



Conservation & Research

ZOO MIAMI 2012



“Conservation means development as much as it does protection. I recognize the right and duty of this generation to develop and use the natural resources of our land; but I do not recognize the right to waste them, or to rob, by wasteful use, the generations that come after us.”

- Theodore Roosevelt

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Mission Statement:

Conserve the natural resources of South Florida and imperiled areas around the world through community education, active research and field work, establishing a culture of sustainable practices, and collaboration with our partners.

Conservation and Research at Zoo Miami

Zoo Miami has a rich history of involvement in conservation and research programs since its inception as the Crandon Park Zoo in the 1940's. In 2011, a renewed dedication occurred through the formation of a Conservation and Research Department. This report will serve to summarize this new department's activities, the Zoological Society of Florida (ZSF) and Zoo Miami's support of conservation projects, and significant occurrences in the animal collection.

Zoo Miami's Conservation & Research Department... what a pleasure just to say that! As we come to the end of our first full year, it is truly an honor to offer this report.

Highlighting work from this year and significant long standing programs, we honor our partners, collaborators and signal a bright future. Compiling project information for this document, actively participating in important studies, and now leading our own projects, we are more than ever, playing a role at home and around the world in critical issues to wildlife and wild places.

Not only do we want to educate and be informative about this work, we also hope to inspire new partners to join us on these and new subject material. Whether it is local, national or international, there is more work to do than we can ever hope to accomplish. But, we can be strong in the effort and show successes that might just be the effort needed to make new discoveries or help save a species.

Join Dr. Frank Ridgley, Dustin Smith and the rest of the zoo in these efforts.

Eric J. Stephens
Zoo Miami Director



This first annual Zoo Miami Conservation and Research report will help its readers appreciate all of the meaningful work that is done by staff at ZSF & Zoo Miami in order to protect and better understand our animal collection. We are blessed with a fantastic group of well educated, passionate and dedicated group of professionals. They are dedicated to the common goal of making Zoo Miami a world leader in conservation and animal husbandry.

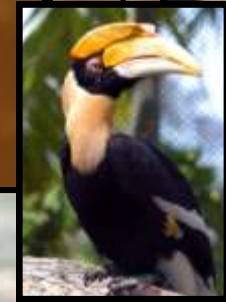
This report has been made available primarily electronically to be as environmentally responsible as possible and take advantage of technology and the internet. Please, notice the [hyperlinks](#) throughout the document that will allow you to explore projects further, watch videos, hear sounds and transform this document from a mere report into a more immersive experience.

I hope you take away from this report a deeper understanding of what a modern zoo does, realize the hard work that goes into not only making Zoo Miami but the world a better place, and inspire better conservation practices in yourself.

Dr. Frank Ridgley
Zoo Miami Conservation and Research Manager



In 1998, the Zoo Miami Conservation and Research Fund was established to promote efforts towards the conservation of wildlife and natural ecosystems throughout the world. The fund is supported through private donations and donations from approved film shoots that occur on Zoo grounds. The Zoo Miami Conservation Committee has selected to award grants from the fund to over 75 different projects across the globe.





Sea Turtle - Youth Education Program at Crandon Park Visitors & Nature Center

The fund helped expand the program to underserved schools in Miami-Dade County.



Changes in Habitat Use and Survival Rates of Juvenile Bull Sharks After an Extreme Weather Event

Transmitters are being used by researchers at Florida International University to track behavior and survival rates of juvenile bull sharks.



Predation Impacts & Implications for Rare & Endangered Butterflies of South Florida

Supplies for a Florida International University researcher to propagate larval and nectar plants that will be used to look at the effects of **non-native predatory ants' effects on imperiled south Florida butterflies.**



