2023-2024 BCPE Conservation and Monitoring Ernst Rupp, Grupo Jaragua

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Summary

The 2023-2024 monitoring season brought mixed results. Despite intensive efforts with live traps to reduce mongoose presence at Valle Nuevo, fledging success remained extremely low (only two successful nests were verified). At Loma del Toro, the measures taken following the dog attacks of 2020-2021 seem to have borne fruit, with 9 nests producing fledged chicks, a threefold increase from the year before. A total of 11 new nests were found, eight at Valle Nuevo, one at Loma del Tomo and two at Loma Quemada.

Project Activities

1. Predator Control

1.a Predator Control at Valle Nuevo

- i) Implement mongoose control with 10 Tomahawk live traps during the season with continuous intensive trap surveillance during the period when chicks are present (February to April 2024)
- ii) Monitor efficacy of mongoose control

Methods:

Eleven Tomahawk traps were installed in September 2023 at the Valle Nuevo site. Smoked herring was used as bait. Camera traps were placed to document activities within and around the traps. The Tomahawk traps were checked during visits in late November 2023, January 2024 and February 2024. Closed traps were re-opened and all traps newly baited during these periods. During the months

of March and April, 2024, a field team remained in the area continuously, attempting to check each trap every third day, opening closed trap doors and replacing bait. Tomahawk trap use was discontinued in May.

Results:

Three mongooses were caught during the 2023-2024 breeding season, one in January and two in March. The mongoose caught in January managed to escape, forcing its way out of the trap through the small opening on the side of the closed trap door. In the previous 2022-2023 breeding season, ten mongooses were trapped. It may be speculated that a season of trapping reduced the population of mongooses in the area, lowering trapping success in 2023-2024.

Weather conditions during March and April 2024 were characterized by nearly daily heavy rainfall. Team members were continuously present at the nearby park ranger station, but they could not maintain the planned schedule of visits to nests. In April in particular, only a few visits were made. The steep and slippery terrain of the Valle Nuevo nest site is too dangerous to navigate in extremely wet weather. This was unfortunate, as camera trap data throughout the trapping period document the presence of mongooses desperately trying to access the bait in closed traps. Certainly a higher number of mongooses would have been caught if traps could have been opened.

During the previous two seasons of trapping with Tomahawk traps in Valle Nuevo, no collateral damage to non-target species was documented. During the 2023-2024 season, two petrels that were investigating traps got caught inside, one in January and the other one in February. Both birds died, likely due to stress. It is extremely important to avoid further tragedies of the same kind, so use of Tomahawk traps in the vicinity of nests will be discontinued.

The trapping activities of 2023-2024 did not result in complete mongoose removal. Camera traps images showed the presence of mongooses in May (see the camera trapping analysis appended to this report).

No direct mongoose attacks were documented by cameras during the season, yet the remains of five dead petrels in and around nests point to mongoose impact. These depredated remains were found in and around nests, and mongoose are the most likely predators given documented past attacks and frequency of occurrence of mongoose on camera traps.

The five new AT220 traps provided by American Bird Conservancy should resolve the major challenges encountered with Tomahawk Traps. The AT220 is an automatic self-resetting trap, so can function repeatedly, and does not need to be re-opened. Also, a protocol will be followed to test and minimize the likelihood of petrels approaching the traps. This should be minimized, although it seems very unlikely petrels would be harmed by traps, given their anatomy.

1.b. Predator Control at Loma del Toro

- i) Keep dogs out of the colony, and control feral cats and mongoose.
- ii) Maintain nests dog-proof by securing entrances and burrows
- iii) Monitor and evaluate artificial burrows as a proof-of-concept effort for protecting nesting birds from attacks by dogs or other nest excavating predators.

Methods:

Nest at Loma del Toro were visited by a field team approximately every two months at the beginning and during the 2023-2024 nesting season. At the beginning of the season, where necessary, burrow entrances were reinforced with rocks or wood to ensure that dogs would not be able to excavate them. One cracked wooden tunnel was replaced. Nests were examined visually on visits, and almost all nests were monitored with camera traps throughout the season. Three of the camera traps were set to transmit photos directly to cell phones; these were selected based on strength of cell signal. Two of the these three functioned successfully throughout the season.

Results:

Wooden nest boxes have been placed at six Loma del Toro burrows damaged or destroyed by dogs in 2020-2021. These replacement burrows have now been monitored during three seasons: 2021-2022, 2022-2023, and 2023-2024. Table 1 presents petrel activity at the six replacement nests, before and after the dog attacks. Table 1 also includes information on the one artificial burrow (Box 3, a nest box placed in a novel location) selected for nest use by petrels.

Five of the six replacement nests seem to have been used somewhat by petrels across three seasons. During the 2021-2022 season, none produced a fledgling chick. During 2022-2023, two artificial burrows with nest boxes (TRO8 and TRO17) did show chicks practicing their wings. A successful final take-off of the two birds (fledging) is assumed in the absence of any signs of failure. Season 2023-2024 ended with fledging out of two replacement burrows (TRO9 and TRO15).

In June 2024, in-person inspection revealed a chick in TRO8. This chick appeared behind in the typical phenology for Loma del Toro. In June, chicks in the Loma del Toro colony are usually far along in their flight plumage; this chick was still wrapped up in down feathers. Camera trip images show that this chick left its shelter during daytime (July 27, 7:53 am) still wearing mainly down plumage. The remains of a seemingly unharmed dead chick near the nest entrance were found by the team on its last visit to Loma del Toro in August. This chick was not considered predated.

Although not all replacement burrows produced chicks, success rate for this subset is similar to that seen for the natural nests in the Loma del Toro colony.

The camera trap analysis appended to this report provides data on predator activity at the Loma del Toro colony. In short, several nests were visited by dogs but there was no evidence of direct attack or damage caused by dogs. There were no emergency deployments triggered by images sent by cell phone (the two relevant nests were not active). Cats occurred in Loma del Toro occasionally, but they seemed not to investigate nests. Rats continue to appear in images from almost all cameras. The remains of one apparently predated chick were found just outside a nest entrance; unfortunately, the camera on that nest malfunctioned and the predator is unknown.

	Changes made						
Nest	after dog attack	Results 23/24	Results 22/23	Results 21/22	Results 20/21	Results 19/20	Results 18/19
	box with tunnel			last photo adult			
JGP02	installed inside nest	inactive	inactive	31 Oct 21	dogs	fledged	fledged
	box installed inside		last photo adult	last photo adult			
TRO02	destroyed nest	inactive	18 Nov 22	14 Dec 21	dogs	fledged	fledged
	box placed inside		chick fledged	last photo adult		abandonend	
TRO08	nest	chick found dead	7 Jul 23	21 Apr 22	dogs	during season	fledged
	box placed inside		last photo adult	last photo adult		abandonend	
TRO09	nest	fledged	18 April 23	24 Mar 22	dogs	during season	fledged
	box with tunnel	last photo adult	last photo adult	last photo adult			
TRO15	installed inside nest	11 April 24	21 Mar 23	2 Apr 22	dogs	fledged	fledged
	box placed inside		chick fledged	last photo adult		abandonend	egg outside
TRO17	nest	fledged	6 Jul 23	14 Mar 22	dogs	during season	nest
	box placed at new	last photo adult	adult presence				
ca3	location	17 March 24	until March/April	n/a	n/a	n/a	n/a

Table 1: Replacement Burrows (Nests Fitted with Nest Boxes) at Loma del Toro

1.c. Track the fate of as many nests as possible

Methods:

The field team visually inspected every known nest at least once during the 2023-2024 breeding season. A total of 95 cameras were available to monitor nests, artificial burrows, and traps:

- 32 cameras were installed at Valle Nuevo including 9 cameras focused on Tomahawk traps. Two of these cameras were placed at nests discovered during the breeding season. It was not possible to install cameras at every Valle Nuevo nest due to the very steep terrain conditions.
- 40 cameras were installed at Loma del Toro, covering most but not all nests. This included cameras at 17 artificial burrows (nest boxes placed in novel locations) and one placed at a nest discovered during the breeding season.
- 8 cameras were installed at Loma Quemada. Two of these cameras were placed at nests discovered during the breeding season.
- 15 cameras were handed over to the Haitian team, who installed them at nests of Morne Vincent in October 2023.

