# #21107B Grupo Jaragua BCPE Conservation and monitoring 2021-2022

Report until September 30, 2022

Project period of performance: October 1, 2021 to September 30, 2022 Reporting period: October 1, 2021 to September 30, 2022 Date Submitted: November 2022 March 12, 2022

Please **report comprehensively**. Include all results completed to date - not only the results for discrete period of time of the current report

# 1. Checklist (did you attach the necessary deliverables and other documents that may complement the report?)

Deliverable/Other documents	Attached
Financial Report in excel	
GIS files	
Maps	
Workshop list of attendees	
Conservation plan	
Digital proof of any marketing/publishing material	
5-10 HIGH DEFINITION images of project activities <u>ATTACHED SEPARATELY</u> .	
ABC's donors like to see visual representations of the activities that their conservation dollars are supporting. Examples of this could include: participants of workshops, community member(s) planting a tree, Jimena doing interpretive work at Yanacocha, hummingbird garden repairs, guard conducting bird monitoring, etc.	
Send photos as separate attachments with photographer's name & description of image. <u>Please do not include blurry or crooked images</u> , as these photos may be used for publications	
Namina format:	
Subject_location_date_photographer_U.jpg	
Example:	
Long-whiskeredOwlet_AbraPatricia_11Nov2014_DLebbin_U2.jpg.	
U indicates Unrestricted and that ABC is allowed to use the image for	
publications. R indicates restricted use as specified by photographer.	

# 2. Summary (please give a brief summary of the progress of this grant and the major accomplishments ~250 words). Be as quantitative as possible

During the 2021/2022 breeding season the Dominican BCPE team focused on predator prevention and control. During the reporting period, nests at Loma del Toro were made dog-safe: six nests were replaced by wooden artificial boxes and the diameter of the entrances of another eight nests was reduced to avoid dogs entering the nests. Camera traps were placed on altered nests to document possible predator activity. In Valle Nuevo 14 nests were monitored to document mongoose activity and to register other predator species. From February to April mongoose control was undertaken using Tomahawk and Goodnature A24 traps. Two mongooses were caught with the Tomahawk system. Nevertheless, most nests showed mongoose presence. At Valle Nuevo only two nests out of 18 had fledging chicks (RS 11.1%). Four chicks fledged at Loma del Toro out of 24 active nests (RS 16.67%) and one at Loma Quemada out of 6 active nests (RS 16.67%).

Five new nests were found in Valle Nuevo and nine at Morne Vincent.

Activities (as listed in the SGA)	% completed	Outputs (For example: 3,000 tree plants)
1. Predator control		
1.a. At Valle Nuevo a.i. Develop and implement a mongoose control strategy. a.ii. Monitor for other invasive species.	100%	1.a. At Valle Nuevo A mongoose control strategy has been developed based on results acquired during the season using Tomahawk cage traps and Goodnature A24 automatic traps. Working with Tomahawk traps seems to be the better approach, but needs more intensive surveillance, which will be achieved with a rapid task force to cut down travel time. Two dogs were observed Except for the ubiquitous rats, no other possible predator was noticed
<ul> <li>1.b. At Loma del Toro</li> <li>b.i. Keep dogs out of the colony, and control feral cats and mongoose.</li> <li>b.ii. After the loss of many nests to dogs in 2021, the team will make 20 nests dog proof by securing entrances and/or replacing excavated (destroyed) burrows with artificial wooden burrows.</li> <li>b.iii. Monitor and evaluate these artificial burrows as a proof of concept effort for protecting nesting birds from future attacks by dogs or other nest excavating predators.</li> </ul>	70% (14 of 20 total nests altered)	1.b. At Loma del Toro In October 2021 six artificial nest boxes made of wood were placed at spots where nests had been destroyed by the dogs. For additional eight nests with large entrances, the entrances were made smaller by placing big rocks to avoid predators being able to enter the nests. Where necessary the flanks and tops of the nests were reinforced with rocks to prevent their excavation. Camera traps were placed at the majority of to document bird and

# 3. Activity Summary Table

		predator activities. Two dogs and at least two individual cats were observed on a few occasions but no depredation of petrels was observed.
1.c. Efficacy of predator control efforts will be monitored by tracking the fate of as many nests as possible at each site using a combination of techniques including camera traps and traditional nest monitoring.	100%	1.c. Camera traps were placed to monitor any predator activity. Photos taken by cameras showed dog presence in three occasions during the reporting period. Visual inspection has not revealed any dog impact on nests at Loma del Toro.
		Only four nests at Loma del Toro had fledging chicks. The majority of nests (irrespective of having artificial boxes or having little or no intervention to prevent dog impact) appeared to be abandoned around hatching, or right afterwards. The reason is not clear. It could be the result of dog attacks the season before or of some other still unknown cause (lack of sufficient food sources?)
<ol> <li>Find new nests at suspected sites on Hispaniola.</li> <li>Searches will be conducted at Valle Nuevo, Loma del Toro, Zapoten and Loma Quemada as part of the predator control and monitoring trips.</li> </ol>	100.00%	Five new nests were found in Valle Nuevo. The Haitian team encountered nine new nests at Morne Vincent
3. Conduct thermal imaging surveys on Dominica	100.00%	Flight corridors were surveyed during 9 nights between 23 and 31 January 2022. One petrel was observed flying away from a suspected nesting area. See report by Yvan Satge (Satgé and Millischer 2022, provided to ABC on ( April 2022)

### 4. Description of activities completed during report period.

In discussing your progress on each activity in the agreement, please be descriptive (who, what, where, when, and why), but also concise. Please discuss any problems/challenges encountered, any new opportunities discovered, any issues that need to be addressed, and decisions/actions taken or additional outputs.

Activity 1. 1. Predator control

1.a. At Valle Nuevo

a.i. Develop and implement a mongoose control strategy.

In September 2021, camera traps were placed at 14 nests in Valle Nuevo to document activities of mongoose and other invasive species.

A preliminary review of the photo material shows the following: mongoose presence was first detected starting September 27<sup>th</sup>. During the early months of the reporting period, visits to the nests were sporadic and short (mongoose entering and leaving the nest immediately). Mongoose visits intensified during the second part of February and even more in March. Egg hatching is assumed to be happening starting mid-February in Valle Nuevo, which actually would coincide with the more frequent visits of mongooses entering most of the nests (see preliminary analysis of mongoose visits to nests in Appendix 1). Definite negative Mongoose impact was registered on nest nv4, where a mongoose is seen leaving with an egg in its mouth on February 14<sup>th</sup>, and nest nv14, where a mongoose after a prolonged stay within the nest leaves carrying an adult petrel on March 17<sup>th</sup>. Only three nests seem to have been spared by mongoose visits according to non-appearance of the species in the photos of the corresponding placed cameras. Two of these nests are the only ones that may have produced fledging chicks. (Nest nv19 with chick last seen on May 13<sup>th</sup>, already without down feathers ready to fly. In nest nv20 the chick was last seen on April 4<sup>th</sup> but, due to camera failure, final fledging could not be definitely documented).