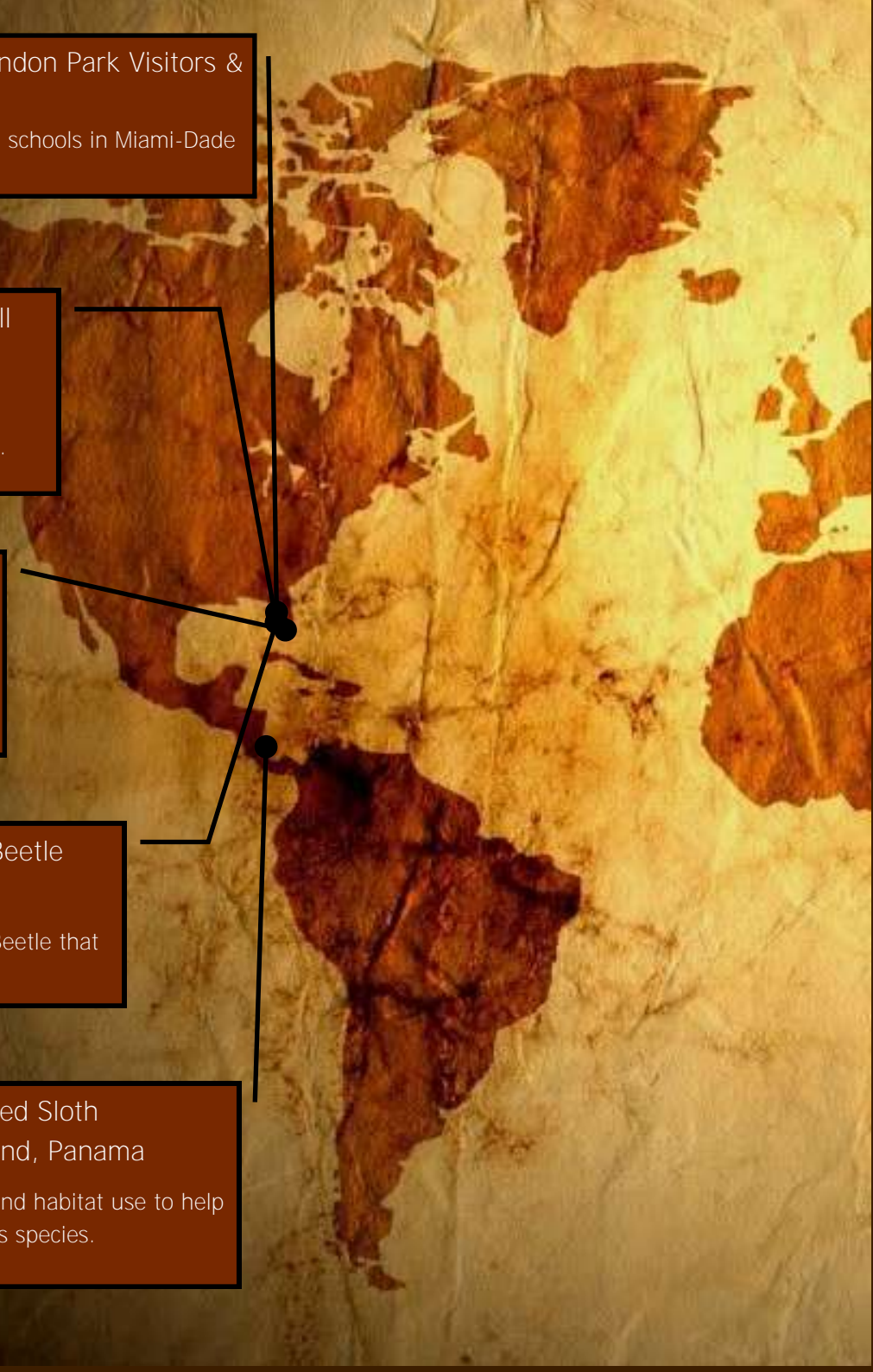
Biological & Conservation Studies of the Miami Tiger Beetle (*Cicindela floridana*)

Support the continued field studies of the endangered Miami Tiger Beetle that only exists in the Richmond Heights area of Miami.



Saving from Extinction the Pigmy Three-Toed Sloth (*Bradypus pigmaeus*) of Ecudo de Verguas Island, Panama

GPS transmitters and field equipment to describe the behavior and habitat use to help shape land management decisions to help save this species.



The Zoo Miami Conservation and Research Fund received over 60 completed applications from more than 25 different countries during its last award period.

Conservation of the Burmese Roofed Turtle in the Chindwin River, Myanmar

Construction materials & labor costs for a turtle rearing facility near a nesting site to be used for reintroduction efforts of this endangered species.



Community Based in-situ Sea Turtle Nest Protection Program in Rekawa, Sri Lanka

Monies from the fund helps to pay the salaries of nest protectors against harvesting and beach patrols.



