Bermuda Audubon Society

NEWSLETTER

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IN THIS ISSUE:

The Worm-eating Warbler's Dilemma: Thoughts on how birds cope in the aftermath of a hurricane

David B. Wingate

Thirty plus species of American wood warbler visit Bermuda each Fall and many stay on for the winter. The worm-eating warbler – a uniform deadleaf-brown colour, distinguishable by four blackish stripes on its head - is one of these with a very specific feeding niche: it forages for caterpillars and their pupae which choose to pupate only in small clusters of dead leaves on broken twigs that remain attached to the bushes and trees where they occur. Most are actually created by the caterpillars themselves chewing the twig to make the leaves die. The dead leaves curve in on themselves and

Worm-eating Warbler
Photo: Andrew Dobson

create the perfect hiding place to pupate. Under normal conditions these clusters of dead leaves are few and far between, requiring a lot of searching by the warbler, but once found a good birder can readily find the warbler by listening for the characteristic dry rattling sound of dead leaves being probed from below. The worm-eating warblers that came in after Humberto must have thought they had landed in paradise, because every cluster of leaves on every tree was dead, eliciting their instinctive reaction to probe. But it was a fool's paradise, because now maybe only one cluster in a thousand might harbour caterpillar pupae.

I was lucky enough to stumble upon a worm-eating warbler facing just such a dilemma when birding Ferry Point ten days after Humberto. In the half hour that I watched its desperate probing among sterile leaf clusters I had plenty of time to ponder the plight of birds trapped on tiny isolated Bermuda in the aftermath of a bad hurricane – and this one was especially bad for two reasons: firstly, it was riddled with roof-damaging and tree-felling mini tornadoes and secondly it was a dry hurricane, meaning that there was no heavy rain to wash the wind-carried salt spray off the foliage.

Assuming most birds survived the hurricane itself – and amazingly most seem to, even when the hurricane hits at night - the real problems begin to occur in the aftermath. Not all species are affected equally, though. Seed eating species can reap a bonanza, especially in casuarina groves where up-rooting and broken branches induce the seed cones to open en masse and release their seed. I noted that House Sparrows took immediate advantage of this. Likewise, the food supply of ground-feeding seed eaters, like Mourning and Ground Doves, and soil probing species like Starlings and Bluebirds, are relatively unaffected. The birds that suffer most are the tree foraging insect eaters like most of the warblers and our local "chick of the village" (an endemic race of White-eyed vireo). Nevertheless, the latter does surprisingly well, having adapted over hundreds of thousands of years to just such periodic events. While mostly an insect feeder, I have seen the local vireo switch readily to berries and even predate on Anolis lizards close to its own size after hurricanes!

White-eyed Vireo (Chick of the Village)
Photo: Andrew Dobson

It is fortuitous that Bermudian Miguel Mejias is presently in the middle of an intensive longevity study of the vireo involving the colour-banding of numerous individuals. His follow-up surveys next year should provide a very accurate measurement of their hurricane and post-hurricane mortality.

Bobolink
Photo: Neal Morris

Our resident birds have no choice but to cope as best they can after a hurricane, but some of the migrants do have a choice. The 200 species of migrant birds that occur regularly on Bermuda fall into two categories. The first group are the deliberate overhead migrants which have stored fat reserves sufficient to fuel the two- or three-day flight over the western Atlantic directly to the West Indies or South America. This group, which includes such highly migratory species as the entire suite of shorebirds, Bobolinks, Blackpoll and Connecticut Warblers, can simply overfly or leave Bermuda if they find the feeding conditions unsuitable, and most do anyway, unless a storm with bad headwinds forces them down en masse. I saw lots of Bobolinks and Blackpoll Warblers on the morning after the hurricane, but most were gone by the next day.

The second group are the storm-carried vagrants of within-continent North American migrants, which typically do not need to store enough fat reserves to make an ocean crossing. These are hit doubly hard in the aftermath of a hurricane because they are often already starving when they find the island. Ironically, it is this latter group which make up the bulk of our migrant fall-out because they are so desperate to find land that they converge to high density on it as soon as they come within sight of it. This is known as the “island concentration effect” and for simple mathematical reasons the smaller the island the greater that concentration ratio is. This is what makes Bermuda such an exciting place for the birder, because it means that the unexpected off-course vagrants usually out-number the expected long-distance migrants.