Control measures for mongooses were implemented starting in February 2022. Live trapping was done with nine Tomahawk traps (26''x9''x9'') which were installed in the area close to the different nesting sites. They were baited with either smoked herring or boiled eggs. Camera traps were installed to monitor any activities in and around the traps. During the first ten days after installation of traps they were visually revised every second day. February usually is a month of the dry season, but in 2022 it brought continuous rain during the ten-day stay of the

team. No mongooses were caught in the traps during that time. After the ten days of intensive trapping under continuous rain, the activity was abandoned 1) because of the non-appearance of mongooses, and 2) because the intensive manpower input was about the overdraw the budget.

In March the team returned to Valle Nuevo to install eight GoodNature A24 automatic traps. We had been lucky to acquire CO2 cartridges for the traps in a bicycle shop in Santo Domingo (they are considered hazardous goods, which cannot be sent by air). The A24 traps were baited with smoked herring or boiled eggs. Cameras were also placed to monitor the automatic traps. The team continued to operate the Tomahawk traps, but due to lack of additional cameras, it was not possible to survey the activity of all of them continuously. They were checked visually on a monthly basis.

Results of control measures for mongooses:

Two mongooses were caught in the Tomahawk box traps: One in March close to nest nv2 and one in May in a trap which the team had put up at nest nv4. Both traps had been baited with smoked herring. Intents of mongooses trying to enter closed traps were also registered on photos taken by cameras. We assume that more mongooses could have been caught with increased visits to revise and bait the traps. Baits of smoked herring lasted much longer than eggs, which decayed quickly (smoked herring is the bait preferred by locals for attracting mongooses).

GoodNature A24 traps were visited by mongooses (as well as rats). Due to lack of sufficient quality camera traps only part of the activities at these traps could be monitored. A more detailed analysis of mongoose activity at these traps is pending. Preliminary results show that mongooses are attracted and may stick their head inside the A24 opening. No mongoose was registered dropping dead immediately after entering its head into the trap but mongoose were

documented quickly scampering away and shaking their heads after inspecting traps. This reaction could be interpreted in the sense that the mongooses may have received some type of hit on their head by the trap mechanism. The severity of this "hit" is unknown. It seems that either the trap opening is too small for the mongooses' heads or the mechanism is not strong enough to cope with the thick skull of the mongoose. The mechanism is strong enough to kill rats.

Conclusions for a control strategy of mongooses during the new 22/23 season:

- Continue trapping with the Tomahawk traps: Traps were reinstalled and baited in September 2022. This way they will be active from the start of the new season.
- More frequent visits for a better monitoring and baiting of the traps: We hoped to integrate local personnel of the Ministry of Environment to aid us in a frequent revision of the traps, but the administration of the National Park Valle Nuevo did not see itself in the position to help us out with additional qualified manpower
- We are creating a task force on motorbikes to get more quickly and more frequently to Valle Nuevo, instead of using our old trucks. We hope for much better monitoring this way. Improved monitoring also includes a sufficient quantity of better quality camera traps, especially regarding their resistance to extremely high air humidity.

# a.ii. Monitor for other invasive species.

During the reporting period only mongoose activity was documented in Valle Nuevo. There was one sighting of two dogs and the passing of two humans was noticed. These events happened at nests close to the road passing by and leading to the illegal strawberry farm, which is about 300 meters away from the nesting site. We think the men were Haitian laborers from this nearby farm. Neither dogs nor humans showed interest in the nests and did not leave any negative impact. The ubiquitous rats (*Rattus rattus*) can be practically seen on photos taken at all nests.

## 1.b. At Loma del Toro

b.i. Keep dogs out of the colony, and control feral cats and mongoose.

b.ii. After the loss of many nests to dogs in 2021, the team will make 20 nests dog proof by securing entrances and/or replacing excavated (destroyed) burrows with artificial wooden burrows.

In October 2021 six artificial wooden nest boxes with their corresponding tunnels were placed at spots where nests had been destroyed by the dogs. Nest boxes followed dimensions and schematics used for Hawaiian petrels (*Pterodroma sandwichensis*). The nest boxes were made of pine boards of 3 cm of thickness. The boxes were70 cm long, 40 cm wide and had a height of 30 cm. The wooden tunnels were 25 cm long, with a width and height of 18 cm.

Additionally, in eight nests with wide entrances, the diameters of these entrances were reduced by placing big rocks and/or installing a wooden tunnel to avoid dogs being able to enter or excavate the nests. Where necessary the flanks and tops of these other nests were also reinforced with rocks and wooden stakes to prevent excavation by dogs. (For details, see appendix 2).

During the rest of the season an additional total of eight new nest boxes were installed as new nesting alternatives (see Appendix 3) for the birds.

1.c. Efficacy of predator control efforts will be monitored by tracking the fate of as many nests as possible at each site using a combination of techniques including camera traps and traditional nest monitoring.

Camera traps were placed to monitor any predator activity at the intervened nests as well as the nests which were left in their original state. During every visit to the sites, each nest was also inspected visually for possible impacts of predators. Where necessary a burrow scope was used to revise the nest within.

During the reporting period, the presence of dogs was captured on camera on three occasions at Loma del Toro (22 November, 3 March, and 14 March). Visual inspection of the nests themselves did not reveal any dog impact. Some sporadic cat visits were noted. Human presence was documented a couple of times in the lower part of Loma del Toro. The persons did seem to notice the cameras but their behavior indicated that they were only passing without trying to intervene in the nests.