Kibale Fuel Wood Project

This project that has been funded several years by the fund due to their successful suppression of deforestation by teaching how to build high efficiency stoves & propagate fast growing trees for fuel in villages.



Local Projects

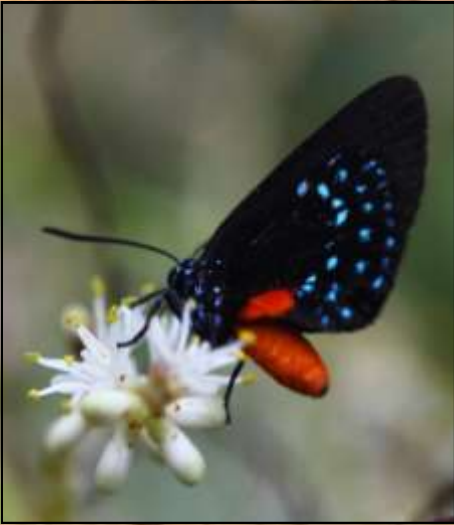
Atala Hairstreak Butterfly Monitoring

There are approximately 119 species of native butterflies in Southern Florida. Of these, one rare jewel stands out above the rest, the Atala Hairstreak (*Eumaeus atala*), with its jet black wings streaked with red and iridescent blues.

The Atala was once thought to be extinct due to habitat destruction and overharvesting of the larval host plant, coontie. It was only in the 1970's when the butterfly was rediscovered on Virginia Key that scientists regained hope the butterfly population could be restored. Over the last year our Conservation and Research Department has been working with the University of Florida and the North American Butterfly Association to aid in a translocation program on zoo grounds, where Atala were historically abundant. Over 500 caterpillars have been released in various natural areas, and weekly surveys are conducted to monitor the populations. Now, once again, the Atala is a fairly common sight in the natural areas of the zoo.



Atala Butterfly eggs, caterpillar, and chrysalis ready to hatch (from left to right)



Pine Rockland Restoration

Zoo Miami is situated in the middle of the largest tract of [pine rockland](#) found outside the Everglades National Park. Pine rockland once covered more than 185,000 acres of Miami-Dade county. Now there is only 2% of this globally imperiled habitat left.

There have been more than 250 species of native plants documented on zoo grounds, with many of those species being endemic, found only in the pine rockland.

Due to the increasing threat of non-native species and past human impacts on portions of the rocklands, we started an ongoing habitat restoration program through much of the zoos pine rockland habitat.

In Fall 2011, the zoo invited the general public to participate in a native species planting at a restoration site at the zoo. There were more than 100 volunteers at the planting event, which helped zoo and Miami-Dade county staff dig holes and plant more than 800 plants!



Our Backyard

Native Reptile and Amphibian Monitoring

Very little is known about the reptiles and amphibians that inhabit the unique habitat known as pine rocklands. Zoo Miami is fortunate enough to be the stewards of hundreds of acres of this rare and diverse type of pine forest.

Our General Curator, Steve Conners, started monitoring these species occurrence more than a decade ago. It has now become the longest running survey of its type in pine rocklands.

Today, the staff of our Ectotherm department conduct these surveys on a daily basis. The surveys are accomplished through using techniques such as drift fences with pitfalls and/or funnel traps. When a terrestrial animal encounters this solid fence, they move parallel to the fence until they go into one of the traps. The staff then records data and safely releases the animals.

In the spring of 2012, we were excited to find a [Rim Rock Crowned Snake \(*Tantilla oolitica*\)](#). This is one of the rarest species of snakes in the United States. In addition to this snake, over two dozen native reptile and amphibian species have been documented to occurred in the pine rocklands surrounding the zoo.



This juvenile Southeastern Five-Lined Skink is a regularly encountered species



Rim Rock Crowned Snake found in 2012



Local Avian Surveys

Zoo Miami and ZSF staff conduct bi-monthly avian sight surveys to determine which species and in what abundance occupy our natural and developed areas of the Zoo. Because South Florida is an important migratory pathway between the Caribbean and the Americas, these surveys help researchers look for trends in populations and how each species utilizes different habitats. As habitat restoration occurs on grounds, this also helps us track shifts in populations in response to the changes.

In addition to the bi-monthly surveys conducted by aviary staff, Zoo Miami and ZSF staff participate in the annual [Audubon Christmas Bird Count](#). In December 2011, we had 18 participants which observed over 80 species and more than 1,400 individual birds!

