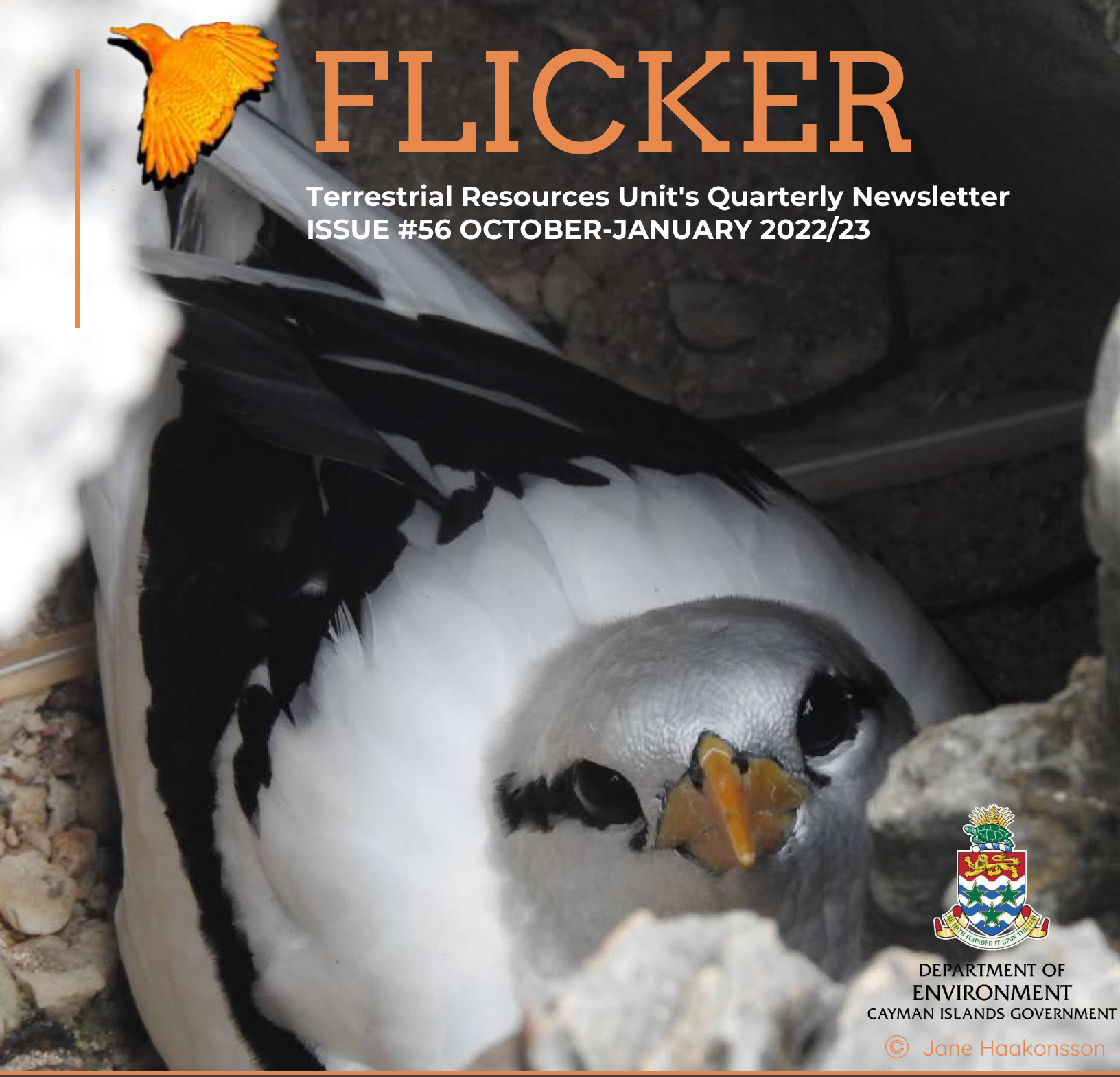
FLICKER

Terrestrial Resources Unit's Quarterly Newsletter
ISSUE #56 OCTOBER-JANUARY 2022/23



DEPARTMENT OF
ENVIRONMENT
CAYMAN ISLANDS GOVERNMENT

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Terrestrial Protected Area nominations are in!

This year has seen encouraging progress on Cayman's Terrestrial Protected Area system, with the significant Cabinet approval of Tarpon Lake on Little Cayman, to be protected through the National Conservation Act (NCA).

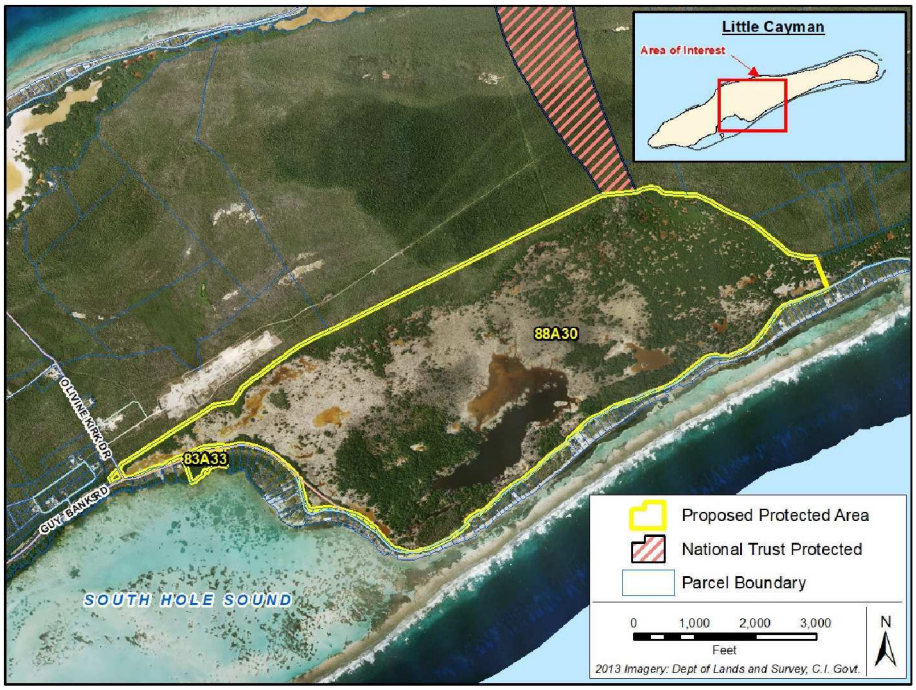
Sand Cay on Grand Cayman has also been approved, and some newly mapped small mangrove cays in western North Sound are approved and in the works.