Results of nest monitoring for the season:

Table one shows the fate of monitored nests at Valle Nuevo, Loma del Toro and Loma Quemada. The total of nests monitored was 23 nests at Valle Nuevo, 34 at Loma del Toro, and seven at Loma Quemada. Discarding the nest that never showed activity during the season, 18 nests were active at Valle Nuevo, 24 at Loma del Toro and six at Loma Quemada. Successful fledging was reported at two nests at Valle Nuevo, four at Loma del Toro, and one at Loma Quemada, which brings fledging success to 11.11%, 16.67%, and 16.67% respective to the mentioned sites.

results	Valle Nuevo	Loma del Toro	Loma Quemada							
not active from start	5	10	1							
photos of adults	11	17	5							
predator impact confirmed	3	0	0							
no clear result	2	3	0							
fledged	2	4	1							
Total	23	34	7							
active	18	24	6							
% fledging	11.11	16.67	16.67							

Table 1: Fate of monitored nests at the different sites

At Valle Nuevo adult activity was documented with camera traps, visually, and based on detection of strong odor for eighteen nests. Of these nests only two are considered to have fledged (for the nest nv19 confirmed by photos, for nv20 assumed based on visual inspection and detection of chick, but without final proof since the camera failed during the final stage of fledging). For both nests no mongoose activity was ever documented. At two other nests the actual results are unclear, since strong bird odor was detected, but due to lack or malfunction of cameras, no adult bird or chick was ever confirmed. Direct negative mongoose impact was documented for three nests. At nv4, photos were taken of a mongoose leaving with an egg in its mouth on February 14<sup>th</sup>. The nest nv14 showed a mongoose leaving it with a bird feather on its head after several prolonged visits and stay within the nest; on March 17<sup>th</sup>, a mongoose was observed leaving a nest while carrying an adult petrel. Nv25 is a new nest found in march with a chick inside. On the following visit to the nest in April rests of the chick were found at the entrance.

At 11 nests, camera traps captured activities of adult birds entering and leaving the nests. All these nests also showed photos of mongooses (except for nv18). The last photos of the adult visits for eight of these nests concentrated on a time period between February 26 and March 25. It is not quite clear, why the abandonment was during the mentioned period. It may have been due to mongoose impact. But there is also a chance that some other reason may have been caused the abandonment. The mentioned time frame spans the days shortly after egg hatching, which for Valle Nuevo would be from the middle of February to the beginning of March. It is interesting to compare the situation in Valle Nuevo with that at Loma del Toro, where a similar phenomenon was also recorded, but at a later time period.

At Loma del Toro adult activity was documented with camera traps, visually, and/or based on strong odor for 18 nests. No predator impact was noticed. Four chicks were documented to have fledged, based on photos taken by the cameras. For three nests, results were unclear, since odor inside the nests was detected but no adult nor chick activity could ever be documented for lack of cameras and deepness of nest crevices, which made it difficult to revise nests with endoscopes.

At 17 nests, adult activity of entering and leaving the nest could be documented with cameras. Final appearance date of birds at 12 nests was between March 14 and April 24, which has been documented to be the egg hatching time for Loma del Toro in the past seasons. The question is open to what may be the cause of the abandonment during this time frame: had it to do with the dog impact on the nests the year before, or had the abandonment to do with some other

cause (food shortage, no brooding of eggs)?

Two more birds were last seen on December 12 of 2021 on photos taken by the automatic cameras. We suspect that these birds left for ocean feeding after claiming their nests in November but never returned afterwards.

Two additional nests were abandoned on February 12 and 20 respectively, which may be interpreted in the sense that no egg laying and brooding was ever undertaken during the time frame when this activity usually takes place.

The results at Loma del Toro with a fledging percentage of 15.67% have somewhat improved over the former year, but are still way below the percentage of the earlier years (see Table 2)

			-	
Year	active nests	successful	failed nests	percentage of
		nests		successful nests (%)
2011	3	1	2	33.33
2012	30	23	7	76.67
2013	43	30	13	69.77
2014	47	34	13	72.3
2015	34	27	7	79.41
2016	25	21	4	84
2017	42	34	8	80.95
2018	50	28	21	56
2019*	42	35	7	83.33
2020**	no data	14	no data	-
2021***	29	2	27	6.89
2022****	24	4	20	16.67

\* data on years until 2019 includes nests from Morne Vincent (Haiti)

\*\* due to travel restrictions during the early months it was not possible to take data on nest activity during the early months of season

\*\*\* dog attacks on nests

\*\*\*\* data includes artificial nest boxes

How did the artificial wooden boxes fare during the season? The results of the six boxes originally installed in October 2021 are shown in Table 3. At the nest JGP2 one bird appeared only once very early in the season, even ahead of other birds. It was seen on photos dated October 31<sup>st</sup> and after this date never seen again. No more BCPE visits were registered at this nest. The nest TRO2 was active until December 14 and therefore may be classified within the category of birds which went off to the ocean to feed without ever returning to their nests. This leaves four nesting boxes falling into the time range of March 24 to April 21. Therefore these boxes form part of the total of 12 nests that were abandoned right around or after hatching. All boxes were visited by birds and although no successful fledging was recorded for them, the activity of birds using the boxes may be a strong sign that they are accepted. The development of further activities during the recently started 22/23 season will hopefully bring more clarity to the case.

nest box	Date of last foto of adult bird
JGP2	31/10/21
TRO2	14/12/21
TRO8	21/04/22
TRO9	24/03/22
TRO15	02/04/22
TRO17	14/03/22
Table 3: 1	Results for nest boxes

At Loma Quemada only one fledging chick was observed (last photo on June 26<sup>th</sup>). Most interesting is the fact that for the remaining five nests the time of abandonment was between March 17 and April 29, a time frame quite related to the one of major abandonment at Loma del Toro. For the 20/21 season at Loma Quemada, four fledging chicks were confirmed and no dog impact was noticed, so the abandonment noticed during the 21/22 season at the site cannot be explained as a result of predator impact the year before.

The fact that the majority of nests at the three described sites had mayor abandonment during or shortly after egg hatching stands in contrast to the data received from Morne Vincent, where for most nests successful fledging of chicks has been reported. Since Morne Vincent and Loma del Toro actually form a single continuum of several nesting sites, which is only crossed by a political border unknown to the, it seems somewhat mysterious having many successful nests on the Haitian side and only a few on the Dominican one. It would be interesting to compare to results from the nesting colony in La Visite.

Activity 2 Find new nests at suspected sites on Hispaniola.

2.a. Searches will be conducted at Valle Nuevo, Loma del Toro, Zapoten and Loma Quemada as part of the predator control and monitoring trips.

Five new nests were found in Valle Nuevo (see table 4). All these nests are within the already known sites. Except for nest nv20 none had a fledging chick.

Several intents to search for nests at Loma Quemada did not result in finding more nests. Nest search at Zapoten was not undertaken by the Dominican team during the 21/22 season.

new nests	Coordinates (UTM, NAD27)						
	E	Ν					
nv20	331162	2061773					
nv21	331209	2061872					
nv22	331283	2061936					
nv23	331276	2062941					
nv24	331204	2061890					

### Table 4: new nests found in Valle Nuevo during 21/22

Logistic support was given to the Haitian team to do more nest search at Morne Vincent which resulted in the finding of a total nine new nests. A cluster of 7 nests southwest of the COHL cluster can be considered a new site. More details on the new nest can be found in the report of the Haitian team.