Some of the more interesting species zoo staff has observed includes:

Wood Storks, Short Tailed Hawks, Bald Eagles, Painted Buntings, White Crowned Pigeons, Western Tanagers and 18 different species of warblers.



Bat Acoustic Monitoring

Species of Bats
Found in Miami-
Dade County

[Big Brown Bat](#)

[Tricolored Bat/Eastern
Pipistrelle](#)

[Evening Bat](#)

[Northern Yellow Bat](#)

[Seminole Bat](#)

[Brazilian Free-Tailed
Bat](#)

[Florida Bonneted Bat](#)

Miami is home to one of the rarest mammals in the world. And, we are not referring to the Florida Panther. The [Florida Bonneted Bat's](#) total population is believed to only be in the hundreds and has only ever been recorded in four South Florida counties. It is also our largest species of

bat. Zoo Miami has had a confirmed population of them utilizing our grounds since 2004. Very little is known about this species due to its rarity and elusive behavior. In 2011, Zoo Miami applied for and received a grant from the United States Fish and Wildlife Service (USFWS) to survey the Zoo, and our adjacent neighboring county parks, to discover what bat species occupy the parks and especially find out more about the status of the Bonneted Bat.

We are utilizing sophisticated ultrasonic recording devices in innovative ways to identify the species present based off of their echolocation calls and attempt to locate roosting sites. Once roosting sites are located, we can characterize what this rare **species prefers as a home. When you find a roost, you'll find guano.**

Collected guano can then tell us what they like to eat. All of this information can then be used to educate the public, land managers and decision makers to help this imperiled species continue to coexist with us in this modern urban landscape.



Recording Mast



This screen capture displays a spectrograph of the ultrasonic calls from two different bat species recorded on Zoo grounds. The shorter lines on the left side are from a Brazilian Free-Tail Bat, while the long lower line on the right is a call from the Florida Bonneted Bat. Click on the image to hear the different calls changed to a pitch that we can hear them.



Florida Bonneted Bat

All of the species of bats in Florida are insectivores, which means they only feed on insects! This also means a lot fewer mosquitoes thanks to our furry, flying neighbors.

FrogWatch USA™



Cricket Frog



Southern Chorus Frog



Southern Toad



Squirrel Tree Frog



Greenhouse Frog

Species of Frogs and Toads That Can be Heard in Miami-Dade County:

Natives:

Cricket Frog

Pig Frog

Leopard Frog

Green Tree Frog

Squirrel Tree Frog

Southern Chorus Frog

Little Grass Frog

Southern Toad

Oak Toad

Narrowmouth Toad

Non-Natives

Marine Toad

Cuban Tree Frog

Greenhouse Frog

[FrogWatch USA](#) is a citizen science program which allows anyone to become a field scientist and collect important data while learning more about amphibians, wetlands, and the local environment. All you have to do is go outside, listen to frogs call for a couple minutes and write down some data. **It's that easy!** This program is managed by the Association of Zoos and Aquariums (AZA) and has been in existence for more than 10 years. Zoo Miami started our local chapter in 2010 and has provided the AZA with data from many South Florida wetlands.

In Miami-Dade county, we have 13 species of frogs and toads, 10 native and 3 non-native. Every species of frog and toad has its own unique call. This makes each species identification easily possible without ever seeing a single frog or toad.

Click [HERE](#) to listen to all of our native frogs and toads!

We are always recruiting more citizen scientists so we can gain even more information for researchers. If you are interested in becoming a Zoo Miami FrogWatch USA volunteer, please contact us at support@miamimetrozoo.com

Research Collaborations

Research at the Zoo

Staff at Zoo Miami collaborate with researchers from around the world to try learn as much as we can about these magnificent animals that call Miami home. The more we learn, the better decisions we can make to ensure their survival, prosperity and health. Examples of some studies we participated in last year are:

["Characterization of the Reproductive Endocrinology and Behavior of Captive Giant River Otters"](#)

["Assessing Critical Thermal Minima to Determine the Thermal Limits of the Invasive Cuban Treefrog"](#)

["AZA African Crocodile Barcoding Project."](#)



Our elephant department participated in all of the following studies this year:

["Asian elephant blood samples drawn for Prospective EEHV"](#)

["Using Science to Understand Zoo Elephant Welfare"](#)

["Impact of Aging on Endocrine Function in Asian Elephants: Do Elephants Experience Menopause?"](#)

["Use of Equidone to Treat Ovarian Cyclicity Problems in Elephants"](#)

["Efficacy of Cabergoline to treat hyperprolactinemia-induced ovarian acyclicity in African elephant females"](#)

["Metabolic Syndrome—A Potential Risk Factor in African Elephant Infertility"](#)



Research in South Florida

American Crocodile Monitoring

Staff from the Zoo participate in nest and hatchling surveys for the endangered [American Crocodile](#) in the Florida Bay and the FPL Turkey Point Power plant areas.



