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# FLICKER



BIMONTHLY BULLETIN of the CAYMAN ISLANDS  
DEPARTMENT of ENVIRONMENT 'S  
TERRESTRIAL RESOURCES UNIT

Welcome Sophie!  
TRU's Biennial Bird Survey  
Green Iguana control on Cayman Brac  
Know Your Natives



CAYMAN ISLANDS  
DEPT of ENVIRONMENT  
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# WELCOME SOPHIE!

Sophie O'Hehir has recently joined the TRU thus replacing Jessica Harvey as one of the Department's Terrestrial Research Officers.

Her main duties will consist of undertaking the DoE's biological monitoring, assisting visiting scientists with projects and executing TRU initiatives.

Coming originally from the UK with a Zoology degree from Swansea University, Sophie has worked in the UK, Costa Rica, and Ascension Island (part of the St. Helena British Overseas Territory). Having previously worked with charities, NGO's and the private sector, Sophie is very excited to join the endeavours of the Cayman Islands' Department of Environment.

While having had hands-on experience with a wide variety of flora and fauna in both temperate and tropical environments, her most notable experience involves reptiles, bats and marine turtles (including leatherback and green turtles). So far with the Department, she has been undertaking the biennial Cayman Brac Parrot survey and taken part in the Green Iguana control efforts on the Sister Islands with her colleague Jane Haakonsson. She has further assisted Dr Rhiannon Meier in the Darwin funded seabird project where she was involved in handling and tagging both Red-footed Boobies and Magnificent Frigate-birds in the Booby Pond Reserve.

Back at the office Sophie has been digitising long-standing data taken from the Central Mangrove Wetland by Fred Burton in order to calculate volumes of carbon sequestering. This data ties in directly with the Terrestrial Protected Area Nominations and offer a measure of the ecosystem services provided by this nominated area. Additionally Sophie has been going through the drone footage taken for the Seabird project to identify Brown Booby nests along the bluff and the South Beach of Cayman Brac.

Sophie hopes to continue to meet lots of people interested in and involved with Cayman's fauna and flora, so please feel free to introduce yourself if you get the opportunity!



**Sophie handling a Frigate-bird in the recent seabird colony work on Little Cayman.**

EDITOR:  
Jane Haakonsson

EMAIL:  
jane.haakonsson@  
gov.ky

Department of  
Environment  
PO BOX 10202,  
580 North Sound  
Rd.  
GRAND CAYMAN  
KY1-1102  
TEL: (345) 949-8469  
www.DoE.ky

# TRU's Biennial Bird Survey

While the role of a conservationist is often diverse and complicated, most management of wildlife populations often boils down to two relatively simple questions:

- **How many animals do I have in the population?**
- **And is this number going up or down?**


These questions may seem simple, but they are of utmost importance to assess the trend of a wild animal population at a given moment in time. Once obtained, this trend can be related to the various factors influencing the population whether or not management actions are performed. In other words, with baseline data it is possible to assess how, for example, management or threats affect the abundance of individual animal species.

Obtaining density or size estimates for animal populations can be problematic and time consuming and even a single survey will do little but give you an isolated snapshot in time, which is often of little value. That is why long-term monitoring programmes are in place within well established conservation organisations around the world.

The DoE has several monitoring programmes for both marine and terrestrial species of Cayman. Marine species which are being routinely monitored include the Queen Conch (*Strombus gigas*), the Nassau Grouper (*Epinephelus striatus*), sharks, corals and turtles. Terrestrial species include the Blue Iguana (*Cyclura lewisi*), the Sister Island Rock Iguana (*Cyclura nubila caymanensis*), both Cayman Parrot subspecies, seabird colonies and, for example, the native Inkberry (*Scaevola plumieri*).



