Black-capped Petrel Nest Monitoring in La Visite National Park, Haiti: 2020 Breeding Season

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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.

Between February and July 2020, 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 and (2) to locate new Black-capped Petrel nest colonies within the national park.

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 recently un-searched 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 our visual and olfactory searches of potential areas.

Nest Monitoring Method:
During the first visit of the season to the colony in February 2020, we revisited each known petrel nest crevice from the 2018/2019 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 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 ten 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. Due to the COVID-19 pandemic and our associated inability for senior staff to travel to field sites in La Visite National Park, the cameras were deployed for only one month (mid-February through mid-March).

Nest Search Method:
In February and March 2020, we spent three days 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 a distinctive number and then recorded the nest information in a field notebook (nest status and GPS coordinates). Due to the COVID-19 pandemic, this work did not take place April-July.

RESULTS

Nest Colony Searches:
No new nest colony sites were located along the La Visite Escarpment in 2020.

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 57 Black-capped Petrel nest cavities. Of these 57 nests, 42 were initially located and monitored in 2018/2019 and re-located in 2020, while 15 of the nests were newly located in 2020. Of these 57 nest cavities, 43 nests were considered "active" ('active' = an egg and/or a chick were observed). Of the 43 active nests; 38 chicks fledged successfully, 1 nesting efforts failed due to predation, and four were abandoned due to agricultural expansion. Fledging success for the greater Tet Opak petrel colony was 0.883 (n=43).

DISCUSSION

Black-capped Petrel breeding success during 2020 at the greater Tet Opak colony in La Visite National Park, was the highest we have recorded in our three years of monitoring (2018: 0.272, 2019: 0.454, 2020: 0.883). This year was also the highest year of active nests we have located, during out three-year study period.

Due to the COVID-19 pandemic, several our intended activities in La Visite National Park were not completed. This was due to travel restrictions as well as concern for the health of the field team. Our team consists of a project manager, two senior biologists, and two field assistants. All five of these staff have been involved in nest monitoring since 2018. However, the only local staff are the field assistants and they had to take on more responsibility than in previous years. These staff members are very capable of visiting nest sites monthly, visually inspecting the contents as well as use the endoscope to assist with inspections, and record the data as observed. These two local staff were not tasked with deploying and retrieving camera traps at nests therefore this aspect of monitoring did not happen in 2020.

Further, we planned on trapping cats, rats, and mongoose during the nesting season, but due to shipping restrictions and border closures, were not able to get the trapping equipment to the field staff. The trapping of introduced mammals did not happen during 2020.

During 2020, we intended to inspect potential petrel breeding areas along the eastern half of the La Visite Escarpment in La Visite National Park. However due to staff reduction, travel restrictions, and concern for health of the staff, we only completed one early season inspection in February and then cancelled this activity until after the threat of the pandemic has been reduced.

While on the ground, the field staff noted the complete absence of tree ferns in the Tet Opak area. Staff suggested this was likely due to the 100% harvest of tree ferns in these areas. Subsequently, no petrel nests failed due to tree fern harvest or blocking of nest cavities, as we observed in 2018 and 2019.

Agricultural encroachment was the cause of nest failure of four petrel nests at the Tet Opak colony. These nests were located near the upper slopes of the nest colony area in both S1 (3 nests) and S2 (1 nest) colony areas. Farmers have been clearing from the ridge top downslope towards the petrel nest area to enlarge crop growing areas. This activity has encroached on the upper end of the colony and the human activity in this area is believed to have caused the abandonment of the four nests. In all four cases, the last observation of the nests included mostly downy-feathered petrel chicks.

In one nest at the S1 area of the Tet Opak petrel colony, predation by a mammal was attributed to the failure of the petrel nest. Large feather piles of a petrel chick inside the nest cavity provided evidence for our assumption. While we did not have camera-traps deployed at the nest colony for most of this breeding year, we observed widespread scat of dogs, cats, and rats within the colony.

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
- Mammal trapping in the nest colony areas prior to and during the nesting season
- Work with families that farm the areas above and below the Tet Opak nest colony to offset the human encroachment into this valley.

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. Feather pile outside Black-capped Petrel nest Tet Opak Site-2 #006.

IMAGE 2. Adult Black-capped Petrel incubating egg in nest cavity

IMAGE 3. Field assistants Lionel Raymond and Jonel Bazil completed all the Black-capped Petrel nest monitoring at the Tet Opak colony during April-July 2020.

IMAGE 4. Field assistant Lionel Raymond overlooking the upper slopes of the Black-capped Petrel Tet Opak sub-colony 1. This area was cleared during late-May/early June and three active petrel nests were abandoned.