# BIRDSCARIBBEAN SEABIRD WORKING GROUP NEWSLETTER



- 2023 Caribbean Seabird Census
- Avian Influenza in the Caribbean
- Updates from the Islands
- Seabirder Spotlight Antonio Garcia Quintas



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# About the Seabird Working Group 🛧

The Seabird Working Group (SWG) was formed in 1998 to understand the big picture driving seabird communities in the region. Since then, the group has been composed of managers, conservationists, researchers, and educators working together to help study and protect populations of breeding and migratory seabirds in the Caribbean.

#### The aims of the group are to:

- Connect People Bring together people working on, and interested in, Caribbean seabirds
- Share Knowledge Share information about research, monitoring, management, and conservation of seabirds in the Caribbean
- Promote Conservation Seek new opportunities to expand conservation and research activities on Caribbean seabirds, and support those working towards this goal
- Advocate for Seabirds Respond to crises and threats that may impact Caribbean seabirds and their habitats

The SWG is currently managed by a committee of three co-chairs (below), supported by Jennifer Wheeler, Natalia Collier, and Lisa Sorenson. We are always looking for additional committee members to help lead SWG initiatives: if you have any questions or are interested in joining us, do not hesitate to contact us!



#### Dr Ann Sutton

Contact: asutton@cwjamaica.com



Dr Rhiannon Austin Contact: R.E.Austin@liverpool.ac.uk; Twitter: @RhiAustin



Yvan Satgé Contact: ysatge@clemson.edu; Twitter: <u>@YvanSatge</u>

## Survey of people interested in Caribbean seabirds

In 2020, we initiated a survey of people interested in seabird conservation, education, and research in the region. The results of this survey can be found in our <u>2021 Newsletter</u> but if you are new to the Caribbean seabird community or haven't responded yet, we are still interested in hearing from you. You can fill out the questionnaire at the following address: <u>https://forms.gle/ykNMAfUYQVDmJKTw9</u>.

# Communications

## Website

In the SWG pages on the BirdsCaribbean website, you will find links to background information on the working group, active seabird projects, seabird resources, and our seabird blog posts. We would love to hear from you if you are keen to get further involved in any of our work! <u>www.birdscaribbean.org/caribbean-birds/seabirds</u>

## Social platforms

## Groups.io community

The SWG has a listserv with Groups.io: <u>https://birdscaribbean.groups.io/g/SeabirdWG</u>. Anyone interested can become a member and start interacting via email or through the Groups.io webpages. This platform will be the main communication tool for SWG co-chairs to share information with the whole Caribbean seabird community, but it is open to anyone to share knowledge, post questions, and list information on recent publications, jobs, events, grant opportunities, etc. that may be of interest to all. Visit the <u>Groups.io</u> webpage for details on how to join.

## Facebook group

Members of our community have started a Facebook group (<u>Caribbean Seabird Group</u>) to provide an informal network for those who regularly use Facebook, and are interested in Caribbean seabirds and related topics. It complements the BirdsCaribbean Facebook page where regular updates on all Caribbean birds can be found. The Groups.io listserv will remain our main communication tool but we will do our best to relay information to and from the Facebook group as well.

#### Twitter

Twitter has a very active and welcoming seabird community. If you have a Twitter account, we encourage you to join the conversation! Show your interest in Caribbean seabirds by sharing pictures and updates on your seabird work, or posing questions to regional and global seabirders. Don't forget to tag your tweets with <u>#CaribSeabirds</u>, <u>#Seabirds</u>, <u>#Seabirders</u> and/or <u>#SeabirdSaturday</u>.

Please note that we have a no-tolerance policy for group members that undertake any actions that compromise these platforms from being the safe, equitable, and productive place that they were designed to be.

# 2023 Caribbean Seabird Census 🛧

## Overview

The Caribbean is one of the most important regions in the world for seabirds, and one of the most threatened. The information that BirdsCaribbean and its partners have gathered over the last twenty years shows that numbers of Caribbean seabirds at many breeding colonies are declining catastrophically and rapidly, with some species reduced to scattered relict populations. The negative impacts of invasive species, coastal development and climate change on seabird populations are well documented in the region.



A Brown Noddy guards its nest on a Martinique cliff (Antoine Chabrolle).

But not all hope is lost: there have been many conservation successes where management actions have helped the region's seabird population to recover. Invasive species eradication, habitat restoration, and the introduction of legislation to protect important populations have all resulted in the recovery of local populations. However, in order to plan, prioritize, and gain funding for recovery programmes, there is a need for systematic, standardized inventories of colonies. Long-term monitoring is also essential to identify the need for conservation programmes and to assess their effectiveness.

While many countries conduct their own seabird monitoring programmes, the first comprehensive Caribbean-wide collection and coalition of seabird breeding data was published in 1984 by Van Halewijn and Norton. Other regional accounts have followed including Schreiber and Lees' 2000 publication on the <u>status and conservation of West Indian seabirds</u>, Bradley and Morton's 2009 <u>inventory of Caribbean breeding seabirds</u>, and the <u>Seabird Breeding Atlas for the Lesser Antilles</u> by Environmental Protection in the Caribbean (EPIC) in 2012<sup>1</sup>.

In 2021, recognising the lack of up-to-date information on the breeding populations of seabirds across the Caribbean, BirdsCaribbean and EPIC announced plans to launch and facilitate a Regional Caribbean Seabird Census (**2023 Caribbean Seabird Census**, or **CSC23**). We are pleased to update that to date, more than 36 collaborators from 27 countries and Territories in the wider Caribbean region have committed to supporting this initiative. Seabird counts are now well underway across the region!

From the ABC islands in the south to Bermuda in the north local partners are collecting seabird data using a range of methods from counting birds on offshore islands by boat, to directly counting nests on the ground and conducting drone and acoustic surveys.

Some colonies are small, numbering just a few individuals, others support thousands of breeding pairs. No matter how small the colony, all data is important to build a regional picture of seabird abundance and distribution that is up to date with current issues. The outputs of this regional initiative will support seabird conservation by identifying trends in population size and the species and colonies most at threat, to inform regional seabird conservation and population recovery initiatives.



# Caribbean Seabird Census 2023

The logo of the 2023 Caribbean Census was designed by Venezuelan illustrator and seabird conservationist Josmar Marquez. You can download this logo and other versions here: <u>CSC23\_Logos, visual material</u>

<sup>&</sup>lt;sup>1</sup> More resources can be found on the Working Group's webpage: <u>birdscaribbean.org/caribbean-birds/seabirds/seabird-resources/</u>



Map 1: Countries participating in the Caribbean Seabird Census. Note that, for large countries, the whole country is colored even though only a few localized sites may be censused.

## First results

While the majority of our project partners are still surveying colonies, some have already been able to submit data. Sint Maarten became the first island to submit seabird breeding data: counts conducted by EPIC in May 2023 recorded breeding Brown Pelicans, Bridled Terns and Least Terns. Overall, preliminary regional results are mixed: some colonies appear to be no longer active such as Pointe Blanche on Sint Maarten, others appear to be in decline such as the Audubon's shearwater colony on Dog Island, Anguilla, while others seem to be stable or even increasing. You can read more about recent and ongoing surveys in our <u>Updates from the Islands</u> (p14).

As more data is submitted over the following months, we will be able to examine regional population and species distributions in more detail.



