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Terrestrial Resources Unit's Quarterly Newsletter
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DEPARTMENT OF
ENVIRONMENT
CAYMAN ISLANDS GOVERNMENT

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Welcome Simone!

Joining the TRU team is Simone Williams. Her main duties are to assist in research and monitoring projects to ensure that changes in the general ecology and natural resources of the terrestrial environment are detected and quantified. She will assist in the formulation and review of conservation policies and strategies, and in the development of the Department's public relations and education activities pertaining to the terrestrial areas of the Cayman Islands.

Having studied songbirds and shorebirds in Canada, Alaska, Southern United States and the Caribbean, Simone has travelled hemispheric proportions to define species richness, abundance, distribution and survival rates for these migratory populations. She completed her MSc degree through Trent University's Environmental and Life Sciences Programme, and worked for Toronto Zoo as assistant researcher.

Simone has assisted with field studies on various species, including mussel, Barn Swallow, Trumpeter Swan, Milk Snake, bat and turtle surveys in the Rouge River watershed. She has also planned and managed restoration and remediation from invasive species. She is passionate about reintroduction of endangered species, through her work with the Eastern Loggerhead Shrike, Vancouver Island Marmot and Blanding's Turtle headstarting programmes. Her zoological interests have stretched in to the areas of nutritional, entomology and parasitic studies as well. Her love for animals and husbandry, were formed as a veterinary assistant at Rouge River Animal Hospital, where she learned how to humanely treat and care for animals. Simone is glad to be back home in the Cayman Islands with her family and is eager to use her experiences and skills for the preservation of Cayman's flora and fauna.

Simone Williams banding a breeding Semipalmated Plover in Churchill Manitoba, June 2009

The Darwin Plus Biosecurity Grant

The Terrestrial Resources Unit is excited to have begun the work of our recently approved Darwin Grant (DPLUS128):

Safeguarding Cayman's Sister Islands from Invasive Species

The >£480,000 (<CI$535,000) project will be delivered from 2021 to 2024, through a partnership between the Department of Environment (DoE), the Department of Agriculture (DoA), the Royal Society for the Protection of Birds (RSPB) and the University of Aberdeen (UoA).

The project aims to establish more solid biosecurity protocols and implement effective invasive species management through increased capacity, improved knowledge, and community engagement.

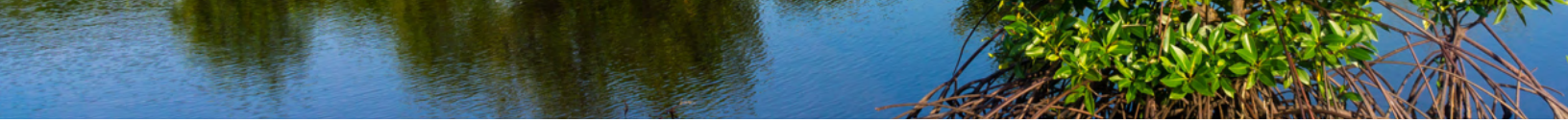
In 2007, DoE staff caught the first Green Iguana on Little Cayman. Since then, 82 Green Iguanas have been caught here.

The first DoE led control efforts of Green Iguanas on Cayman Brac began in 2016. To date, 531 Green Iguanas have been removed from Cayman Brac.

It has been clear for some time, that both Sister Islands fall victim to repeated introductions of this invasive species. Keeping the numbers down is useful only if the iguanas stop coming in. So where are they coming from?

Identifying historic, current and potential pathways of invasive species to the Sister Islands is of top priority to this project. In the case of Green Iguanas, these reptiles have on several occasions been detected in shipping containers on inter-island journeys. Imagine a container being loaded in Grand Cayman, kept open for several days, maybe weeks, and then being shipped off to Little Cayman with little to no control of the stowaway wildlife that may have climbed in. This major pathway for introduction needs mitigation.

Salt Rock Dock, Little Cayman



Invasive species like the Green Iguana are, by definition, those which have detrimental effects on ecosystems, and on small islands these impacts can be particularly severe. Competition for resources, predation on native and endemic species, the introduction of diseases and potential hybridisation are among the many risks introduced by invasive species. Many, however, adversely affect human health and local economies too.

The Green Iguanas have been documented to carry a bacteria deadly to the Blue Iguanas (the Helicobacter bacteria "GCBI1") and have been seen to hybridise with the Sister Island Rock Iguana. Greens Iguanas have become a nuisance for landscapers and pool owners and are generally considered a pest by the average resident in Cayman.