Meanwhile, purchase negotiations for an extension to the National Trust's Salina Reserve on Grand Cayman, and an extension to the East Interior Protected Area on Little Cayman, are well advanced. Negotiations also continue with private land owners where NCA Protected Areas have been approved subject to purchase.

With those long pending proposals now moving forward, and with the last call for nominations being in 2019, the National Conservation Council (NCC) decided it was time to issue a call for a new round of nominations.

The response this year was truly exceptional. 89 nominations were received from individual members of the public, nonprofit organisations (including the National Trust and Sustainable Cayman), landowners and realtors.

Encouragingly, many were completely new proposals, while others added to multiple calls to protect well known areas, such as the Eastern Lighthouse area of Cayman Brac, the Central Mangrove Wetland and Barkers of Grand Cayman.



Tarpon Lake in Little Cayman was approved by Cabinet earlier this year, after having been nominated in the first ever round of TPA nominations in the Cayman Islands, back in 2016.

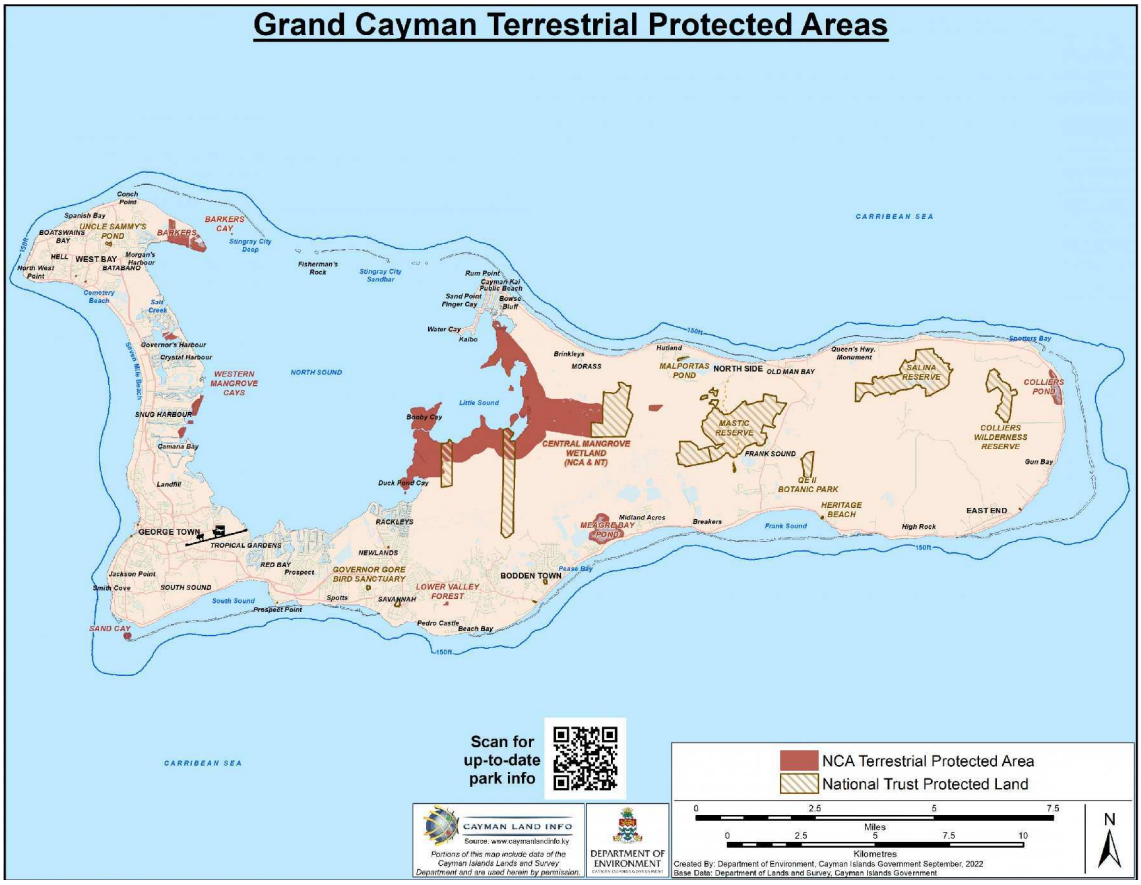
One nomination proposed the whole of Little Cayman as a Protected Area, while on Grand Cayman remnant mangrove areas received a lot of attention.

DoE's Terrestrial Resources Unit is currently engaged in running these new nominations through the NCC's formal scoring system, and preparing a presentation for the NCC that will enable its members to see all the nominations (new and old) in broad context, with metrics that point to which ones can offer the best conservation returns per unit expense and management effort.

Ultimately it will be the NCC's call to decide which of the nominations to seek to advance in 2022-2023, and which to defer for later cycles. In doing so, NCC has to scale land purchase proposals within the Environmental Protection Fund (EPF) budget currently released for conservation land purchase.

Currently 6.4% of Cayman Islands land is under NCA protection, with 5.5% protected by the National Trust for the Cayman Islands, giving an overall statistic of 11.3% protection. There is some overlap of National Trust land that is also protected by the NCA, which is why the percentages don't quite sum to the overall total.

To put this 11.3% in context, the current position internationally (IUCN), and about to be formalised in the 15th Conference of Parties to the Convention on Biological Diversity, is a goal of 30% of land coming under protection by 2030 with a representation of all key habitat types.