Surveyors tally colony counts after a survey in the Turks and Caicos Islands (Rhiannon Austin)

## How you can participate

It is not too late to get involved! If you need more information, please visit our <u>seabird census webpage</u> where you can find more information on <u>survey techniques</u>, <u>field data sheets</u> and <u>standardized data</u> <u>entry forms</u>. You will also be able to test your knowledge of Caribbean seabirds and field methods with our <u>quizzes</u>, which are linked to our webinar topics (read more about our Webinars <u>below</u>)!

If you are an avid birdwatcher but conduct less formal seabird counts, we encourage you to share your eBird checklists of breeding seabirds (or any seabird sightings) with us by adding <u>caribbeanseabirdsurveys</u> as an eBird contact.

Contact: Louise Soanes, CSC23 Coordinator (caribbeanseabirdsurveys@gmail.com)

## Seabird Webinar Series 🛧

Ahead of CSC23, the SWG began a series of webinars in May of 2022, focusing on the techniques required to survey seabirds in the Caribbean. The webinars started with the basics, and progressed to more specialized topics related to monitoring. All webinars have been recorded and are available to watch at the links below.

The webinars were attended by 250 people, from more than 37 nations. Thanks to support from SPAW-RAC, the SWG has been able to provide subtitles in English, French and Spanish for all six webinars in our 2022 webinar-series.



**Basic Concepts in Seabird** 

Monitoring & Census

Design

**Webinar #1 (31 May 2022): Caribbean seabird identification**: Chris Haney provides a detailed overview on identifying the Caribbean's breeding seabirds. <u>https://youtu.be/w2oSAgQz1oQ</u>

Webinar #2 (7 Jun. 2022): Basic concepts in seabird monitoring and census design: Ann Sutton and Hannah Madden provide an introduction to monitoring Caribbean seabirds. It includes defining your question, levels of monitoring, survey design, counts from the sea and from land, minimizing disturbance, assessing stage in the nesting cycle. <u>https://youtu.be/E38v0CIXbLc</u>





Webinar #3 (31 Aug. 2022): Field methods for seabird surveys: Natalia Collier provides details on methods of monitoring common species and habitats. It covers flush counts, subsampling, vantage point counts, etc. and describes strategies for where and how to find nests. It also discusses how to minimize disturbance and make adjustments for experience and observer bias. https://youtu.be/rNH8rmYIfoc

**Webinar #4 (17 Nov. 2022): Seabird acoustic monitoring**: Hosted by Yvan Satgé, acoustic experts Matthew McKown (Conservation Metrics) and Léo Papet (Biophonia), and Caribbean seabird conservationist Ajhermae White (Montserrat Department of Environment) provide an overview of methods to monitor and census seabirds with acoustics. <u>https://youtu.be/HzkPbhlowpU</u>



Webinar #5 (29 Nov. 2022): Aerial methods for monitoring seabird populations: Rhiannon Austin and Serge Wich give an overview of drones and their use for surveying seabirds.They also discuss field considerations, species and habitat suitability. Finally they introduce automated methods for handling drone imagery. https://youtu.be/Xanyn4BTWG4



#### Webinar #6 (14 Dec. 2022): Handling seabird census data:

Rhiannon Austion and Yvan Satgé discuss data collection, management, and storage. They also share Information about the types of data that can be collected, as well as suggestions for sharing seabird survey data. <u>https://youtu.be/9H7IIJ-e6R8</u>



Species Hour #1 (26 Jan. 2023): Tree-nesters (Pelicans, Frigatebirds, Boobies, Cormorants): A discussion with Caribbean conservationists experienced in surveying these species. During this webinar we discussed the different methods being used to survey large tree-nesting seabird species, as well specific considerations and recommendations for the Caribbean. https://youtu.be/LMm03cNFE6Q



Species Hour #2 (2 Mar. 2023): Cavity-nesters (Tropicbirds,

**Shearwaters, Petrels)**: This webinar discussed survey methods for Caribbean seabirds nesting in cavities. The discussion includes insights from conservationists experienced in surveying these species groups and provides helpful tips to smoothly run your surveys of cavity nesters. <u>https://youtu.be/E9X2Yuk9sZY</u>



Species Hour #3 (20 Apr. 2023): Ground-nesters (Terns, Noddies, Gull, and Boobies): In this webinar different methods used to survey ground-nesting seabird species are discussed, as well specific considerations and recommendations for the Caribbean. https://youtu.be/ak2jHYeDxpO

Contact: Yvan Satgé (ysatge@clemson.edu)

# Highly Pathogenic Avian Influenza in the Caribbean 🛧

The world is currently experiencing the greatest pandemic of **highly pathogenic avian influenza** (HPAI, also known as "bird flu"). This viral disease has not only affected millions of chickens, ducks, and geese around the world, it has also spread to wild birds, impacting seabirds and waterfowl all the way from the north Atlantic to the coasts of Central and South America, including the Caribbean.

## Where did the virus come from and how does it spread?

First of all, avian influenza is not always deadly. Many strains of viruses exist, some deadly and some benign. In fact, migratory wild birds, especially waterfowls, can carry different avian influenza virus strains with little or no effects on their health.

The highly pathogenic strain, which is caused by the H5N1 influenza virus, was detected in 1996 in large numbers of geese in East Asia and rapidly spread to other poultry. In 2014, a new, highly contagious form of H5N1 was detected. This version of the virus has adapted to infect wild birds, including seabirds. In 2021, a new HPAI outbreak spread through poultry farms across Europe, which led to large outbreaks in seabirds during the summer of 2022. From Europe, it appears to have made its way to North America and quickly spread across the American continent.

Several factors can contribute to the spread of influenza viruses but the main factors are the globalized and international trade of poultry, intensive poultry farming and sale (such as in live bird markets), and the movements of wild birds along migratory routes. The main groups of wild birds involved in spreading avian influenza are waterfowls, gulls, and shorebirds. In seabirds, pelicans, gulls, and terns are among the most likely to get sick, with pelicans being most affected. However, the virus seems to pass easily between different bird species, and has also affected mammals.

## What is the situation in the Caribbean?

HPAI has spread across the Americas during the summer and fall of 2022 but, for now, the Caribbean basin seems to be spared from the main outbreaks, which are mainly located along the Pacific flyway.

Nevertheless, HPAI cases have been reported in large numbers of Brown pelicans all along the coast of the continental Caribbean, in Venezuela (Anzoátegui state), Honduras, Costa Rica,

Guatemala, and Panama (see the Table 1 and Map 2, below). The Habana Zoo, Cuba, also reported cases, in February 2023. Although no cases have been officially reported from the insular Caribbean, the situation is still very worrisome because the disease may spread from the mainland to other parts of the region.

	Country	Start date	Latest record*	Number of events	Species affected	Total number of birds killed		
	Venezuela	2022-11-17		1	Pelecanus occidentalis	172		
	Honduras	2022-12-18	2023-02-22	4	Pelecanus occidentalis	199		
	Costa Rica	2023-01-03	2023-01-25	2	Pelecanus occidentalis	5		
	Guatemala	2023-01-26		1	Pelecanus occidentalis	11		
	Panama	2023-02-03		2	Pelecanus occidentalis	4		
	Cuba	2023-02-04		1	Mixed (Habana Zoo)	82		

Table 1: HPAI outbreaks reported to the World Organization for Animal Health

\* If different from Start date

Recent updates may be available from the World Organization for Animal Health at <u>https://wahis.woah.org/#/event-management</u> but keep in mind that the official reports very likely underestimate the true situation, since many colonies of pelicans and other seabirds are located on uninhabited offshore islands. People who find dead birds may also not report them to their local health authorities; therefore, it is important to spread the message about reporting dead birds, especially seabirds and waterbirds.

