

Black-capped Petrel Nest Monitoring in La Visite National Park, Haiti: 2021 Breeding Season



Report by

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INTRODUCTION

The Black-capped Petrel (*Pterodroma hasitata*), known locally on Hispaniola as the “Diablotin” or “Chewan” is a seabird known to nest only in the Caribbean. Historically, the species was documented nesting on Hispaniola as well as numerous smaller islands in the Lesser Antilles, however due to the removal of nesting habitat, the introduction of mammals and overhunting throughout its range, the current known nesting range of the species is limited to Hispaniola.

On Hispaniola, there are several petrel colonies, scattered among the main mountain ranges on the island, including (Haiti) Massif de la Hotte and Massif de la Selle and (Dominican Republic) Sierra de Bahoruco and Cordillera Central. Following radar surveys for petrels throughout Hispaniola between 2012-2017, we identified Parc National Naturel La Visite to have 85% (~1,900 pairs) of the island-wide petrel population. This large population identified the national park as critical habitat to breeding Black-capped Petrels.

In 2018, to better understand breeding success and conservation issues within this critical breeding area, we began monitoring a nesting colony of Black-capped Petrels near Tet Opak in La Visite. During that first year of monitoring, we located 11 active petrel nests and determined that three chicks fledged, a breeding success rate of 0.272. It was unclear, during this first year of monitoring, why the breeding success was so low, and we prioritized understanding these factors, during our nest monitoring plans in 2019.

In 2019, our second year of Black-capped Petrel nest monitoring at the greater Tet Opak colony in La Visite National Park, we located and followed 42 nests. Thirty-three of the nests had an egg/chick, of which 15 chicks successfully fledged, 13 were preyed on by a mammal, and five were abandoned by the adult. The remaining nine nests were blocked by tree fern cutting debris prior to egg laying and eliminated access to the nest cavities. The breeding success for monitored nests at the greater Tet Opak nesting colony during 2019 was 0.454.

In 2020, our third year of monitoring breeding success of Black-capped Petrels nesting on Tet Opak, we located and followed 57 nests. Forty-three nests had an egg/chick, of which 38 successfully fledged, one chick was preyed on by a mammal and four nests were abandoned due to agricultural encroachment. The breeding success at the greater Tet Opak nesting colony during 2020 was 0.883.

Between February and July 2021, we carried out Black-capped Petrel nest monitoring research in La Visite National Park, Haiti. Our goals were to (1) monitor known nesting colonies near Tet Opak, (2) to locate new Black-capped Petrel nest colonies within the national park, (3) trap mammalian predators within the petrel nesting colony, and (4) determine the rate of Black-capped Petrels striking the towers at Tet Kay Jak.

METHODS

Within our nest monitoring program, our main objectives were to (1) locate all nests within the Tet Opak Black-capped Petrel nest colony, (2) check the contents of each known nest monthly, (3) determine the breeding success of each known nest within the nest colony and (4) determine the threats to birds and breeding success within and adjacent to the nest colony.

Within our program to locate new Black-capped Petrel nest colonies, our main goal was to explore the unsearched sections of the La Visite Escarpment within La Visite National Park, that historically had petrel

flight and calling activity (determined through both audio/visual and radar surveys) and locate evidence of breeding petrels by carrying out visual and olfactory searches of potential areas.

Within our mammal trapping program, our main objectives were to use snap traps to remove rats from the colony area and to use ‘tomahawk-style’ live traps to trap and remove cats, dogs, and mongoose from the colony area.

Within our petrel tower strike program, our main objective was to determine if we could use song meters to detect petrels striking communication towers and associated guy wires at Tet Kay Jak, in La Visite National Park.

Nest Monitoring Method:

During the first visit of the season to the colony in February 2021, we revisited each known petrel nest crevice from the 2018/2019/2020 breeding seasons, as well as searched for new nest crevices within the same valley. Once a cavity was located and identified as a nest, we labeled a rock near the nest with a distinctive number on an aluminum tag and then recorded the nest information in a field notebook (nest status and GPS coordinates).

We returned monthly, between February and July, to the study site, inspected each current and historically known nest cavity, and recorded its contents and status/relative feathering status of chicks. When needed, we used an endoscope to determine the contents for the nest cavity. Within the nest study site, in addition to monitoring breeding success, we also collected feathers located in the nest cavity. The feathers were saved in an envelope labeled with the nest number, collector name, date of collection and place collected. The feathers will be used for future genetic study.