Summary of the 2018/2019 Cahow Breeding Season

Jeremy Madeiros, Principle Conservation Officer – Terrestrial Conservation, Dept. of Environment and Natural Resources.

Bermuda's national bird, the endemic and critically endangered Cahow, or Bermuda petrel (*Pterodroma cahow*) has, during the latest breeding season (starting in October 2018 and ending in mid-June 2019) continued its slow, but accelerating recovery from the edge of extinction. During this season, new record high numbers were established both in the size of the breeding population and in the number of successfully fledged chicks.

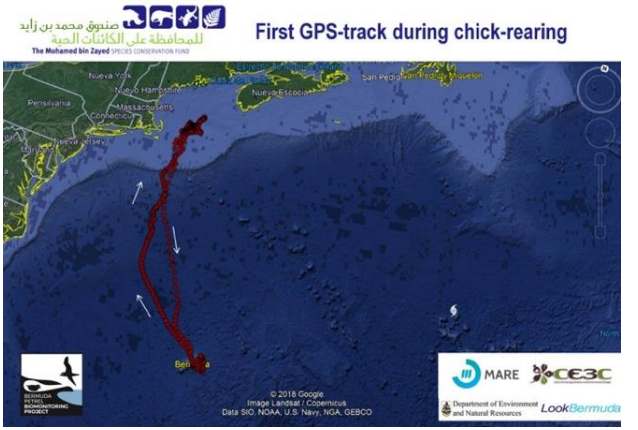
131 Breeding Pairs

Only 17-18 breeding pairs remained in the early 1960s, when conservation and recovery management of the breeding population and potential threats began under Dr. David Wingate. By 2000, when Dr. Wingate retired and I took over the Recovery Project, the number of breeding pairs had increased to 53-55. Nineteen years on, I am happy to report that the number of established breeding pairs of Cahows has increased to 131.

GPS Tracking Project #1

The 2018/2019 breeding season included a number of collaborative research projects that have been undertaken with international partners. In conjunction with two separate groups, a multi-year program of fitting Cahows with two different types of advanced GPS tags was initiated to accurately map oceanic foraging area use. The first of these groups, including researchers Letizia Campioni of Italy and Monica Silva of Portugal, representing MARE-IPSA and CE3C-FCUL respectively, arrived in Bermuda and spent several weeks in January and February 2019 on Nonsuch deploying 22 GPS units on the tail feathers of adult Cahows that were incubating eggs, to accurately map foraging area use during the egg incubation period, and again in March and April during the early chick provisioning period. These GPS tags record data for up to five weeks and do not process or calculate location in real-time; instead, the units record the time taken to contact the GPS satellites, which in turn is used to determine location every 30 minutes when downloaded. These location fixes are accurate to within a meter or two, and by not using a transmitter, the units are even lighter at only 3.1 grams in weight (and a thousand times more accurate) than the geolocators used a decade before.

Almost all tags were eventually recovered from the birds, with extremely detailed location data recorded both during "off-shift" feeding trips by incubating adult Cahows (when their partners relieved them from egg incubation duties), and during provisioning trips out to sea to gather food for the growing chicks. The data showed the birds flying at speeds of up to 40-50 mph when returning to Bermuda from foraging areas, and one of the first tags recovered recorded a visit to the Georges Bank, a well-known fishing ground 120 miles southeast of Boston. The Cahow making this 800-mile trip was a male that incidentally was the first translocated bird confirmed returning back to Nonsuch in 2008!