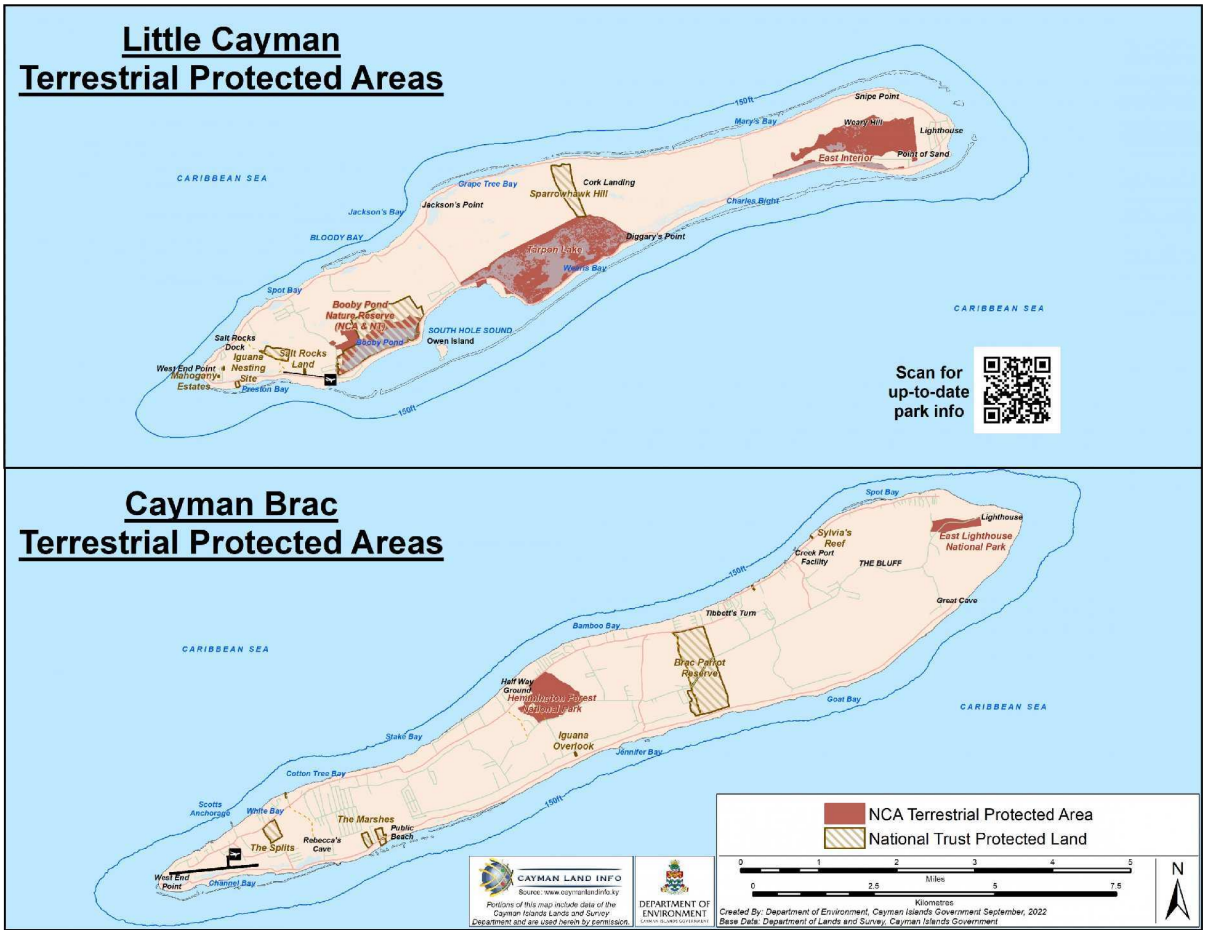


Terrestrial Protected Areas of Grand Cayman (existing and approved by Cabinet).

For Little Cayman, 30% protection, or even more, seems in close reach since today almost 22% of that island is already protected by the NCA or the National Trust Act or both. Grand Cayman has much further to go, with 10.9% protected as of 2022. Cayman Brac continues to lag far behind the other islands, with only 5.9% protection at this time.

The NCC and DoE are impressed by, and appreciative of the remarkable response to the call for nominations this year. The volume of submissions dwarfed all previous responses, and speaks to a growing environmental awareness and concern in the community as our islands continue to urbanise and our irreplaceable ancient forests, mangroves and wild rocky shrublands continue to be bulldozed as if they had no value at all.

Ongoing work on Natural Capital Accounting for the Cayman Islands tells rather a different story by producing detailed measurements of the linkage between ecosystems and economic and other human activity. The Natural Capital Accounting work will be highlighted in a future issue of Flicker, so stay tuned!



Terrestrial Protected Areas of the Sister Islands (existing and approved by Cabinet).

Hawk Moth Checklist Reports New Species for the Cayman Islands

By Christine Rose-Smyth - Verdant Isle Orchids

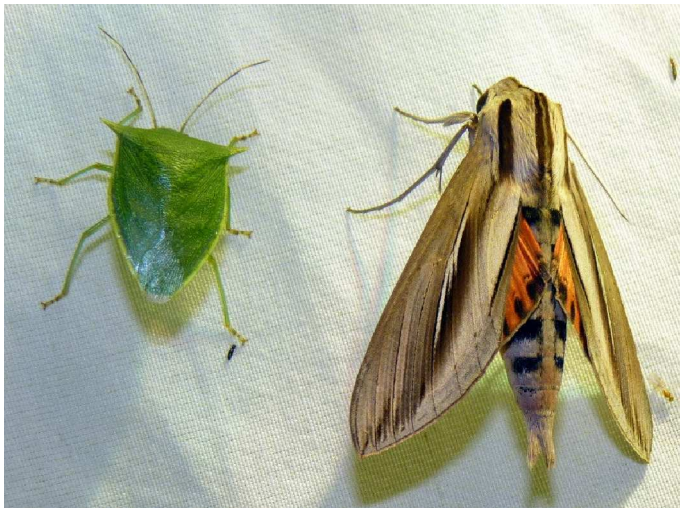
Have you seen a hawk moth recently?

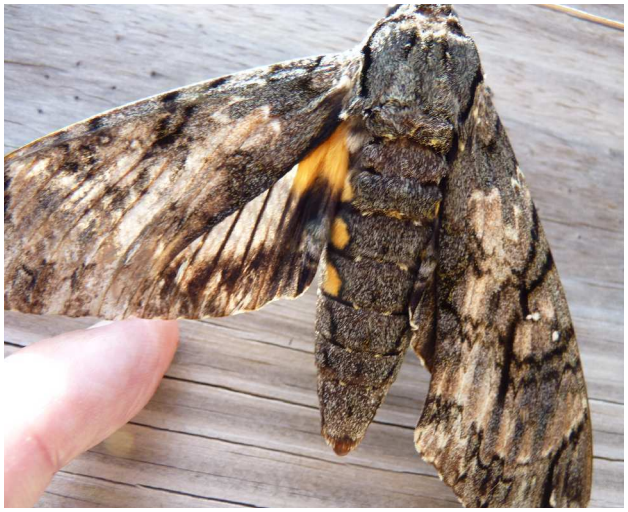
Hawk moths are among Cayman's largest insects and can be seen in all three islands and in most months of the year. One species, the Tantalus Sphinx, even flies during the day, and due to its ability to hover in front of nectar bearing flowers, is sometimes mistaken for a hummingbird, a much rarer temporary migrant.

For many years we knew that twenty-one species of hawk moths fly in the Cayman Islands but this number has now been raised to twenty-five in our study recently published in the journal, Insecta Mundi.