#### Activity 3. Conduct thermal imaging surveys on Dominica

During 9 nights between 23 and 31 January, 6 sites were surveyed from 11 survey locations. Five sites were adjacent to potential nesting areas and one site was adjacent to a potential flight corridor. The principal observer was on effort for 36.5 h, and the secondary observer for 17.4 h; overall survey effort totaled 53.9 hours. A single petrel was observed at 20:37 on 25 January, flying in the direction of the Caribbean Sea from the suspected nesting area of Morne Micotrin (in the Morne Trois Pitons range). See report provided Yvan Satgé to ABC on 5 April 2022 (Satgé and Millischer 2022).

# 5. Additional Comments. Please provide any additional comments, ideas for future steps, future funding needs and unexpected outcomes, etc.

Due to deteriorating road conditions and the aging process affecting our two 18 year old trucks we are planning on creating a rapid task force using all-terrain motorbikes. This way we will be in the condition to increase monitoring frequency at all three sites as well as to intensify predator control efforts.

Lack of camera traps did not allow monitoring all nest and traps sufficiently. We are increasing successively the amount of cameras to cover the maximum activity possible.

#21107B Grupo Jaragua

# Black-capped Petrel conservation and monitoring 2021-2022

Camera trapping analysis



Report prepared by Yvan Satgé for Grupo Jaragua. Submitted on 19 December 2022.

#### 1. Summary

Black-capped Petrel and predator activity were monitored by camera traps at 41 nest sites throughout the 2021-2022 breeding season. Each nest was monitored with one camera, except for one nest with multiple entrances (VN4) that was monitored using two cameras. At two nests, cameras failed to work. Predator species seen on cameras included rats, cats, mongoose, dogs and feral pigs. Predation events were recorded for mongooses only, at Valle Nuevo. Despite their presence, rats, cats, dogs and feral pigs were not observed in activities that could suggest predation upon Black-capped Petrel. Black-capped Petrel activity was recorded from nest initiation through fledging. Of 39 monitored nests, 31 were abandoned by mid-April 2022. In 5 nests, chicks were suspected to have fledged. In 2 additional nests, adults were present until typical fledging dates but no chick was observed. Overall, despite low predation rates, breeding success was very low. The causes of nest desertion are unclear but seem to be linked to factors outside the terrestrial nesting areas.

#### 2. Methods

We deployed camera traps at monitored nests at all three colonies in the Dominican Republic (Valle Nuevo n = 15, Loma Quemada n = 6, Loma del Toro n = 20). Cameras were positioned to face the entrance or suspected entrance of historical 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 during bimonthly monitoring visits. At one nest with two entrances (VN4, in Valle Nuevo), two cameras were set, to record activity at each entrance.

Images were retrieved on a computer and stored in parallel by Ernst Rupp and Yvan Satgé. Yvan Satgé used the open platform Wildlife Insights (wildlifeinsights.org) to analyze and annotate the images. Prior to annotation, images were processed by a cloud-based, artificial intelligence model based on Google's TensorFlow technology within Wildlife Insights. The AI 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, Yvan Satgé visually identified all images classified as containing animals, and identified them to the species level whenever possible. For rats, 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. For Black-capped Petrels, life-stage (adult or juvenile) was added as an additional identification criterion.

We calculated camera trapping effort as the number of elapsed nights (i.e. total number of nights during which camera traps were deployed and functioning). Using identification data, we calculated a species' presence as its frequency of occurrence at a given nest site (number of nights with a species, divided by the total number of nights with animals).

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

We assessed petrel activity at nest sites by visually reviewing pictures in which petrels were present. We calculated first and last appearance in pictures, for adults and juveniles. For this, we did not consider cameras that were deployed outside the typical deployment date for the colony or that had issues in the early breeding period: NV1, TRO1, TTRO2, VN4, and VN21 (see Figure 6). We used the remaining cameras to calculate median dates of first and last appearance.

For nest desertion, 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): TRO6, VN19, and VN20 (see Figure 6). We then calculated the median desertion date as the median of the latest dates an adult petrel was observed in a picture. Finally, we considered fledging date to be the last date a fledgling was observed in pictures.

- 3. Results
- 3.1. Effort

Camera trapping occurred between 08 September 2021 and 9 July 2022 (Table 1). Cameras recorded animals during a range of 3 – 205 nights per camera (mean: 126.0 nights per camera). Animals were recorded on 2,781 total nights in Loma del Toro, 912 total nights in Loma Quemada, and 1,416 total nights in Valle Nuevo.

#### 3.2. Species presence

Overall, the animals most often observed (in percentage of occurrence in nights with animals) were the Rat group (*Rattus sp.*, observed in 98.7% of all individual nights), Black-capped Petrels (90.1%), La Selle Thrush (*Turdus* swalesi, 79.6%), and Western Chat-Tanager (*Calyptophilus tertius*, 51.3%)(Table 2). The Hispaniola Hutia (*Plagiodontia aedium*) and the White-fronted Quail-dove (*Geotrygon leucometopia*), two species listed as Endangered by the IUCN, were also recorded (Appendix 1). Although not identified to the species level, *Catharus sp.* individuals were observed and likely to be Bicknell's Trush (*Catharus bicknelli*), a Vulnerable species. Bats were recorded on three occasions. Illustrative pictures of each species can be found in Appendix 1.

Observed predators of Black-capped Petrels included Rats (n = 300 individual nights), Feral Cat (*Felis catus*, n = 49), Javan Mongoose (*Urva javanica*, n = 37), Domestic Dog (*Canis familiaris*, n = 12), and Feral Pig (*Sus scrofa*, n = 5) (Table 2 and Figure 1). Rats were observed at all three colonies; cats at Loma Quemada and Loma del Toro; mongoose only at Valle Nuevo; dogs at Loma del Toro and Valle Nuevo; and pigs only at Loma Quemada (Figure 2). Specifically:

- Rats did not show any level of seasonality and were commonly observed across the effort period (Figure 1), particularly at night (Figure 3). Rats were observed at all nesting sites (Figure 4). Although rats sometimes appeared to enter petrel burrows, we did not detect obvious predatory behavior. Rats appeared to avoid the area when petrels were present at the entrance of the burrow.
- Cats were recorded irregularly throughout the period and were diurnal (Figures 1 and 3). Cats were observed at most (but not all) nests at each colony (Figure 4). A minimum of two individuals were observed at each colony (one black and one striped individual at each site); in Loma del Toro, a cat (black, supposedly a female) and a single kitten (black) were observed during one day. Although they sometimes showed interest in petrel burrows, cats did not enter the burrows and we did not detect obvious predatory behavior. At both sites, cats appeared to follow a routine route.
- Although we observed some mongoose activity early in the season, mongooses were more active during the early chick rearing period, when they repeatedly visited burrows (Figure 1). Mongooses were strictly diurnal (Figure 3). Since mongooses do not have obvious individual markings, it is unclear how many individuals were present. We observed two predation events (see details below: 3.3 Species interactions).