Blood and Feather Sampling

In addition to the GPS studies, blood and feather samples were collected from nearly 90 adult Cahows, and are currently being analyzed to investigate the following:

A) To identify the trophic niche of adult Cahows during the breeding season, by Stable Isotope Analysis of the blood and feathers;

B) To investigate whether birds are exposed to Persistent Organic Pollutants integrated with diet (analyzing blood samples to determine levels of DDT, DDE, PFOs, PCPs etc.);

C) To understand whether the relatively high proportion of infertile, failed eggs is related to the concentration of bioaccumulated contaminants (e.g. DDT/DD have toxic effects causing eggshell thinning) and/or to bird breeding experience (i.e. relatively high percentage of younger, inexperienced breeding adults)

GPS Tracking Project #2

The second research group consisted of Carina Gjerdrum of the Canadian department of Environment and Climate Change, and André Raine of the Kauai Endangered Seabird Recovery Project, who visited Bermuda in April, staying on Nonsuch Island while they deployed slightly larger German-made GPS tags. These tags use small solar panels to extend battery life so that tags can collect data for much longer periods of as much as 4-6 months. They also transmit their data directly to a base station unit set up on the ground at the nesting colony site, so that the tags do not have to be physically removed from the birds to collect the data. A total of six tags were deployed by this team, with location data from chick feeding trips being eventually received from all of them.

New Nesting Colonies

An important development for the Cahow has been the establishment of new nesting colonies on two additional larger islands in Castle Harbour. When recovery efforts began in the early 1960s, the Cahow only nested on four tiny islets with a total area of just 3.401 acres (1.376 ha). An effort to establish a new nesting population on Nonsuch Island (area 16.5 acres / 6.677 ha) began in 2004 with two separate translocation programs, with 102 chicks translocated to Nonsuch 2004-2008, and 65 chicks translocated 2013-2017. These projects have been successful, and there are now two breeding colony sites on Nonsuch, supporting a combined total of 22 established breeding pairs in 2019.

Including Southampton Island, where natural colonization was confirmed in 2013 and on which a small but growing population of Cahows now nest, the total breeding habitat has increased from 4 islets totaling 3.4 acres, to 6 islands totaling 22.3 acres. The new Nonsuch Island colonies are especially important for the future recovery of the Cahow, as they could potentially support several thousand nesting pairs. The original nucleus of pairs consisting solely of translocated Cahows at the Nonsuch sites are now increasingly being supplemented by non-translocated prospecting birds attracted from the original nesting islets, and of chicks produced by the new Nonsuch breeding pairs, of which at least seven have now returned to Nonsuch Island to choose nest burrows and mates. An indication of the success and productivity of the new Nonsuch population is the fact that since the first Nonsuch-born chick, named “Somers” was produced in 2009 by a translocated pair of Cahows, by 2019 a total of 79 successfully fledging chicks have now been produced by the growing Nonsuch population.

Despite lower than-average weights recorded for a number of the chicks this season, indicating that food was more difficult for the adults to find at their foraging areas, a record number of 73 successfully fledged chicks was recorded for 2019, of which 12 were produced by the Nonsuch colonies. Low weights resulted in a total of 8 chicks having to be taken into care and given supplemental feeding of fresh Anchovies, and I am happy to report that 7 of the 8 chicks recovered enough weight to fledge successfully out to sea.

Preparations are now underway for the return of the Cahows in late October for the 2019-2020 nesting season, and although Bermuda was severely affected by Hurricane Humberto on 18 September, Nonsuch and the smaller Cahow nesting islands suffered very little damage. Because of the approach of the hurricane from the west-southwest, there was almost no storm surge or damaging ground swell damage to the Castle Harbour Islands, and all nest lids remained in place.

Tern Recovery Project 2019

Erich Hetzel

It was a drama-filled summer for Bermuda's two breeding tern species. In April, with the help of Tim Patton's barge and many volunteers, we installed a sound system on Pearl Island and tern decoys on both Pearl and Lambda Islands. The solar powered sound system played a continuous loop of Common and Roseate Tern calls during daylight hours, an attractant system which has been used in many other jurisdictions with great success. Our hope was to attract the terns away from the old Navy buoys in the Little Sound, which are perilous places for terns to be raised – even if they are rat and cat free. Pearl Island, where last year a pair of Roseate Terns nested for the first time since 1849, is an ideal nesting habitat for terns but it has been over ten years since Common Terns have nested

there. We did not know if the attractants would work in Bermuda since our Common Terns are not colonial nesters, preferring to disperse amongst the islands.