These surveys help determine population trends in the species and aid in making informed decisions about how to help them continue their recovery.

Miami Tiger Beetle Surveys

Once thought to be [extinct](#), in 2009, this species was rediscovered in a Miami-Dade County managed Pine Rockland fragment and realized to be a distinct species. In addition to financially supporting surveys from the Zoo Miami Conservation and Research Fund, staff

participates in surveys for this small, unique species of endemic tiger beetle. Through Zoo Miami staff efforts, new and previously unknown populations of this beetle were discovered.



Invasive Species Management

Zoo Miami staff participates in a wide array of activities pertaining to invasive species here in Florida. Whether it is removing a new invasive **plant that could threaten South Florida's agricultural industry or natural areas, to training field personnel, to trapping lizards** that can cause damage to our endemic wildlife, you will find Zoo Miami staff out in the field on the front lines. Below are a few examples of our efforts:

Argentine Black and White Tegu Tracking and Monitoring

This non-native lizard is found in areas south of metropolitan Miami. The Zoo is part of a multi-agency collaborative effort to track, trap and monitor this introduced population and learn about possible impacts this invasive species could have on our native species and habitats.



Pine Rockland Non-Native Plant Removal

There are more than 250 species of native plants within the pine rocklands surrounding the Zoo. The subtropical climate of South Florida encourages the establishment of a wide array of invasive plant species that can outcompete our native species. Eradicating, suppressing and managing these invasive plants is a constant effort to preserve our native biodiversity.



Oustalet's Chameleon Surveys and Eradication Effort

The effects this chameleon from Madagascar could have in South Florida are unknown. But, Zoo Miami is aiding researchers in studying its impacts and attempting to determine if a coordinated multi-agency effort can be successful in removing an introduced species that has become locally established.



Northern African Rock Python Surveys

Although the population for this large, non-native constrictor appears to be confined to a small area. We are cooperating with the Florida Fish and Wildlife Conservation Commission (FWC) and utilizing our expertise in animal behavior and field skills to regularly survey areas for this potentially harmful snake.



Signature Supported Programs

Queensland Koala



Zoo Miami has partnered with the [San Diego Zoo](#) since 1988 to support efforts to protect this iconic species in its native range. The zoological society's board of directors is instrumental in maintaining the relationship with San Diego Zoo, funding the yearly commitment since Koalas were brought to the zoo after Hurricane Andrew.

Komodo Dragons



Komodo Dragons are the largest species of lizard in the world and are only found on a few small islands within the Indonesian archipelago. Since 1995, when the zoo received its first Komodo dragon, it has been involved with the conservation of and research into these impressive reptiles.

Our General Curator, Steve Connors, visited [Komodo Island](#) 2012 to participate in a long-term population monitoring program.

Zoo Miami has financially supported various research programs through the Conservation & Research Fund, the Komodo Dragon Species Survival Plan, and direct donations. We have also produced many offspring that are now placed around the world helping preserve this species from extinction.

Matschie's Tree Kangaroo



Zoo Miami's involvement with tree kangaroos goes back decades with efforts championed by former senior zookeeper, Alice Gilley. Alice passed away many years ago but her legacy lives on as Zoo Miami continues to support the [Tree Kangaroo Conservation Project](#). This support is primarily through the Zoo Miami Conservation and Research Fund.

Signature In-situ Programs

Puerto Rican Crested Toad SSP



For almost 10 years, Zoo Miami has been involved with the [Puerto Rican Crested Toad Species Survival Plan](#) by supporting a captive assurance colony. The zoo houses these toads in their own designated room to allow for the toads to breed. If the breedings are successful, the tadpoles are sent back to Puerto Rico for release to support the wild populations. There is also a display for the crested toads in the Toadstool at the Children's Zoo.

