

DARWIN INITIATIVE NEWSLETTER



AUTUMN 2006



Welcome...

to our second Darwin Newsletter.

One full year into the Initiative, we have much to report...
... and much to look forward to...

UPDATE

We are still waiting on a definitive timeline for the enactment of the

National Conservation Law.

It is hoped that the draft Bill will be debated and passed in the February 2007 sitting of the Legislative Assembly.

This law is key to updating our local conservation legislation, and for the enactment of *Multilateral Environmental Agreements* such as the Convention on Biological Diversity CBD, underpinning the commitment of the Cayman Islands to do our part towards the preservation of global biodiversity.

This is the legislation which will put our National Biodiversity Action Plan into action.



A term you will come to know, if you are not already familiar with it...
endemic species.

An endemic species is one which occurs in a particular area... and nowhere else in the world.

The Cayman Islands supports many endemic species - including
21 species of plants and trees unique to our islands. Additionally, Grand Cayman, Little Cayman and Cayman Brac can each boast their own endemic species... plants and animals unique to each individual island...

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Banara caymanensis - a shrub endemic to little Cayman and the Brac
Status: critically endangered.

Species Action Plans SAPS

... focusing on the preservation of key flora and fauna, are being designed to protect our endangered, endemic and economically important species. Invasive species, those which spread to the detriment of our native species, will also be a focus for conservation Action Plans.



BARKERS BEACH. Native species such as Red Mangrove (*left*) are often better adapted to local conditions than invasive species, such as Casuarina "pines" (*right*). The shallow-rooting pines are quick to colonize beach ridges, but fall during storms, encouraging sand loss and beach erosion. PHOTO - Mat Cottam

A **Red List** assessment of the **Flora of the Cayman Islands** was completed this year. An electronic overview is accessible through our website www.CaymanBiodiversity.com, and is soon to be published in full by Royal Botanic Gardens Kew.

Using standard IUCN guidelines, the Red List determines that almost half (46%) of Cayman's native flora ranks as being in danger of extinction. Habitat loss and invasive species are two of the major causes of decline.

Darwin Partners have formed an assessment panel, and using the Red List data, have drawn up a shortlist of twenty species of native flora requiring immediate conservation action... with an additional twelve species to follow.



BROADLEAF. This variety, unique to Cayman, is one of the native trees selected for a Species Action Plan.

(Image from forthcoming Red List publication) PHOTO - Fred Burton



The impact of invasive species such as the Green Iguana (*left*) on local species, such as the Blue Iguana (*right*) will be assessed. Green Iguanas also eat bird's eggs, making them a potential threat to our local birdlife... still critically depleted in the wake of Hurricane Ivan

PHOTOS - Mark Orr / Fred Burton

Complete **Species Action Plans** have already been drafted for the Grand Cayman Blue Iguana, Brown Booby, Vitelline Warbler, Queen Conch, Cayman Parrot, Silver Thatch and our marine turtles... with more to come. In each case, research and assessment will target funds for practical conservation to the most critical areas.

As public concern over the state of Cayman's environment increases, clear and open communication of findings will also be a priority.

The provenance and status of Hickatees will be examined, along with the impact of their hybridization with invasive Red-Eared Sliders

PHOTO - Mat Cottam



Tradition and technology join forces as part of the **Tea Banker** Action Plan. Once so common in Cayman, Tea Banker ranks as *critically endangered* in the new Red List assessment... in large part due to habitat loss. Tea Banker *Pectis caymanensis robusta* is a variety endemic to Grand Cayman, and has been selected for special conservation action.

Darwin Partners the **National Trust** and **Department of Agriculture** are spearheading an innovative project to propagate Tea Banker using hi-tech tissue culture techniques. Hopefully, this combination of tradition and technology will prove the perfect blend for the conservation of this much loved herb...

Habitat Action Plans

There is little point in preserving key species if we lose the habitat on which they depend. For this reason, habitat preservation is an integral part of the National Biodiversity Action Plan.

To date, acquisition of new satellite imagery of the islands has been nearly completed. It will soon be examined in detail, to determine the extent and condition of our terrestrial and marine environments.

Benthic Habitats (Seabed)

Imagery obtained both pre and post hurricane Ivan will be used to delineate benthic habitats. This will allow for an island-wide assessment of the effects of the hurricane as well as recent construction. Firstly, raw imagery is reviewed and local knowledge of the study area is gathered to begin delineation.