However, the Green Iguanas are far from the only invasive species to have potentially detrimental effects on our islands' terrestrial ecosystems. Invasive species include more noticeable animals such as Feral Cats, Chickens and Rats, but also the more obscure such as the Lobate Lac Scale, Mealybug and Fruit-fly.

Mediterranean Fruit-fly

A workshop held in 2018 and funded by the UK Government; "Assessment of current and future Invasive Alien Species in Caribbean Overseas Territories" resulted in a list of high priority invasive species for Cayman to be concerned about (contact the Editor, page 1, for more details).

Asian Tiger Mosquito

Agave Snout Weevil

Giant African Landsnail

Mesquite

Common Boa Constrictor

While the Cayman Islands are doing well where the protection of crops are concerned (thanks to the DoA), measures are needed to improve our inter-island biosecurity efforts to safe-guard our Sister Islands' unique natural environment and biodiversity.

The DoE has been struggling to keep up with the invasive re-introductions on Little Cayman and Cayman Brac for decades and as such the Darwin Plus grant proposal was born out of necessity.

Bringing to the table extensive international experience in dealing with biosecurity issues is the RSPB, the lead organisation of the project. A similar project was launched by the RSPB and local partners in Turks and Caicos (DPLUS121) in April 2020, in order to strengthen the national biosecurity capacity there.

Following the approach of this tried and tested neighbouring project, one main output of our project was to hire a full-time Biosecurity Officer and one part-time Community Engagement Officer to work alongside the DoE in our efforts. Despite a COVID-induced late start, we are happy to now welcome on-board Tanja Laaser and Marique Cloete who now fill the roles of Biosecurity Officer and Community Engagement Officer, respectively.

Hired by the RSPB, both roles are fully supported by the DoE. Tanja is based in the DoE offices on Grand Cayman and her main role is responsible for auditing current biosecurity arrangements and the development of biosecurity plans for Little Cayman and Cayman Brac, inclusive of Grand Cayman as a source of invasions. She will also assist with invasive species monitoring and control activities.

Marique is based on Cayman Brac where her role will allow her to deliver engaging and informative communications with residents and visitors alike, keeping the project transparent and adaptive to concerns and input from the public. Marique will be collecting data on attitudes towards invasive species, perceived threats and needs of the community on Cayman Brac.

Together with Terrestrial Resources Unit staff, Tanja and Marique welcomed RSPB Senior Species Recovery Officer and project leader Sarah Havery as well as Dr. Karen Varnham, RSPB Island Restoration Officer, in mid January. The purpose of this trip for both Sarah and Karen was to meet with stakeholders on all three islands and to develop plans for rodent control at sites of particular interest (Seabird nesting areas) implementing the highest international best practice standards.

© RSPB, Credit: Sarah Havery

Tanja Laaser and Marique Cloete on Cayman Brac, off to a great start!

The week was very productive!
Meeting with National Trust representatives on Little Cayman, as well as the District Officer, the trip went to Cayman Brac where meetings with the DoA, DEH, local volunteers, District Admin, Port Authority, Department of Tourism and the CYB National Trust took place. On Grand Cayman, meetings were held with His Excellency the Governor, the National Trust, and additional DoA and DEH representatives.

As the project advances into its next stages (see timeline on page 7) we want to continue to update readers on how the project is going. In the immediate future, we are hoping to deliver on safeguarding some of our regionally important seabird nesting colonies from rat predation, particularly the Brown Booby colony on Cayman Brac. While methods of rat control are still being discussed, we want to take this opportunity to reassure readers that every site is carefully evaluated and wherever possible, non-toxic options will be preferred. Only when experts deem it appropriate will rodenticide be implemented to the highest international best practice standards and in secured bait boxes as are commonly seen around buildings in the Cayman Islands.

In the coming weeks we will welcome Wildlife Expert of Fort Lauderdale Research Centre; Joe Wasilewski. Joe will help us review and develop our strategies for Green Iguana control on both Sister Islands.

Top: Marique, Jane, Karen and Sarah identifying Brown Booby nests and discussing rat control on Long Beach, Cayman Brac.

Bottom left: Tanja, Karen and TRU Officer TayVanis Oyog meet with Port Authority staff on Cayman Brac.