David Wingate began tern management many years ago and more recently has been assisted by Miguel Mejias. A larger group of volunteers has also come forward to help with this important project. Protecting our local population of genetically distinct Common Terns is critical. The Bermuda population of Common Terns, which once numbered over thirty pairs, was decimated by Hurricane Fabian and hurricanes since. In 2019, we had only three mating Common Tern pairs: one pair nesting

on a buoy in St. George's; one pair nesting on a raft in Hinson's Bay; and one pair on a buoy in the Little Sound.

Although the Common Terns were off to an encouraging start this year, our hopes were soon dashed when they abandoned four eggs in Hinson's Bay followed by the loss of a pair of chicks from a buoy in the Little Sound. Fortunately, the experienced St. George's pair raised two chicks to fledging and the Hinson's Bay pair persevered to successfully raise two chicks to fledging. Those four fledges, however, represented our entire Common Tern productivity for the season.

Our Roseate Tern pair returned to Pearl Island in 2019 along with a third Roseate who was attracted to the action and stayed for the summer. The pair laid

two eggs this year and raised two chicks to fledge. There was some tense drama with these fledges when one chick seemingly disappeared from view for two weeks, causing its minders much concern. Fortunately, the missing chick re-appeared as it was preparing to fledge. Keeping company with the Roseates on Pearl near the end of their stay was a pair of Common Terns that had relocated from the South Buoy in Little Sound. This relocated pair laid two eggs but they were abandoned before hatching, likely because it was so late in the season. This pair's late nesting attempt on Pearl gives us hope that next year the same pair may return there to nest. During one of our final 'tern checks', we had eight terns circling our boat and calling out – five Roseate Terns and three Common Terns - a sight that may not have been seen in Bermuda since before 1849!

To see a short video of the tern chicks go to https://vimeo.com/345348051

One more exciting event occurred at the end of the summer. That was the appearance of a double banded (one band on both legs) Common Tern in Hinson's Bay. The banding pattern and a photo ID confirmed that this bird was one of three fledges banded as chicks in 2016 in Harrington Sound as part of an experiment by David Wingate. The fact that at least one of these birds survived is exciting news. Possibly next year another will return as well. The story of this research will have to be told in a future edition of this newsletter.

In September, as we were tracking the departure of our Common Terns and watching the arrival of the fall migrants, Hurricane Humberto hit us. That storm brought sustained winds above hurricane force and wind gusts of up to 120 knots. The only good news was that it was not a direct hit. Ten Common Terns, possibly all of our males and the fledges, were still being observed as the hurricane approached. After the hurricane's passing a maximum of four local terns have been seen, including a double-banded tern. What has become of the rest remains to be seen next year. Unfortunately, the parade of hurricanes that now menace and hit Bermuda with astonishingly high frequency is threatening to drive our Common Tern population to extinction.
Article Photos: Erich Hetzel

Bird Report July - September 2019

Janice Hetzel


American Avocet
Photo: Erich Hetzel

Highlights of the season include an **American Avocet** at Port Royal Golf Course, the return of the **Piping Plover** tagged AU to Cooper's Island, 21 **Hudsonian Godwit** seen and photographed flying offshore near western blue cut, a record number of 10 **Spotted Sandpiper** seen at Spittal Pond, a **White Ibis** at Jubilee Road and a record number of 16 **Green Heron** at Spittal Pond. A **Trindade Petrel** was found at Spittal Pond and brought to BAMZ where it was watched and released. This is very interesting following the presence of a Trindade Petrel flying over Devonshire earlier in the year. There was also a record number of 5 **Roseate Tern** seen at Pearl Island – a group made up of three adults and the two juveniles who were reared on the Island. This is the second successful year of Roseate Tern breeding in Bermuda after they were last reproduced here in 1849. See the full report in this newsletter.