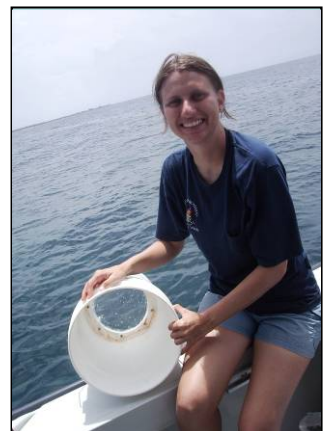
Raw imagery consists of aerial photography collected in summer 2004 (shown) as well as Quickbird satellite imagery collected in summer 2006.

Field Validation (Ground Truthing)

Without exception, remotely-sensed imagery will always have areas where it is difficult or impossible to determine the habitat type due to surface waves, glare of the sun on the water, cloud cover, and water turbidity at the time of acquisition (when dealing with the benthic environment). Because we have relatively easy access to the entire study area, validating the benthic habitat type is an ongoing process.

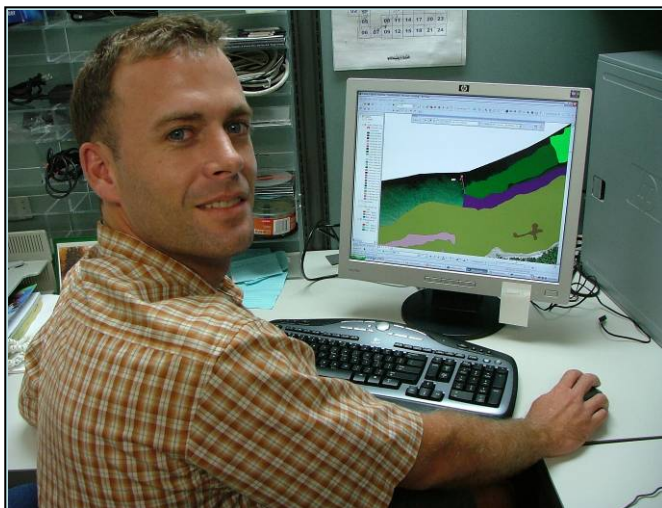


The two techniques most commonly used to determine unknown habitat types are diving transects and using a "look bucket".



Habitat Delineation (Outlining)

Once all information is gathered, delineation can begin. The ground-truthed areas are used along with the imagery to determine how each habitat type looks on screen. Factors such as color, contrast, texture, and shading of the imagery all combine to determine how habitats are delineated with a high level of confidence.

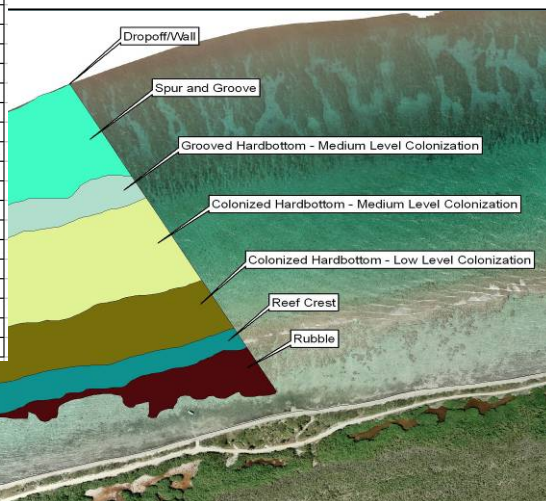


Delineation of benthic habitats must take into account a variety of factors in order to have the most confidence in the resulting map. What works for one area of the imagery may not work for another.

Resulting Maps and Their Uses

Using a pre-determined scheme which represents all possible bottom types, the final version of the map is created. The habitat information gathered from these maps will be used for, among other applications, prioritizing areas in need of protection.

