (*Brachylophus vitiensis*)**

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Relatively little is known about the basic biology of the Critically Endangered Fijian Crested Iguana. Our project aims to establish baseline reproductive and stress hormone levels in different populations. We developed novel methods to measure baseline hormone levels using toenails, a technique less invasive than sampling blood and more easily collected than fecal samples. Here we show baseline glucocorticoid results from four different Fijian Crested Iguana populations. We found no difference between baseline glucocorticoid levels in a wild vs. captive population from the same island. We found significant differences in baseline glucocorticoid levels between islands.