Bottom right: TayVanis, Karen, Marique, Sarah and Tanja met with Ms. Patience Eke; DEH's Environmental Health Officer on Cayman Brac.

Timeline for the D+ grant

with examples of outputs

2024

Project finishes June 30, 2024
Final outputs, including a Sister Islands Biosecurity Plan, are submitted and funding will be sought to continue biosecurity control priorities beyond the end of the project

2023

Year 2 Complete and into Year 3
A biosecurity planning workshop with key stakeholders will be held and inter-agency collaboration will be built and biosecurity measures implemented

2022

Year 1 Complete and into Year 2
Outputs of Year 1 include ongoing monitoring of our Seabird colonies and Sister Island Rock Iguanas as well as establishing a baseline for the Feral Cat population on Little Cayman. Control of Feral Cats on Little Cayman is still pending a Court Order (since 2018)

2021

Official Project Start July 1, 2021
The Stage 2 application was submitted in February 2021 and the Project was approved in May 2021! We filled the Biosecurity and Community Engagement officer roles in late 2021

2020

Stage 1 Application to Darwin Plus
Project development came to fruition as the Stage 1 application was submitted in September 2020 and approved

2019

Project Development
The Terrestrial Resources Unit and the Royal Society for the Protection of Birds started collaborating on the project concept, identifying partners and objectives

Anolis maynardi
Little Cayman Green Anole

A chance encounter with Orchid heaven!

-By Nick Johnson

Frank Roulstone is a man on a mission. He has been documenting the orchids of the Cayman Islands for more than 25 years and he is one of the people responsible for the conception of the Queen Elizabeth II Botanic Park in the 1990's.

Recently, I have been fortunate to join him in his search for some of the rarer Orchids on all three islands. Together with Carla Reid and her daughter, Hannah (BushGirl Medicine); we formed an unofficial gang (of sorts). A gang dedicated to checking on these rare Orchids and documenting their locations in case conservation measures are required.

One of the rare Orchids that we have been putting a lot of time looking for in the bush is *Prosthechea cochleata*, also known as the 'Clamshell Orchid'. It is the national flower of Belize and is found throughout the Caribbean but has not been seen on Grand Cayman for a while. The last known wild plants were seen to have died a few years ago.

It has a more common cousin; *Prosthechea boothiana var. erythronioides*, also known as the 'Dollar Orchid' that can be seen blooming en-mass on the woodland trail in the QEII Botanic Park in the months of August and September. Both are epiphytes (a plant that grows on another plant but is not parasitic) and both have a modified storage organ called a pseudobulb at their base.

Using a process of prediction, our gang has been narrowing down where they could grow. Investigating satellite and aerial photographs of an area of bush, we search for marshland on the windward side of karst ridges. These ridges maintain a higher humidity microclimate than most of the seasonally dry forest in the untouched wild lands of Grand Cayman.

The Orchid Gang

It was after one of these prediction exercises, when we were recently deep in one of Cayman's protected areas that we arrived at a location that took our breaths away. On a ridge of karst rock clothed in forest, an area no larger than two tennis courts, we not only found an abundance of our missing 'Clamshell Orchid', but also large populations of seven other species of Orchid, two of which are extremely rare in Grand Cayman.

Frank was the first to arrive in the area. We followed the hollering, picking our way carefully through the bush on the razor-sharp karst rock formations. We were fortunate enough to have arrived at the site just as the 'Clamshell Orchid' was in flower!

Prosthechea cochleata, also known as the 'Clamshell Orchid', in flower.
Photo by Frank Roulstone

Around these Orchids were carpets of the extremely rare 'Ghost Orchid' (*Dendrophylax fawcettii*), clothing the rock so densely that in places we had to be careful where we walked.

Dense population of Ghost Orchids covering the ground.
Photo by Nick Johnson

While the rest of the gang were photographing and mapping the populations, we heard a shout from Carla, she had found our third rare Orchid – *Pleurothallis caymanensis*, a tiny epiphytic Orchid only found in suitable habitats here and in southern Cuba.

Higher up in the trees we could see an abundance of Cayman's national flower, the Banana Orchid (*Myrmecophila thompsoniana var. thompsoniana*).

In the leaf-litter at our feet filling the deep pockets of the karst rock, we found large amounts of the ground orchids, 'Small Prescott Orchid', *Prescottia oligantha*, the 'African Spotted Orchid' *Oceoclades maculata* and what we believe to be 'Tall Neottia', *Cyclopogon elatus*.