UNIQUE ID	CATEGORY	TYPE	MODIFIER1
11	Unconsolidated Sediment	Sand	
12	Unconsolidated Sediment	Mud	
31	Coral Reef and Hardbottom	Aggregate Reef	
32	Coral Reef and Hardbottom	Beach Rock	
33	Coral Reef and Hardbottom	Individual Patch Reef	
34	Coral Reef and Hardbottom	Aggregated Patch Reef	
35	Coral Reef and Hardbottom	Scattered Coral in Unconsolidated	
38	Coral Reef and Hardbottom	Rubble	
39	Coral Reef and Hardbottom	Spur and Groove	
51	Coral Reef and Hardbottom	Reef Crest	
41	Other Delineations	Land	
42	Other Delineations	Mangrove	
43	Other Delineations	Man-Modified	
44	Other Delineations	Dredged	
45	Other Delineations	Unknown	
211	Submerged Vegetation	Seagrass	Continuous (90%-100%)
212	Submerged Vegetation	Seagrass	Patchy (70%-90%)
213	Submerged Vegetation	Seagrass	Patchy (50%-70%)
214	Submerged Vegetation	Seagrass	Patchy (30%-50%)
215	Submerged Vegetation	Seagrass	Patchy (10%-50%)
361	Coral Reef and Hardbottom	Colonized Hardbottom	Low Colonization
362	Coral Reef and Hardbottom	Colonized Hardbottom	Medium Colonization
363	Coral Reef and Hardbottom	Colonized Hardbottom	High Colonization
371	Coral Reef and Hardbottom	Grooved Hardbottom	Low Colonization
372	Coral Reef and Hardbottom	Grooved Hardbottom	Medium Colonization
373	Coral Reef and Hardbottom	Grooved Hardbottom	High Colonization



The habitat information gathered through this exercise will be an invaluable tool for decision making and research applications.

In the past six months, the Darwin Initiative has delivered a variety of successful **Special Projects**, in which the **Department of Environment** has collaborated with other **partner organizations** to implement practical conservation projects in the Cayman Islands.

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LOCAL NEWS

The CaymanianCompass Friday 28 April 2006

Orchid Society receives conservation boost

The Cayman Islands Orchid Society conservation and propagation team received an important boost this weekend, thanks to the generous support of Coutts (Cayman) Limited and the Cayman Islands Darwin Initiative.

According to a release from the Department of Environment, the splendour of the Annual Orchid Show was the perfect venue for the hand-over of the cheque, by Mr David Neuschaffer, Managing Director of Coutts. These funds will cover the



Mr David Neuschaffer, managing director of Coutts, presents a cheque to Ms Sue Gibb, president of the Orchid Society, with Darwin Initiative Partners Dr Mat Cottam of Department of Environment and Mr Andrew Guthrie, general manager of the Botanic Park. Photo: John Lawrus

The CaymanianCompass Monday 21 August 2006

LOCAL NEWS

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Museum supports Darwin Initiative

Grown-ups working in the dirt outside the National Museum last week weren't digging for treasure. Or maybe they were.

For their efforts they recovered about a thousand seeds and over 125 seedlings from Cayman's National Tree, the Silver Thatch.

The recovery project was the result of the Museum joining forces with Cayman's Darwin Initiative to preserve native trees and encourage landscaping with local plants.

Anita Ebanks, Director of the Museum, had read about plans to establish a botanical nursery dedicated to growing native trees at the Queen Elizabeth II Botanic Park. She contacted the Department of Environment to offer the support of the Museum.

"Native trees and plants make up much of the Museum's own landscaping, which was a project of the Garden Club back in the late 1980s," said Ms Ebanks.

"The thatch trees at the front of the building date from long before the Museum was founded. Silver Thatch is our National Tree and unique to the Cayman Islands. The Museum is very pleased for the opportunity to donate seeds and seedlings to the Initiative," she said in a release from the Department of Environment.

Leonard Dilbert, Deputy Director of the Museum, agreed.

"Given the significance of Silver Thatch in the cultural development of the people of the Cayman Islands, it's appropriate that we join in this Initiative and encourage the preservation of these trees through landscaping," he said.

Taking advantage of the Museum's invitation, Geraldine Duckworth of the Shade Brigade, with Paul Chin and Dr. Mat Cottam of the Department of the Environment, collected several hundred Silver Thatch seeds and seedlings from the trees in front of the building.

Pink Menly Bug has not been observed on the Silver Thatch but, given the current outbreak in the George Town area, the seedlings will be kept under quarantine for a period.

Once it is safe to do so, they will be transported to the Queen Elizabeth II Botanic Park, to join the hundreds of other native seeds being grown by Park staff, as part of the nursery project.

"The Silver Thatch, unique to Cayman, is one of the local trees that many of us prefer to imported varieties," said Ms Duckworth. "It is a practical and cost-effective alternative, and easy to maintain."