## What to do if you come across dead or dying birds?

Do not touch them and do not move dead or dying birds. Take pictures, record the location, species, number of affected birds, and contact your local veterinary agency.

In any case, we encourage you to be proactive and:

- 1. Contact your local health or veterinary agency to get information on the situation in your area;
- 2. Raise awareness locally about HPAI's impact on seabirds and other wild birds (veterinary agencies may be more focused on poultry);
- 3. Keep engaged with the Seabird Working Group about the situation in your area.

## Please keep in mind that:

- The disease is very contagious among birds: do not transport sick or dead birds.
- Transmission to humans is low but possible: do not touch sick or dead birds.



Map 2: Reported HPAI outbreaks in the Caribbean region. The size of circles corresponds to the number of birds killed (see Table 1 for details).

## How does it affect the 2023 Caribbean Seabird Census?

The SWG asks people who are planning on surveying seabirds to use the utmost caution when working in colonies. Bird feathers and excrement are sources of transmission and the virus can also be transmitted through soiled clothing. First of all, as much as possible, try to avoid contact with farmed birds before and after visiting seabird colonies. In the colonies, try to avoid contact with guano and, if you can, bring a change of clothes and shoes and wash your field clothes and shoes soon after you return home.

We encourage you to use your census visits to breeding colonies to record anything out of the ordinary that could be affecting the health of seabirds. After all, the CSC23 is a great opportunity to monitor many seabird islands that would not have been visited otherwise.

Contact: Yvan Satgé (ysatge@clemson.edu)

# Updates from the Islands 🛧

A wide range of activities involving seabirds are taking place throughout the Caribbean, including those focused on monitoring, research, conservation, and education. Below we showcase some of the inspiring and important ongoing projects on the islands.

## Projects

## Seabird Conservation Plan for the Cayman Islands



In 2022, the Cayman Islands Department of Environment and the National Conservation Council circulated a draft Species Conservation Plan that aimed to protect six species of native nesting seabirds across the Cayman Islands.

Of the Brown Booby, Red-footed Booby, Magnificent Frigatebird, White-tailed Tropicbird, 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 National Conservation Act fully protects these bird species against "take". 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 primary conservation strategies are to protect nesting habitat, to develop management plans, and to control feral mammalian predators in nesting colonies.

The Conservation Plan was circulated for Public Consultation at the end of 2022, feedback was generally positive, and now the draft Plan and the public feedback is being reviewed by the National Conservation Council.

Read more on: https://conservation.ky/2022/09/28/seabird-species-conservation-plan-oct-2

**Contact: Jane Haakonsson,** Department of Environment, Cayman Islands Government (jane.haakonsson@gov.ky) Photo: Cayman Islands seabird (John Bothwell).

#### Seabird surveys take off in the Turks and Caicos Islands



The Turks and Caicos Islands (TCIs) are home to 15 resident seabird species, including eight species of terns, the iconic White-tailed Tropicbird, the Brown Pelican - TCI's National bird, and the elusive Audubon's Shearwater. A new conservation project began in May 2022 to gain urgently needed information on the many seabird populations that breed here.

This three-year project is now entering its second year, and the project team is currently busy surveying offshore cays. A range of survey methods are being used: these include extensive foot-based searches at accessible sites, boat and drone surveys on inaccessible cays that are challenging to work on,

acoustic surveys for seabirds that nest deep in cave systems, and monitoring with time-lapse cameras at remote offshore sites.

The initiative will gain essential information on the seabirds of the TCIs, by developing scientifically informed, locally driven, population monitoring programmes. This will enable threats to be identified and tackled in management strategies, and will equip local organizations with improved tools to sustainably monitor and protect seabirds into the future. This project will continue until February 2025. The knowledge that it is generating will be showcased at a focused Seabird Festival Day in the Bight on the 1st July 2023, in honor of World Seabird Day.

The project, funded by the UK Government's Darwin Plus scheme and led by the University of Liverpool, is a partnership between local organizations including the Turks and Caicos National Trust (TCNT) and Turks and Caicos Reef Fund (TCRF), with collaboration from the Department of Environment and Coastal Resources (DECR) and School of Field Studies, South Caicos (SFS). Regional conservation organizations including the Royal Society for the Protection of Birds (RSPB), Birdlife International and SAERI SFL Ltd are also partnering in this work. Many local ecotour companies, such as the Big Blue Collective, Deep Blue Charters, T&V Fishing Tours and Jedi Kiteboarding, as well as private boaters, are helping to support these bird surveys.

**Contact: Rhiannon Austin**, University of Liverpool (rhiannoneaustin@gmail.com) Photo: Ornithologists survey a remote seabird cay in the Turks and Caicos (Rhiannon Austin)

#### Brown Pelican monitoring on Sint Maarten



A worrying long-term decline in the Sint Maarten pelican population and reports of potential botulism prompted a project to monitor Brown Pelican nests and conduct outreach in the nation.

Nests were monitored twice weekly at Fort Amsterdam, a registered historical site on a peninsula in a busy bay, from November 2022 until April 2023. A maximum of 62 individuals was recorded, yet only three apparently occupied nests were recorded. No nests were recorded on Pelikan Rock, a historical nesting site. Potential predators such as dogs, rats, and cats were present, and pelicans avoided areas with frequent nearshore disturbance from loud and/or fast-moving jet-skis and

boats, and swimmers/snorkelers. One ill pelican was reported during the project period but sampling for botulism or avian influenza could be completed as the team encountered significant obstacles in exporting biological samples for testing.

Outreach efforts aimed to increase pride in the pelican, Sint Maarten's national bird, as well as awareness of pelican conservation needs and actions individuals can take. The team reached 700 students with interactive presentations which were met with enthusiasm and interest. A trilingual poster with best practices to protect pelicans and their habitat was created to target business owners and tourist operators. A sign was installed at Fort Amsterdam, providing guidance to the public on how to reduce disturbance as well as information on pelicans and their habitat. Finally, a clean-up event at Fort Amsterdam, a presentation and quiz game at the Pelikaan Brewery, and an information booth at the Heineken Regatta all participated in reaching out to the general public.

The project also resulted in a publication, *The Caribbean Brown Pelican of Sint Maarten: Manual for habitat and population management*, which incorporates research findings to identify the main threats to pelicans along with policy recommendations for key stakeholders.

This project was made possible with the support of SPAW-RAC, the Prins Bernhard Culture Fund, the Dutch Representatives Office of Sint Maarten, and SXM DOET.

**Contact: Margot Mesnard**, Environmental Protection in the Caribbean (mmesnard@epicislands.org) Photo: Adult Brown Pelican and its chick, Sint Maarten (Filippo Milani)

## Globally and regionally important seabird populations recorded on Anguilla



In 2022, the Anguilla National Trust embarked on an island-wide seabird census. Full island surveys were previously undertaken between 2012-2013. Since 2012 notable restoration projects have taken place on Anguilla's offshore cays, including the successful eradication of rats from Dog Island in 2012, from the Prickly Pear Cays in 2019 and mice from Sombrero in 2021.

Anguilla has 13 offshore cays, 10 of which support breeding seabird populations and three of which (Dog Island, Sombrero, and the Prickly Pears Cays) have already been identified as Important Bird and Biodiversity Areas.