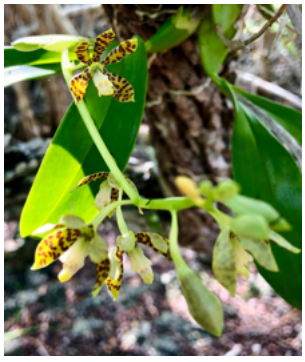
Dotted through the area, as if placed there as an accent plant, were 'Dollar Orchids', *Prosthechea boothiana*.

We were elated and ecstatic to find such healthy plants, although we noted small populations of Mealybug (*Pseudococcus* sp) occurring on some of the flower spikes of the 'Clamshell Orchids'. All flowering plants were photographed, and their individual locations recorded. This information has been passed to the DoE for any future conservation efforts which may be required, or for these species' action plans ensuring their survival on Grand Cayman.

In particular, the 'Ghost Orchid' and the tiny *Pleurothallis caymanensis* have such small ranges and such particular growing requirements that even a change to the environments nearby will have a knock-on effect for these species. Changes in the habitats or the effects of climate change and invasive pests and diseases are some of the key factors that keep the gang motivated to keep looking for and documenting these plants to assist resource managers.

We sincerely hope these amazing Orchids will be here for future generations to enjoy and marvel at.

Clamshell Orchid
Prosthechea cochleata
Photo by Hannah Reid



Dollar Orchid
Prosthechea boothiana
Photo by Nick Johnson

Tall Neottia
Cyclopogon elatus
Photo by Carla Reid

The Cayman Pleurothallis
Pleurothallis caymanensis
Photo by Carla Reid

> "We sincerely hope these amazing Orchids will be here for future generations to enjoy and marvel at."
>
> Nick Johnson

Pygmy Blue Butterfly Surveys

The Pygmy Blue Butterfly (*Brephidium exilis*) species is a remarkably small species of butterfly who's range includes a band from Oregon and Nebraska down into parts of South America and some Caribbean islands. While the American mainland hosts the main species, two subspecies occur in the Caribbean; the *B. e. isophthalmia* is found in the Bahamas, Cuba, Jamaica and Hispaniola while the subspecies *Brephidium exilis thompsoni* (image on front page) is known only from Grand Cayman and is therefore considered an endemic subspecies, much like our parrots.

Discovered on 23 June 1938 by delegates of the Oxford University Biological Expedition, the Grand Cayman subspecies has been particularly hard to study given its extremely limited distribution and discrete activity patterns.

Preferring low-lying salt tolerant vegetation, the Pygmy Blue is found in areas dominated by Sea Purslane (*Sesuvium portulacastrum*) and Glasswort (*Salicornia perennis*), the latter of which is believed to be the larval food-plant for this subspecies despite the larval stage never having been reported or observed!

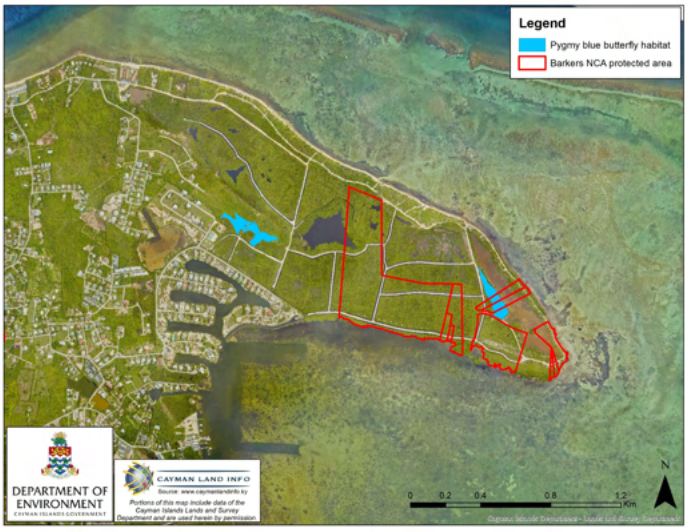
This type of habitat is currently mapped for 17.86 hectares (44 acres) on Grand Cayman, all of which are severely fragmented and most of which do not support Pygmy Blue Butterfly populations to our knowledge.