Results:

Table 2 shows the fate of monitored nests at Valle Nuevo, Loma del Toro and Loma Quemada during the 2023-2024 season. The total of nests monitored (with camera and/or visually) was 30 at Valle Nuevo, 26 at Loma del Toro, and nine at Loma Quemada. The number of active nests (showing presence of petrels during the season) was 25 at Valle Nuevo, 20 at Loma del Toro and eight at Loma Quemada. Successful fledging was documented at two nests at Valle Nuevo, nine at Loma del Toro, and two at Loma Quemada, which amounts to fledging successes of 8%, 45%, and 25%, respectively.

Nest Results 2023-2024	Valle Nuevo	Loma del Toro	Loma Quemada
inactive	5	6	1
presence of adults but no chicks	18	9	4
predator impact	5	1	1
fledged	2	9	2
dead unharmed chick	0	1	1
infertile egg or abandoned egg	0	0	0
Total monitored	30	26	9
active	25	20	8
% fledging to active nest	8	45	25

Table 2: Monitoring results for Valle Nuevo, Loma del Toro y Loma Quemada

Note: There is a camera trap analysis appended to this report which provides more detailed discussion of camera data. The fledging success values reported there are based on a subset of nests monitored by camera.

As shown in Table 3, fledging success in Valle Nuevo has been very low over the years, including the 2023-2024 season. It is notable that 18 nests were occupied by adults and failed to produce a fledgling, without any evidence of predation or disturbance. Perhaps predation occurred but was not detected? Or perhaps adults abandoned their nests for other reasons?

A high level of abandonment occurred at the Loma del Toro colony after the 2020-2021 season, which was characterized by the dog disaster that resulted in several predated petrels and destroyed nests. During the 2023-2024 season, the Loma del Toro had a reduced level of abandonment and a significant increase in successful fledging. From three successful nests in 2022-2023, the number jumped up to nine fledglings in 2023-2024 season. The calculated fledging success of 45% is lower than the rates documented before the dog disaster (~80%), but it is hoped that the protective measures against dogs at Loma del Toro will continue to bring the fledging rate up.

Numbers on fledging and corresponding percentages of fledging success have been mixed at the Loma Quemada colony. It appears that seasons of high fledging percentage are followed by seasons of lower percentages. There has been little evidence of predation in the Loma Quemada colony, although wild pigs, cats and high numbers of rats have been documented. Two dead chicks were found at Loma Quemada in 2023-2024; both were inside nests, one intact, the other apparently predated.

 Table 3: Annual nesting success at the three colonies in the Dominican Republic

		Valle Nuevo		l	oma del Tor	0	Loma Quemada		
			percentage			percentage			percentage
	active nests	successful	of success	active nests	successful	of success	active nests	succesful	of success
season	monitored	nests	(%)	monitored	nests	(%)	monitored	nests	(%)
2020-2021	5	2	40	29	2	7	6	4	67
2021-2022	18	2	11	24	4	17	6	1	17
2022-2023	23	3	13	21	3	14	6	5	83
2023-2024	25	2	8	20	9	45	8	2	25

2. Find new nests at suspected sites in the Dominican Republic

Methods:

Nest searches were conducted within and around the colonies at Loma del Toro, Loma Quemada, and Valle Nuevo. The technique to find nests was the same as previous years: careful examination on foot, noting any odor, feathers or excrement. A total of 11 new nests were found: eight at Valle Nuevo (all in March 2024), one at Loma del Toro (February 2024) and two at Loma Quemada (June and July 2024) (see Table 4).

All new nests were monitored; where it was possible, a camera was installed. At Valle Nuevo, cameras could be installed at only two of the recently-discovered nests. The other six nests occur in extremely steep areas where the installation of camera is not feasible.

Results:

Though there was evidence of chicks in some of the newly-discovered nests, none seems to have produced a successful fledgling.

Site	Nest	Longitude (E)	Latitude (N)	Details
Valle Nuevo	vn32	331182	2061751	Found in March with strong odor, camera installed, no birds seen on photos, no signs of chick
	VIIOZ	001102	2001101	Found in March with strong odor and fresh feces,
				camera installed, last photo of an adult 5 March 2024,
Valle Nuevo	vn33	331179	2061758	no signs of chick
Valle Nuevo	vn34	331276	2061933	Found in March, feathers of predated chick inside nest
Valle Nuevo	vn35	331278	2061931	Found in March with strong odor and some small
	1100	001270	2001331	
				Found in March with adult inside, no camera installed,
Valle Nuevo	vn36	331175	2061822	no signs of chick
				Found in March with strong odor, no camera installed
Valle Nuevo	vn37	331175	2061833	no signs of chick
	1020			Numbered, but not confirmed as next
	VI130			
				Found in March with strong odor, no camera installed ,
Valle Nuevo	vn39	331281	2061737	no signs of chick
				Found in March with strong odor and lots of small
Valle Nuevo	vn40	331265	2061936	signs of chick
		001200	2001000	
				Found in February, camera installed, last photo of adult
Loma del Toro	Tro20	213327	2024101	29 March 2024, no sign of chick
Loma Quemada	PRM8	234965	2011750	Found in June, camera malfunctioned, no signs of chick
				Found in July with integet dood objek inside the size of
Loma Quemada	PRM9	235002	2011740	depredation

Table 4: Nests discovered during 2023-2024 season

3. Restoration

3. a./b. Continue to build and monitor artificial burrows at Loma del Toro

Methods:

Five nest boxes and entrance tunnels were built from wood for deployment in the 2024-2025 season. Three sets were installed at Loma del Toro in October 2024 and two more planned by end of year. These artificial burrows are placed in locations not before used by petrels and selected based on proximity to known nests and the feasibility of placement (where steepness and substrate allows for digging).

Due to the complex border situation between Haiti and the Dominican Republic, it was not possible to transfer boxes into Haiti for use at Morne Vincent during the 2024-2025 season.



Preparing boxes

Finished boxes



Installation of box into the ground

An artificial burrow ready

to go

Results:

A total of 20 artificial burrows (nest boxes with or without tunnels) have now been constructed at Loma del Toro since March 2021 (See Table 5). All artificial burrows are being monitored by cameras.

Box 3 has shown the greatest amount of petrel activity. In the 2022-2023 season, this box was briefly occupied in March and April 2023. It was occupied again in November 2023 until March 2024. We are hopeful this box will continue to attract breeding petrels.