- Dogs were present irregularly throughout the season at Loma del Toro, and only between mid-February to mid-April in Valle Nuevo (Figure 2). In Loma del Toro, two dogs were present. In Valle Nuevo two dogs were present; they sometimes preceded farmers using a trail near which a petrel burrow is present. Although dogs appeared interested in petrel burrows (smelled around the entrances), they did not try to dig into the burrows. We did not detect signs of predation.
- A minimum of one pig was observed on three occasions, each at a different burrow, in Loma Quemada (Figure 4). It is not possible to confirm if this was a single or multiple individuals. Pigs did not interact with petrel burrows.

One Ashy-faced Owl (*Tyto glaucops*) was photographed on 5 June 2022 at one nest site in Loma del Toro (TTRO5). Given their size and nocturnal habits, Ashy-faced Owls, which are endemic to Hispaniola, could potentially capture Black-capped Petrels.

Adult Black-capped Petrels were observed on a total of 274 individual nights and juveniles were observed on 25 individual nights. Petrels were nocturnal, with the majority of observations occurring between 18h00 and 6h00 (Figure 3). Observations during daylight hours were mostly due to errors in the time settings of camera traps. Petrel activity is described in more details below (3.4. Petrel activity).

Humans were observed at all three colonies: several groups of 2 to 5 people in Loma del Toro, who appeared to be lost (in April, May, and June); 1 hunter with dogs in Loma Quemada (in December); and 2 farmers in Valle Nuevo (in September and March). None of them interacted with petrel burrows and, although some of them noticed the camera traps, they did not tamper with them.

#### 3.3. Predation events

During the 2021-2022 breeding season, petrels were impacted twice by mongoose (Figures 1, 2, and 4-6). Mongooses were observed depredating one egg (on 14 February 2022 at nest VN4, Picture 1) and one adult petrel (on 17 March 2022 at nest VN14, Picture 2). No petrel was observed at nest VN14 after 17 March.

At three additional nests, mongoose and petrel activity suggest that predation may have occurred, though camera traps failed to record any evidence (Figure 5). At VN2, a mongoose visited the burrow 8 times between 27 September and 27 January; starting on 27 January, a petrel came back to the burrow several nights in a row, an atypical behavior this far into the breeding period. At VN8, a mongoose entered the burrow twice on 11 February, then came out of the burrow at night after a petrel entered, suggesting that either the mongoose stayed in the burrow for several hours until the petrel's return, or that it used a second entrance hidden from view; a mongoose subsequently visited the burrow 11 times during the remainder of February, and March. At VN11 a mongoose was inside the burrow for 25 minutes on 22 March.

#### 3.4. Petrel activity

Black-capped Petrels first arrived at nest sites in September 2021 at Valle Nuevo (median arrival date: 27 September; range: 22 September to 07 December; n = 13), and November at Loma del Toro (median arrival date: 08 November; range: 27 October to 01 December; n = 16) and Loma Quemada (median arrival date: 05 November; range: 26 October to 15 November; n = 6)(Table 3 and Figure 6).

Adult petrels last appeared in camera trap pictures in March 2022 at Valle Nuevo (median date: 16 March; range: 04 February to 26 April; n = 12), and April at Loma del Toro (median date: 13 April; range:

12 February to 7 July; n = 17) and Loma Quemada (median date: 7 April; range: 17 February to 25 June; n = 6)(Table 3 and Figure 6). In total, 27 nests (out of 39 nests with petrel activity) appeared to have been deserted early in the season: 12 at Loma del Toro, 5 at Loma Quemada, 10 at Valle Nuevo (Table 3 and Figure 6).

Juveniles in fledging activities (e.g. stretching and flapping wings outside burrow, walking around) were observed at 5 nests (Table 3 and Figure 6). At Loma del Toro, juveniles first appeared in camera trap pictures in June (median date: 21 June; range: 14 June to 2 July; n = 4) and last appeared in early July (median date: 5 July; range: 27 June to 7 July; n = 4). At Loma Quemada a juvenile appeared only at one nest on 25 June.

Six artificial nest boxes were deployed in October 2021, all at Loma del Toro (JPG2, TRO2, TTRO8, TTRO9, TTRO15, and TTRO17). Petrels visited all boxes and, except for JPG2, all were used regularly throughout the season (Figure 6). Four out five petrels using nest boxes deserted around the median desertion date for Loma del Toro. At one nest (TRO2), adults continued visits until the typical fledging period for Loma del Toro, and may have fledged a chick (though no chick was observed).

Camera traps sometimes record the moments when petrels arrive or leave the nest site. Although the majority of pictures showed petrels walking to their nest after landing outside the field of view, one petrel was photographed landing just in front of its nest site (Picture 3). On few occasions, petrels were also observed climbing a steep rock face after leaving the nest site, supposedly to take off more easily (Picture 4).

#### 3.5. Predator control

To control mongooses, two types of traps were deployed at Valle Nuevo: GoodNature A24 (lethal for rats) and Tomahawk (non-lethal). Mongoose inspected A24 traps and were impacted on several occasions but no mongoose appears to have been killed by this type of trap. Two mongooses were captured in Tomahawk traps: one in March near nest VN2, and the second on 28 April near nest VN4. Rats were killed by A24 traps; rats also caused the Tomahawk traps to close a minimum of four times, thus preventing mongooses to enter in at least one occasion.

#### 4. Discussion

The 2021-2022 showed the highest amount of camera trapping effort since Black-capped Petrel monitoring started in the Dominican Republic, with 39 nests being effectively monitored across three distinct areas. 6 of 7 known nests (86%) were monitored in Loma Quemada, 25 of 34 (74%) at Loma Quemada, and 15 of 23 (65%) at Valle Nuevo. In general, all cameras performed correctly except for six that malfunctioned (EST2, TTRO8, VN9, VN11, VN17, VN19), two that appeared too slow (TRO2 and TTRO7), and four that took overexposed pictures (PMR1, TRO6, TTRO4, TTRO5). Given these issues, it is possible that events were missed. However, it appears that at least two, and no more than five, depredations by mongoose occurred this season. This is comparable to the rate of depredation observed in 2020-2021, when three nests were confirmed to be impacted by mongooses. This season, heavy rains prevented effective trapping early in the season at Valle Nuevo and mongooses were captured too late in the season (March and late April) to potentially have a positive impact on Black-capped Petrel reproductive success.