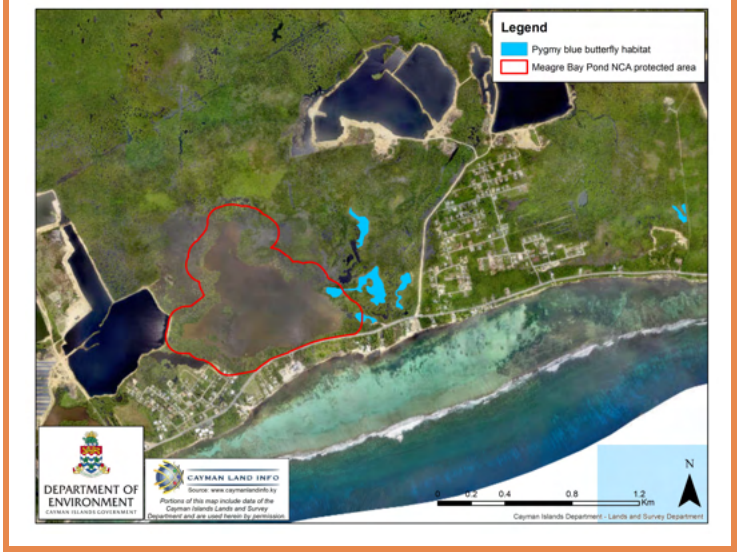
Top: Flower of the salt tolerant succulent Sea Purslane. Middle: Ideal habitat for the Pygmy Blue Butterfly in Barkers, West Bay. Bottom: Encroachment on remaining Glasswort habitat in Grand Cayman.

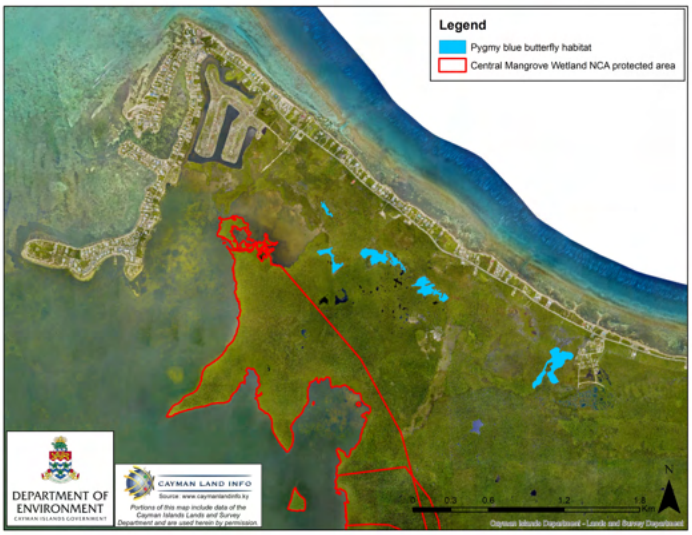
Being on Schedule 1, Part 1 of the National Conservation Act (2013), this butterfly is protected, however, its habitat is not and remaining populations are very poorly understood.

In January of 2021, local butterfly expert Ann Stafford, entomologist Lonny Coote and National Trust staff member Cathy Childs, found Pygmy Blues in a patch of known remaining habitat. Aware of the rarity of this species they reported it to the DoE. TRU staff followed up on the report, and took the opportunity to investigate, re-confirm and map remaining populations island-wide. The results of the 2021 survey identified at least three remaining populations of the Pygmy Blue Butterfly; in West Bay, Meagre Bay Pond and Rum Point. Most individuals were found outside currently protected areas, see maps below.

The percentage of the mapped Pygmy Blue Butterfly habitat inside Protected Areas is only 6.58%, which renders the populations extremely vulnerable to habitat loss. So far, one accidental encroachment incident has been solved with the landowner and a species Conservation Plan is being drafted for public consultation in 2022.







These three maps show potential Pygmy Blue Butterfly habitat (in blue) in relation to Protected Areas (in red) for Barkers, Meagre Bay Pond and Rum Point.

The Pygmy Blue Butterfly has been re-sighted in all three areas during the survey conducted in 2021.

Below is a side-by-side comparison of similar looking butterflies found in Grand Cayman:

Top left: Cassius Blue (*Leptotes cassius*)
Top right: Hanno Blue (*Hemiargus hanno*)
Bottom left: Lucas Blue (*Cyclargus ammon*)
Bottom right: Pygmy Blue (*Brephidium exilis*)

The Pygmy Blue Butterfly can be distinguished by its characteristic small size of 6.5-8.5 mm. (although the Hanno can, on occasion, be found to be smaller).