Physical examination reveals that the boxes and tunnels are standing up against the elements. Moisture would seem to be the greatest challenge, yet none of the wood appears damaged. Only one tunnel required a repair due to cracking. Ultimately, we should look to concrete for construction because surely wood cannot retain its integrity in the ground indefinitely.

	Actual	Coord	inates		Installation			
Box	camera	E NAD27	N NAD27	Location comments	Date	Tunnel?	Results 2023-2024	Results 2022-2023
1	c46	213347	2024083	trail to nest tro11	16-Mar-2022	without tunnel		
2	c36	213346	2024083	trail to nest tro11	16-Mar-2022	without tunnel	bird seen passing	
3	c59	213323	2024094	close to nest tro12	12-May-2022	broken tunnel	Active nest, last	Active nest, adult
						replaced	photo adult 17.3.24	bird present until
								March/April
4	cn04	213315	2024100	left side of nest tro12	12-May-2022	with tunnel	bird seen passing	
5	cn10	213323	2024123	below tro17	16-Mar-2022	with tunnel	bird seen passing	bird seen passing
6	c79	213379	2024160	beside tro18	17-Mar-2022	with tunnel		bird seen passing
7	cn03	213373	2024160	above tro18	17-Mar-2022	with tunnel		bird seen passing
8	cn17	213017	2024283	right side of nest nv1	2-Feb-2022	with tunnel		
9	c33	212984	2024295	below nest nv1	2-Feb-2022	with tunnel		
10	cn14	212993	2024264	part above nv1	2-Feb-2022	with tunnel		
11	cn15	213018	2024248	above nest nv1	3-Feb-2022	with tunnel		
Tunnel 1	no	213014	2024374	below nest nv1	3-Feb-2022	tunnel fitted to		
	camera					existing orifice		
12	c81	213360	2024089	30 m above nest tro6	18-Oct-2023	with tunnel	adult bird	
							inspecting box for	
							about 20 minutes	
13	c54	213350	2024108	15 m below nest tro19	18-Oct-2023	with tunnel	bird seen passing	
14	c45	213317	2024107	between tro17 & tro5	18-Oct-2023	with tunnel	bird seen passing	
15	c59	213363	2024162	below box 8	19-Oct-2023	with tunnel	bird seen passing	
16	c49	213362	2024167	below box 8	19-Oct-2023	with tunnel		
17	cn01	213361	2024173	below box 8	19-Oct-2023	with tunnel		
18	cn20	213367	2024089	above box 12	23-Oct-2024	with tunnel		
19	T8	213367	2024092	above box 12	23-Oct-2024	with tunnel		
20	T1	213365	2024094	above box 12	23-Oct-2024	with tunnel		

Table 5: Artificial burrows installed at Loma del Toro

3.c Record calls of BCPE at nests with ARUs to have sound material for social attraction

A total of six automatic recording units (ARUs) were installed at Loma del Toro (4 ARUs) and Valle Nuevo (2 ARUs) to capture calls of birds when close to their nests. Table 6 shows their placement in relation to nests as well as the duration of the recordings. No recordings of calls emitted by BCPE in or close to their nests have been available to date; existing recordings are of vocalizations of petrels in flight. Vocalizations acquired at colonies would be an important addition to our limited knowledge of social interactions of the birds.

In January 2024, two ARUs were installed in a small canyon on the eastern part of the Sierra de Bahoruco (see coordinates in Table 6). Gerson Feliz, member of the Diablotin team, was briefly in the canyon in 2014 and documented the presence of some BCPE bones at what might have been a BCPE nest. The team has not been able to explore this area, which has been burned over at least once, so the ARUs were placed to detect presence of birds nesting in the canyon.

All recordings are awaiting formal analysis.

number ARU	location	placement	E (NAD27	N (NAD27)	recording start	recording end
556	Cañada Cruce Abejas		228980	2010902	29-Jan-24	21-Mar-24
837	Cañada Cruce Abejas		229052	2010907	29-Jan-24	8-Mar-24
555	Valle Nuevo	between VN2 & VN5			9-Feb-24	25-Feb-24
879	Valle Nuevo	close to VN30			10-Feb-24	7-Mar-24
420	Loma del Toro	next to TRO15			22-Feb-24	2-May-24
827	Loma del Toro	between TRO6 & TR19			22-Feb-24	28-May-24
417	Loma del Toro	next to EST1			23-Feb-24	9-May-25
515	Loma del Toro	next to TTRO6			23-Feb-24	23-May-24

 Table 6: ARU placement at different sites

3.d Place and test sound broadcast equipment to attract birds to artificial burrows

The sound broadcast equipment was moved to Loma del Toro in January 2024. Unfortunately, heavy rain prevented us from setting up the system at that time. Deployment is now on hold for two reasons: 1) shortage of time and expense to set up the system and 2) the lack of appropriate vocalizations. As stated above, the only recorded vocalizations are of flying birds. Based on personal observation and very preliminary examination of new ARU recordings, it seems that calls in colony differ from those in flight. Ideally, the in-colony vocalizations collected with the ARUs can be used in future broadcasts.

4. Monitor Collisions

During the 2023-2024 season, six grounded birds were recorded. Five were found around the tower array on Loma del Toro, a sixth was found in Vengan-a-Ver, northeast of the Sierra de Bahoruco National Park. Most of the birds appeared to be adults; the one found in July appeared to be a fledgling. Birds or remains were typically found after nights with fog and high winds. Three of the grounded birds were released; one of these was fitted with a satellite transmitter.

Date	Location	Notes/Fate
6 November 2023	Loma del Toro towers	Dead with deep cut on wing, bleeding from beak
9 December 2023	Loma del Toro towers	Slight injury, released
31 March 2024	Loma del Toro towers	Appeared uninjured, satellite tagged, released
3 April 2024	Loma del Toro towers	Dead, wing severed
4 April 2024	Loma del Toro towers	Wing feathers only (presumed eaten)
16 July 2024	Vengan-a-Ver	Possibly a fledgling, unharmed, released

Table 7: Grounded petrels in 2023-2024

#21107G Grupo Jaragua

Black-capped Petrel conservation and monitoring 2023-2024

Camera trapping analysis



Report prepared by Yvan Satgé for Grupo Jaragua.

Submitted on 25 January 2025.

Cover picture: Juvenile Black-capped Petrel fledging from Loma del Toro nest TTRO6 on 7 July 2024. Credit: Grupo Jaragua.

1. Summary

Black-capped Petrel and predator activity were monitored throughout the 2023-2024 breeding season by camera traps at 66 nest sites, 17 of which were artificial nest boxes. In total, 85 camera traps were used. At any given time, each nest was monitored with one camera, except for two nests that were monitored using two cameras each. Camera trapping occurred between 19 September 2023 and 08 August 2024, covering 318 calendar nights, and capturing 14,366 total camera trap nights. Black-capped Petrels were observed on a total of 288 calendar nights. Black-capped Petrel activity was recorded from nest initiation through fledging. Of 66 monitored nests, 41 were considered to be active, although 22 of these were abandoned early in the season. In 13 nests, chicks were suspected to have fledged. Three chicks were found dead during field monitoring. Predator species recorded by cameras included rats, cats, mongoose, dogs and feral pigs. No predation events were recorded by the cameras. Overall, colony occupancy was very good (>70%). Reproductive success was fair at the Sierra de Bahoruco sites (30-55%) but low in Valle Nuevo (<30%). It is unclear whether the lack of recorded predation events is due to trapping efforts or to other effects.