Surveys were conducted in April and October 2022 for boobies, which are known to nest asynchronously throughout the year. Tropicbirds, terns, noddies, gulls and Audubon's Shearwaters were surveyed between April-July. Magnificent Frigatebird surveys took place in April, when nests contained chicks (frigatebirds would ideally be surveyed at the beginning of their nesting period in December/January but sea conditions typically prevent access to the colonies at this time of year).

Surveys revealed 16 breeding seabird species representing 2 globally, and 12 regionally important populations. Based on these and previous surveys, Dog Island and Sombrero apparently host some of the most important seabird populations in the Lesser Antilles. Dog Island is home to the highest number of seabird species and the largest populations. This includes the globally important population of Sooty Terns and Red-billed Tropicbirds and regionally important populations of Brown Boobies, Masked Booby, Magnificent Frigatebirds and Laughing Gulls, as well as nationally important populations of Bridled Tern, Brown Noddy, and Least Tern.

All data collected during this census has been submitted to the 2023 Caribbean Seabird Census to ensure that these important breeding seabird sites are recognised in the regional context.

**Contact: Farah Mukhida**, Anguilla National Trust (fm.axatrust@gmail.com) Photo: Sooty terns on Dog Island (Farah Mukhida).

### GPS-tracking Red-footed Boobies in Saint Vincent and the Grenadines



In March 2023, Environmental Protection in the Caribbean (EPIC) implemented a pilot project to deploy GPS tracking devices on nesting adult Red-footed Boobies at Battowia, Saint Vincent and the Grenadines – a globally recognized Important Bird Area and Wildlife Reserve.

Battowia was highlighted in EPIC's Seabird Breeding Atlas for the Lesser Antilles as the most important island in the region due to hosting two globally important seabird colonies (Red-footed Booby and Red-billed Tropicbird), yet also one of the most threatened.

Field efforts were led by Juliana Coffey and Dr. Louise Soanes with field support and local expertise provided by fisherfolk and seafarers from Bequia (Saint Vincent and the Grenadines) and Carriacou (Grenada).

Twenty-eight GPS loggers were deployed, with seventeen retrieved, yielding the first seabird movement data originating from colonies in the Grenadines. The tracks downloaded revealed both single-day and overnight trips. While many trips were generally eastward, some individual birds traveled far into the exclusive economic zone waters of neighboring nations, such as Barbados, Saint Lucia and even Martinique. One individual completed two full circumnavigations around the Saint Vincent mainland, while others approached other important seabird nesting islands further south in the Grenadines, such as Petit Canouan and Sail Rock.

This project was funded by the Saint Vincent and the Grenadines Environment Fund. The overall results will be collated in a report to be released at a later date.

**Contact: Juliana Coffey**, Environmental Protection in the Caribbean (jul.coffey@gmail.com) Photo: Juliana Coffey deploys a GPS transmitter on a Red-footed Booby (Louise Soanes).

## Brown Pelican and White-tailled Tropicbird assessments in Aguadilla, Puerto Rico



Members of the Avian Ecology and Conservation project of the University of Puerto Rico, Aguadilla have been assessing the populations of the White-tailed Tropicbird and Brown Pelican in northwestern Puerto Rico for more than four years.

In October 2021, they found an active pelican breeding colony with 50 nests in a steep cliff bordering the Aguadilla seashore. 84% of those nests produced fledglings. A second nesting season was monitored from August 2022 to March 2023. This time, the passage of Hurricane Fiona through the study site in September 2022 destroyed most of the newly built nests. Only 19 nests were found, but the percentage of

successful nests was high (90%).

Right at the onset of this project, coastal habitat to the north of the breeding colony was destroyed by the illegal construction of a housing complex, presenting a major threat to a life cycle stage that is extremely vulnerable to human disturbances, and eliminating part of the only remaining habitat. A movement organized by civil society groups advocated to halt this construction and is currently proposing the creation of a new nature reserve for the conservation of the Brown Pelican nesting and feeding habitat and wildlife in general.

In addition, the group keeps surveying the White-tailed Tropicbird population from a vantage point in the cliffs of Guajataca, Quebradillas during the nesting season. The number of tropicbirds in this study site has remained stable, from 2019 to 2023 (90-100 individuals). However, a count conducted along a broader extension of the cliff by members of the Quebradillas Ecological League in February 2023 recorded a total of 205 individuals, thus showing a larger population size.

#### Contact: Adrianne Tossas, BirdsCaribbean and University of Puerto Rico, Aguadilla

(adrianne.tossas@birdscaribbean.org)

Photo: Students of the Avian Ecology and Conservation Project conducting White-tailed Tropicbird surveys in Quebradillas, Puerto Rico (Adrianne Tossas).

### New citizen scientists join the Grenadines Seabird Guardians



In the Grenadines, EPIC has trained new team members for the Grenadines Seabird Guardians – a citizen scientist collective that was established to monitor seabird populations and report on threats at remote islands throughout the archipelago.

These new guardians were trained by Vaughn Thomas, a fisherman, sailor, boat builder and tour operator from Carriacou who has been a core member of EPIC's seabird monitoring and research team throughout the Grenadines since 2019.

With over 100 islands, islets and cays in the transboundary Grenadines, local seafarers are well

suited to monitor seabird populations at these offshore island colonies, especially given their reliance on seabird observations to find fish, understand weather patterns and even to navigate.

Recent surveys by Seabird Guardians have documented nesting Brown Noddy, Sooty/Bridled Tern, Laughing Gull, Roseate Tern, Magnificent Frigatebird, Brown and Red-footed Booby and Red-billed Tropicbird. These efforts will contribute data towards the 2023 Caribbean Seabird Census, as well as a long-term population monitoring dataset.

Regular monitoring of seabirds at these offshore islands in recent years has yielded interesting results, such as a previously undocumented Magnificent Frigatebird colony, and several banded Roseate Terns of which at least one was banded in Bahia, Brazil.

This work is supported by donors to EPIC's Grenadines Seabird Program.

**Contact: Juliana Coffey**, Environmental Protection in the Caribbean (jul.coffey@gmail.com) Photo: New Seabird Guardians survey a seabird colony in the Grenadines (Juliana Coffey).

#### Caribbean Seabird Census in the French Antilles



To contribute to the CSC23, stakeholders in the French West Indies have joined forces to monitor seabird colonies. In addition to monitoring efforts already taking place each year, surveys were carried out on sites that are generally less surveyed, in order to obtain the most exhaustive estimates possible.

Coordinated by the Groupement d'intérêt scientifique pour les oiseaux marins (GISOM), data collected by all partners according to defined protocols are centralized, analyzed, and aggregated across the different islands. In the spring of 2023, numerous surveys censused the various tern species, White-tailed Tropicbirds and Red-footed Boobies. For

Audubon's Shearwater, thermal binoculars were used to try and discover new nesting sites in Guadeloupe, and an acoustic monitoring protocol was tested in Martinique with plans to deploy during the 2024 nesting season. Pelicans, shearwaters and Red-billed Tropicbirds will be monitored at the end of 2023.

For Martinique, the partners involved are : Parc Naturel Régional de Martinique, Parc Naturel Marin de Martinique, Office National des Forêts, association La Carouge.

For Guadeloupe, the partners involved are: Parc National de la Guadeloupe, Office National des Forêts, associations Tité, Amazona, ASFA, Bivouac Naturaliste, commune de Saint François, Conservatoire du Littoral and ornithologist Anthony Levesque.

For Saint Martin and Saint Barthélémy, Réserve Naturelle de Saint Martin and Agence Territoriale de l'Environnement, respectively, are responsible for monitoring.