Despite these shortcomings, predation does not seem to be the main cause of the low reproductive success observed throughout all three nesting areas. Indeed, only 7 of 64 nests monitored in the Dominican Republic appeared to have fledged a chick this season (Table 3, and see main Grupo Jaragua report 21107B). Predation of the egg by rats, which is not directly detected by camera traps, may be a cause of desertion; however, rats have been present at comparable densities since the beginning of petrel monitoring efforts in the Dominican Republic, and the level of desertion observed in 2021-2022 was not observed previously.

Given that no predation was recorded in Loma del Toro and Loma Quemada, this widespread failure may more likely be a result of external factors affecting the species outside the nesting areas. With most nest desertions occurring around the typical hatching period at all three colonies, it is possible that desertion followed egg failure due to contamination by pollutants. However, contamination is usually a chronic process that affects populations increasingly over time. In the last 10 years, breeding success has been stable; therefore contamination is not likely the cause of nest desertion this season. A few external factors could affect a population as suddenly as was observed:

- Food shortage: A typical cause of desertion in seabirds, food shortage can possibly be responsible for this season's desertion. However, given the limited information on Black-capped Petrel diet and connectivity to foraging areas, it is unclear what and how food shortage could impact the Dominican Republic population.
- Disease: since the major part of the Black-capped Petrel population appears to use localized hotspots during the non-breeding season, a disease outbreak could affect adult petrels indiscriminately of their nesting location. However, no adults have been found dead at site. A global outbreak of Highly Pathogenic Avian Influenza (H5N1) has affected seabird populations throughout the temperate northern hemisphere during the 2022 summer. However, the outbreak has only reached northern South America (Colombia, Venezuela) in November 2022 and the disease was not reported to be present in the Greater Antilles in early 2022. Unless the disease was already present (but undetected) in the Atlantic seabird population over the 2021-2022 winter, it seems too early in the outbreak for petrels to be already impacted.
- Acute pollution: An acute pollution event in an area used by foraging petrels could impact a large portion of the population. Localized oil spills have been regularly affecting the northwestern coast of Venezuela for decades but no large even has been reported this year.

It is not possible to use camera trap images to identify individual petrels, thus it is unclear if both adults deserted impacted nests. Also, with no mark-recapture program in place, it will not be possible to confirm if adults were directly impacted by the event or survived. Nevertheless, careful attention should be given during the 2022-2023 breeding season to confirm which nests are active.

5. Recommendations

#### 5.1. Camera traps

Of the 41 cameras deployed during the 2021-2022 breeding season, two appeared to be too slow (TRO2 and TTRO7), two were too close to ground and missed parts of the burrow entrance (TRO15, TRO17), four took overexposed pictures (PMR1, TRO6, TTRO4, TTRO5), six malfunctioned (black images, damaged images, or images with a pink tint; EST2, TTRO8, VN9, VN11, VN17, VN19), and six temporarily had a wrong setup (continuously taking pictures every 3 or every 4 sec; VN8, VN9, VN11, VN14, VN15, VN19).

In tropical environments, camera traps tend to deteriorate in a few years. Low-price cameras (e.g. Meidase/GardePro) seem to withstand the high humidity relatively well. However, although they seem to keep functioning, they also appear to malfunction quite easily. One issue that was prevalent this season is the enormous amounts of empty pictures, irrespective of the time of day or "sun spots" (a spot of sun with high ambient temperature that can trigger camera traps): this "run-on triggering", in which the camera takes several pictures per second for hours, may be caused by bad hardware design (the heat from the microprocessor triggers the camera's own infrared sensor) or by deterioration. Pictures taken during a run-on triggering event are of good quality but the sheer number of pictures makes managing, storing, and sharing pictures overly difficult and time-consuming, and slows the analysis effort unnecessarily. Although Wildlife Insight's computer model helps sort through great amounts of pictures, computer vision is still greatly limited compared to the human eye and shows a high rate of false negatives (a picture categorized as "empty" even though an animal is present, usually a small or partly hidden bird). Therefore, in future work plans, I recommend budgeting mid-price cameras (\$150-250) that can last a few years before malfunctioning. If possible, I also recommend choosing settings that are less sensitive to heat. In some cases where run-on triggering is caused by bad hardware design, it may be possible to modify the hardware to prevent over taking pictures (https://winterberrywildlife.ouroneacrefarm.com/2021/06/30/how-some-trail-cameras-fail/#run-ontriggering).

Despite the apparent presence of photographed petrels, pictures from four cameras were hardly usable because they were overexposed. These pictures appear almost white, with some details visible. This issue may be caused by the camera being too close to the slope it is facing. In future camera trapping efforts, care should be taken to point cameras at an angle that will prevent overexposure in pictures. On cameras that must be facing the ground and that end up being overexposed, it is possible to tape nylon stocking over the flash, to diffuse the light.

#### 5.2. Predator trapping

In several occasions, rats caused the Tomahawk traps to shut. At least twice, no rats were visible when the door shut. I suggest adjusting the resistance of the Tomahawk traps so that only heavier animals can trigger them.

### 5.3. Artificial nests and future monitoring

Five of six artificial nests monitored during the 2021-2022 breeding season were regularly used, both during the nuptial visit in November-December and after the pre-laying exodus until nest desertion (4 nests) or until the typical fledging period (1 nest). More artificial nests could be deployed in the coming seasons, not only to increase nesting opportunities for petrels but also as a first step for a mark-recapture program. It would also be good to increase the current sample size of five artificial nests to be able to better assess any impact on breeding success.

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Colony	Number of nests monitored	Nights Elapsed*	Median start	Earliest start	Latest start	Median end	Earliest end	Latest end
Loma del Toro	20	4411	23 Oct 2021	21 Oct 2021	17 Mar 2022	05 Jul 2022	02 Nov 2021	07 Jul 2022
Loma Quemada	6	1484	25 Oct 2021	25 Oct 2021	26 Oct 2021	09 Jul 2022	14 May 2022	09 Jul 2022
Valle Nuevo	15	2937	09 Sept 2021	08 Sept 2021	18 Feb 2022	10 Apr 2022	26 Oct 2021	11 Jun 2022

Table 1. Summary of camera trapping effort during the 2021-2022 breeding season in the Dominican Republic.