Dr. Cottam explained that



Darwin Initiative and National Museum representatives check out a bucket of Silver Thatch seedlings. From left: Leonard Dilbert, Paul Chin, Geraldine Duckworth, Mat Cottam and Anita Ebanks. Photo: Submitted

"Given the significance of Silver Thatch in the cultural development of the people of the Cayman Islands, it's appropriate that we join in this Initiative and encourage the preservation of these trees through landscaping."

— Leonard Dilbert, Deputy Director of the National Museum.

the Silver Thatch is one of about 30 key species of native trees and plants that the nursery will carry.

"Silver Thatch is notoriously slow growing and difficult to transplant," he cautioned, "so this will be an interesting challenge for the propagation team."

"We do not expect the Thatch seedlings to be ready for sale for some years; however, the nursery will also stock many faster growing local species, which we hope to make available to landscapers and members of the public within the next year or two," Dr. Cottam said.

The tiny thatch seedlings could easily be mistaken for blades of grass at their current stage, but some are already developing distinctive vertical ridges. Photo: Department of Environment



construction costs of a shade house for the conservation and propagation team.

This much needed facility will be built in the nursery grounds of the Queen Elizabeth II Botanic Park.

In order to become more proactive in their conservation work, Orchid Society members are expanding their conservation and propagation facilities. Working in conjunction with the established Propagation Unit, the shade house will enable growing-on of orchid seedlings, and will also provide an ideal holding area for "orchid rescues" — plants collected from land slated for clearance and development.

Once up and running, the facility has the potential to produce hundreds of orchids each year.

The project was realised under the Darwin Initiative, and relied on the combined efforts of key Darwin partners. The Botanic Park donated the nursery space for the construction, while the Department of Environment and Royal Botanic Gardens Kew compiled the proposal.

The facilities will be maintained and operated by the conservation and

propagation team — an established network of dedicated Orchid Society volunteers.

"I was very impressed by the work being carried out by the Orchid Society: Coutts was pleased to be given the opportunity to contribute to the establishment of this facility," said Mr Neuschaffer. "The orchid is such a beautiful and intricate flower, and its preservation is a key element of Cayman's culture that should now be even more available for all of us to enjoy."

Ms Sue Gibb, president of the Orchid Society, referred to the group's original objectives. "Building on the founding members' appreciation and awareness of our local orchid heritage, the Cayman Islands Orchid Society has set itself a goal to preserve for posterity the indigenous orchid species of the Cayman Islands," she said.

"The shade house will be an important asset to our conservation propagation programme," she assured all concerned. Ms Gibb expressed gratitude on behalf of Orchid Society members to Coutts and the Darwin Initiative Partners.

The Cayman Islands **Orchid Society** and **Queen Elizabeth II Botanic Park** capitalized on a generous donation from **Coutts (Cayman) Ltd**, and are currently putting the finishing touches to a **Shade House**, which will be used to house orchid specimens collected from **Orchid Rescues** and those propagated by the organization's expanding Conservation Programmes.

A Native Tree Nursery has been established in conjunction with the Botanic Park, the Shade Brigade and CaymANNature. Funded by a generous private donation from Maples and Caulder partners Henry Harford and Graham Lockington, the nursery will grow and promote attractive native trees, making them available to the public for home landscaping. Rare and endemic species will feature prominently, along with those of cultural significance. The ongoing seed collecting effort is being supported by individuals and organizations, including the National Museum.

The CaymanianCompass Wednesday 14 June 2006

LOCAL NEWS

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Native tree nursery set for Botanic Park

A botanical nursery dedicated to growing native trees and plants is to be established at the Queen Elizabeth II Botanic Park. This project, developed under the Darwin Initiative, has recently taken root thanks to a generous private donation from Maples and Caulder partners Henry Harford and Graham Lockington.

The nursery will start with the propagation of 6,000 trees from 20 key species, with the objective of developing a broader variety as it progresses.

"It is hard to exaggerate the importance of this native tree-growing project," said Eiliza Strachan of the Shade Brigade in a release from Department of Environment.

Ms Strachan pointed out that, at present, very few species that are a natural part of Cayman's landscape can be bought at nurseries. "As a result, native trees, which support our local bird, bee, bat and butterfly populations, have, over time, given way to foreign imports."

"This project will help reverse that insidious trend while introducing the public to the joys of Cayman's many pretty native shrubs and trees," Ms Strachan explained.