In France, the project is funded by the Office Français de la Biodiversité, and the Directions de l'Environnement de l'Aménagement et du Logement of Martinique and Guadeloupe, and involves experts from the Ligue pour la Protection des Oiseaux (LPO) and BIOPHONIA.

**Contact: Antoine Chabrolle**, Groupement d'intérêt scientifique pour les oiseaux marins (antoine.chabrolle@mnhn.fr) Photo: Multiple surveys took place in Martinique and Guadeloupe (Antoine Chabrolle).

#### Seabird monitoring in the Venezuelan Caribbean



Since 2019, the insular and coastal Caribbean of Venezuela sees a major sampling effort to update the status of seabird breeding populations. In view of the current political and economic situation in Venezuela and the high cost of surveys, biologists from AveZona y Fundación Científica Ara Macao work to involve the local communities in census and the safeguarding of the archipelago's wildlife.

Monitoring is actively carried out during the Caribbean Waterbird Census (CWC) every year in January and February, as well as July and August. In some locations, such as the archipelago Los Roques, surveys tend to occur throughout the year. Moreover, censuses

are being actively conducted in the archipelagos of Los Roques and Los Frailes; on the islands of Margarita, Coche, Cubagua, and La Tortuga; and along the coast, from the Paraguaná peninsula in Falcón state to Laguna La Reina in Miranda state. The group uses new technologies to facilitate censuses in places that are remote and difficult to access. Drones are used to monitor remote breeding colonies in the archipelago Los Roques and Tortuga Island. By generating images and videos, it is possible to subsequently count the large colonies of *Sula leucogaster* and *Sula sula*, identify other breeding species, and visualize the condition of the habitat.

The overall long-term objective of the program is to involve local communities in the monitoring and conservation of seabirds in the insular and coastal Caribbean. To this end, two environmental education workshops were held on Margarita Island in 2022 and 2023 aimed at local leaders, teachers, birdwatchers and primarily people from the communities with no experience in monitoring coastal birds. As part of this equity-based work and to support the growth of local monitoring groups, binoculars and telescopes were given to community partners.

The project received support from BirdsCaribbean through the David S. Lee and Betty Petersen grants; the Cornell Lab of Ornithology's Celebrate Urban Birds program; and Vortex Optics and GoSky Optics.

#### Contact: Josmar Márquez (josmar.marquez@gmail.com)

Photo: Women birders gathered to census the Brown Pelican colony located in the Morro Lagoon, Margarita Island (Josmar Marquez)



#### CAMAC: Caribbean marine megafauna and anthropogenic activities

Human activities such as fishing, shipping and tourism often take place in the habitats of marine megafauna (sharks, sea turtles, marine mammals and seabirds). These activities frequently interact with a large proportion of Caribbean marine species, which can be negatively impacted. While these interactions can be a problem for human activities (bycatch and depredation can lead to degradation or loss of fishing gear, or reduced yield), some activities are directly dependent on the presence of marine megafauna species, such as whale-watching or scuba diving. Although well identified, interactions between megafauna and human activities in the Caribbean are poorly quantified or controlled.

The <u>CAMAC project</u> (CAribbean marine Megafauna and anthropogenic ACtivities) was conceived to improve knowledge of these interactions and strengthen regional collaboration to provide Caribbean governing bodies and environmental stakeholders with recommendations and tools to reduce the negative impacts of interactions between marine megafauna and human activities.

The project will run for five years, during which the international partners involved will work in four areas: Strengthen links with the fishing sector and assess interactions with marine megafauna; Enhance knowledge and monitoring of anthropogenic impacts on marine mammals and marine turtles via stranding networks; Raise youth awareness on preserving marine megafauna and marine environment and strengthen environmental education skills; Strengthen knowledge of biodiversity, abundance, and distribution of marine megafauna. The geographical scope of the project concerns at least the whole of the Lesser Antilles, but also the Dominican Republic, Haiti and Jamaica to the west.

CAMAC is led by the Agoa Sanctuary (French Antilles) and the SPAW RAC (the Regional Activity Center of the Cartagena Convention protocol for biodiversity conservation). It is co-financed by the European Regional Development Fund (ERDF) within the framework of the Interreg Caribbean programme.

#### **Contacts:**

**Claire Pusineri**, DEAL Guadeloupe/SPAW-RAC (claire.pusineri@developpement-durable.gouv.fr) **Magali Combes**, Agoa Sanctuary (magali.combes@ofb.gouv.fr) Photo: Spatial scope of the CAMAC project (SPAW-RAC).



## Elsewhere in the region $\underline{\uparrow}$

- In **Bermuda**, Patrick Talbot has started a tracking study of White-Tailed Tropicbirds using a MOTUS antenna array. **Contact: Patrick Talbot** (<u>pvtalbot@gov.bm</u>)
- In **Jamaica**, Damion Whyte, PhD student at the University of the West Indies, is using trail cameras to determine predation risk of Least Terns nesting at a sewage plant in Hellshire. In 2022 more than 70 active nests were recorded; this year numbers seem to have declined and predation by dogs has been recorded. **Contact: Damion Whyte** (<u>Dl\_whyte@yahoo.com</u>)
- In Jamaica, joint surveys of seabird surveys in the Port Royal Cays (January and June-July), Morant Cays (May-June) and Pedro Cays (May-August) that were planned with the support of the National Environment and Planning Agency have been delayed by lack of personnel to assist and bad weather conditions. Dates for these surveys are yet to be determined. Surveys of the Portland Bight Cays (June-July) with Caribbean Coastal Area Management Foundation have also been delayed by bad weather, but are expected to take place in early July as soon as the sea conditions improve. Contact: Ann Sutton (asutton@cwjamaica.com)
- In the Dominican Republic and Haiti, Grupo Jaragua, Action pour la Sauvegarde de l'Ecologie en Haïti, and EPIC continue to monitor Black-capped Petrel nesting sites, also controlling predators, and increasing awareness about environmental issues through agro-ecology programmes and school classes and pride campaigns. Contact: Ernst Rupp, Grupo Jaragua (ernst.rupp@grupojaragua.org.do); Anderson Jean, ACSEH (anderson.jean.ht@gmail.com); Adam Brown, EPIC (abrown@epicislands.org)
- For the past 14 years, alongside the monitoring of endangered sea turtles, the **St Kitts** Sea Turtle Monitoring Network has been recording the breeding activity of Least Terns that nest at some of the island's key turtle nesting beaches. This long term monitoring of both turtles and birds has proved valuable in identifying population trends and identifying threats such as pollution, coastal development and human disturbance. **Contact: Kimberly Stewart** (<u>kstewart@rossvet.edu.kn</u>)
- Projects to try to locate Black-capped Petrel breeding areas took place in **Dominica** (with the Forestry, Wildlife and Parks Division) and **Guadeloupe** (with the Parc National de la Guadeloupe). Unfortunately, no petrels were observed or heard during these efforts. **Contact: Stephen Durand** and **Yvan Satgé**, for Dominica (<u>ysatge@clemson.edu</u>); **Gabriel Naudet** and **Antoine Chabrolle**, for Guadeloupe (<u>antoine.chabrolle@mnhn.fr</u>)
- The CANARI National Ecosystem Assessment (NEA) for **Grenada**, Carriacou and Petite Martinique is soon to be published, in collaboration with the Government of Grenada. This document will contain the most up to date information on seabirds in the Grenada Grenadines, such as important nesting sites, invasive species concerns, status of harvesting, and development of offshore islands. A result of collaborative efforts and increased attention to seabirds in the Grenadines in recent

years, this document is one of the few such national planning documents to contain detailed information on the nation's seabird populations, which were previously poorly understood. **Contact: Juliana Coffey** (jul.coffey@gmail.com)