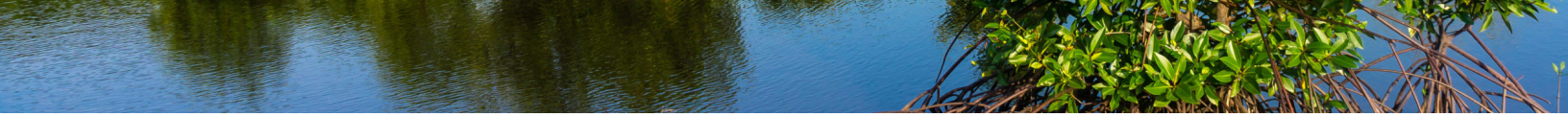
The new checklist extends the range of species among the islands and reports on larvae and their food plants; potential as pollinators of the endemic, endangered, Ghost Orchid (*Dendrophylax fawcettii*); and their role as prey for bats.

The four completely new species are: *Phryxus caicus*, which occurs in all three islands, and three other species (*Isognathus rimosa*, *Enyo lugubris* and *Eumorpha satellitia*) found in Grand Cayman only, so far.





Left: *Phryxus caicus* (Caicus Sphinx) alongside a green stinkbug, attracted to UV light.
Top right: *Cocytius antaeus* (Giant Sphinx). Lower right: *Eumorpha lugubris* (Gaudy Sphinx)



Below table shows the hawk moths of the Cayman Islands and their occurrence in each of the islands. G = Grand Cayman, L = Little Cayman, B = Cayman Brac.

New records for individual islands raised the scores for Grand Cayman by seven, Little Cayman by five and Cayman Brac by two (marked N below).

Species	***Common Name***	**Occurrence**		
		G	**L**	**B**
Agrius cingulata	Pink-spotted Hawk Moth	✓	✓	
Cocytius antaeus	Giant Sphinx	✓		
Manduca paphus	Tobacco Hornworm	✓	✓	✓
Manduca rustica	Rustic Sphinx	✓		
Manduca brontes	Cuban Sphinx	✓	✓	
Protambulyx strigilis	Streaked Sphinx	✓	N	
Pseudosphinx tetrio	Tetrio Sphinx	✓	✓	N
Isognathus rimosa	Rimosus Sphinx	N		
Erinnyis alope	Alope Sphinx	N		✓
Erinnyis ello	Cassava Hornworm	✓	✓	✓
Erinnyis oenotrus	Oenotrus Sphinx	✓	N	
Erinnyis obscura	Obscure Sphinx	✓	N	
Phryxus caicus	Caicus Sphinx	N	N	N
Pachylia ficus	Fig Sphinx	✓		
Madoryx pseudothyreus	False-windowed Sphinx		✓	
Aellopos tantalus	Tantalus Sphinx	✓	✓	
Enyo lugubris	Mournful Sphinx	N		
Cautethia grotei	Grote's Sphinx	✓	✓	✓
Eumorpha vitis	Vine Sphinx	N	✓	✓
Eumorpha fasciatus	Banded Sphinx	✓		
Eumorpha labruscae	Gaudy Sphinx	✓		
Eumorpha satellitia	Satellite Sphinx	N		
Xylophanes pluto	Pluto Sphinx	✓	N	
Xylophanes tersa	Tersa Sphinx	N	✓	
Hyles lineata	White-lined Sphinx		✓	✓
Totals (All islands 25)		**23**	**16**	**8**

The new checklist was assembled using a range of old and new techniques.

It began with the data from the 1938 Oxford Expedition and the 1975 Little Cayman Royal Society Expedition with later additions by long-time visiting, entomologist, Richard Askew.

In her blog, CaymANNnature, Ann Stafford accumulates her own records and reports from around the islands by other enthusiasts and photographers. I began recording and collecting specimens in Lower Valley seven years ago, and in 2017 our other three co-authors; Simon, Goss and Rozycki made collections which extended our knowledge of Little Cayman hawk moths. They discovered the first specimen of *Eumorpha satellitia* in Grand Cayman.

Besides our own direct observations and sampling, we also had the benefit of the collections at the National Trust, Department of Environment and Department of Agriculture. Though small, each collection provided unique records.

The second source of data came directly from the digitisation of overseas museum collections or via biodiversity data aggregator GBIF, (Global Biodiversity Information Facility). The Natural History Museum, London is home to much of the 1938 collection and images of the two endemic Cayman sub-species of *Cautethia grotei* described from that expedition are viewable on this related website.

GBIF led us to specimens collected in the 1960's and 70's that had been deposited in the Milwaukee Public Museum and at UWI Zoological Museum in Trinidad, including the earliest record of *Enyo lugubris*. The Mournful Sphinx turns out to be one of the most common species, coming to light at night at least nine months of the year.

Thirdly, we were able to take advantage of the iNaturalist app to expand the dataset with photographs of the moths and their larvae posted by residents and visitors.

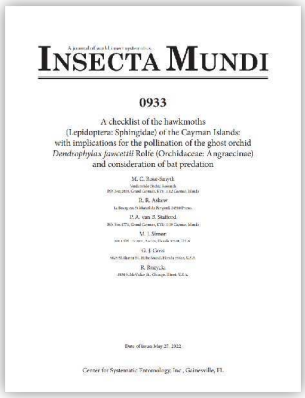
With all these sources we were able to collate hundreds of observations from dozens of observers ranging from career entomologists to curious school students. For example, the highest single count for a species was 61 individuals of the Pink-spotted Hawk Moth photographed by Mr. Sonny Rivers in West Bay, shared with Ann Stafford in 2005.

Download the iNaturalist app and help explore the unique nature of the Cayman Islands!

The wingspan of adult Cayman hawk moths vary from 3.5 cm in Grote's Hawk Moth up to approximately 16 cm (6.25 inches) in the Giant Sphinx, whose uncurled tongue can be as long as the wings are wide. Hawk moths can often be seen hovering at white nectiferous flowers at dusk – garden Ixora is a favourite. They are valuable pollinators of native plants.

The caterpillars may be equally large and as thick as a finger. One of the most easily recognised is the larva of the Tetrio Sphinx with is warning colouration of black and yellow bands circling the body, a red head and orangey stubby legs. Although these caterpillars can eat all the leaves of a *Plumeria* plant (and may use the toxic white sap for defence against predators) the frangipani will quickly re-sprout and bloom again with no adverse effects. Other hawk moth larvae may be green or a mix of camouflage colours.

To read the paper, and for more images, click on the Insecta Mundi pdf here:


INSECTA MUNDI

0933

A checklist of the hawkmoths (Lepidoptera: Sphingidae) of the Cayman Islands: with implications for the pollination of the ghost orchid *Dendrophylax fawcettii* Rolfe (Orchidaceae: Aeranthinae) and consideration of bat predation

Tetrio Sphinx moth adult (top) and larval stage (below). © Christine Rose-Smyth & Jane Haakonsson

For more information on the Cayman species of hawk moths, check out the links throughout this article and any search on "hawk moth" or a species name will turn up a plethora of information and images of these most popular of lepidopterans.