**The White-Crowned Pigeon (*Patagioenas leucocephala*) is an indigenous species distributed throughout the Western Caribbean, the Central American Caribbean coastline and the southern tip of Florida.**



The TRU recently finished its biennial bird survey which is carried out every other year on Grand Cayman and Cayman Brac respectively, in cooperation with the [US Fish and Wildlife Service](#). Originally started as the monitoring of both Cayman Parrot subspecies (the Grand Cayman Parrot and the Brac Parrot), this survey now includes several dove species, the Northern Mockingbird (*Mimus polyglottos*), Vitelline Warbler (*Setophaga vitellina*) and the Red-legged thrush (*Turdus plumbeus*).

Surveys are carried out before (March) and after (July / August) reproduction for the main focal species, i.e. the parrot, in order to establish the number of breeding pairs. This is done because parrots often have a high percentage of non-breeding birds in the population referred to as “floaters”, which is why

a seemingly thriving population may be more subjective and vulnerable to threats than first meets the eye. The percentage of “floaters” may be as high as 60 – 80% of the population. For example, in Cayman Brac the 2009 July survey showed only around 25 breeding pairs in a population of 291 (95% CI = 203 to 417) birds.

Studying populations before and after external events, such as hurricanes, is equally important. Results give managers a picture of the resilience of a given population. Using again the Brac Parrot population as an example, surveys showed 565 (95% CI = 409 to 782) birds in July 2008, before hurricane Paloma and only 260 birds (95% CI = 199 to 441) after Paloma in March 2009. This number has been steadily increasing since, to 772 (95% CI = 603 to 989) birds in July 2015 which



**The Cayman Brac Parrot (*Amazona leucocephala hesterna*) is an endemic subspecies of the Cuban Parrot, and will, in time, evolve into its own full species on Cayman Brac.**



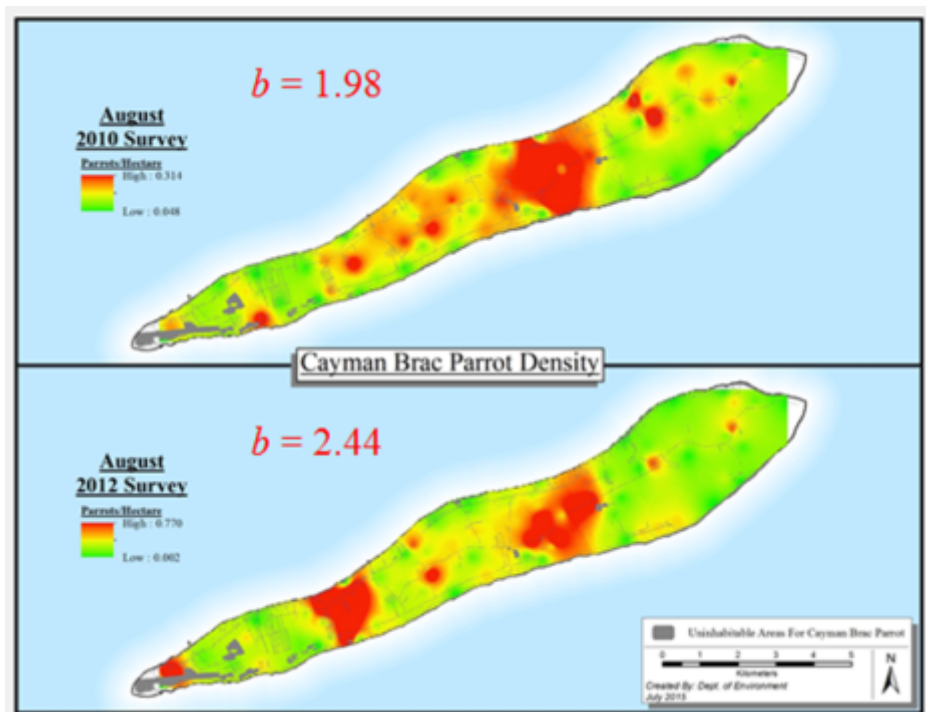
suggests an impressive but slow recovery from a single hurricane event. If, for example, two consecutive hurricanes were to hit Cayman Brac, we now know that with a population decreased by around 50% (and thus very few remaining breeding pairs) after the first hurricane, this subspecies would likely go extinct after the second.