- In July 2022, EPIC tested drones as a non-invasive monitoring technique for surveying seabird colonies and invasive species in the transboundary **Grenadines**. Together with Juliana Coffey and Vaughn Thomas, Dr. Serge Wich (University of Liverpool / Conservation Drones) tested several types of drones, including a thermal imaging drone and one with a high-powered zoom lens. Local organizations Kipaji Development Initiative Inc. (Carriacou, Grenada) and Tobago Cays Marine Park (Union Island, Saint Vincent and the Grenadines) participated in surveys and demonstrations. The results of this pilot project will be available in a forthcoming field report. **Contact: Juliana Coffey** (jul.coffey@gmail.com)
- Seabird breeding surveys in the **Caribbean Dutch Islands** are now well underway, supported, when required, by BirdLife Netherlands. Key sites that have been surveyed so far include Pelikan Rock, Fort Amsterdam, Molly B'day (St. Maarten), tern islets and north coast (Aruba). **Contact:** Janske van de Crommenacker (janske.vandecrommenacker@vogelbescherming.nl)

We want to hear about your seabird projects, particularly if we missed you in these pages! Please send updates about your work to our co-chairs.

# Seabirder Spotlight 🛧

# Antonio Garcia Quintas: Ecology and conservation of seabirds in Cuba - and possibly elsewhere in the Caribbean?

Since my student days, I have been involved in the ecology of coastal birds. In the early days I worked with raptors and insular landbirds but I gradually broadened the spectrum of my work to study the ecology of avian communities. This led to my first experiences with seabirds.



In 2011, I started participating in shorebirds and seabirds surveys on the beaches of several cays of the Sabana-Camagüey archipelago, in north-central Cuba. Starting in 2012, and within the framework of an international project that included the Coastal Ecosystems Research Center (Centro de Investigaciones de Ecosistemas Costeros, CIEC), I extended the monitoring of waterbirds and seabirds to three cays of the Jardines de la Reina archipelago (south-central Cuba). That year, I also coordinated an expedition to make the first inventory of breeding colonies of waterfowl and seabirds in Jardines de la Reina National Park, which revealed

the potential of this marine protected area to host important colonies of species breeding in mangroves.

However, the notable lack of information and the absence of specialists focused on the ecology of seabirds constituted an important limitation for the management and conservation of this avian group in Cuba. In this context, I decided to direct my work towards seabird ecology.

So, in 2020, I began my doctoral studies through a scholarship from the ARTS program (Allocations de Recherche pour une Thèse au Sud) of the French Institute of Research for Development (Institut de Recherche pour le Développement, IRD). My PhD aims to create a scientific basis on the reproductive ecology of *Laridae*, the seabird family best represented in Cuba. To make up for insufficient logistical and financial resources for fieldwork, and since existing data are sometimes scarce, I am simultaneously combining traditional, modern, and state-of-the-art methods and approaches to produce adequate results.

Thus, using automated and deep learning methods, I evaluated the selection patterns for breeding habitat at the macro and micro scales in larids (terns and gulls). I also evaluated the plasticity and trophic overlap of several co-nesting species based on stable isotope analysis. I characterized the reproductive phenology of most of these species and assessed the potential of egg morphometry to

reflect the effects of laying asynchrony based on date. Finally, I used optimization models as decision supporting tools to identify priority areas for the conservation of the breeding habitats of larids in Cuba and calculated the degree of protection offered to these priority areas by the current national system of marine protected areas.



Several questions arose from my doctoral research (to be defended next September). So, for the future I plan to focus on topics such as mercury contamination in the marine waters of Cuba, and perhaps the Caribbean. Another important aspect would be to focus on the trophic ecology of larids, especially on the prey they consume, and on their foraging strategies. I am also interested in looking at the (often silent) effects of the development of tourism activity in marine protected areas Thus, many other ideas can emerge, and my intention is to increase the connection between colleagues in the region to strengthen the collaborative network and produce

research of greater scope and importance.

Our Caribbean islands have much in common, so the inclusion of governments, decision makers, researchers, volunteers and all interested parties would be essential to achieve sustainable use of regional marine biodiversity.

**Contact: Antonio Garcia Quintas**, Centro de Investigaciones de Ecosistemas Costeros, Cuba (agquintas86@gmail.com)



# Commentary: Reimagining the future of neotropical ornithology 🛧

Researchers and conservationists in the Neotropics—a region that includes Latin America and the Caribbean—continue to face many barriers that keep them from doing their work effectively (from fieldwork to publishing and disseminating results) and being recognized for it. While they have a lot of knowledge to share, their contributions are often ignored by a global scientific community led by scientists in North America and Europe.

In a recent article, Brazilian ornithologist Letícia Soares and 123 other authors from across the American neotropics (including several of our Caribbean colleagues) discuss how "*knowledge—and knowledge gaps—look different depending on where we are standing, our lived experiences, and what we perceive to be our objectives*". Although this commentary is not specifically on seabirds, it is an important contribution to the necessary discussion of barriers that affect many seabird professionals in the Caribbean.

In this special feature, the authors bring to light the historic and ongoing exclusion of professionals from the Global South, including the long-standing pattern of promoting individuals, knowledge and views from the Global North, while largely omitting those in the Neotropics. The wide-ranging group of authors are concerned about the assessment of Neotropical ornithology through a northern lens (e.g., discovery narratives, incomplete—and biased—understanding of history and advances, and the promotion of northern agendas), which conflicts with the true needs of Neotropical research. They argued that Neotropical ornithology in the future must identify and address the systemic barriers that hold back ornithologists based in the Neotropics: inconsistent and limited funding, exclusion from international research leadership, restricted dissemination of knowledge (e.g., through language hegemony and citation bias), and logistical stumbling blocks.

The authors highlight the need to examine and acknowledge the colonial roots of Neotropical ornithology, and urge collaborators to create new research priorities that include Neotropical ornithologists and communities. This will address the systemic discriminations and bias rooted in the socioeconomic class system (such as anti-Blackness, anti-Brownness, anti-Indigeneity, misogyny, homophobia, tokenism, and ableism). In doing so, institutions in the North and South will encourage collective rather than top-down leadership. It is hoped that this will form a community of researchers across academia, building new paradigms to reconcile historic unequal relationships and transform science.

**Reference**: <u>Neotropical ornithology: Reckoning with historical assumptions, removing systemic</u> <u>barriers, and reimagining the future</u> (2023) Letícia Soares and others. *Ornithological Applications* <u>125:1</u>

**Further reading**: The publication was covered in a recent Audubon Magazine article, <u>Systemic Barriers</u> <u>Hinder Bird Research, Say 124 Latin American Ornithologists</u>, by Grace van Deelen

## Recent Seabird Publications and Resources 🛧

**Conservation genomics reveals low connectivity among populations of threatened Roseate Terns in the Atlantic Basin (2023) Paige Byerly, R. Terry Chesser, Robert Fleischer, et al.** *Conservation Genetics <u>24:331–345</u>* The authors evaluated the structure of Roseate Tern (*Sterna dougallii*) populations in North America, the Caribbean, and the Azores. They found significant genetic differentiation among all 3 populations and evidence for moderate emigration from the Caribbean to the Azores. Within the Caribbean metapopulation, they found high rates of emigration from the Virgin Islands to Florida. These results suggest that loss of genetic diversity within populations is unlikely to be compensated by immigration from other populations.