Dustin Smith from the conservation and research department is involved in monitoring of crested toad populations in Puerto Rico. In 2011, he visited Puerto Rico twice to participate in population and disease surveys, tadpole releases and habitat surveys.

Harpy Eagle Conservation



Ron Magill, on behalf of Zoo Miami, developed and directed the creation of a state-of-the-art "[Harpy Eagle Center](#)" in the Republic of Panama in conjunction with the government of Panama that opened in August of 1998.

Ron has raised more than \$500,000 to support this effort. Zoo Miami staff remains on the Board of Directors for the national Harpy Eagle non-profit conservation organization in Panama and continues to be the single greatest U.S. Zoo supporter. This organization is dedicated to protect this magnificent raptor while educating the public of its importance to the environment. Zoo Miami staff has also participated in several expeditions to tag and track this species throughout the Panamanian rainforests.

Cheetah Conservation Program

Zoo Miami, with the efforts of Ron Magill, began a partnership in August of 1996 with the [Ann van Dyk Cheetah Center](#) (formerly the De Wildt Cheetah and Wildlife Centre) in South Africa and is one of the top U.S. zoo contributors to cheetah conservation efforts in that country.



In addition to zoo staff participating in management and husbandry workshops in South Africa, more than \$75,000 from the Ron Magill Conservation Fund has been provided for the purchase of support vehicles, veterinary supplies, and remote trigger cameras to facilitate a precedent-setting wild cheetah census.

According to the IUCN, the cheetah is listed as "**Vulnerable**" and their populations are decreasing throughout their range.

Conservation and Research in Belize

The first [international project](#) for the Conservation and Research Department is a collaborative effort with the University of Florida, [Lamanai Field Research Center](#), and [Lamanai Outpost Lodge](#) on a variety of programs in Northern Belize. Together we are discovering how the cats of Belize are adapting and interacting with people, how the local communities perceive and utilize the wildlife and habitats in the area, and lastly, we want to learn more about the critically endangered Hicatee turtle and how its population trends might be reversed.

[Community Cat Program](#)

Located in Northern Belize is a small area called Lamanai. Lamanai means "submerged crocodile" in the Mayan language. Within this region, all five species of cats in Belize can be found.

Although this region is sparsely developed, much of the landscape in our project area is used for pasture and crops. This can lead to some negative human-cat interaction. Sometimes, retaliatory killings against the cats are perpetrated when cattle are found dead whether cats were the cause for the death or not.

Through our collaboration with the Lamanai Field Research Center, efforts are being made to educate local farmers in the region about the cats of Belize and recognizing factors that may be encouraging these conflicts. Changing farming techniques can often curtail many of these interactions. This interaction with the landowners has opened up access to conduct research on their property.

Currently, camera traps (photo on right) are deployed on many of the landowners properties to discover more about how the cats and their prey are using a variety of landscapes, including the farm lands. To date, there have been more than 20 individual cats, identified by their coat patterns, at the study site.



Lamanai Hicatee Conservation Initiative

The [Central American River Turtle \(Dermatemys mawii\)](#), or "hicatee", is critically endangered and only found in rivers and lagoons of Mexico, Guatemala, and Belize. Although protected by law, it continues to decline throughout its range due to overharvesting for human consumption.

Little is known about the natural history of this turtle and this knowledge is needed in order to know how to properly protect it. Zoo Miami and Belizeans in the Lamanai area are working together to conduct surveys and track the movement of this species that has been an important cultural symbol since the times of the Mayan.

Educating the locals in Belize about the decline and overhunting is one of the most important tasks. The Zoo has **assisted in the creation of a "Turtles of Belize" educational brochure.** This will teach Belizeans about the turtles that can be found in the region, as well as their conservation value. Zoo staff is also involved in teaching the local school children in hopes the upcoming generation may view the turtles differently. The efforts are currently concentrating on Northern Belize, but we strive to involve other researchers and conservationists throughout the country.



Building a Foundation in Lamanai

The schools in the [Lamanai](#) area are public schools with a class size of around 50 students from grades kindergarten thru eighth. One of the most important aspects of our work in Belize is an investment in the lives of the local people. **Ensuring that the children receive a good education and their families don't have to struggle to provide for them** makes all of our goals more likely to be successful.