Another interesting aspect of the project is its experimental nature. The Botanic Park staff will be breaking new ground—developing ways to grow native trees, many of which have never been propagated before. Once this knowledge has been advanced, the future for Cayman's native trees—some of which, like the Ironwood, are becoming increasingly rare—will look very much brighter.

Indigenous trees do more than provide a haven for wildlife.

"They are resilient to storm damage and they are well adapted

to local weather conditions and so require less management, providing good landscaping and restoration options," said Dr. Colin Clubbe, of Royal Botanic Gardens, Kew. "These facilities will provide a reliable supply of good quality trees. It can never have been more timely to establish an indigenous tree nursery at the QEII Botanic Park."

The focus will be on attractiveness for landscaping, ease of maintenance, historical significance, and ecological value. There will also be an opportunity to develop propagation techniques for some of the new species. It is anticipated that the first saplings should be available for sale to the public by 2008.

"Many of the trees native to the Cayman Islands are critically endangered. Conservation organizations must begin work immediately on propagating and establishing these species in protected locations or we may lose them entirely," said Andrew Guthrie, General Manager of the Botanic Park.

"Several of these tree species are found in the Cayman Islands and nowhere else on earth. In some instances the entire population of these endangered native tree species consist of only a handful of widely scattered individual trees. The Queen Elizabeth II Botanic Park endorses and is involved in this project so that we can preserve a portion of our native flora for generations to come," Mr. Guthrie stated.

Dr. Mat Cottam, Darwin Research Fellow with the Department of Environment, described the project as exciting, long-anticipated and one which would not have been possible without the active involvement of Cayman's Darwin Partners.

CaymanNature, Queen Elizabeth II Botanic Park, Royal Botanic Gardens Kew and the Shade Brigade.

"I would like to say a special thank you to Henry Harford and Graham Lockington, not only for their financial support, but also for their active impetus and encouragement of this project," Dr. Cottam emphasised.

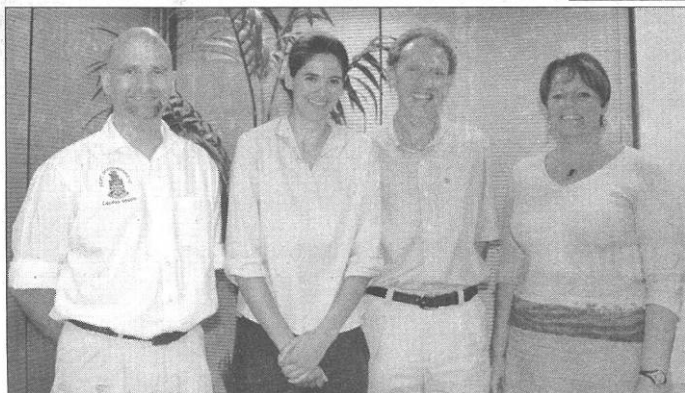
More information about the Darwin Initiative can be obtained at a website currently under construction at www.CaymanBiodiversity.com.



Dr. Colin Clubbe of Royal Botanic Gardens Kew examines the wide diversity of native trees in the Salina Reserve. Photo: Mat Cottam

The CaymanianCompass Friday / April 2006

LOCAL NEWS



Looking pleased with response to the seminar on invasive species are, from left, Dr. Mat Cottam, Dr. Karen Varnham, Dr. Colin Clubbe and Department of Environment Director Gina Ebanks-Petrie. Photo: Carol Winker

Where is Conservation Law?

By Carol Winker
carol@cfp.ky

Of the 30 people who attended an environmental seminar on Tuesday night, most seemed surprised that a draft National Conservation Law has not become a reality.

The White Paper for the

Law," he urged.

When members of the audience questioned the effect of development on natural habitats, Mrs. Ebanks-Petrie said Cayman does not have any legislation that mandates environmental impact assessments.

Planning decisions are left up to the Central Planning

offset by a tax on non-native plants, he suggested.

Another important part of conservation is educating the public, Dr. Clubbe said. He showed a picture of an area in Barkers, West Bay, where the mangrove is bouncing back after Hurricane Ivan, while a line of casuarinas trees was blown over.



