

#21107C
2022-23 GJ BCPE Conservation and Monitoring
Ernst Rupp, Grupo Jaragua

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Prepared for Brad Keitt, American Bird Conservancy

1. Predator control

1.a. At Valle Nuevo

a.i. Implement intensive mongoose control with Tomahawk live traps

Nine Tomahawk traps (32x10x12 inches) were placed within the nesting area. Smoked herring was used as bait. It has the advantage of a very strong smell, and at the same time does not get easily rotten in moist conditions due to frequent rains. Traps were checked monthly from October 2022 to January 2023 and bi-weekly from February 2023 to April 2023. Closed traps were reopened and all traps were newly baited during revision. The tomahawk traps were monitored by camera traps.

In addition, eight A24 GoodNature traps were maintained during the season.

a.ii. Monitor efficacy of mongoose control

From October 2022 to May 2023 a total of ten mongooses were caught inside the Tomahawk traps (see Appendix 1 for detailed protocol). This means a fivefold increase of caught animals between the 2021/22 season and the 2022/23 season.

Camera trap photos also documented eleven occasions when mongooses tried to enter a closed trap repeatedly (see Appendix 1). When finding the traps closed, these mongooses circled traps aggressively for a long period of time before abandoning their intentions.

Trap doors get easily closed by rats being caught. Heavy rain can also shut down trap doors. In addition, baits may lose their strong scent during rain or may get washed out completely. Rats also eat the pieces of herring and leave the traps without any attractive bait. Closed traps or traps without baits have limited the maximum possible efficacy of mongoose control during the 2022/23 season.

In two cases (nest VN19 and nest VN20), the camera traps documented a mongoose taking the chick out of the nest. In both cases the nearby traps were closed at the time of the mongoose attack.

During the upcoming 2023-2024 season, a more frequent revision of traps is needed than was possible during the 2022/23 season, especially during the time when chicks are left alone in nests (February to April). We propose continuous monitoring during this most critical time, revising the traps every three days. A continuous presence of part of the Diablotin team would therefore be advised at Valle Nuevo during this time frame. At the same time this would give the chance to do additional nest search during the time work is not done on mongoose control.

During the new season we will discontinue using A24 GoodNature traps. We have not seen any positive results of these traps to control mongooses. In addition, it is most difficult to find replacement CO2 cartridges in the Dominican Republic. Getting them ordered from the USA is not possible, since air transport is not permitted and sea shipping is not cost-effective.

1.b. At Loma del Toro

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

b.ii. Maintain nests dog-proof by securing entrances and burrows

Nests were visited at beginning and during the nesting season, and where necessary, reinforced with rocks or wood to ensure that dogs would not be able to excavate them. See Appendix 2. Six of the known or damaged burrows in the Loma del Toro colony were replaced with artificial boxes in late 2021. All relevant nests were monitored with camera traps.

b.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.

The six artificial burrows replacing nests destroyed by dogs have now been monitored for two seasons since the dog attacks during the 2020/21 season. Except for nest JGP2 which was only visited once (on 31 October 2021), all the other artificial burrows have been accepted and were frequented by petrels during the 2021/22 and 2022/23 season (see Table 1).

Although no artificial nest was successful with fledging a chick during the 2021/22 season, two nests with artificial boxes (TRO8 and TRO17) did show chicks practicing their wings during the 2022/23 season. Camera monitoring showed that nest TRO8 even was visited by two dogs shortly before the final take off of the fledging no negative action from the dogs against the chick was documented.

The only case of a dog attack happened at nest EST1. This nest was not damaged by dogs during the 2020/21 attacks. On 01 June 2023, a dog was able to reach inside the nest with its paws and grabbed the chick. Although the nest was well protected by rocks, we suspect that the chick itself was sitting very close to the entrance and the dog was able to reach it. After this disaster, we rebuilt the nest in a way that prolonged the entrance to a distance that would not allow dogs to reach any bird inside the nest.

Cats were registered occasionally but seem not to bother to investigate nests. No predation by cat was documented in 2022/23.

For the first time the presence of a mongoose was documented at Loma del Toro. A photo of a mongoose was taken on 23 January 2023 at 08:34 at nest TRO15. The animal shortly stuck its head into the nest entrance and then continued to move on. No other proof of mongoose presence has been registered on camera trap photos since then.

Rats continue to appear on photos of practically all the cameras placed. At nest TRO9, a rat exited the burrow with an egg in its mouth on 19 April 2023 at 02:39. No petrel was present in the nest at the time. The two previous visits by a petrel were the night before between 22:29 on 17 April and 00:48 on 18 April, and between 01:00 on 03 April and 22:53 on 05 April. Petrels were not recorded after the rat predation. Camera trap photos taken in the days before the predation suggest that the egg may have been infertile and abandoned by the petrels, before the rat took it opportunistically.