With the assistance of Zoo Miami docents, [Miami-Dade County Public Schools](#), and numerous private donations, we were able to send more than 1,000 pounds of educational materials to help the schools in Lamanai and Indian Church. This included many different text books and other supplies that many of us take for granted. Items like pencils, pens, erasers and paper are carefully guarded possessions and very expensive in Belize because they must be purchased in towns hours away from Lamanai.

Electricity is another component that these schools and libraries have done without for many years. One of the two schools has recently fundraised enough money and purchased a solar panel array, which produces enough power for 3 classrooms and the library. We are in the process of assisting the second school in fundraising for their own array that will provide power to 4 classrooms and their library.

In addition to donations, we give guest lectures when we are working in the area hoping to have an impact on these young students. On our recent trip, we brought in some local animals: a small crocodile, treefrog, and a snake. Letting them see these animals up close and learn about them will help build a better appreciation. Although they may have seen these animals before, many know little about these animals and confuse species with each other. Of all of the children, only one had ever touched a crocodile before our visit! Each trip to a local school gives us the opportunity to build a relationship with the villagers. We hope with a better understanding of why we are working there that some of the children will be inspired to become involved.



Significant Animal Births

Although there were many births and hatches at Zoo Miami this past year, these were some of the most significant based on their conservation impact to the global populations.

Mammals

- Addax (*Addax nasomaculatus*) - Critically Endangered
- Indian rhinoceros (*Rhinoceros unicornis*) - Vulnerable
- Giant River Otters (*Pteronura brasiliensis*) - Endangered
- Somali Wild Ass (*Equus africanus*) - Critically Endangered
- Black Headed Spider Monkey (*Ateles fusciceps*) - Vulnerable

Birds

- Blue Crane (*Anthropoides paradiseus*) - Vulnerable
- Palawan Peacock Pheasant (*Polyplectron napoleonis*) - Vulnerable
- Congo Peafowl (*Afropavo congensis*) - Vulnerable

Reptiles and Amphibians

- Cuban Crocodile (*Crocodylus rhombifer*) - Critically Endangered
- Malaysian Giant Turtle (*Orlitia borneensis*) - Endangered
- Jamaican Iguana (*Cyclura collei*) - Critically Endangered
- Golden Poison Arrow Frog (*Phyllobates terribilis*) - Endangered



Staff Participation

Professional Involvement

Staff at Zoo Miami are involved with numerous AZA based programs and other conservation organizations:

Clouded Leopard Management Group - Tracy Sorensen

Sable Antelope Taxon Advisory Group Vice Chair- T. Sorensen

Equid Taxon Advisory Group, Steering Committee - T. Sorensen

Antelope Taxon Advisory Group, Steering Committee - Conrad Schmitt

Buffalo, Bison, & Cattle Taxon Advisory Group Vice Chair - C. Schmitt

Cuban Crocodile Studbook Keeper - Steve Conners

Chelonian Taxon Advisory Group, Steering Committee - S. Conners

Crocodylian Taxon Advisory Group, Steering Committee - S. Conners

Puerto Rican Crested Toad Studbook Keeper - Dustin Smith

Puerto Rican Crested Toad SSP, Co-Chair - D. Smith

Amphibian Taxon Advisory Group, Steering Committee - D. Smith

Blue Crane SSP Coordinator & Studbook Keeper - Jim Dunster

Ashlee Pfaff Memorial Scholarship recipient - Kathleen Milk

Education Advisor for Giant River Otter SSP - Isabel Sanchez

[Everglades Cooperative Invasive Species Management Area](#),

Steering Committee Members -
D. Smith, Dr. Frank Ridgley

Left: Claudia Steadman with
flamingo during health exam

Right: Mike Casines with kudu
during neonatal exam



Posters, Presentations, and Publications

AZA Crocodile TAG - **"American Crocodile cold weather mortality & Cuban Crocodile population status update"**

AZA Lizard TAG & Florida Reptile and Amphibian Working Group -
"Zoo Miami Non-native species programs"

Florida Chapter of The Wildlife Society: *"Response to the Discovery of Nile monitors and Oustalet's chameleons in South Florida"* & *"An Integrated Early Detection, Rapid Response, and Monitoring Program for Everglades Invasive Reptiles and Amphibians."*

International Wetlands Conference & Everglades Invasive Species Summit - *"An assessment of a reproducing population of Oustalet's Chameleons in South Florida"*