\* Nights elapsed represents the total number of nights on effort.

Table 2. Summary of animal species observed at camera traps during the 2021-2022 breeding season. Only species with a frequency of occurrence >1% are shown. Frequency of occurrence relates to the number of days when observations of a species were made, compared to the total number of days when animals were detected. Frequencies of occurrence cannot be compared across sites.

Genus	Species	English name	Total number	Overall	Site-specific frequency of		ency of
			of nights	frequency of		occurrence	
				occurrence	LdT	LQ	VN
Rattus	sp.	Rat sp.	300	98.7	25.1	44.8	31.6
Pterodroma	hasitata	Black-capped Petrel	274	90.1	21.4	25.9	25.4
Turdus	swalesi	La Selle Thrush	242	79.6	24.7	2.4	1.6
Calyptophilus	tertius	Western Chat-tanager	156	51.3	11.0	2.8	9.9
Zonotrichia	capensis	Rufous-collared Sparrow	138	45.4	0.3	0.8	20.4
Turdus	plumbeus	Red-legged Thrush	110	36.2	6.9	12.7	-
Felis	catus	Feral Cat	49	16.1	2.3	5.8	-
Catharus	sp.	Catharus sp.	43	14.1	4.4	0.2	0.1
Urva	javanica	Javan Mongoose	37	12.2	-	-	5.5
Plagiodontia	aedium	Hispaniolan Hutia	23	7.6	0.1	0.2	3.1
-	-	Unid. Bird	21	7.9	1.4	1.0	0.7
Canis	familiaris	Domestic Dog	12	3.9	0.7	-	0.9
Seiurus	aurocapilla	Ovenbird	9	3.0	0.1	1.8	-
-	-	Unid. Bat	7	2.3	0.7	-	-
Sus	scrofa scrofa	Feral Pig	5	1.6	-	1.0	-

\* LT = Loma del Toro, LQ = Loma Quemada, VN = Valle Nuevo.

Table 3. Summary of camera deployment and petrel activity recorded by camera traps during the 2021-2022 breeding season. Nests shown in bold are suspected to have fledged a chick. Artificial nest boxes are shown with an asterisk.

	Cam	ieras	Ad	ults	Deser-	Juvenile		
Nest	Start	End	Earliest date	Last date	tion?	Earliest date	Last date	Notes
Loma del	Toro	:		:			:	i
EST1	23-Oct-2021	07-Jul-2022	07-Nov-2021	04-Jul-2022	N	20-Jun-2022	05-Jul-2022	
EST2	23-Oct-2021	02-Nov-2021	-	-	-	-	-	No petrel observed
JPG2*	22-Oct-2021	09-May-2022	27-Oct-2021	31-Oct-2021	-	-	-	Only observed for 5 days
NV1	25-Nov-2021	08-Jul-2022	29-Nov-2021	13-Apr-2022	Y	-	-	
TRO1	17-Mar-2022	06-Jul-2022	19-Mar-2022	06-Jul-2022	N	23-Jun-2022	06-Jul-2022	
TRO2*	22-Oct-2021	06-Jul-2022	03-Nov-2021	15-Jun-2022	N	-	-	Adult visits until fledging period
TRO3	21-Oct-2021	05-Jul-2022	09-Nov-2021	07-Apr-2022	Y	-	-	
TRO5	21-Oct-2021	06-Jul-2022	05-Nov-2021	15-Apr-2022	Y	-	-	
TRO6	21-Oct-2021	22-Jun-2022	14-Nov-2021	22-Jun-2022	N	-	-	
TRO8*	22-Oct-2021	29-Jun-2022	06-Nov-2021	21-Apr-2022	Y	-	-	
TRO9*	22-Oct-2021	12-May-2022	01-Nov-2021	24-Mar-2022	Y	-	-	
TRO15*	21-Oct-2021	05-Jul-2022	05-Nov-2021	02-Apr-2022	Y	-	-	
TRO17*	22-Oct-2021	06-Jul-2022	12-Nov-2021	29-Mar-2022	Y	-	-	
TRO19	21-Oct-2021	11-May-2022	10-Nov-2021	20-Feb-2022	Y	-	-	
TTRO2	24-Nov-2021	06-Jul-2022	30-Nov-2021	02-Apr-2022	Y	-	-	
TTRO4	23-Oct-2021	14-Jun-2022	11-Nov-2021	04-Dec-2021	Y	-	-	
TTRO5	23-Oct-2021	07-Jul-2022	05-Nov-2021	07-Jul-2022	N	02-Jul-2022	07-Jul-2022	
TTRO6	23-Oct-2021	05-Jul-2022	09-Nov-2021	25-Jun-2022	N	14-Jun-2022	27-Jun-2022	
TTRO7	23-Oct-2021	07-Jul-2022	01-Dec-2021	12-Feb-2022	Y	-	-	
TTRO8	23-Oct-2021	04-Jul-2022	13-Nov-2021	05-Apr-2022	Y	-	-	
Loma Que	emada	:	1	:	1	I	1	I
PMR1	25-Oct-2021	09-Jul-2022	15-Nov-2021	17-Feb-2022	Y	-	-	
PMR2	25-Oct-2021	09-Jul-2022	26-Oct-2021	19-Apr-2022	Y	-	-	
PMR4	25-Oct-2021	15-May-2022	03-Nov-2021	16-Apr-2022	Y	-	-	
PMR5	25-Oct-2021	09-Jul-2022	09-Nov-2021	29-Mar-2022	Y	-	-	
PMR6	25-Oct-2021	09-Jul-2022	07-Nov-2021	30-Mar-2022	Y	-	-	
PMR7	25-Oct-2021	09-Jul-2022	04-Nov-2021	25-Jun-2022	Ν	25-Jun-2022	25-Jun-2022	
Valle Nue	vo	1	I	1	1	1	1	I
VN1	09-Sep-2021	30-Nov-2021	-	-	-	-	-	No petrel observed
VN2	08-Sep-2021	10-Jun-2022	28-Sep-2021	15-Mar-2022	Y	-	-	
VN4	10-Sep-2021	11-Jun-2022	28-Sep-2021	18-Mar-2022	Y	-	-	Mongoose predation (egg) 4 Feb.
VN5	08-Sep-2021	10-Jun-2022	24-Sep-2021	21-Feb-2022	Ν	-	-	
VN8	08-Sep-2021	10-Jun-2022	23-Sep-2021	13-Mar-2022	Y	-	-	
VN9	09-Sep-2021	16-May-2022	24-Sep-2021	16-Mar-2022	Y	-	-	
VN11	09-Sep-2021	10-Jun-2022	25-Sep-2021	25-Mar-2022	Ν	-	-	