If you do see a hawk moth and can snap a photo, consider uploading it to the iNaturalist app, which can help you identify your find. Validated iNaturalist records will become a part of our continually expanding database and, who knows, maybe you find the 27th species for the Cayman Islands!

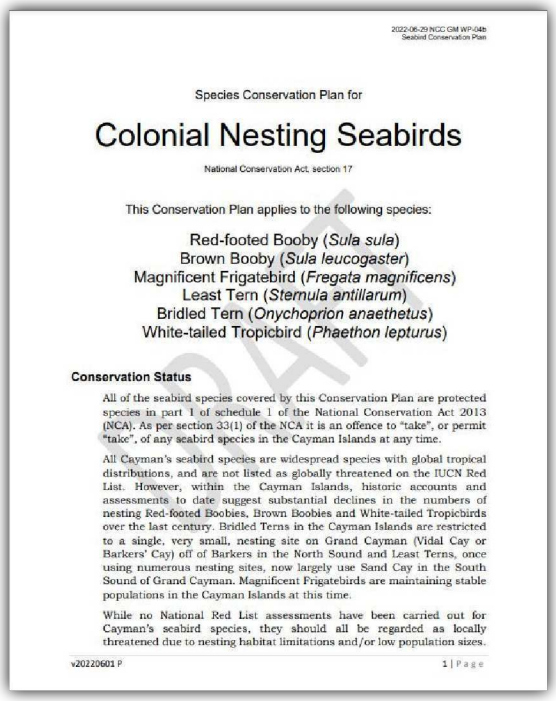
Seabird Conservation Plan open for Public Consultation

The National Conservation Council (NCC) is seeking public commentary on a (draft) Species Conservation Plan to protect six species of native nesting seabirds across the Cayman Islands. Of the Brown Booby, Red-footed Booby, Magnificent Frigatebird (Man o' War), White-tailed Tropicbird (Bo'sun bird), Least Tern and Bridled Tern, most populations in Cayman have experienced significant declines in the last century, and for several of these species local extinction is imminent.

The plan does not propose new restrictions on "take" as these bird species are all fully protected under the National Conservation Act. However, their nesting habitats remain at continued risk from threats of development, human traffic and invasive predators. The Conservation Plan therefore aims to designate Critical Habitats for the most densely populated, unprotected nesting sites and to provide appropriate protections to mitigate disturbance from human and animal activity.

The public consultation period began on 28 September and will end on 4 November, 2022.

The proposed Conservation Plan and Landowners FAQ may be accessed by clicking here or at the DoE office at 580 North Sound Road, GT. Comments on the proposal may be emailed to conservationcouncil@gov.ky, received at the DoE offices, or mailed to PO Box 10202, Grand Cayman, KY1-1002.


2022-06-29 NCC GM WP-04b
Seabird Conservation Plan

Species Conservation Plan for

Colonial Nesting Seabirds

National Conservation Act, section 17

This Conservation Plan applies to the following species:

Red-footed Booby (*Sula sula*)
Brown Booby (*Sula leucogaster*)
Magnificent Frigatebird (*Fregata magnificens*)
Least Tern (*Sternula antillarum*)
Bridled Tern (*Onychoprion anaethetus*)
White-tailed Tropicbird (*Phaethon lepturus*)

Conservation Status

All of the seabird species covered by this Conservation Plan are protected species in part 1 of schedule 1 of the National Conservation Act 2013 (NCA). As per section 33(1) of the NCA it is an offence to "take", or permit "take", of any seabird species in the Cayman Islands at any time.

All Cayman's seabird species are widespread species with global tropical distributions, and are not listed as globally threatened on the IUCN Red List. However, within the Cayman Islands, historic accounts and assessments to date suggest substantial declines in the numbers of nesting Red-footed Boobies, Brown Boobies and White-tailed Tropicbirds over the last century. Bridled Terns in the Cayman Islands are restricted to a single, very small, nesting site on Grand Cayman (Vidal Cay or Barkers' Cay) off of Barkers in the North Sound and Least Terns, once using numerous nesting sites, now largely use Sand Cay in the South Sound of Grand Cayman. Magnificent Frigatebirds are maintaining stable populations in the Cayman Islands at this time.

While no National Red List assessments have been carried out for Cayman's seabird species, they should all be regarded as locally threatened due to nesting habitat limitations and/or low population sizes.

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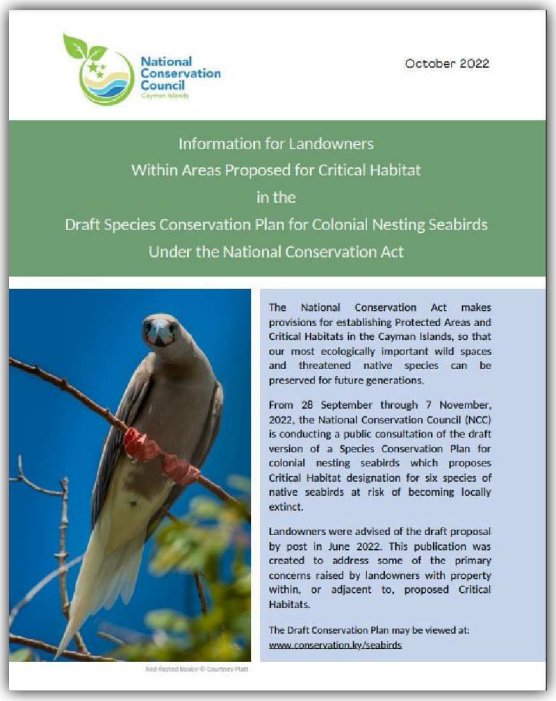

National Conservation Council
Cayman Islands

October 2022

Information for Landowners
Within Areas Proposed for Critical Habitat
in the
Draft Species Conservation Plan for Colonial Nesting Seabirds
Under the National Conservation Act

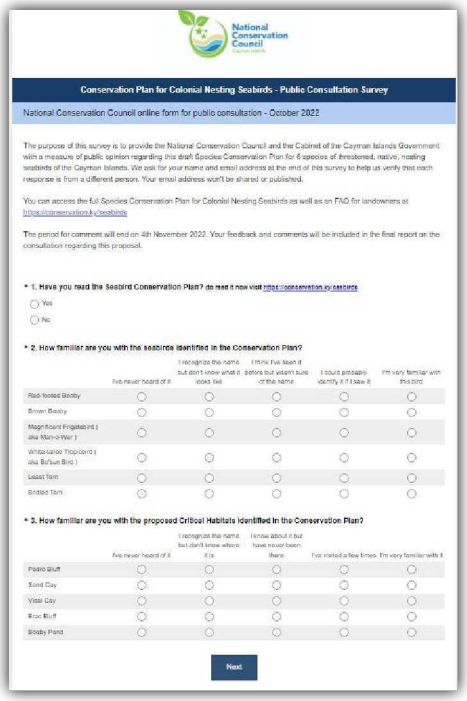
The National Conservation Act makes provisions for establishing Protected Areas and Critical Habitats in the Cayman Islands, so that our most ecologically important wild spaces and threatened native species can be preserved for future generations.