Furthermore, we deployed camera traps (BUSHNELL 24MP with 32-GB SD card.) at 20 active nests within the colony. The camera traps allowed us to monitor nests remotely and document activity at the nest site. On the devices, we preset the sensor level on auto to capture images on hybrid mode (2 photos and a 10-second video) with a 10-second interval between captures and allowed capture during all 24-hours each day. The image format was set on full screen while the video was calibrated to record 1280 x 720 image size. We attempted to collect and download camera trap data monthly, however due to the COVID-19 pandemic as well as political and social unrest in Haiti, the camera traps were downloaded when possible and therefore in some cases did not capture all the activity at petrel nest cavities.

Nest Search Method:

In February and March 2021, we spent one day each month searching new areas along the La Visite Escarpment, for additional nesting area. At each area that was accessible by foot, we walked through the forested escarpment, looking for natural rock crevices or burrows dug into the hillside. Once a cavity was located, we inspected the nest entrance to see if it was free of spider webs and vegetation (a sign of activity in the burrow), looked for petrel feathers or bird feces at the entrance, as well as smelled the burrow to see if it smelled like fish (a sign that petrels were using the burrow). Finally, we used a digital endoscope to inspect the inner part of the nest cavity for additional evidence of nest occupation such as an egg, petrel adult, or petrel chick. If a cavity was located, we labeled a rock near the nest with an aluminum tag with a distinctive number and then recorded the nest information in a field notebook (nest status and GPS coordinates).

Mammal Trapping Method:

Live traps and snap traps were deployed monthly for three days each month from February through July. Traps were installed in the afternoons and then checked, cleared, and re-baited the next morning. When we checked the traps, if an animal was trapped, we collected data on the species within each trap as well

as the gender of the animal. The “tomahawk-style” live traps were baited with sausage, tuna, chicken, or pork. The snap traps were baited with sweet potatoes/coconut, or bread and peanut butter.

Tower Strike Monitoring Method:

We installed two mini song meters units (each with a 138 GB SD card) in April 2021. Of the two units, one was attached to a guy wire on one of the cell phone antennae at Tèt Kay Jak. The second unit was deployed in the Forêt des Pins region at Do Gimbi. This second unit was adjacent to the Morne Vincent Black-capped Petrel nest colony, which lays about 60km to the east of the Tet Opak nesting colony. The units were set up to record for a 4-hour period each night.

RESULTS

Nest Colony Searches:

No new nest colony sites were located along the La Visite Escarpment in 2021. However, seven new petrel nests were located within the Tet Opak colony.

Nest Monitoring:

We located and monitored three sub-colony areas adjacent to Tèt Opak in La Visite National Park. These colonies are all within one large main drainage with small ridges separating the sub-colonies. (Table 1)

We located/re-located 50 Black-capped Petrel nest cavities. Of these 50 nests, 43 were initially located and monitored in 2018/2019/2020 and re-located in 2021, while 7 of the nests were newly located in 2021. Of these 50 nest cavities, 35 nests were considered “active” (‘active’ = an egg and/or a chick were observed). Of the 35 active nests; 16 chicks fledged successfully, 19 nesting efforts failed due to predation of an adult or chick (18 by a single female dog and one by a mongoose). Fledging success for the greater Tet Opak petrel colony was 0.457 (n=35).

Fourteen petrel nests that were monitored in 2020 were destroyed prior to the 2021 breeding season due to tree fern removal. The removal of the tree fern destroyed the nest burrows that were located under the tree fern roots.

A mongoose was observed on a camera trap in April entering a petrel nest and leaving with a petrel chick in its mouth. Between June and July, an individual female dog was observed on a camera trap depredating petrel adult and/or chicks at 18 active nests sites.

Of the 20 camera traps deployed to monitor nesting success, five of the camera traps were stolen, and 5 additional camera traps had their batteries and SD cards stolen. Therefore, no data was collected by our team on those units during the months they were stolen or the months following.

Mammal Trapping:

We spent a total of 15 days trapping at the Tet Opak nesting colony. We did not capture any animals in the tomahawk-style live traps. In the snap traps, we trapped a total of 22 rats, of which 59% of the individuals were male and 41% were female.

Tower Strike Monitoring:

The song meter deployed at Tet Kay Jak was stolen off the tower and no data were attained by our team.

DISCUSSION

Black-capped Petrel breeding success during 2021 (0.457) at the greater Tet Opak colony in La Visite National Park, was below the four-year mean of monitoring (MEAN - 0.516; 2018-2021).

Depredation by mammals had a substantial impact on the nesting success of Black-capped Petrels at the Tet Opak nesting colony. A mongoose was observed numerous times in the colony and on one occasion was caught with a camera trap entering a petrel nesting and leaving with a petrel chick in its mouth. A single female dog was observed regularly in the colony and during June and July was observed to have taken 18 petrels from active nests, including chicks and adults. Despite efforts to trap larger mammals such as cats, mongoose, and dogs with tomahawk-style live traps, we had no success.