- 2. Methods
- 2.1. Camera deployment

Cameras were positioned to face the entrance or suspected entrance of historical, artificial, and newly discovered petrel nests. Whenever possible, cameras were positioned at a distance of ca. 1-2 m from the entrance. Cameras were set up to record any movement detected by the infrared sensors, with 3 pictures taken per shot. Batteries and memory cards were replaced monthly in Valle Nuevo and every two months in Loma del Toro and Loma Quemada. At one nest with two entrances (VN4, in Valle Nuevo), two cameras were set, to record activity at each entrance. At another nest (TRO9, in Loma del Toro), a second camera was set between 24 June and 8 August 2024 to record fledging activity.

2.2. Image analysis

Images were retrieved on a computer and stored in parallel by Ernst Rupp and Yvan Satgé (YS). YS manually reviewed the pictures from 47 cameras. The remaining 19 cameras recorded extremely large numbers of pictures with no animals (mean: 10,972.0; range 2,428 – 30,233). For these, YS used the open-access computer-vision programs EcoAssist (https://addaxdatascience.com/ecoassist/) and DeepFaune (https://www.deepfaune.cnrs.fr/) to select images with wildlife. Large numbers of pictures were recorded for a variety of reasons including faulty camera, temperature differences created by sunlight, or wrong camera setting. All usable images were uploaded to the open platform Wildlife Insights (wildlifeinsights.org) for annotation, species identification, and cloud-based backup storage. Images were processed within Wildlife Insights by a cloud-based, machine learning model based on Google's TensorFlow technology. The model classifies images into three classes (empty images, images with humans, and images with animals) and suggests taxonomic identification for animals in images. Following model-based identification, YS visually identified all images, and identified animals to the species level whenever possible. For small rodents, because it can be very difficult to judge size within the depth of a picture, and because a large proportion of pictures were of low quality due to lighting or weather conditions, individuals were not identified to the species but instead grouped under Rattus sp. identification. For Black-capped Petrels, life-stage (adult or juvenile) was added as an additional identification criterion.

2.3. Statistical analysis

2.3.1. Camera trapping effort

We calculated camera trapping effort as the number of elapsed calendar days (i.e. total number of 24hour days-nights during which camera traps were deployed and functioning) and report these as camera trap nights. Using identification data, we calculated a species' presence as its frequency of occurrence (number of calendar days with a species, divided by the total number of calendar days with animals) at all three sites (i.e. "overall" presence) and individual nesting areas.

2.3.2. Petrel activity

We assessed petrel activity at nest sites by visually reviewing pictures in which petrels were present. For adults and juveniles, we calculated first and last appearance in pictures. For this purpose, we did not use cameras that were deployed outside the typical deployment date for the colony, that had issues in the early breeding period, or that did not record breeding petrels.

For adults only, we calculated the median desertion date as the median of the latest dates an adult petrel was observed in a picture. For this purpose, we did not consider data from cameras that were retrieved too early or that started malfunctioning too early (e.g. where an adult petrel was observed as late as the week before the camera retrieval or malfunction).

We considered fledging date to be the last date a fledgling was observed in pictures. This may not be the actual fledging date.

Table 1 summarizes whether cameras were used or not for data analysis of petrel activity.

2.3.3. Predator interactions

We assessed petrel-predator interactions by visually reviewing any images where petrels and predators co-occurred, as well as by visually reviewing images where predators occurred for signs of predation or predatory behavior.

3. Results

3.1. Effort

During the 2023-2024 breeding period, we used camera traps to monitor 66 nests sites (Valle Nuevo n = 19 nest, Loma Quemada n = 7 nests, Loma del Toro n = 40 nests). 17 of the nests were artificial nest boxes deployed between 2021 and 2023.

Over the course of the season, we deployed a total of 85 camera traps (Valle Nuevo n = 29 cameras, Loma Quemada n = 8, Loma del Toro n = 48). Each nest was monitored by a single camera at any given time, except at two nest sites, which were monitored with two cameras each: VN4, during the whole season; and TRO9 during the fledging period. Cameras were replaced during the season as part of routine maintenance or if they started malfunctioning.

Camera trapping occurred between 19 September 2023 and 08 August 2024 (Table 2), covering 318 calendar nights (Valle Nuevo = 295, Loma Quemada = 274, Loma del Toro = 289), capturing 14,366 camera trap nights (Valle Nuevo = 3,845; Loma Quemada = 1,594; Loma del Toro = 8,927).

Cameras recorded animals during a range of 2 – 276 calendar nights per camera (mean: 112.4 nights per camera). Animals were recorded on 1,867 total camera nights in Valle Nuevo, 817 in Loma Quemada, and 4,733 in Loma del Toro.

3.2. Petrel activity

We monitored 66 Black-capped Petrel nests: 40 at Loma del Toro (including 17 artificial nests), seven at Loma Quemada (six known nests and one additional nest found in June 2024), and 19 at Valle Nuevo. We observed regular breeding activity at 41 nests: 21 at Loma del Toro (including one artificial nest), 6 at Loma Quemada, and 14 at Valle Nuevo (Table 3 and 4, and Figure 1). On 37 of these nests we collected sufficient data (camera trapping and/or visual monitoring) to estimate reproductive success.

Colony occupancy (the number of active nest sites divided by the total number of nests) was 73.7% at Valle Nuevo and 100% at Loma Quemada (Table 4). At Loma del Toro, when considering only natural nests, colony occupancy was 86.7%.

Black-capped Petrels were observed on a total of 288 calendar nights. Adult Black-capped Petrels were observed on a total of 271 individual calendar nights and juveniles were observed on 44 individual calendar nights.

Black-capped Petrels first arrived at nest sites in September 2023 at Valle Nuevo (median arrival date: 25 September; range: 20 September to 3 October; n = 7), and November at Loma del Toro (median arrival date: 06 November; range: 30 October to 15 November; n = 15) and Loma Quemada (median arrival date: 11 November; range: 07 to 16 November; n = 4) (Table 3 and Figure 1).

Adult petrels last appeared in camera trap pictures in March 2024 at Valle Nuevo (median date: 19 March; range: 25 January to 16 May; n = 12), May at Loma del Toro (median date: 12 May; range: 17March to 28 June; n = 16), and May at Loma Quemada (median date: 27 May; range: 18 March 13 June; n = 5) (Table 3 and Figure 1). In total, 22 nests (out of 42 nests with petrel activity) appeared to have been deserted early in the season: seven at Loma del Toro, three at Loma Quemada, and 11 at Valle Nuevo (Table 3 and Figure 1).

Juveniles in fledging activities (e.g. stretching and flapping wings outside burrow, walking) were observed at 13 nests: nine at Loma del Toro, two at Loma Quemada, and two at Valle Nuevo (Table 3 and Figure 1).

At Valle Nuevo, two juveniles were observed, which first appeared on 28 April and 05 May, and last appeared on 04 May and 18 May respectively.

At Loma del Toro, juveniles first appeared in camera trap pictures in June (median date: 27 June; range: 15 June to 27 July to 29 June; n = 10) and last appeared in early July (median date: 05 July; range: 28 June to 27; n = 9).

At Loma Quemada, juveniles first appeared in June (median date: 13 June; range: 07 to 20 June; n = 2) and last appeared on 25 June (n = 2).