The Pygmy Blue Butterfly has a dark brown upper surface with coppery tints and some blue colouration on the top base of the wings. However, the most conspicuous feature remains the series of four to five black eye-spots with tiny silver pupils on the hindwings.

We encourage readers to look out for this amazing endemic and any landowners to identify suitable habitat you may own. The TRU welcomes reports of the Butterflies or their habitat for mapping purposes.

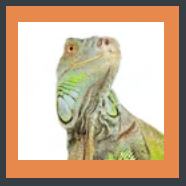
Green Iguana Fact Sheet

On December 18th, 2021, the Green Iguana Culling Programme closed its George Town Landfill receiving station for a brief Christmas break to transition to a new financial year and beyond to 2023. Apart from a few weeks' downtime in April 2020, due to COVID lock-downs, and the odd tropical storm, this represented nearly 38 months of continuous Green Iguana culling in Grand Cayman since the programme began in November 2018 with an army of over 320 registered cullers. During that time a total of 1,349,919 were brought to the receiving station to be weighed, measured and buried in the George Town Landfill at a cost to date of CI$ 7.9 million.

The 2021 season, with a culled total of 87,361 for the year, revealed that annual iguana numbers brought to the station continue to decline. Cull rates began at over 150,000 iguanas per month in November 2018, but since then, rates have dropped exponentially in parallel with the declining iguana population, to an average of approximately 7,000 per month during 2021.

Combined with a fall in the number of registered cullers (a total of 83 active in 2021) and despite an increase in the per iguana value, there is significant evidence to suggest that the bounty style approach to control the iguana population may have reached the limit of its effectiveness.

This is unfortunately supported by the DoE's annual Green Iguana Survey data which suggested a population of approximately 1.32 million Green Iguanas in August of 2018 falling to an estimated 25,000 in 2020. However the potential reduction in culler interest, combined with COVID lock-downs and an increasingly alert iguana population, saw a brief recovery with an estimated population of approximately 87,000 in August of 2021. The remarkable capacity of Green Iguanas to reproduce and recruit when adequate controls are not in place, is clearly revealed in the size class data (page 15) for the 2021 intake, with newly recruited hatchlings accounting for the majority of culled iguanas arriving at the station from August through to December.