Museum genomics provide evidence for persistent genetic differentiation in a threatened seabird species in the western atlantic (2023) Paige Byerly, R. Terry Chesser, Robert Fleischer, et al. Integrative and Comparative Biology 62:1838–1848 Using DNA obtained from museum specimens, the authors evaluated potential changes in connectivity and genetic diversity of Roseate Terns (Sterna dougallii). They noted that human activity in the 20th century caused population declines and range contractions in both the North America and the Caribbean populations. The authors also found little evidence of migration between them. Their results suggest the potential presence of ecological mechanisms driving population differentiation, and also highlight the value of using museum DNA to uncover long-term patterns of genetic differentiation in wildlife populations.

**Early breeding site arrival of a migratory tropical seabird correlates with large-scale climatic phenomena in the North Atlantic (2023) Letizia Campioni, Jeremy Madeiros, Paolo Becciu.** *Research Square (preprint).* Using eBird data, the authors explored trends in White-tailed Tropicbird (*Phaethon lepturus*) first annual observation at their Bermuda breeding ground from 1953 to 2023. They showed that the progressive early arrival at the breeding site (20–25 days in advance) of tropicbirds over the last 70 years positively correlated with the North Atlantic Oscillation and Atlantic Multi-decadal Oscillation. This suggests that tropicbirds may be responding to climate-induced changes affecting the Atlantic Ocean.

Aarine litter incorporation into nest construction and entanglement of Brown Noddies (Anous stolidus) in the Grenadines, West Indies (2022) Juliana Coffey. Journal of Caribbean Ornithology 35:59–62. Seabirds are known to ingest, become entangled in, and incorporate items of marine litter into nests, resulting in risks of injury and mortality events. Here, the author reports on observations of marine litter used as nesting material by Brown Noddies (Anous stolidus) and on incidental entanglement in the Grenadines, West Indies.

**G** Factors that Influence Red-billed Tropicbird Survival on Pilot Hill, Sint Eustatius (2022) Hailley **Danielson-Owczynsky.** *MS thesis, Utrecht University.* Using nest surveys and camera trap data, the author evaluated the influence of nest cavity attributes, environmental covariates, and parent behavior on survival of Red-billed Tropicbirds (*Phaethon aethereus*) chicks from Sint Eustatius. Time

spent away from the nest by parents and minimum temperature were the most influential factors. Nest attributes and temperature variables did not correlate to survival.

**Global deposition of potentially toxic metals via faecal material in seabird colonies (2022) Saúl De La Peña-Lastra, Augusto Pérez-Alberti, Tiago O. Ferreira, et al.** *Scientific Reports <u>12:22392</u>. The authors used a bioenergetic model to estimate the amounts of cadmium, mercury and lead that are deposited via fecal material in seabird colonies worldwide, including in the Caribbean. They found that most of the deposition occurs in circumpolar zones in both hemispheres. They also show that high proportions of the excreted metals occur in geochemically labile forms, which can be easily leached into coastal waters and assimilated by marine organisms.* 

**B**Estimating population size of red-footed boobies using distance sampling and drone

photography (2023) Walter D. Espíndola, Alberto Cruz-Mendoza, Aralcy Garrastazú et al. *Wildlife Society Bulletin* <u>47:e1406</u>. The authors used distance sampling from point-counts to estimate population size of Red-footed Boobies (*Sula sula*) in Mona Island, Puerto Rico before and during the breeding season in 2019. They assessed the best time to survey the species and examined the suitability of drone photography to survey active nests. Results showed that to avoid underestimates, red-footed booby colonies are best surveyed at night. Drones were more effective than ground surveys in detecting active nests.

<u>A century of bird band recoveries in Venezuela yield insights into migratory ecology</u> (2023) Juan

**Carlos Fernández-Ordóñez and Steven K. Albert.** *The Southwestern Naturalist* <u>67(1)39-51</u>. The authors examined band recovery data in Venezuela from 1926 to 2017, which included 1,891 individual birds, representing 42 species from 17 families. Blue-winged Teal (*Spatula discors*), Royal Tern (*Thalasseus maximus*), Osprey (*Pandion haliaetus*), Common Tern (*Sterna hirundo*), and Bobolink (*Dolichonyx oryzivorus*) were the most common banded birds. Despite ongoing banding efforts, other bird species banded in Venezuela have not been recovered or recaptured in the Western Hemisphere.

Species delimitation using genomic data to resolve taxonomic uncertainties in a speciation continuum of pelagic seabirds (2023) Joan Ferrer Obiol, Jose M. Herranz, Josephine R. Paris et al. *Molecular Phylogenetics and Evolution* <u>179:107671</u>. *Puffinus* shearwaters have been under intense taxonomic debate for decades. Current taxonomies do not provide an accurate delineation of these shearwater species. The authors propose a more accurate taxonomy combining results across several genomic analyses.

## **Breeding microhabitat patterns among sympatric tropical larids** (2023) Antonio

**Garcia-Quintas, Dennis Denis, Christophe Barbraud et al.** *Marine Ornithology* <u>51:97-107</u>. During the 2021 breeding season, the authors assessed nesting-site selection among five larid species at three cays of Cuba. They used random forest classification models to assess which landscape features best explained site selection by each species. Patterns were clear for most species and patterns were consistent among the study cays. Interspecific differences in nesting-site selection may be important

for the assemblage of multispecific colonies by reducing aggressive interactions, competition, and breeding failures.

**Climate change and commercial fishing practices codetermine survival of a long-lived seabird** (2023) Daniel Gibson, Thomas V. Riecke, Daniel H. Catlin et al. *Global Change Biology 29:324–340*. The authors combined two modeling disciplines to explore whether shifts in sea-surface temperatures influenced population constraints in the Royal Tern (*Thalasseus maximus*) over 60 years. Although the indirect (i.e., stock depletion) and direct (i.e., entanglement) impacts of commercial fishing on Royal Tern mortality has declined, increasing sea surface temperatures has resulted in a comparable increase in mortality risk.

Sympatrically breeding congeneric seabirds (Stercorarius spp.) from Arctic Canada migrate to four oceans (2021) Autumn-Lynn Harrison, Paul F. Woodard, Mark L. Mallory et al. Ecology and Evolution <u>12:e8451</u>. Using telemetry, the authors tracked Parasitic Jaeger (Stercorarius parasiticus) to the western Atlantic Ocean (including the Caribbean), Pomarine Jaeger (S. pomarinus) across the Arctic Ocean to the western Pacific Ocean, and Long-tailed Jaeger (S. longicaudus) to the eastern Atlantic Ocean and western Indian Ocean, all from a central Canadian high Arctic nesting location. While the small sample sizes in this study limit the ability to make generalizable inferences, these results provide a key input to the knowledge of jaeger migrations.

**Primer registro de la Gaviota Cocinera Larus dominicanus en Venezuela** (2021) Luis Hernández, Francisco Javier Contreras, Freddy A Velázquez et al. *Revista Venezolana de Ornitología <u>11:30–33</u>.* The authors share the first record of the Kelp Gull (*Larus dominicanus*) in Venezuela, with photographic evidence. The species was recorded four times in Península de Paraguaná, Falcón state, northern Venezuela. A total of 10 individuals were documented between June 24 to July 18, 2021. Nine of them had adult plumage and only one showed a third-winter plumage stage.