On two occasions in Loma del Toro, juvenile petrels were recorded outside their burrows during the daytime (Pictures 1 and 2), one presumably fledged and one was later found dead.

Six replacement nest boxes were deployed in October 2021 to reinforce existing nesting sites, all at Loma del Toro: JPG2, TRO2, TRO15, TRO17, TTRO8, TTRO9. All were monitored with camera traps during the 2023-2024 season. 17 additional nest boxes were installed at new locations (i.e. not in replacement of an existing nest site) between 2021 and 2024 (CA1 to CA17) (Table 3 and Figure 1). Four replacement boxes were visited by petrels; two were not visited: JPG2 and TRO2. Chicks were observed at TRO8, TRO9, and TRO17, and fledged at TRO9 and TRO17. CA3 was the only new box used by petrels in a way that was consistent with breeding activity, with petrel activity regularly recorded between 05 November and 17 March. Eight other new boxes were visited by petrels between 09 November and 21 may: CA2, CA4, CA5, CA7, CA12, CA13, CA14, and CA15 (Table 3 and Figure 1).

Reproductive success (the number of nests that fledged a chick divided by the number of nests with regular breeding activity) was 14.3% at Valle Nuevo, 33.3% at Loma Quemada, and 45.0% at Loma del Toro (Table 4).

3.3. Species presence

Overall, the animals most often observed (in percentage of occurrence in calendar days with animals) were the small rodent group (observed in 100.0% of all individual calendar nights overall), Black-capped Petrels (90.6%), La Selle Thrush (*Turdus* swalesi, 84.9%), and Red-legged Thrush (*Turdus* plumbeus, 61.9%)(Table 4). Hispaniola Hutia (*Plagiodontia aedium*), and White-fronted Quail-dove (*Geotrygon leucometopia*), two species listed as Endangered by the IUCN, were also recorded (Appendix 1). Black-capped Petrel, La Selle Thrush, Western Chat-tanager, Hispaniolan Hutia, and White-fronted Quail-dove are listed as Key Biodiversity Area Trigger Species by the Critical Ecosystem Partnership Fund for the Dominican Republic.

Although not identified to the species level, *Catharus sp.* individuals were observed and likely to be Bicknell's Trush (*Catharus bicknelli*), a Vulnerable species. Illustrative pictures of each species observed can be found in Appendix 1.

Potential predators of Black-capped Petrels included the small rodent group (recorded on n = 318 individual day-nights), Feral Cat (*Felis catus*, n = 38), Mongoose (*Herpestes sp.*, n = 11), Feral Pig (*Sus scrofa*, n = 8), and Domestic Dog (*Canis familiaris*, n = 5) (Table 4 and Figures 2 and 3). Specifically:

- The small rodent group was recorded at all three nesting areas. Rats did not show any level of seasonality and were commonly observed across the effort period (Figure 3), particularly at night (Figure 4). Rats were observed at all nesting sites (Figure 5). We did not detect obvious predatory behavior.
- Cats were recorded at all three sites throughout the period (Figures 2). Cats were observed at most (but not all) nests in Loma del Toro and Loma Quemada (Figure 5). A minimum of two individuals were observed at each colony (one black and one striped individual at Loma del Toro and Loma Quemada; one striped and one with white neck at Valle Nuevo). Although they sometimes showed interest in petrel burrows, cats did not enter burrows when petrels were present and we did not detect obvious predatory behavior. On one occasion, a cat was present when a petrel landed near its nest. The cat appeared intrigued but not predatory and was chased away by the petrel (Picture 3). On three occasions, cats were observed predating a rat (Picture 4).

- Mongooses were regularly recorded at 10 nests in Valle Nuevo, and in one occasion at one nest in Loma del Toro (on 07 December 2023) (Figure 5). Although we observed some mongoose activity early in the season, mongooses appeared more active during the early chick rearing period (Figure 2). Mongooses were strictly diurnal, with a peak of activity late in the day (Figure 4). Since mongooses lack obvious individual markings, it is unclear how many individuals were present. We did not observe predation events.
- Dogs were recorded at 14 nests in Loma del Toro (Figure 3) and were mostly diurnal (Figure 4. We did not observe predation events.
- Feral Pigs (including adults and young) were observed at three nests in Loma Quemada (Figure 5). One adult inspected the exterior of a burrow.

3.4. Predation events

No predation event was recorded by camera traps during the 2023-2024 breeding season. Based on monitoring visits, at least five chicks were suspected to have been depredated in Valle Nuevo (remains found in or near burrows), one in Loma del Toro, and one in Loma Quemada.

3.5. Predator control

Tomahawk traps (non-lethal) were deployed to control mongooses at Valle Nuevo. Mongooses visited traps on at least eight occasions. Two mongooses were trapped (on 07 and 22 March 2024; Figure 3). Rats were trapped in multiple occasions.

4. Discussion

4.1. Camera trapping

The 2023-2024 season showed the highest amount of camera trapping effort since Black-capped Petrel monitoring started in the Dominican Republic, with 66 nests being effectively monitored across three distinct areas (17 of these nests were artificial nest boxes). Six of eight known nests (75%) were monitored in Loma Quemada, 40 of 51 known nests (78%) at Loma del Toro, and 19 of 40 (47.5%) at Valle Nuevo.

In general, all cameras performed correctly except for 12 that malfunctioned and did not take any photos, that took photos devoid of animal activity at very short intervals for some amount of time during the season, or that stopped working too early. Of these 12, 11 cameras provided some images that were usable and included in the analyses. In cases when cameras malfunctioned and took photos every second, we had to use machine-learning software (EcoAssist, and DeepFaune) to locate wildlife events in the extreme number of photos. Given these issues, it is possible that events were missed. In a few cases, cameras were deployed with incorrect settings (incorrect date and time, use of timelapse mode instead of movement mode): these errors can be prevented by a thorough check of camera settings before deployment.

In future breeding season, it may be beneficial to use Wildlife Insights' project sharing capabilities and upload camera trap pictures directly from the Dominican Republic. This would allow for faster processing of camera trap data. However, this would require excellent internet connectivity in the Dominican Republic, which may not be available.

4.2. Petrel activity

When considering only natural nests sites, colony occupancy (defined in the Black-capped Petrel Action Plan and Conservation Update as the number of nests in a colony divided by the number of active nests; Wheeler et al. 2021) was Very Good at all three sites(e.g. >70%). Reproductive success (defined as the number of nests fledging a chick divided by the number of active nests) was Fair (30-55%) at Loma Quemada and Loma del Toro, and Low (<30%) at Valle Nuevo.

Arrival dates of adult petrels were similar to previous breeding seasons. Adult petrels at Loma del Toro were last observed at a slightly later date than during the 2022-2023 breeding season; those at Loma Quemada and Valle Nuevo were last observed 3-4 weeks earlier than during 2022-2023 (Figure 1). The overall level of nest desertion was slightly lower in 2023-2024 (50.0%%) than in 2021-2022 (66.7%) and 2022-2023 (68.8%). No clear pattern of desertion emerged between 2021-2022 and 2023-2024 (Table 3), with four nests having a more positive fate in 2024 (no desertion) than 2023 (desertion or no breeding activity), three having a more negative fate (desertion or no breeding activity in 2023 vs no desertion in 2023), and 15 nests having a similar fate in both seasons.