From 28 September through 7 November, 2022, the National Conservation Council (NCC) is conducting a public consultation of the draft version of a Species Conservation Plan for colonial nesting seabirds which proposes Critical Habitat designation for six species of native seabirds at risk of becoming locally extinct.

Landowners were advised of the draft proposal by post in June 2022. This publication was created to address some of the primary concerns raised by landowners with property within, or adjacent to, proposed Critical Habitats.

The Draft Conservation Plan may be viewed at:
www.conservation.ky/seabirds

Red-footed Booby © Courtney Platt


National Conservation Council

Conservation Plan for Colonial Nesting Seabirds - Public Consultation Survey

National Conservation Council online form for public consultation - October 2022

The purpose of this survey is to provide the National Conservation Council and the Cabinet of the Cayman Islands Government with a measure of public opinion regarding this draft Species Conservation Plan for 6 species of threatened, native, nesting seabirds of the Cayman Islands. We ask for your name and email address at the end of this survey to help us verify that each response is from a different person. Your email address won't be shared or published.

You can access the full Species Conservation Plan for Colonial Nesting Seabirds as well as an FAQ for landowners at https://conservation.ky/seabirds

The period for comment will end on 4th November 2022. Your feedback and comments will be included in the final report on the consultation regarding this proposal.

* 1. Have you read the Seabird Conservation Plan? (to read it now visit https://conservation.ky/seabirds)

Yes
No

* 2. How familiar are you with the seabirds identified in the Conservation Plan?

	I've never heard of it	I recognize the name but don't know what it looks like	I think I've seen it before but wasn't sure of the name	I could probably identify it if I saw it	I'm very familiar with this bird
Red-footed Booby					
Brown Booby					
Magnificent Frigatebird (aka Man-o'-War)					
White-tailed Tropicbird (aka Bo'sun Bird)					
Least Tern					
Bridled Tern					

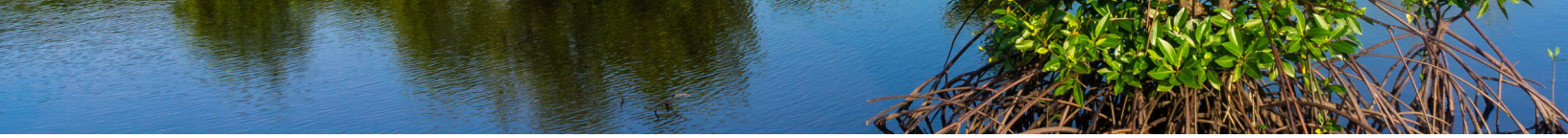
* 3. How familiar are you with the proposed Critical Habitats identified in the Conservation Plan?

	I've never heard of it	I recognize the name but don't know where it is	I know about it but have never been there	I've visited a few times. I'm very familiar with it
Pedro Bluff				
Sand Cay				
Vidal Cay				
Boo Bluff				
Booby Pond				

Next

Please find links to the following documents by clicking here:
Seabird Conservation Plan, Landowner FAQ and Public Consultation Survey.

Seabird Conservation Plan open for Public Consultation



Bat Count Cayman 2022
Citizen Science Success!

The first systematic studies of resident bat populations in the Cayman Islands were done between 1976 and 1986 through mist-netting, exploration of caves and collection of barn owl pellets from which bones were recovered for identification of bats on a species level.

Then, in 1992, the bat conservation programme was initiated by Lois Blumenthal. The key focus included installation of 82 bat houses across Grand Cayman, primarily by the National Trust for the Cayman Islands, and was initiated to promote bat populations as development began to significantly alter their environment.

Bats are the only native mammals present in the Cayman Islands and all are listed under Schedule I of the National Conservation Act, offering them full protection at all times (2013).

While nine species of bats have been recorded in Cayman, see below table, the artificial housing programme has primarily attracted the Velvety Free-tailed Bat (*Molossus milleri).*

Species	Grand Cayman	Cayman Brac	Little Cayman
Macrotus waterhousii minor Big-eared Bat	🦇	🦇	🦇
Artibeus jamaicensis parvipes Jamaican Fruit-eating Bat	🦇	🦇	🦇
Phyllops falcatus White-shouldered Bat / Fig-eating Bat	🦇	🦇	
Eropylla bombifrons West Indian Flower Bat / Buffy Flower Bat	🦇	🦇	
Brachyphylla nana nana Cuban Fruit-eating Bat / Greater Antillean Fruit-eating Bat	🦇		
Eptesicus fuscus spp. Big Brown Bat / Brown Bat	🦇	🦇	
Tadarida brasiliensis muscula Brazilian Free-tailed Bat	🦇		
Molossus milleri Velvety Free-tailed Bat / Pallas' Mastiff Bat	🦇	🦇	🦇
Lasiurius borealis Red Bat	🦇		

The DoE's Terrestrial Resources Unit, has been monitoring some of the bat houses and their resident populations annually since 2019. This year citizen scientists got involved!

This July and August, 18 citizen scientists trekked along nature trails, parks, sidewalks, parking lots, condo complexes and plazas to stare up at the wooden houses attached to telephone poles throughout Grand Cayman. Waiting as the sun crept lower in the sky, and the dog-walkers and joggers passed them, with odd looks and some stopping to enquire, "What are you looking at?" The observers looked for clues of the inhabitants. Dark black guano stains along the bottom of the poles and remains of infants, that failed to hold on to their parents, were indicators that bat boxes were active.

As the sun lowers in the sky, eyes fixated on the wooden structure, the observers ready their minds for the first glimpses, but hear the all too familiar high pitch buzzing, zipping around their ears as mosquitoes invade the serene sunset ambiance. Determined with scientific zeal, they continue to look up and wait, while swatting, and spraying. Finally, the sound of chirps and squeaks resonate from the wooden structure, as the family wakes and socializes, while the on-lookers now wait with great anticipation.

Counters at the ready and cell phones opened to the Epicollect 5 App, with the "Bat Count Cayman" fields highlighted to note the time of first emergence. A dark dash, speeds out from the bottom of the wooden box, which sparks a cascade of bats dropping out in a flurry, that alight themselves on the wing into the air, as they begin the evening hunt. The citizen scientists have waited for this moment as the count is on, their fingers busily ticking and clicking to count the number of bats until they are no longer visible in the dark of the night.