Monitoring surveys can furthermore be used to assess factors influencing

resilience through the use of density maps. These maps inform managers about increased aggregation which is seen in most developed islands species. As available feeding and nesting habitat decreases (as direct results of development), endemics inhabit fewer areas in higher densities. This can be measured through “dispersion parameter  $b$ ”, which assigns a randomly distributed species with a  $b$ -value of 1. Values above 1 shows increased “clumping”. See below.

Species	Before ( $b$ )	After ( $b$ )
Red-Legged Thrush	2008 = 3.38	2015 = 6.97
Brac Parrot	2008 = 1.11	2015 = 3.14
Grand Cayman Parrot	2005 = 1.68	2014 = 6.07

The table shows how 3 endemic subspecies are increasingly being “pushed out” of suitable habitat.



Cayman Brac Parrot density maps visually showing a comparison between the distributions in 2010 and 2012. The dispersion parameter  $b$  is increasing and gives a numerical value to the aggregation. 2017 data is pending analysis.

While integrating monitoring efforts to inform management decisions may seem obvious when protecting a species such as the parrot, other bird species need to be monitored to inform take limits. These are our game-birds.

The National Conservation Law outlines the two current game-bird species of the Cayman Islands, namely the Blue-winged teal (*Anas discors*) and the White-winged dove (*Zenaida asiatica*). Take limits and seasons can only be set with an understanding of how populations are currently doing and therefore how harvesting can be maintained sustainably.

For example, TRU has been monitoring the White-crowned pigeon (WCP) population on both Cayman Brac and Grand Cayman since 2011 in collaboration with Dr. Frank Rivera-Milan from the U.S. Fish and Wildlife Service. When comparing the Grand Cayman density and population estimates from 2011 to pre- and post-reproductive surveys in 2014, a significant decrease can be seen despite an unchanged detection probability. In 2011 we recorded 0.17 pigeons per ha in a study area of 15,550 ha (2,708 pigeons) which compared to 0.05 and 0.062 pigeons per ha (775 and 906 pigeons) in March and August 2014 respectively, providing a significant decrease of almost 70%.

As overhunting is the primary threat for the WCP it has consequently been removed from the game-bird list according to the National Conservation Law. As the population monitoring continues, protection is carefully re-evaluated and updated.

To this end is important to remember that certain populations (like that of the WCP) cannot be considered demographically closed populations unlike, for example, the Cayman Parrot populations.

Seasonal and annual differences in abundance may reflect births and deaths but also immigration and emigration as WCPs can move between Grand Cayman, the Sister Islands, Jamaica and Cuba. Such fluctuations are mostly indirect results of varying levels of rainfall and thus food abundance. The TRU is therefore keeping up to date with other Caribbean monitoring events of the species and collating rainfall data to get a better understanding of WCP migrations.

For a full report on TRU's bird surveys and how results are used, please contact the editor, page 2.



**White-winged dove (*Zenaida asiatica*) remains on the game-bird list unlike the White-crowned pigeon.**

# Green Iguana Control on Cayman Brac

Little introduction is needed when it comes to the invasive nature of the Green Iguanas (*Iguana iguana*). They are currently everything but a rare sighting around Grand Cayman and very few people need convincing that this species is bad news: from the keen gardener, the pool owner, the naturalist to the average driver; green iguanas prove an overabundant nuisance. For managers of general infrastructure, airports, agriculture, landscaping, natural resources and local housing, the species can cost hundreds of thousands of dollars in damage annually.

In our small terrestrial unit, we are particularly concerned with the negative impacts Green Iguanas have on our native ecosystems and their biodiversity. Thus establishing a continuous and sustainable control operation on both of the Sister Isles is an essential part of the overall

strategy to prevent this highly invasive species from getting a stronghold on Little Cayman and Cayman Brac as we have seen it on Grand Cayman.