Depredation by mammals on the site remains a serious threat to the success of Black-capped Petrels. We have had some success trapping rats within the nesting site and did not observe rats depredating on petrels during 2021. Our current level of trapping a few days each month during the nesting season has been unsuccessful with cats, dogs, and mongoose. In upcoming years, our efforts to remove or restrict mammals from the nesting area should be increased. We suggest deploying a team of mammal trappers that are solely focused on removing predators from the nesting colony. These trappers might be found from the local hunting community or other nearby villages.

The removal of tree ferns within the Tet Opak petrel nesting colony between the 2020 and 2021 breeding season led to the destruction of 14 petrel nesting burrows. The 14 nesting burrows were used by petrels during the 2020 nesting season. Once the tree ferns were removed, the burrows that had been previously dug under the tree ferns appeared to have collapsed. Tree fern removal has the additional impact of allowing for soil erosion due to the removal of vegetation cover and roots which when in place, provide structure for soil on steep slopes.

Our monitoring and mammal trapping efforts were impacted this year by the theft of numerous monitoring devices including camera traps, batteries and SD cards from camera traps, a song meter and snap traps. The camera traps that were stolen were offered back to our team for a price. The other stolen items were not offered back to our team. In the future, our team will need to do a better job of camouflaging our equipment to hinder efforts by thieves within the study site.

In the past, agricultural encroachment and fire had been identified to cause issues within the nesting site. During 2021, we did not identify any further encroachment into the nesting colony nor observed any evidence of fires within the site. Continuing to work with the local community to raise awareness of harmful agricultural practices to the land as well as wildlife, will be a focus of our conservation efforts.

In 2021, efforts to better understand the impacts of communication towers near petrel nesting sites led to a pilot program to deploy a song meter acoustic listening device to the prominent towers at Tet Kay Jak. Unfortunately, before the device could be retrieved and data processed, the song meter was stolen from Tet Kay Jak. In the future, this effort should be continued but additional steps must be put in place to assure the equipment collecting the information remains in place.

RECOMMENDATIONS FOR FUTURE CONSERVATION EFFORTS

- Continued nest Black-capped Petrel monitoring of the Tet Opak colony
- Expeditions to search the remaining areas along the La Visite Escarpment for nesting Black-capped Petrels, specifically focusing on Pic La Selle
- Mammal trapping in the nest colony areas prior to and during the nesting season by a mammal-focused trapping team
- Work with families that farm the areas above and below the Tet Opak nest colony to offset the human encroachment into this valley.
- Incorporate a local youth education program like that taking place near Morne Vincent, Haiti

DOMINICA SONGMETER DATA

In April 2021, we added a small part to this contract to fund:

- The monthly collection of song meter data from equipment deployed in Dominica. This was to be done by Stephen Durand.
- The purchase of portable hard drives, SD cards, and batteries to be used with the song meter equipment.
- The shipping of equipment to Dominica and back to the US for analyzing.

As of November 2021, the equipment has been purchased and shipped and the staff on Dominica has been paid prior to completing the work to cover their field costs. However, due to bad weather during the field season, this work wasn't completed as agreed with Stephen Durand. We anticipate this work to continue into 2022 and the data to be shipped to EPIC for analyzing following the 2022 field season.

TABLES AND FIGURES

FIGURE 1. Map of La Visite National Park. The La Visite Escarpment is within the green polygon, the Black-capped Petrel nesting colony at Tet Opak is in the red circle, and the communication towers at Tet Kay Jak are in the red rectangle.



TABLE 1. Sub-colony locations for the Black-capped Petrel nesting areas at Tet Opak in La Visite National Park.

Black-capped Petrel sub-colony Site	Latitude	Longitude	Altitude (meter)
Site-1	18.351463°	-72.236568°	2142
Site-2	18.350923°	-72.231261°	2142
Site-3	18.35090°	-72.23165°	2249

IMAGES

IMAGE 1. Dog outside Black-capped Petrel nest Tet Opak Site-2 #010 on 5 June 2021.



IMAGE 2. Black-capped Petrel chick in nest cavity during June 2021 at Tet Opak



IMAGE 3. Field biologists Anderson Jean and Jonel Bazil using an endoscope to investigate a Black-capped Petrel nest at the Tet Opak colony.



IMAGE 4. Black-capped Petrel nest habitat under a limestone shelf in the upper part of the Tet Opak nest colony