Causes of desertion still remain unclear. Although rats are known to predate eggs and young chicks of *Pterodroma* petrels, no clear predation events (by rats or other predators) were recorded this season. At Loma del Toro, large telecommunication towers were replaced following the 2021 fires and replaced with two towers with respectively 15, and 24 anchor cables (Pictures 5 and 6). Although unquantified, it seems that the rate of petrel collisions has increased since these towers were erected (Rupp, personal observation). The impact of collisions on Black-capped Petrel breeding success is unknown but expected to affect adult survival and reproductive success. However, without a program in place to 1) monitor collisions at towers, and 2) capture-mark-recapture nesting petrels, it is currently not possible to assess the impact of collisions on the population (including any effects on reproductive success). We suggest the development of a monitoring program in Loma del Toro and also Valle Nuevo, where a cabled tower is located <1km from the monitored breeding area.

4.3. Predator activity

Overall, mongooses were observed on 12 camera days, and no predation events were recorded on camera traps. This is lower than in 2021-2022 (37 camera days and two predation events) and 2022-2023 (43 camera days and two predation events). The 2023-2024 season had the highest trapping effort in Valle Nuevo since the nesting area was discovered in 2018, with 11 Tomahawk traps deployed from November 2023 to mid-April 2024, though only two mongooses were trapped (one escaped): this is comparable to 2021-2022 (nine Tomahawk traps; two mongooses trapped) but lower than 2022-2023 (nine Tomahawk traps; 10 mongooses trapped). It is unclear if the lower number of mongoose observed this season reflects an actual decrease in the number of mongooses in the area.

For the first time, cats were recorded in Valle Nuevo. A minimum of two cats (based on fur markings) was observed; no predation event was recorded.

In future breeding seasons, we suggest replacing manually reset, non-lethal Tomahawk traps with automatically reset, lethal AT220 automatic traps. These traps can effectively control rats, cats, and mongoose using breeding areas.

Table 1. Nests that were used or not in statistical analyses of the 2023-2024 breeding season in the Dominican Republic. For nests that were not used, the reason(s) for this is listed.

Nests (66 nests in total)	Usage*	Reasons for not being used								
		No petrel observed	No breeding activity	Camera deployed too late into season	Camera did not record fledging period	Camera did not record large part of season				
CA3, EST1, EST2, PMR1, PMR4, PMR6, PMR7, TRO1, TRO3, TRO5, TRO6, TRO8, TRO9, TRO12, TRO15, TRO16, TRO17, TRO19, TTRO6, TTRO8, VN2, VN4, VN5, VN7, VN11, VN15, VN16, VN29	F,L,D, RS									
TRO3, VN8	F				X	X				
TTRO2, VN22	F,L, RS				X					
JIM1	L, RS			Х	x					
TRO20	L, RS				X	X				
TRO13, PMR2, VN19, VN20, VN30	L,D, RS			X						
CA1, CA6, CA8, CA9, CA10, CA11, CA16, CA17, VN21	-	X								
VN14	-	х			X	x				
PMR8, VN25	-	х		Х		x				
VN32	-	x		Х						
TTRO7	-	x			Х	X				
CA2, CA4, CA5, CA7, CA12, CA13, CA14, CA15, JPG2, TRO2	-		X							
TTRO5, PMR5	-			X	x					
VN33	-		x	x						

*F = first appearance; L = last appearance; D = desertion; RS = reproductive success.

Table 2. Summary of camera trapping effort during the 2023-2024 breeding season in the Dominican Republic.

Nesting area	Number of nests monitored	Camera nights*	Median start	Earliest start	Latest start	Median end	Earliest end	Latest end
Loma del Toro	40	8927	19 Oct 2023	18 Oct 2023	23 Feb 2024	23 Jun 2024	22 Feb 2024	02 Aug 2024
Loma Quemada	7	1594	30 Oct 2023	29 Oct 2023	04 Jun 2024	29 Jul 2024	25 Jul 2024	29 Jul 2024
Valle Nuevo	19	3845	24 Sep 2023	19 Sep 2023	08 Mar 2024	11 Jun 2024	30 Sep 2023	10 Jul 2024

* Camera nights represents the total number of nights on effort.

Table 3. Summary of camera deployment and petrel activity recorded by camera traps during the 2023-2024 breeding season. Nests shown in bold are suspected to have fledged a chick. Artificial nest boxes are shown with an asterisk.

Nert	Cam	eras	Adu	lts	Breeding	C	esertion	?	Juven	ile	Notoc
Nest	Start	End	Earliest date	Last date	activity?	2024	2023	2022	Earliest date	Last date	Notes
Loma del	Toro					•					
CA1*	08-Nov-23	18-May-24			N	-	-	-			
CA2*	18-Oct-23	01-May-24	12-Nov-23	19-Jan-24	N	-	-	-			
CA3*	19-Oct-23	23-Jun-24	05-Nov-23	17-Mar-24	Y	-	-	-			
CA4*	18-Oct-23	23-Jun-24	09-Nov-23	02-May-24	N	-	-	-			
CA5*	18-Oct-23	18-May-24	16-Nov-23	01-May-24	N	-	-	-			
CA6*	19-Oct-23	24-Jun-24			N	-	-	-			
CA7*	21-Oct-23	17-Jun-24	10-Nov-23	19-Nov-23	N	-	-	-			
CA8*	10-Dec-23	24-Jun-24			N	-	-	-			
CA9*	09-Dec-23	08-Apr-24			N	-	-	-			
CA10*	11-Dec-23	01-Apr-24			N	-	-	-			
CA11*	11-Dec-23	08-Apr-24			N	-	-	-			
CA12*	19-Oct-23	23-Jun-24	11-Nov-23	05-Mar-24	N	-	-	-			
CA13*	19-Oct-23	22-Feb-24	13-Nov-23	15-Jan-24	N	-	-	-			
CA14*	19-Oct-23	15-May-24	04-Mar-24	04-Mar-24	N	-	-	-			
CA15*	19-Oct-23	23-Jun-24	26-Jan-24	21-May-24	N	-	-	-			
CA16*	23-Oct-23	24-Jun-24			N	-	-	-			
CA17*	19-Oct-23	10-Apr-24			N	-	-	-			
EST1	20-Oct-23	25-Jun-24	15-Nov-23	15-May-24	Y	Y	Ν	Ν			
EST2	23-Oct-23	25-Jun-24	03-Nov-23	13-Apr-24	Y	Y	Y	-			
JIM1	09-Dec-23	14-Jun-24	28-Jan-24	19-Apr-24	Y	Y	Ν	-			
JPG2*	19-Oct-23	22-Feb-24			N	-	-	-			
TRO1	19-Oct-23	24-Jun-24	05-Nov-23	15-Apr-24	Y	Y	Y	Ν			
TRO2*	19-Oct-23	08-Jun-24			N	-	-	Ν			
TRO3	19-Oct-23	12-Jul-24	03-Nov-23	01-May-24	Y	NA	Y	Y			Gap in data
TRO5	18-Oct-23	02-Aug-24	06-Nov-23	24-Jun-24	Y	Ν	Y	Y	15-Jun-24	28-Jun-24	
TRO6	18-Oct-23	02-Aug-24	05-Nov-23	25-Jun-24	Y	Ν	Y	Ν	01-Jul-24	10-Jul-24	
TRO8*	19-Oct-23	02-Aug-24	07-Nov-23	23-Jun-24	Y	Ν	Ν	Y	27-Jul-24	27-Jul-24	Chick found dead
TRO9*	19-Oct-23	01-Aug-24	06-Nov-23	28-Jun-24	Y	Ν	Y	Y	25-Jun-24	05-Jul-24	
TRO12	18-Oct-23	24-Jun-24	30-Oct-23	23-Jun-24	Y	N	Y	-	24-Jun-24	24-Jun-24	
TRO13	19-Oct-23	01-Jul-24	11-Dec-23	12-Apr-24	Y	Y	Y	-	29-Jun-24	01-Jul-24	
TRO15*	18-Oct-23	23-Jun-24	05-Nov-23	11-Apr-24	Y	Y	Y	Y			
TRO16	19-Oct-23	15-Jul-24	07-Nov-23	07-May-24	Y	N	Y	-	25-Jun-24	03-Jul-24	
TRO17*	18-Oct-23	02-Aug-24	08-Nov-23	19-Jun-24	Y	N	Ν	Y	30-Jun-24	03-Jul-24	
TRO19	18-Oct-23	02-Aug-24	04-Nov-23	10-May-24	Y	N	-	Y	09-Jul-24	09-Jul-24	
TRO20	23-Feb-24	18-Jun-24	06-Mar-24	29-Mar-24	Y	Y					
TTRO2	21-Oct-23	16-Apr-24	16-Nov-23	16-Apr-24	Y	NA	-	Y			Camera stopped too early
TTRO5	05-Nov-23	25-Jun-24	08-Nov-23	25-Jun-24	Y	Ν	Y	Ν			Chick found dead