Black-Bellied Whistling Duck
Photo: Tim White

Two **Black-bellied Whistling Duck** at Cloverdale 14 Aug (NM, TW). Twenty-three **Blue-winged Teal** were at Spittal Pond 30 Sept (PW). A **Yellow-billed Cuckoo** was seen in Jennings Land 20 Sept (LM) and six seen at Spittal Pond 30 Sept (PW). A **Sora** was reported at Spittal Pond 20 July (DW). An **American Avocet** was called in to us by Chris Gibbons from Port Royal on 5 Sept and has remained there throughout this time period with a few visits to Spittal Pond. The **Piping Plover** seen last year, which was banded AU, was seen again at Cooper's Island 8 Sept (TW). A **Killdeer** was seen at Westover Farm 27 Aug (DW). Three **Whimbrel** were seen at Kindley Field 8 Sept (PW). Twenty-one **Hudsonian Godwit** were seen flying offshore north of Western Blue Cut (KW) in the company of 9 **American Golden Plovers** and 1 **Lesser Yellowlegs**. This is a record number reported for Bermuda and shows how important it is to keep our eyes in the sky during migration season. Two **Hudsonian Godwit** were seen flying over the Causeway 13 Sept (PW). The rest of our

usual shorebirds have trickled in with the earliest being a **Least Sandpiper** 22 June (NM) followed at Spittal Pond on 20 July by a **Semipalmated Sandpiper** (NM) and 6 **Spotted Sandpiper** (NM). A high count of 10 **Spotted Sandpiper** was seen at Spittal Pond on 2 Aug (JS) and thirteen **Willet** were seen on migration over Knapton Hill 29 July (DW).

Royal Tern
Photo: Neal Morris

A **Least Tern** was seen in Harrington Sound 26 Sept (PW). Following the passage of Hurricane Dorian we had multiple sightings of **Royal Tern** with three unwell birds collected by the public and brought into care. Unfortunately, none of these birds survived. At the same time there was an influx of **Sandwich Tern** with 12 seen at the Elbow in the channel on 12 Sept (EH), though this is nothing compared to the 175 reported by Peter Adhemar in Hamilton Harbour in 2005 after the passage of Hurricane Wilma. On 6 Sept a **Gull-billed Tern** was seen at Spittal Pond (EH) where it remained for four days.

The last **White-tailed Tropicbird** of the season was reported on 27 Sept (JH). A **Trindade Petrel** was found at Spittal Pond on 2 July (RB), a **Magnificent Frigatebird** was seen on 27 Aug (CG) at Port Royal Golf Course and a **Masked Booby** was seen offshore on two occasions 16 July (JSt) and 31 July (AM). Two **Brown Pelicans** appeared after the passage of Hurricane Dorian 9 Sept (IP) and made themselves at home on the floating raft and shoreline of Pompano Beach Club. A single **Pelican** was seen on 30 Sept in Castle Harbour (DW).

A record number of 16 **Green Heron** were seen at Spittal Pond on 26 Sept (PW). A **Black-crowned Night Heron** was seen on 19 Sept (MP) in the Flatts area. A **White Ibis** turned up at Jubilee Road on 24 Aug (CW) and remained for a week. The first **Belted Kingfisher** was seen 23 Aug at Spittal Pond (NM).

White Ibis
Photo: Neal Morris

An **Eastern Kingbird** was spotted at Spittal Pond on 7 Sept (NM). A possible **Caribbean Martin** was seen at Port Royal Golf Course 21 Sept (DW). A **Chipping Sparrow** was seen 26 Sept at Spittal Pond (NM). A **Baltimore Oriole** was seen at Ferry Point Park 17 Sept (PW). The first migratory warblers were seen on 28 July: a **Louisiana Waterthrush** at Seymour's Pond (NM) and a **Prothonotary Warbler** at Spittal Pond (AM).

Observers: Peter Adhemar (PA), Robert Branco (RB), Chris Gibbons (CG), Jean Hengesbaugh (JH), Erich Hetzel (EH), Ana Paula Alminhana Maciel (AM), Jeremy Madeiros (JM), Neal Morris (NM), Michael Parsons (MP), Ingela Persson (IP), Joanne Smith (JS), Joshua Stone (JSt), Paul Watson (PW), Tim White (TW), David Wingate (DW), Charles Whited (CW), Kevin Winter (KW).