With over 35 sightings of Green Iguanas on Little Cayman since 2007 and many more on Cayman Brac, it is clear that the biosecurity between all three islands needs to be enforced and ongoing response measures need to be implemented. “Green Iguana be Gonna”, established on Little Cayman by Mike Vallee and Ed Houlcroft, has responded to all known sightings of Green Iguanas and have had over 90% of reports lead to capture and disposal of Green Iguanas. However, until recently the same community response was not running on the Brac.

The TRU therefore launched a 5 day cull on Cayman Brac in April to get community support.



**Jane Haakonsson, Bonnie Scott Edwards and Sophie O'Hehir all holding up Green Iguanas captured during night searches in Spot Bay.**



Following community meetings and school talks held in October last year, the cull effort included a volunteer briefing on April 8<sup>th</sup>, 2017, at Bonnie Scott Edward's house. It was well attended with 5 DoE staff members present; Jane Haakonsson, Mark Orr, Erbin Tibbetts, Sophie O'Hehir and Mike Guderian, the "Green Iguana be Gonna" founders; Mike Vallee and Ed Houlcroft and 12 volunteers. A presentation was made to inform residents of the scale of the Green Iguana problem on Grand Cayman and DoE's associated culling efforts in 2016. Attendees were taught effective search and catch techniques, humane culling methods, proper disposal procedures as advised by DEH, and an outline of known sightings was discussed and accompanied by maps which were handed out.

After the meeting the first search began and lasted from 7 pm to 3 am as night searches prove the most effective when hunting for Green Iguanas (as they become extremely docile due to the drop in temperature). 3 Green Iguanas were caught by noose and culled humanely during the first search. One female carried 16 undeveloped egg follicles.

9 DoE lead searches were subsequently performed in known high density areas (mainly in Spot Bay), one every morning and evening until mid-day on April 13<sup>th</sup>. Volunteers occasionally accompanied the team and all were equipped with torches, head lights and nooses provided by the DoE and "Green Iguana be Gonna". A total of 10 Green Iguanas were caught during the cull, the females carrying a total of 36 eggs .

A presentation was held at the Brac Port to enforce the urgent need for biosecurity efforts. While the first introduction of Green Iguanas to Cayman Brac may have happened through the importation of caged animals, a continuous stream of Green Iguanas are entering the island through container traffic from Grand Cayman. Eight members of Port staff were taught about the effects of Green Iguana



**After the presentation at the Port a male Green Iguana was caught on the compound atop an old crane, offering valuable first-hand experience in handling this species.**



overabundance and all were explained how best to capture, noose, handle and humanely cull Green Iguanas. The DoE left several nooses for that purpose with the Port staff and Iguana Hotline cards were distributed.

During and after the cull an extensive effort was made to reach out to the Brac community, through door-to-door visits, speaking to Public Works, Lands and Survey, the RCIPS, car rental companies and more, handing out Iguana Hotline cards as well as flyers on how to tell the difference between Green Iguanas and the endemic Sister Island Rock Iguanas. For the latter, please see the excellent flyers created by Elaine Powers on page 10 and 11 and feel free to contact the editor (page 2) if an electronic version is required for printing.

A response team of volunteers and a WhatsApp group now deals with every single sighting and Green Iguana report and the TRU would like to specifically thank the following volunteers for all their precious time and effort in establishing and comprising this response team:

Bonnie Scott and Gene Edwards, Keino Daley, Lance Boley, Debra Vascik, Sheldon Scott, Miha Popovic and Jesse.



**Iguana Hotline Cards were handed out by the team during the cull and ongoing outreach to the local High School has been carried out by TRU staff Jane Haakonsson.**

# ROCK IGUANAS

by Elaine A. Powers

Illustrated by Anderson Atlas

Several of the islands in the Caribbean Sea, known as the West Indies, have native Iguanas.