#21107G Grupo Jaragua: Black-capped Petrel conservation and monitoring 2023-2024 - Camera trapping analysis

Neet	Carr	ieras	Adu	lts	Breeding	C	esertion	?	Juver	nile	Natas
Nest	Start	End	Earliest date	Last date	(1)	2024	2023	2022	Earliest date	Last date	Notes
TTRO6	20-Oct-23	02-Aug-24	10-Nov-23	15-Jun-24	Y	Ν	Y	N	16-Jun-24	07-Jul-24	
TTRO7	21-Oct-23	04-Apr-24	13-Dec-23	13-Dec-23	NA	-	Y	Y			
TTRO8	22-Oct-23	25-Jun-24	09-Nov-23	06-Apr-24	Y	Y	Y	Y			
Loma Quen	nada										
PMR1	30-Oct-23	29-Jul-24	16-Nov-23	01-Jun-24	Y	Ν	N	Y	07-Jun-24	25-Jun-24	
PMR2	21-Jan-24	28-Jul-24	23-Jan-24	01-May-24	Y	Y	Ν	Y			
PMR4	29-Oct-23	25-Jul-24	09-Nov-23	18-Mar-24	Y	Y	-	Y			
PMR5	08-Nov-23	29-Jul-24	08-Nov-23	26-Dec-23	Y	Y	Ν	Y			
PMR6	30-Oct-23	26-Jul-24	07-Nov-23	22-Jun-24	Y	Ν	Ν	Y			
PMR7	30-Oct-23	29-Jul-24	13-Nov-23	13-Jun-24	Y	Ν	Ν	Ν	20-Jun-24	25-Jun-24	
PMR8	04-Jun-24	29-Jul-24			NA	-	-	-			
Valle Nuevo	0										
VN2	20-Sep-23	11-Jun-24	24-Sep-23	06-Feb-24	Y	Y	Y	Y			
VN4	19-Sep-23	10-Jul-24	25-Sep-23	16-May-24	Y	Ν	Ν	Y	05-May-24	18-May-24	
VN5	20-Sep-23	10-Jul-24	20-Sep-23	10-Mar-24	Y	Y	Y	Ν			
VN7	22-Sep-23	13-Jun-24	02-Oct-23	15-Mar-24	Y	Y	-	-			
VN8	22-Sep-23	20-Apr-24	27-Sep-23	16-Dec-23	Y	Y	Y	Y			
VN9	26-Sep-23	07-Jul-24	27-Sep-23	27-Feb-24	Y	Y	Y	Y			Mongoose 20 Mar
VN11	22-Sep-23	13-Jun-24	28-Sep-23	25-Jan-24	Y	Y	Y	Ν			
VN14	25-Sep-23	30-Sep-23			NA	-	-	Y			
VN15	22-Sep-23	07-Jul-24	26-Sep-23	23-Mar-24	Y	Y	Y	Y			Chick found dead
VN16	24-Sep-23	08-May-24	24-Sep-23	28-Apr-24	Y	Ν	-	Ν	28-Apr-24	04-May-24	
VN19	30-Nov-23	25-May-24	16-Dec-23	01-Apr-24	Υ	Y	Y	Ν			
VN20	09-Jan-24	10-Jul-24	11-Jan-24	27-Apr-24	Υ	Y	Y	Ν			
VN21	26-Sep-23	09-Feb-24			Ν	-	-	Y			
VN22	24-Sep-23	25-Apr-24	27-Sep-23	17-Mar-24	Υ	Y	-	-			
VN25	08-Mar-24	21-May-24			NA	-	-	-			
VN29	24-Sep-23	19-May-24	03-Oct-23	07-Mar-24	Υ	Y	-	-			
VN30	30-Nov-23	30-May-24	03-Dec-23	11-May-24	Y	Y	-	-			
VN32	04-Mar-24	24-Jun-24			NA	-	-	-			
VN33	04-Mar-24	10-Jul-24	05-Mar-24	05-Mar-24	NA	Y	-	-			

(1) Y = regular visits to a nest site by Black-capped Petrels; N = no regular visits were observed; NA = camera trap data did not allow assessing breeding activity (see Table 1 for details).

Table 4. Black-capped Petrel colony occupancy and reproductive success during the 2023-2024 breeding season. For Loma del Toro, number in parenthesis include artificial nests. For Loma Quemada, the nest found in June is not included in calculations.

Nesting area	Number of	Number of	Colony	Number of	Reproductive
	monitored nests	active nests	occupancy	chicks fledged	success
Valle Nuevo	19	14	73.7%	2	14.3%
Loma Quemada	6	6	100%	2	33.3%
Loma del Toro	23 (40)	20 (21)	86.7% (52.5%)	9	45.0% (42.9%)

Table 5. Summary of animal species observed at camera traps during the 2023-2024 breeding season. Only species with an overall frequency of occurrence >1% are shown. Frequency of occurrence relates to the number of calendar days when observations of a species were made, compared to the total number of calendar days when animals were detected. Frequencies of occurrence cannot be compared across nesting areas.