Green Iguanas removed in 2021

87,361

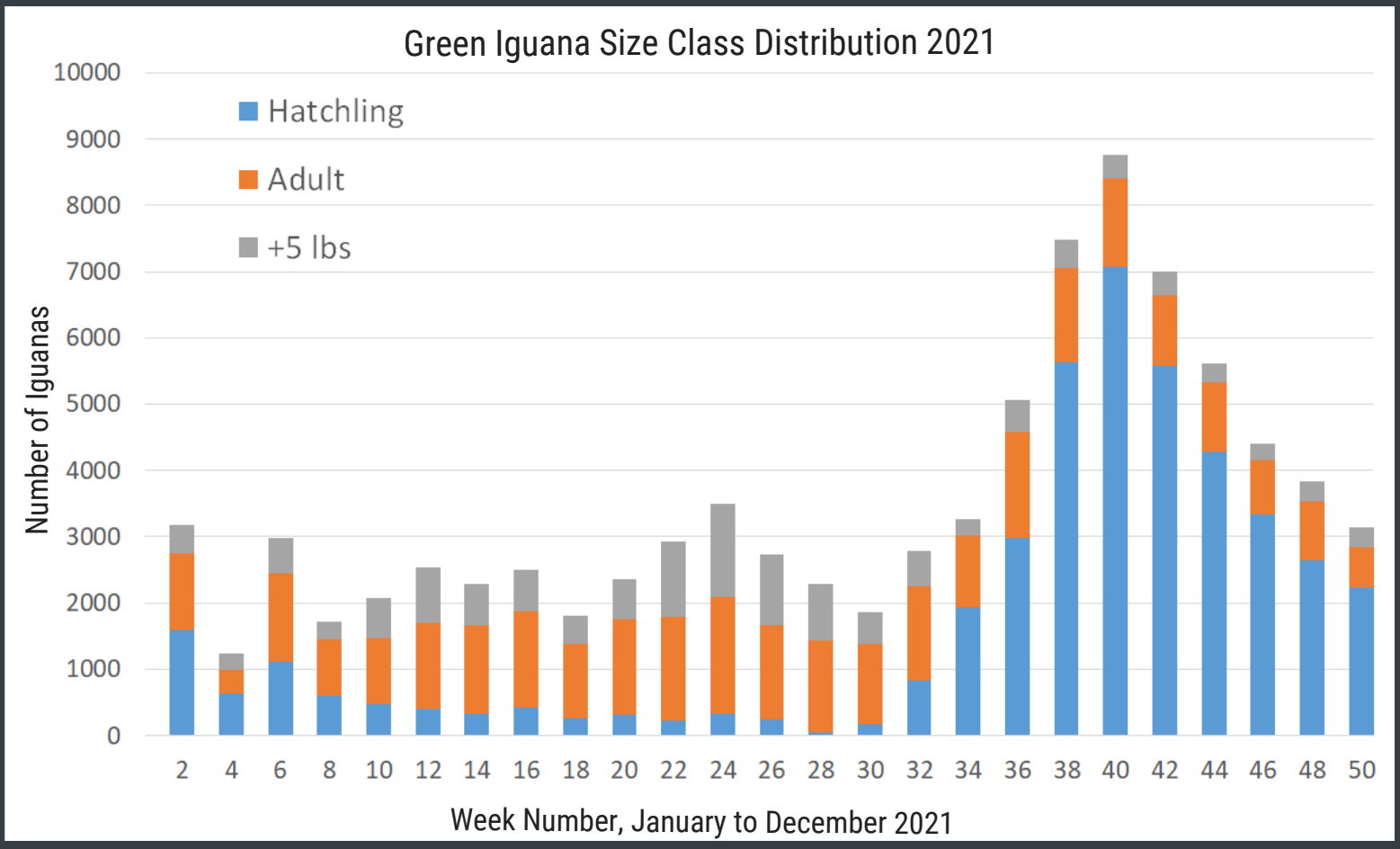
Total Green Iguanas removed

1,349,919

Green Iguana Fact Sheet

After a brief break, culling operations resumed on January 24th, 2022 with a further commitment of funding from the Cayman Islands Government (through the Environmental Protection Fund), to the end of 2023. The Department of Environment remains committed to ensuring that the successes, effort and money invested to date is not in vain, and that for 2022 and onwards, while eradication remains virtually impossible, a long-term sustainable and affordable solution is developed.

	Green Iguanas	CI KYD
Programme Nov - Dec 2018	298,106	$ 1,543,511
Programme Jan - Dec 2019	825,420	$ 4,475,559
Programme Jan - Dec 2020	139,032	$ 1,020,451
Programme Jan - Dec 2021	87,361	$ 860,697
Total since Nov 2018	1,349,919	$ 7,900,218



Know Your Natives -Inkberry

Inkberry (*Scaevola plumieri*), also called Bay Balsam, is indigenous to all three Cayman Islands. Reaching a height of up to 1.5 meters (4 ft. 11 in.), this low shrub is commonly found on top of sandy beach and cobble and sometimes also inland.

Inkberry has been largely displaced by the imported, invasive and fast growing *Scaevola taccada*, which has become highly abundant. While both species are coastal plants with short round fleshy leaves, a bushy appearance and small white flowers, the Inkberry is easy to tell apart from the invasive Scaevola as native species' berries are deep blue unlike its invasive cousin's pale white berries.

Currently this native species is under serious threat of disappearing through habitat destruction by beach front development while also being out-competed by the fast-growing invasive Indo-Pacific Scaevola imported and still widely used for landscaping.

While Inkberry is now very scarce on Grand Cayman, a large intact stand is located at Point of Sand in Little Cayman, and some specimens have been discovered on Cayman Brac in recent years.

Being tolerant to high salinity and salt spray, the Inkberry should be included in native landscaping as it retains soil, prevents erosion and provides great ornamental value. At Point of Sand it provides dense ground cover for birds, crabs and reptiles alike. Inkberry in a coastal garden will make it an attractive space for native wildlife as well as people. Try Caribbean Blooms for your Inkberry and know that you are helping a local plant species remain a part of the Cayman Islands' landscape for another generation.

Above is shown the native Inkberry's delicate white flowers and its distinctive dark blue berries. Pictured to the right is probably the largest remaining stand of Inkberry on Grand Cayman, at Barefoot Beach.