Society News

The Bermuda Audubon Society is always up to something !

We had a very successful snorkel trip out to North Rock on July 20th (*left*). This was our second attempt as the original trip was cancelled due to bad weather. Although we had some rocking and rolling, a great time was still had by all.

The following weekend we were out on the water again for a marvellous sunset cruise (*below*) where we caught up with fellow members over drinks and nibbles.

Thank you so much to **Michael Hayward** for welcoming us aboard his boat, Explorer.

Gull-Billed Tern
Photo: Erich Hetzel

The Fall birding season began with a field trip to Spittal Pond Nature Reserve (*above*) in celebration of World Shorebird Day (Sat 7th Sept). We saw 23 species and were able to make our own contribution to Citizen Science through submission of our report to the Global Shorebird Count. Those who joined this trip were treated to excellent views of the beautiful and elegant Gull-billed Tern.

Unfortunately, our September Photography Club walk had to be rescheduled for October due to Hurricane Humberto. Luckily Humberto brought only minimal damage to our Nature Reserves and favourite birding spots. What was notable, however, was the lack of bird fallout following the storm. In the past, we've seen large numbers of birds following the passage of a hurricane. We worry that this is yet more evidence of the decline in bird populations worldwide.

VOLUNTEERS NEEDED – Bluebird Box Wood Cutting

It is time to start putting together Bluebird boxes and kits and we need your help ! We will supply the wood, you just need to cut it.

Contact Janice at 735-0441 or email info@audubon.bm if you can help. Thanks !

Future Events

October Big Day

Saturday, 19 October 8:30 am Spittal Pond, Eastern Car Park

Join us for a guided walk of Spittal Pond as we participate in the October Big Day. On this day birders all over the world will try to see and report sightings of as many birds as they can find. Last year a total of 6331 species were reported worldwide. Can we help them to add to this number? Free for everyone.

Bermuda Botanical Gardens

Saturday, 26 October 9:30 am Visitor Centre

We will be joining up with the Bermuda Botanical Society for a plant and bird tour of the Botanical Gardens. Learn about trees and plants that support our local and migratory birds. Our guides will be Lisa Greene and Erich Hetzel. Cost will be $5 for members of either organization, $10 for non-members. Fees will go to the scholarship fund of the Bermuda Botanical Society. Email bdabotanicalsociety@gmail.com to reserve your space.

Spittal Pond Tour with BAMZ

Saturday, 2 November 8:30 am Spittal Pond, Eastern Car Park

We'll be leading a birding tour of Spittal Pond for BAMZ. Bermuda Audubon Society members are also welcome to attend. Cost is $15

Photography Club

Saturday, 2 November 8:30 am Somerset Long Bay

Saturday, 7 December 8:30 am Arboretum

Calling all members who are interested in photography. Join us as we explore the open spaces of Bermuda and take pictures of birds and nature. No experience necessary. Guides available to answer your questions about birds and photography.

Cahow Watching Pelagic Trips

Saturdays - 9, 16 and 23 November 2:00 pm departure Bermuda Aquarium Dock

Do you want to see the Cahow (Bermuda Petrel) on the open ocean? The best place to experience this amazing opportunity is off Cooper's Point in the late afternoon. The birds gather a couple of miles offshore and perform courtship displays prior to coming into their burrows under cover of darkness. We offer these trips in a joint venture with the Bermuda Zoological Society.

Cost: $65 for members, $75 for non-members, a portion of which will include donation to the Cahow Recovery Programme.

For reservations (from 21st October): https://bamz.resqwest.com/web/

CAHOW WATCHING BOAT TRIPS!

THE BERMUDA AUDUBON SOCIETY

DATES:

November 9th, 16th and 23rd

RAIN DATES:

November 10th, 17th and 24th

DEPARTURE:

2pm Aquarium Dock; Return 6pm

COST:

$65 Members; $75 Non-Members

RESERVATIONS:

From 21 Oct:
https://bamz.resqwest.com/web/

TEL: 7350441