Zootaxa Journal - *"Verified non-indigenous amphibians and reptiles in Florida from 1863 through 2010: Outlining the invasion process and identifying invasion pathways and stages"*

AZA midyear - *"Managing Mixed Exhibits at Zoo Miami"*



Sustainability



**ZOO MIAMI
GREEN
TEAM**

Zoo Miami recycles the following items:

- Aluminum
- Glass
- Plastic
- Paper
- Cardboard
- Batteries
- Cell Phones
- Light Bulbs
- Ferrous Metal
- Printer Cartridges

Implementing sustainable practices is paramount to managing a successful conservation program. Zoo Miami, is continually looking at ways to minimize our impact on our environment and use of natural resources.

To spearhead this effort, Zoo Miami and ZSF created a "green team" comprised of members from many departments at the zoo. The team was tasked with examining many different areas of the zoo and seeing where we could become more efficient, less polluting and use less materials.

Recycling and composting are two of the key programs which the Green Team is working on. If we combine the efforts of these two programs, we have saved Miami-Dade County more than \$100,000 this past year. In addition to saving money, we have also diverted more than 600 tons of waste from the landfill and converted it to compost. In addition, we have recycled more than 15,000 pounds of paper and plastic products.

Our efforts did not go unnoticed. The Greater Miami Chamber of Commerce made us a "Green Practices" finalist in 2011 for the [Sustainable South Florida Awards](#).

Solar Panel Addition

Through the support of ZSF and [Florida Power and Light](#), Zoo Miami added a solar panel array at the entrance to Amazon and Beyond. This project entitled, "Zoo Miami Next Generation Solar Education Station", was installed in October 2011.



Solar Panel in Amazon and Beyond Plaza

This array, which consists of photovoltaic panels converts sunlight directly into electricity. It produces an average 617 kWh of energy a month and that is enough power to run a computer, dishwasher, microwave oven, refrigerator, television, water heater, clothes washer and dryer all at the same time for that month.



Cell Phone Recycling for Gorilla Conservation

Zoo Miami participates in the [ECO-CELL](#) Silverback cell phone recycling program. This program recycles the materials in the phones and helps prevent natural resource destruction in areas where gorillas live. So far, our efforts have raised almost \$5,000 to benefit gorilla conservation by recycling more than 5,400 phones. These old cell phones have been collected and recycled by Zoo staff and guests.

Educational Events and Support

ZSF's [Conservation Teen Scientist program \(CTS\)](#) offers high school students valuable volunteer opportunities, while fulfilling Zoo Miami's mission of wildlife conservation education and enhancing the visitor experience through eco-literacy interpretation. CTS provides team members with an education and life-skills program that stresses responsibility, determination, pride, teamwork, stewardship of wildlife, and natural resources.



South Florida Chapter - American Association of Zoo Keepers

SFAAZK is comprised primarily of Zoo Keepers from Zoo Miami who dedicate their time to educate others while raising funds for animal enrichment, zoo keeper professional development, and supporting conservation programs.



[Bowling for Rhinos](#) is the main fundraising and awareness event for AAZK. This year, SFAAZK raised more than \$6,750 for rhino conservation.



Throughout the year, there are numerous educational events and fundraisers which take place at the zoo. These events are designed to raise awareness for a variety of species that can be found at the zoo. Some of the events are regional or international and spearheaded at Zoo Miami by our staff. Other events, like May for Manatees, are unique to our zoo.

Many of these events could not take place without assistance from the ZSF staff, Zoo staff, South Florida chapter of AAZK, Docent volunteers, and other interested volunteers.

Here is a list of the educational and awareness events which were supported through the zoo:

[Savage Art Show](#)



May For Manatees

[Leaping Ahead of Extinction](#)

[Awareness Weekend](#)



[Tree Kangaroo Awareness](#)

[Weekend](#)

Halloween For Hornbills

[World Elephant Day Awareness](#)

[Event](#)

[Elephant Awareness Week](#)



Orangutan Awareness Event

May For Manatees Event



Photo Credits: Dustin Smith, Frank Ridgley, Jenna Cole, Adriana Diaz, Kathleen Milk, Ron Magill, Dolora Batchelor

We would like to acknowledge all of the following collaborators. We could not participate in all of our programs if it were not for their support.