Scientific name	English name	Total	Overall	Area-specific frequency of occurrence*		
		number of	frequency	LdT	LQ	VN
		days	occurrence			
Rattus sp.	Rat	318	100.0	20.9	38.1	33.9
Pterodroma hasitata	Black-capped petrel	288	90.6	16.1	19.2	25.1
Turdus swalesi	La Selle thrush	270	84.9	19.6	-	-
Turdus plumbeus	Red-legged thrush	197	61.9	8.0	17.7	-
Catharus bicknelli	Bicknell's thrush	158	49.7	11.4	1.3	-
Zonotrichia capensis	Rufous-collared sparrow	143	45.0	-	-	17.1
Calyptophilus tertius	Western chat-tanager	129	40.6	7.8	5.3	-
Calyptophilus frugivorus	Eastern chat-tanager	91	28.6	-	-	10.9
Seiurus aurocapilla	Ovenbird	58	18.2	2.2	4.7	-
Geotrygon leucometopia	White-fronted quail-dove	53	16.7	0.1	7.7	0.1
Myadestes genibarbis	Rufous-throated solitaire	43	13.5	2.2	0.1	1.4
Microligea palustris	Green-tailed warbler	41	12.9	2.0	0.3	1.6
Felis catus	Feral cat	38	11.9	1.4	1.9	0.7
Setophaga caerulescens	Black-throated blue warbler	35	11.0	2.1	0.1	0.7
Setophaga pinus	Pine warbler	30	9.4	1.2	-	1.7
-	Bird	21	6.6	1.0	-	0.8
Chlorostilbon swainsonii	Hispaniolan emerald	18	5.7	0.2	0.3	1.6
Herpestes sp.	Mongoose	12	3.8	0.1	-	1.3
Pyrrhulagra violacea	Greater Antillean bullfinch	12	3.8	0.5	-	0.6
Spindalis dominicensis	Hispaniola spindalis	10	3.1	0.3	0.3	0.6
Sus scrofa scrofa	Feral pig	8	2.5	-	1.2	-
Canis familiaris	Domestic dog	5	1.6	0.4	-	-
Melanerpes striatus	Hispaniolan woodpecker	5	1.6	0.3	0.1	-
-	Bat	5	1.6	0.2	-	0.2
Spinus dominicensis	Greater Antillean elaenia	4	1.3	-	-	0.5
Geothlypis formosa	Kentucky warbler	4	1.3	-	0.6	-
Setophaga palmarum	Palm warbler	4	1.3	0.3	-	-
Spinus dominicensis	Antillean siskin	4	1.3	0.1	-	0.4

* LdT = Loma del Toro; LQ = Loma Quemada; VN = Valle Nuevo.







Figure 2. Occurrence of Black-capped Petrels and predator species throughout the 2023-2024 breeding period, all nesting areas combined. Each point represents a day when a species was recorded.



Figure 3. Occurrence of Black-capped Petrels and predator species at nesting areas throughout the 2023-2024 breeding period. Each point represents a day when a species was recorded. Vertical dashed lines represent dates when mongoose were trapped.



Figure 4. Diel activity of Black-capped Petrel and predators species observed during the 2023-2024 breeding season. a) Diel activity of Black-capped Petrel, and b) activity of petrel predators. Activity is inferred by the density of records for a species at a given time of the day. The grey areas represent the continuity of the data before and after 00h00 and 24h00, respectively.



Figure 5. Occurrence of Black-capped Petrel and predator species at nest sites throughout the 2023-2024 breeding period.



Picture 1. Juvenile Black-capped Petrel fledging during daytime. Picture taken at Loma del Toro, nest TTRO6, on 07 July 2024 at 17:36.



Picture 2. Black-capped Petrel chick outside its burrow during the daytime. Picture taken at Loma del Toro, nest site TRO8, on 27 July 2024 at 07:53. This chick was later found dead.



Picture 3. Adult Black-capped Petrel (background) scaring away a cat (in the foreground) after having landed near its burrow. Picture taken at Loma del Toro, nest site TRO6, on 25 November 2023.



Picture 4. Cat transporting a rat. Picture taken at Loma del Toro, nest site TRO1, on 12 June 2024.



Picture 5. Telecommunication antenna with 24 anchoring cables, Loma del Toro. Loma del Toro. Photo: Juan Pablo Montero, February 2025.



Picture 6. Telecommunication antenna with 15 anchoring cables (left) and array of cables from two telecommunications antennas (right), Loma del Toro. Photo: Juan Pablo Montero, February 2025.

5. APPENDIX 1: ANIMAL SPECIES IDENTIFIED DURING THE 2023-2024 BREEDING SEASON



Calyptophilus frugivorus, Eastern Chat-tanager – 25 September 2023, Valle Nuevo



Calyptophilus tertius, Western Chat-tanager – 27 October 2023, Loma del Toro



Canis familiaris, Domestic dog – 30 November 2023, Loma del Toro



Catharus sp., Catharus (Bicknell's) thrush – 28 October 2023, Loma del Toro





Chlorostilbon swainsonii, Hispaniolan Emerald – 10 March 2024, Valle Nuevo



Coccyzus longirostris, Hispaniolan Lizard-cuckoo- 10 July 2024, Loma Quemada



Colinus virginianus, Northern Bobwhite – 18 April 2024, Loma del Toro



Elaenia fallax, Greater Antillean Elaenia – 31 December 2023, Valle Nuevo

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Felis catus, Feral Cat – 21 March 2024, Loma del Toro



Geothlypis formosa, Kentucky Warbler – 21 November 2023, Loma Quemada



Geotrygon leucometopia, White-fronted Quail-dove – 04 July 2024, Loma Quemada

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Herpestes sp., Mongoose – 16 November 2023, Valle Nuevo



Melanerpes striatus, Hispaniolan Woodpecker – 10 March 2024, Loma del Toro



Microligea palustris, Green-tailed Warbler – 04 December 2023, Loma del Toro



Mniotilta varia, Black-and-white Warbler – 26 October 2023, Loma del Toro

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Myadestes genibarbis, Rufous-throated Solitaire – 09 September 2023, Valle Nuevo



Parkesia motacilla, Louisiana Waterthrush – 24 July 2024, Loma Quemada



Phaenicophilus palmarum, Black-crowned Tanager – 05 December 2023, Valle Nuevo



Plagiodontia aedium, Hispaniolan Hutia – 04 July 2024, Loma Quemada



Pterodroma hasitata, Black-capped Petrel – 12 January 2024, Valle Nuevo

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Pyrrhulagra violacea, Greater Antillean Bullfinch – 26 December 2023, Loma del Toro

Rattus sp., Rat – 19 September 2023, Valle Nuevo





Seiurus aurocapilla, Ovenbird – 19 October 2023, Loma del Toro



Setophaga caerulescens, Black-throated Blue Warbler – 27 January 2024, Loma del Toro



Setophaga palmarum, Palm Warbler – 09 anuary 2024, Loma del Toro

#21107G Grupo Jaragua: Black-capped Petrel conservation and monitoring 2023-2024 - Camera trapping analysis



Setophaga pinus, Pine Warbler (with Black-capped Petrel feather) – 11 April2024, Loma del Toro



Setophaga ruticilla, American Redstart – 19 October 2022, Valle Nuevo



Spindalis dominicensis, Hispaniolan Spindalis – 21 January 2024, Loma del Toro

#21107G Grupo Jaragua: Black-capped Petrel conservation and monitoring 2023-2024 - Camera trapping analysis



Spinus dominicensis, Antillean Siskin – 03 October 2023, Valle Nuevo



Squamata (Order), Lizard 14 May 2024, Valle Nuevo



Squamata (Order), Snake – 24 February 2024, Loma Quemada

#21107G Grupo Jaragua: Black-capped Petrel conservation and monitoring 2023-2024 - Camera trapping analysis



Sus scrofa scrofa, Feral Pig – 08 December 2023, Loma Quemada



Turdus plumbeus, Red-legged Thrush – 20 October 2023, Loma del Toro



Turdus swalesi, La Selle Thrush – 18 October 2023, Loma del Toro



Zonotrichia capensis, Rufous-collared Sparrow – 23 September 2023, Valle Nuevo