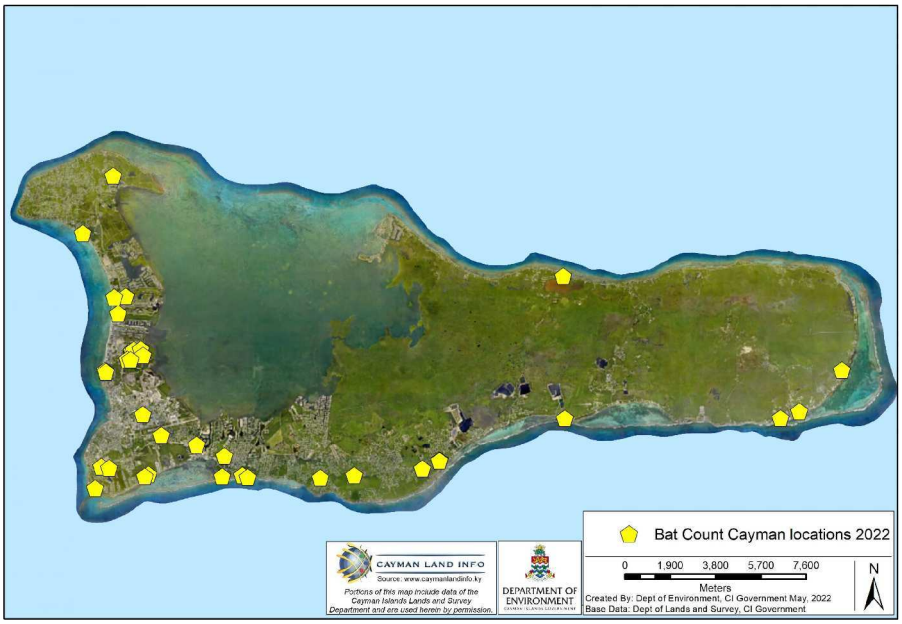
A bat house in Camana Bay (left), a close-up of *Molossus milleri* by Courtney Platt (middle) and the same species making an emergence at dusk,

The 18 observers counted a total of 4,586 bats from 45 publicly accessible bat houses on Grand Cayman, see below. This is less than previous years; as 2020 saw 6,603 bats counted in 75 bat houses, and 2019, saw 5,154 bats counted in 20 of the bat houses on Grand Cayman. A survey in 2010 counted over 11,000 bats in the artificial houses!

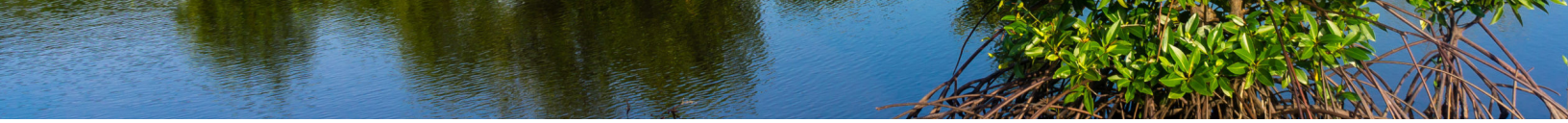
The choice to reduce the number of bat houses in the 2022 survey was to provide all citizens a chance to participate at public sites easily accessible and navigable by using Google Map. This change proved advantageous as all but 1 (98%) of bat houses were visited once, 84% were visited a second time, 70% were visited a third time and 11% were visited a fourth time. Google Maps allowed for removal of sites thus directing citizen scientists to the bat houses still in need of counting. This allowed for a robust data set, enabling comparisons to be made of the houses over the years.

The apparent decline is concerning as bats are the only living native land mammals to the Cayman Islands and fulfill essential roles in seed dispersal, pollination and insect control. In fact, a single insectivorous bat can consume more than 1,000 insects per hour, thus performing a very effective and natural pest control, keeping down crop and garden pests as well as mosquitoes. Their ecosystem services have been estimated at more than $3.7 billion/year for agriculture in North America alone.

The Velvety Free-tailed Bat is an insectivorous chiropteran that has adapted well to urban environments, frequently roosting in man-made structures such as household attics. This species is also characterised by its largely sedentary and crepuscular lifestyle, hunting for less than 90 minutes at dusk and dawn. Holland *et al.* (2011) have suggested this is due to a



The locations of publicly accessible bat houses used for the citizen science project Bat Count Cayman 2022 on Grand Cayman.



combination of synchronising the time of their emergence with the times of greatest insect activity and their 'aerial hawking' hunting strategy. This involves great speed and agility, proving more effective than the gleaning strategy deployed by slower-flying insectivorous bats who are less energy efficient and more at risk to predators.

Monitoring the bat populations in Grand Cayman is important as they are a biodiversity indicator species, meaning the changes in their populations aid in accessing the health of the ecosystems they frequent.

With limited natural cavities in urban areas, bat houses or boxes are a favorable substitute for shelter and allow this species to thrive. This is beneficial to us for natural pest control as mentioned, but bats also inspire and intrigue people to be aware of the natural world.

Bat Count Cayman is a citizen science project that allowed the National Trust and the Department of Environment to give citizens hands-on experience in conserving bats, while simultaneously spreading awareness on the importance of bat conservation and altering many misconceptions towards these mammals instilled through media, literature and mythology. It proved to be an amazing turnout with individuals, teachers, students, parents and kids gathering to witness one of Caymans' evening wonders and being a part of science!

Special thanks goes to our summer interns Joshua Weaver and Ciara Powery.

To learn more about Cayman's bats, check out Flicker Issue 18 and 26, including a recent study from 2016 by Dr. Livia Loureiro resulting in the commonly referred to *Molossus molossus* being identified as its own species *Molossus milleri*, see below.

Remember, always seek to humanely exclude bats from buildings and never separate mothers from their pups during pupping season (June - mid November). Ensuring that no crevices or openings in your roofs are available should deter bats from moving in.