**6** Foraging ecology of Red-billed Tropicbird Phaethon aethereus in the Caribbean during early chick rearing revealed by GPS tracking (2022) Hannah Madden, Yvan Satgé, Bradley Wilkinson et al. Marine Ornithology <u>50:165-175</u>. The authors opportunistically sampled Red-billed Tropicbird (Phaethon aethereus) for regurgitates at nest sites on the island of St. Eustatius, and tracked foraging adults by GPS. Diet samples were dominated by Exocoetidae and Belonidae. Nesting adults exhibited diurnal foraging patterns and foraged in deep waters with high chlorophyll concentration. The biologged birds crossed multiple exclusive economic zones and marine protected areas.

**Reproductive Success of Red-Billed Tropicbirds (***Phaethon aethereus***) on St. Eustatius, Caribbean** <u>Netherlands</u> **(2022) Hannah Madden, Mardik Leopold, Frank Rivera-Milán et al.** *Waterbirds* <u>45(1):39-50</u>. The daily nest-survival rates of Red-billed Tropicbirds (*Phaethon aethereus*) were estimated over six breeding seasons on St. Eustatius. The authors modeled the daily nest survival rate as a function of nest initiation date, sea surface temperature, elevation, vegetation in front of the nest, and year. Nests initiated in peak nesting season, when sea surface temperatures were lower, had higher estimates of daily survival rate than nests initiated early or late in the season. Compared to studies of the same species from Saba and the Gulf of California, survival probability on St. Eustatius was lower during the incubation stage but higher during the chick-rearing period.

#### Foraging Ecology of Red-Billed Tropicbirds on Saba, Caribbean Netherlands, during Early

<u>Chick-Rearing</u> (2023) Hannah Madden, Helena Boehm, and Lara Mielke. *Ardea* <u>111(2)1-18</u>. The authors tracked chick-rearing Red-billed Tropicbirds (*Phaethon aethereus*) adults from Saba using GPS devices and linked these tracking data to opportunistic diet samples and remotely-sensed environmental variables. Diet samples were dominated by flying fish (Exocoetidae). Tropicbirds nesting on Saba exhibited diurnal foraging patterns and foraged in shallow, cool waters with high chlorophyll-a concentrations and high Exocoetidae species richness. Despite the proximity between colonies, this is contrary to what was found for Tropicbirds nesting on St. Eustatius, where adults foraged in deeper waters with a low Exocoetidae species richness.

Species Conservation Plan for Colonial Nesting Seabirds (2022) The National Conservation Council of the Cayman Islands. *National Conservation Act, section 17* <u>v20220601</u>. 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 (*Sula sula*), Brown Boobies (*S. leucogaster*), and White-tailed Tropicbirds (*Phaethon lepturus*) over the last century. Other species include Bridled Terns (*Onychoprion anaethetus*), Least Terns (*Sternula antillarum*), and Magnificent Frigatebirds (*Fregata magnificens*). The objective of this Conservation Plan is to ensure that the colonial nesting seabirds of the Cayman Islands become stable or growing breeding populations.

Cores, edges and beyond: insights into the phylogeography of frigatebirds with a focus on ultraperipheral and endemic populations (2022) Filipa M. S. Martins, Raquel Godinho, and Luís Palma. *Conservation Genetics* 23:1011–1025. The authors assessed worldwide phylogeographic patterns and relationships among all five extant species of the genus *Fregata*. They sampled museum specimens corresponding to 18 frigatebird populations, and complemented their dataset with previously available data representing a total of 36 populations. Similar to the well-known endemic populations of the Galapagos and Christmas Island, the isolated ultraperipheral populations in the Atlantic were shown to be genetically divergent from their main populations for the three widespread species, *F. magnificens*, *F. ariel* and *F. minor*.

Characterization of the bird diversity of Conception Island National Park, The Bahamas (2023) R. Graham Reynolds and Sandra D. Buckner. *Journal of Caribbean Ornithology* <u>36:17–25</u>. Over 300 species of birds have been recorded across the Lucayan Archipelago, a group of more than 700 islands and thousands of cays and islets in The Bahamas. The authors combined literature searches with six of their own surveys (between 1994 and 2017) to generate the first avifaunal list for this park. The list counts 68 bird species, 14 of which are new records for Conception Island, and confirmed 7 species to breed there. The authors also characterized bird habitats in the park and emphasize the importance of Conception Island National Park to avifaunal diversity and conservation in the region.

**Descripción del ensamble de aves acuáticas en el Parque Nacional Jardines de la Reina, Cuba** (2021)Alejandro Rodríguez Ochoa, Alieny González, Antonio Garcia-Quintas. *Revista cubana de ciencias biológicas* <u>9(1):1-11</u>. The authors describe the waterbirds assemblage during the Fall and Spring migration in the Parque Nacional Jardines de la Reina, a protected area in Cuba. They surveyed seven cays during the Fall and Spring and recorded 33 species. The Fall migration showed the highest values of species richness and occurrence, providing evidence that Cuban wetlands are an important stopover site for migratory waterbirds.

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**a** Conservation opportunities for tern species at two Ramsar sites on Bonaire, Caribbean

Netherlands (2022) Fernando Simal, Adriana Vallarino, and Elisabeth Albers. *Journal of Caribbean Ornithology* <u>35:63–69</u>. At least four tern species nest on Bonaire: a subspecies of the Least Tern (*Sternula antillarum antillarum*), the Common Tern (*Sterna hirundo*), the Royal Tern (*Thalasseus maximus*), and a subspecies of the Sandwich Tern (*T. sandvicensis eurygnathus*). The authors show a significant decline in nest abundance compared to historical observations from the 1950s. Terns nesting on islands had the largest number of breeding pairs and achieved the greatest success, compared to mainland sites. Rats and cats were recorded and observations suggested predation by Laughing Gulls (*Leucophaeus atricilla*). However, recreational disturbance remains the single most serious and pervasive threat to the future of seabird nesting on Bonaire and requires concerted action.

**Status of the Red-billed Tropicbird (***Phaethon aethereus***) on and around the islands of Aruba, Curaçao, and Bonaire (2022) Jeffrey V. Wells, Elly Albers, Michiel Oversteegen et al.** *Journal of Caribbean Ornithology* <u>35:83–88</u>. Red-billed Tropicbirds (*Phaethon aethereus*) have historically been considered rare visitors to the waters around Aruba, Curaçao, and Bonaire. However, in recent years there has been an increase in documented records. The authors summarize all known Red-billed Tropicbird records for the region and review broader regional population and movement data to place this increase in records in context. They recommend continued careful documentation of Red-billed Tropicbird records and the implementation of a standardized monitoring program across the Caribbean range for the species to better understand the species' population status, trends, and breeding and at-sea distribution.

**3** Support for the fasting endurance hypothesis of partial migration in a nearshore seabird (2023) Bradley P. Wilkinson and Patrick G. R. Jodice. *Ecosphere* <u>14(2): e4365</u>. The authors analyzed GPS tracking data of Brown Pelicans (*Pelecanus occidentalis*) nesting on six colonies in the South Atlantic Bight of the USA over the course of four autumn migrations. They estimated that approximately 74% of pelicans nesting within the study area may be migratory (including to the western Caribbean) on an annual basis, with the remainder staying within the surrounding marine ecoregion year-round. The authors suggest that the annual migration of Atlantic Menhaden (*Brevoortia tyrannus*) causes a seasonal reduction in prey, causing pelicans in poor body condition to migrate.



Breeding Red-footed Boobies in the Grenadines (Brian Fisher).