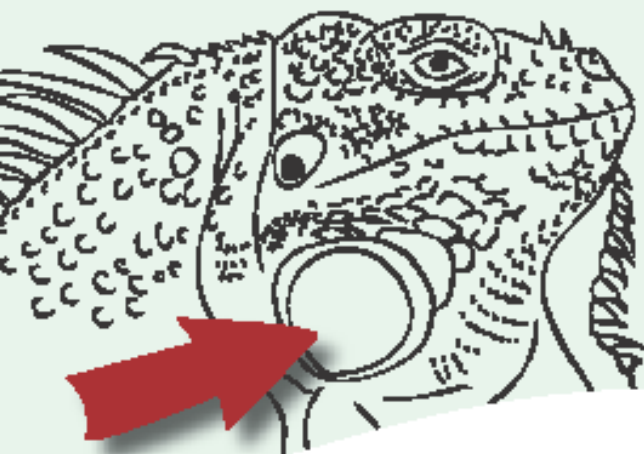
They are called  
Rock Iguanas



**Green** Iguanas have been introduced on these islands and are a threat to the Rock Iguanas. They compete for food, territory and nesting areas. When you see an Iguana ask: What kind do I see? What species is that Iguana in front of me? Is it an **Invasive Green** or a Rock, one of our own?



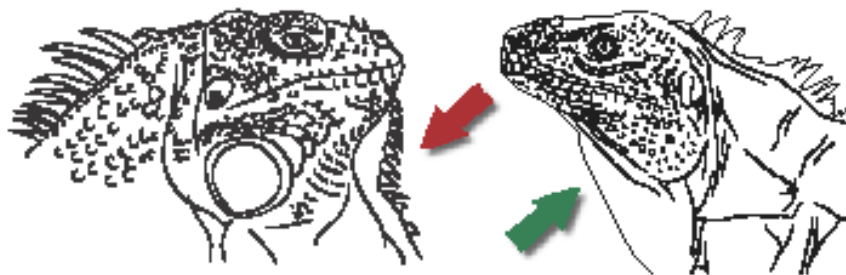
How to tell the difference between Native and the Invasive **Green Iguana**



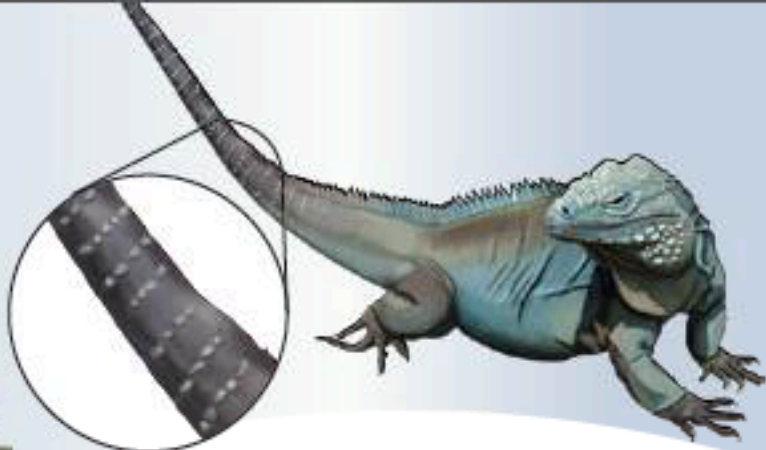
Subtympanic (below the ear) or large face scale= **Non-Native**  
This is a characteristic of the **Green Iguana** only. Do you see a big face scale, as round as can be? It's below the ear, that's where it will be. Then it's an **Invasive Green**, get rid of it now. The local authorities will tell you how.



We see another difference below the chin.  
**Greens** have dewlap points or spines built-in, while native Rocks' dewlaps have smooth skin. Points under the chin?  
It's a **Green** trying to move in.