Wild jasmirine (tabernaemontana laurifolia) is one of the attractive native landscaping plants that will grow at the nursery. Photo: Ann Stafford

Other special events have included workshops and public talks on the issue of Invasive Species, with UK consultant Karen Varnham and Dr Colin Clubbe of Royal Botanic Gardens Kew

Community gets involved in turtle conservation

Turtle nesting

The Cayman Islands once supported one of the worlds' largest sea turtle rookeries, but recent research has revealed that only a few dozen turtles have escaped extinction. DoE nesting beach monitoring relies heavily on community support. Students from local schools and universities, volunteers from the public, and university student interns from overseas train to identify signs of turtle nesting, and then assist DoE staff with research and conservation efforts.



Turtle track, Seven Mile Beach.



Volunteers assisting DoE staff with turtle track surveys and collecting data from hatched nests.



Satellite tracking

With the support of community sponsors, schools, and volunteers, DoE is using state-of-the-art satellite transmitters to track the movements of our endangered turtles. Satellite tracking is the only way to follow migrations through the open ocean. Turtles travel through the waters of many nations throughout their life-cycle, and successful international conservation depends on an understanding of their movements.



Nesting turtle, Seven Mile Beach



Volunteers cleaning carapace for satellite transmitter attachment.



Attaching transmitter with epoxy



Interns checking epoxy

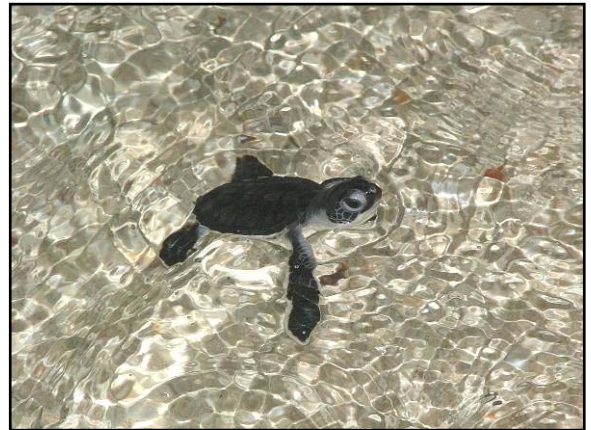


"Murph" swims off with her new satellite transmitter. Photo: Frank Roulstone.

**Follow our turtles'
journeys online:
[www.seaturtle.org
/tracking/cayman](http://www.seaturtle.org/tracking/cayman)**

Releasing hatchlings

Occasionally, baby turtles (called “hatchlings”) get stuck in a nest, or become disoriented by streetlights or lights on the beach. Volunteers, school children, and members of the public assist with rescuing these hatchlings, and releasing them at night.



With luck, in several decades this tiny green turtle will return to the Cayman Islands to nest. Photos: Mark Orr.

Turtle tagging

High school students and university student interns assist DoE with tagging young hawksbill and green turtles. This research provides data on abundance, distribution, survival, and migratory patterns to aid in management.



Turtles are released after tagging, weighing, measuring, and collecting tiny genetic samples.



Coming soon...

Later this year, the Department of Environment will launch a major project in conjunction with the Cayman Islands Yacht Club, the Reefball Foundation and US Fish and Wildlife (Neotropical Migratory Bird Conservation Act) - to establish a Mangrove Reefball nursery in Grand Cayman. The nursery will grow mangroves to replace those lost from the coast during hurricane Ivan...

... the mangrove nursery will compliment the Native Tree Nursery currently being established at the Queen Elizabeth II Botanic Park.

Also due to come on-line in the next few months, our dedicated Darwin website CaymanBiodiversity.com. The site will include a host of interactive features, including a *Virtual Field Guide* for budding birdwatchers (illustrations kindly donated courtesy of *A Guide to the Birds of the West Indies* / Winged Ambassadors Programme, US Fish and Wildlife).

As always, sincere thanks to all our Darwin Partners...

for making this project the success that it is

Blue Iguana Recovery Programme, Cayman Islands Humane Society, Cayman Islands Bird Club, Cayman Islands Orchid Society, CaymanANNature, Cayman Wildlife Connection, Camana Bay Nursery, Department of Agriculture, Department of Environment, Duke University, Garden Club of Grand Cayman, Mosquito Research and Control Unit, National Museum, National Trust for the Cayman Islands, Queen Elizabeth II Botanic Park, Royal Botanic Gardens Kew, Royal Society for the Protection of Birds, Shade Brigade, University of Exeter

Thanks also to all local photographers who are sending in images for the website... wonderful images like the ones below are needed, to do our natural environment justice...



FOR FURTHER INFORMATION...

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