	Can	neras	Ad	ults	Deser-	Juvenile		
Nest	Start	End	Earliest date	Last date	tion?	Earliest date	Last date	Notes
VN14	08-Sep-2021	05-May-2022	03-Dec-2021	17-Mar-2022	Y	-	-	No photos 22 Sept to 30 Nov. Mongoose predation (ad.) 17 Mar.
VN15	08-Sep-2021	10-Jun-2022	22-Sep-2021	06-Feb-2022	Y	-	-	
VN16	08-Sep-2021	14-Apr-2022	26-Sep-2021	19-Mar-2022	N	-	-	
VN17	08-Sep-2021	10-Jun-2022	27-Sep-2021	04-Feb-2022	Y	-	-	
VN18	14-Sep-2021	10-Jun-2022	29-Sep-2021	23-Jan-2022	Y	-	-	
VN19	09-Sep-2021	27-Apr-2022	07-Dec-2021	26-Apr-2022	N	-	-	Dates of last visits suggest a chick was present (but not observed)
VN20	10-Sep-2021	12-Apr-2022	28-Sep-2021	10-Apr-2022	N	-	-	Chick present inside burrow near
VN21	18-Feb-2022	11-Apr-2022	06-Mar-2022	06-Mar-2022	Y	-	-	incuBing auto



Figure 1. Occurrence of Black-capped Petrels and predator species throughout the 2021-2022 breeding period, all sites combined. Each point represents a day when a species was recorded. Red shading visualizes dates when mongooses killed individual petrels of the associated age class (the egg taken by a mongoose in February is classified as "juvenile").



Figure 2. Occurrence of Black-capped Petrels and predator species at colony sites throughout the 2021-2022 breeding period. Each point represents a day when a species was recorded. For Valle Nuevo, red shading visualize dates when mongooses killed individual petrels of the associated age class (the egg taken by a mongoose in February is classified as "juvenile").



Figure 3. Diel activity of Black-capped Petrel and predators species observed during the 2021-2022 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 4. Occurrence of Black-capped Petrel predator species at nest sites throughout the 2021-2022 breeding period. For Valle Nuevo, red points visualize nests at which mongooses killed petrels.



Figure 5. Daily occurrence of mongoose and Black-capped Petrel at Valle Nuevo nest sites throughout the 2021-2022 breeding period. Color bars represent predator activity/control: red = confirmed predation; blue = suspected/possible predation; green = trapped mongoose. Note that, at nest VN4, the predation event was on an egg – not an adult petrel.



Figure 6. Daily occurrence of Black-capped Petrels at nest sites throughout the 2021-2022 breeding period. Artificial nest are highlighted in blue. Green triangles visualize the dates of camera deployment and retrieval. Vertical black lines visualize the median date when petrels were last observed at a colony: solid line, for 2022; dashed line, for 2011-2018. Shaded areas represent typical periods when fledglings were first and last observed in camera trap pictures between 2011-2018. For Valle Nuevo the dates of mongoose predation are represented with red rectangles.



Picture 1. Javan Mongoose with a Black-capped Petrel egg in its mouth. Picture taken at Valle Nuevo, nest VN4, on 14 February 2022.



Picture 2. Javan Mongoose with adult Black-capped Petrel in its mouth. Picture taken at Valle Nuevo, nest site VN14, on 17 March 2022.



Picture 3. Black-capped Petrel landing in front of its nest site. Picture taken at Valle Nuevo on 26 January 2022.



Picture 4. Black-capped Petrel climbing a steep rock face to take off after leaving its burrow. Picture taken at Loma del Toro, on 17 December 2021.

APPENDIX 1: ANIMAL SPECIES IDENTIFIED DURING THE 2021-2022 BREEDING SEASON



Catharus sp., Catharus (Bicknell's) thrush – 21 April 2022, Loma del Toro



Calyptophilus tertius, Western chat-tanager – 22 October 2021, Loma del Toro



Canis familiaris, Domestic dog – 14 March 2022, Loma del Toro



*Chiroptera*,Bat – 24 January 2022, Loma del Toro



Chlorostilbon swainsonii, Hispaniolan emerald – 19 February 2022, Valle Nuevo



Elaenia fallax, Greater Antillean elaenia – 21 February 2022, Valle Nuevo



Felis catus, Feral cat – 17 November 2021, Loma del Toro



Geotrygon leucometopia, White-fronted quail-dove – 9 November 2021, Loma Quemada



Geotrygon montana, Ruddy quail-dove – 01 December 2021, Loma Quemada



Herpestes javanicus, Javan mongoose – 02 November 2021, Valle Nuevo



Loxigilla violacea, Greater Antillean bullfinch – 10 September 2021, Valle Nuevo



Melanerpes striatus, Hispaniolan woodpecker – 17 May 2022, Loma del Toro



Microligea palustris, Green-tailed warbler – 28 November 2021, Valle Nuevo



Mniotilta varia, Black-and-white warbler – 19 September 2021, Valle Nuevo



Myadestes genibarbis, Rufous-throated solitaire – 19 February 2022, Loma Quemada



Phaenicophilus palmarum, Black-crowned tanager – 11 October 2021, Valle Nuevo



Plagiodontia aedium, Hispaniolan hutia – 9 November 2021, Valle Nuevo



Pterodroma hasitata, Black-capped petrel – 05 February 2022, Loma del Toro (artificial burrow)



Rattus sp., Rat – 23 October 2021, Loma del Toro



Seiurus aurocapilla, Ovenbird – 28 January 2022, Loma del Toro



Setophaga caerulescens, Black-throated blue warbler – 12 January 2022, Loma Quemada



Setophaga pinus, Pine warbler – 03 January 2022, Valle Nuevo



Setophaga ruticilla, American Redstart – 03 January 2022, Loma del Toro



Spindalis dominicensis, Hispaniolan spindalis – 31 October 2021, Valle Nuevo



Spinus dominicensis, Antillean siskin – 02 January 2022, Valle Nuevo



Sus scrofa scrofa, Feral pig – 17 April 2022, Loma Quemada



Turdus plumbeus, Red-legged thrush – 26 June 2022, Loma Quemada



Turdus swalesi, La Selle Thrush – 06 June 2022, Loma del Toro



*Tyto glaucops*, Ashy-faced owl – 05 June 2022, Loma del Toro



Zonotrichia capensis, Rufous-collared sparrow – 15 March 2021, Valle Nuevo