You've looked at the head, now look at the tail.  
The differences are clear there as well.  
**Greens** have distinct tail stripes as you can see.  
While **Natives'** tails have more variety.

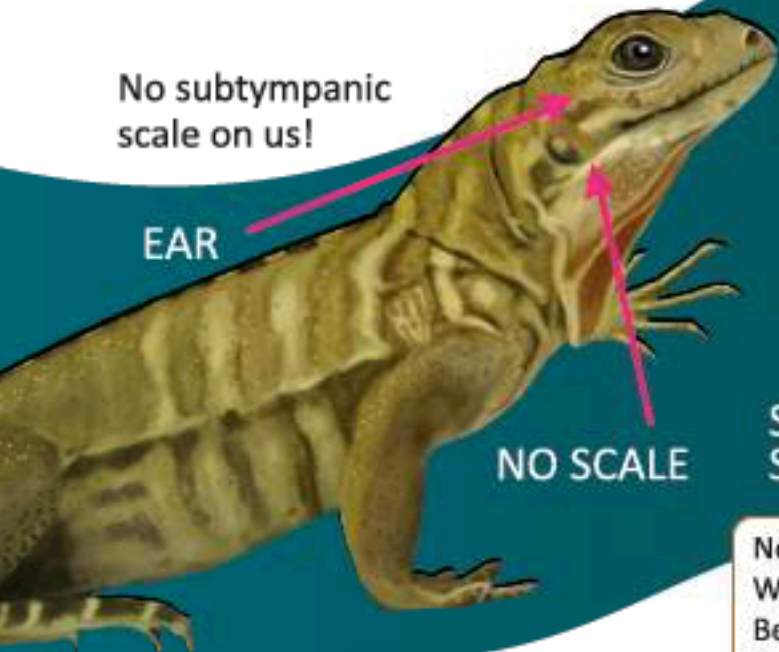


There's more to see when you look at the tail.  
The difference is clear there, too – no fibbing  
Every **Green iguana** has a smooth, striped tail,  
While **Rock iguanas'** tails have ridges or ribbing.

No subtympenic  
scale on us!

EAR

NO SCALE



EAR

SUBTYMPANIC  
SCALE= GREEN



### Protect Iguanas

Dogs and cats are great hunters, as we all know.  
Did no one realize how many iguanas would go?  
Remember to keep your dog on a leash,  
Or more lives of native iguanas will cease.  
Remember to keep your cats indoors.  
Do not let them outside to explore.  
Dogs and cats were introduced by men.  
That they're predators is beyond the iguanas' ken.  
Dogs kill adult natives and cats kill the babies.  
**Rock Iguanas** should be safe, don't you agree?

Now you know  
Who should stay and who should go.  
Be a friend to Rock Iguanas.  
See a **Green Iguana**? Report what you know.

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the Environment.



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## KNOW YOUR NATIVES

### YELLOW MASTIC

Yellow Mastic (*Sideroxylon foetidissimum*), often known as “false mastic” and not to be confused with the endemic Black Mastic (*Terminalia eriostachya*), is one of our largest native critically endangered trees.

Found in high elevation pristine forests, this tree can be seen on the Mastic Trail on Grand Cayman and is somewhat abundant on the Bluff of Cayman Brac. It grows much taller than surrounding vegetation to a height of around 10-15m (33-50 ft). Each tree doesn't flower every year but flowering usually occurs

in December or June. Flowers are heavily scented and the small fruits ripen to a yellow colour and contain a single large brown seed.

The single straight trunk is comprised of heavy and strong heartwood hence Yellow Mastic was valuable for its timber in the Bahamas and the West Indies and has been used for cabinetwork and boat timber. While Yellow Mastic trees were heavily logged in times gone past they can still be enjoyed in Cayman. They are excellent shade trees but very slow growers.



Left: ripe Yellow Mastic seed and right: full tree with its straight trunk. Photo by Ann Stafford.