Received: 7 June 2019 | Revised: 13 November 2019 | Accepted: 15 November 2019

DOI: 10.1002/ece3.5903

ORIGINAL RESEARCH

Ecology and Evolution WILEY

Comparative phylogeography of mainland and insular species of Neotropical molossid bats (*Molossus*)

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Abstract
Historical events, habitat preferences, and geographic barriers might result in distinct genetic patterns in insular versus mainland populations. Comparison between these two biogeographic systems provides an opportunity to investigate the relative role of isolation in phylogeographic patterns and to elucidate the importance of evolution and demographic history in population structure. Herein, we use a genotype-by-sequencing approach (GBS) to explore population structure within three species of mastiff bats (*Molossus molossus*, *M. coibensis*, and *M. milleri*), which represent different ecological histories and geographical distributions in the genus. We tested the hypotheses that oceanic straits serve as barriers to dispersal in Caribbean bats and that isolated island populations are more likely to experience genetic drift and bottlenecks in comparison with highly connected ones, thus leading to different phylogeographic patterns. We show that population structures vary according to general habitat preferences, levels of population isolation, and historical fluctuations in climate. In our dataset, mainland geographic barriers played only a small role in isolation of lineages. However, oceanic straits posed a partial barrier to the dispersal for some populations within some species (*M. milleri*), but do not seem to disrupt gene flow in others (*M. molossus*). Lineages on distant islands undergo genetic bottlenecks more frequently than island lineages closer to the mainland, which have a greater exchange of haplotypes.

1 | INTRODUCTION

Evolutionary geographic patterns and demographic histories of species are largely affected by historical events, habitat preferences, and geographic barriers (Bernatchez & Wilson, 1999; Querejeta & Castresana, 2018; Soltis, Morris, McLachlan, Manos, & Soltis, 2006). Moreover, several mechanisms might result in genetic isolation, such as geography and ecology, which often interact to shape the current pattern of diversity, but also making it difficult to distinguish the primary diversification factors (Wang & Bradburd, 2014). Populations in early stages of speciation provide good model systems to study these diversification mechanisms (Schield et al., 2015). Such groups have not yet developed secondary reproductive isolating mechanisms, and the primary genetic precursors of speciation are more easily discernable (Good, Dean, & Nachman, 2008; Orr, 1995).

Evolutionary processes might also act differently on insular and mainland populations, according to their degree of ecological and geographic isolation (Garcia-Verdugo, Caujapé-Castells, Mairal, & Monroy, 2018; Ortiz-Ramírez, Sánchez-González, Castellanos-Morales, Ornelas, & Navarro-Sigüenza, 2018). Populations on islands

Loureiro *et al.*, 2019 describes that the Velvety Free-tailed bats in Cayman are in fact *Molossus milleri* and not *Molossus molossus* as previously thought.

Green Iguana Update

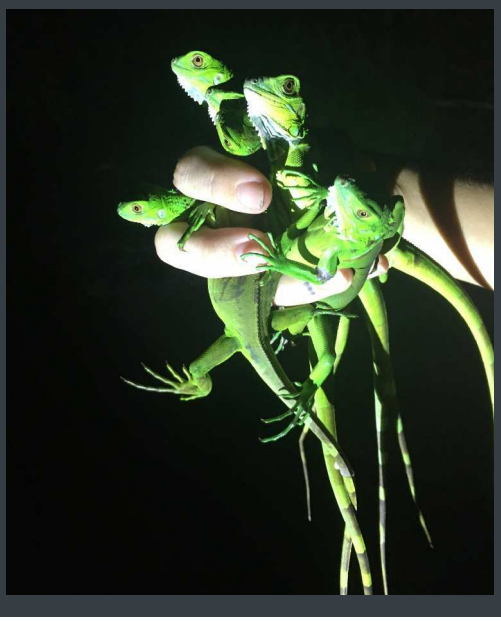
The Green Iguana hatchling season is officially upon us. With 66 active cullers and taking in an average of 1,366 iguanas per week, the 2022 Iguana Culling Programme has seen a marked spike as the hatchling Green Iguanas emerge around Grand Cayman.

As expected, we are seeing the reproductive potential from the remaining Green Iguana population which, through DoE's annual survey in August, is estimated at around 80,500 individuals. This number is similar to the results of 2021's survey, at 87,751 iguanas, which may at first glance appear discouraging. However, through the years we have seen a doubling of the population within one calendar year when no control measures are in place. For example, 2015's survey estimated 408,749 Green Iguanas which about doubled to 814,855 Green Iguanas in 2016.

In short, preventing population growth at a time when iguanas are released from competition by their own kind (more resources are available as the population gets smaller) is a remarkable feat.

The total number of iguanas culled since October 2018 to October 2022 is 1,399,258 at a cost of approximately KYD$ 8,425,000.

The most Green Iguanas that any culler has produced in one day in 2022, was 147 iguanas on September 2nd. Adalbert Dixon brought in the impressive catch of which 103 were hatchlings. Clustering together at night and being cold, the hatchlings are more easily caught in greater numbers in the dark, their radiant green colour assisting by reflecting the search light.



Green Iguanas removed in 2022

50,983

Total Green Iguanas removed

1,399,258

Green Iguana Update

On the Sister Islands, continuous community-based efforts occur and were rewarded when, on May 25th, 2022, Cayman Brac's Conservation Officer Maggie Baldino discovered a nesting female Green Iguana in the Long Beach area. The female was removed and no eggs were found, however, this event lead to the systematic search of Green Iguana nests on Cayman Brac during the 2022 nesting season. Lead by the RSPB Darwin+ grant staff (see Flicker Issue 54), volunteers found seven Green Iguana nests and removed a total of 143 viable Green Iguana eggs from Long Beach and Spot Bay.

Given that Sister Island Rock Iguana and Green Iguana nests appear identical, no excavation took place without DoE consent. The efforts were carefully monitored by experienced staff and excavation training was provided to volunteers throughout.

It is clear that future efforts must include special attention on nest surveys through the months of April-July in order to narrow down active Green Iguana nesting habitat and to catch the females before they lay their eggs. DoE will send a team to Cayman Brac to continue the search for hatchlings in October as in previous years.

Volunteers with handfuls of newly excavated Green Iguana eggs (left) and a comparison between Green Iguana (smaller) and Sister Island Rock Iguana (larger) eggs.
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Know Your Natives - Christmas Berry

This issue is the perfect time to re-visit our local Christmas Berry (*Allophylus cominia*), which is a bushy shrub found only in the Cayman Islands. It is listed as Near Threatened in all three of the islands and it is commonly found in dry forests and rocky thickets.

Christmas Berry is easily recognized by its distinctive shiny leaves with three leaflets. The tiny cream-coloured flowers bloom in October and the plant gets its name from the bright red berries which can be seen by Christmas time.

The Christmas Berry grows up to 3 meters (9 ft. 10 in.) tall and normally grows as an under-story shrub.

Christmas Berry is a very attractive plant which can be easily used for landscaping as it tolerates both shade and sun and is perfectly adapted to our local climate, being an endemic. As with all other native plants, it is easy and cheap to maintain and attracts wildlife, especially birds when the berries are ripe.

The Christmas Berry is not to be confused with the similarly named Christmas Bush (*Vernonia divaricata*) seen to the right.

Christmas Berry's tiny flowers (left), leaves (middle) and red fruits at Christmas time (right). Photos from CaymANNature.