Table 1: Fate of nests altered after dog attacks over five seasons of monitoring (18/19 indicates the breeding season beginning in 2018 and continuing into 2019).

nest	changes made to nest after dog attack	Results 22/23	Results 21/22	Results 20/21	Results 19/20	Results 18/19
JGP02	complete artificial box with tunnel installed inside nest	abandoned	last photo adult 31.10.21	dogs	fledged	fledged
TRO02	artificial box installed inside destroyed nest	last photo adult 18.11.22	last photo adult 14.12.21	dogs	fledged	fledged
TRO08	artificial box placed inside nest	Chick fledged 7.7.23	last photo adult 21.4.22	dogs	abandonend	fledged
TRO09	artificial box placed inside nest	last photo adult 18.4.23	last photo adult 24.3.22	dogs	abandonend	fledged
TRO15	wooden tunnel and box placed inside nest	Last photo adult 21.3.23	last photo adult 2.4.22	dogs	fledged	fledged
TRO17	artificial box placed inside nest	Chick fledged 6.7.23	last photo adult 14.3.22	dogs	abandonend	eggs outside nest
ca3	artificial box placed at new location	adult presence until marzo/abril				

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.

Table 2 shows the fate of monitored nests at Valle Nuevo, Loma del Toro and Loma Quemada. The total of nests monitored was 29 at Valle Nuevo, 31 at Loma del Toro, and seven at Loma Quemada. 23 nests were active (showing presence of petrels during the season) at Valle Nuevo, 21 at Loma del Toro and six at Loma Quemada. Successful fledging was documented at three nests at Valle Nuevo, three at Loma del Toro, and five at Loma Quemada, which brings fledging success to 13.04%, 14.29%, and 83.33% respective to the mentioned sites.

At Valle Nuevo adult activity was documented with camera traps, visually, and based on detection of strong odor for 23 nests (see details in Appendix 3). Of these nests only three had fledglings. Seven nests showed signs of activity, but it was not possible to define the actual outcome because cameras were malfunctioning, or cameras could not be placed to monitor the nest because of the extreme steepness of the terrain. In the end no signs of a chick were detected. Direct negative mongoose impact was documented for two nests. At two additional nests, some predator impact seemed to have occurred. Photos of adult petrels were taken at seven nests. For five of these nests the last photo of an adult bird was taken between March 20 and April 16. It is not quite clear, why there was abandonment during the mentioned period. At two nests, a bird visited shortly during October without showing much interest to stay. One dead chick was detected with the endoscope within nest VN22 on April 22, 2023 seemingly unharmed. At nest VN16 an adult bird was found dead and seemingly unharmed at the nest entrance on December 13, 2022.

Table 2: Results from the 2022/2023 season for nests tracked at Valle Nuevo, Loma del Toro and Loma Quemada.

results 23	Valle Nuevo	Loma del Toro	Loma Quemada
not active from start	6	10	1
photos of adults	7	13	1
predator impact	4	3	0
Active, but no clear result	7	0	0
fledged	3	3	5
dead unharmed adult outside nest	1	0	0
dead unharmed chick inside nest	1	0	0
infertile egg or abandoned egg	0	2	0
Total	29	31	7
active	23	21	6
% fledging to active nest	13,04	14,29	83,33

At Loma del Toro, adult activity was documented with camera traps, visually, and/or based on strong odor for 22 nests (see Appendix 3 for details). Direct predator impact was documented for one chick inside nest EST1 on 01 June 2023, which was predated by a dog (see 1.b.iii above for details). Remains of two chicks were also found at nest TRO1 and TRO13 on May 11, 2023. At TRO1, the chick remains (mostly down feathers) were inside the nest. A camera had continuously been working at the entrance of the nest taking photos, but no direct predator entering the nest was detected. At TRO13, the remains of the chick were found in little heaps outside the nest. Due to the malfunctioning of the camera, it was not possible to document any cause of death of the chick. Three chicks were documented to have fledged, based on photos taken by the cameras. Two abandoned eggs were documented at TTRO4 and TRO14, one of which was taken away by a rat on 19 April 2023 (see 1.b.iii above for details).

At 13 nests, adult activity of entering and leaving the nest could be documented with cameras. For 10 of these nests the final date of appearance of the birds was between 16 March 2023 and 21 April 2023. Still the question remains of what may be the cause of the abandonment during this time frame: does it have to do with the dog impact on the nests two years before during the 2020/21 season, or was the abandonment related to some other cause (food shortage, no brooding of eggs?).

Three more birds abandoned their nests even earlier and were last seen on 18 November 2022, 29 December 2022, and 17 February 2023, respectively.

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.

Nest search at Valle Nuevo resulted in 7 new nests found (see table 3). All of them were found in extremely steep terrain. Therefore, it was practically impossible to install camera traps and the follow up on the nests was done in the traditional way of checking the nests visually and odor-wise. Only one nest was successful with definitive signs of the chick having fledged. One nest was found with parts of a dead chick. Another nest had egg shells. Three nests did show signs of being actively visited by birds, but in the end no clue of any fledging chick was found at those nests.

Table 3: New nests located in Valle Nuevo in the 2022/2023 season. Location data are NAD27.

nest	E	N	Results 2023
25	33.1271	20.61944	nest found in active state, but final results negative
26	33.1269	20.61943	nest found with rests of chick outside
27	33.1261	20.61935	nest found in active state, but final results negative
28	33.1266	20.61931	eggs shells found, but no sign of chick
29	33.1223	20.61899	chick fledged
30	33.1222	20.61898	nest found in active state, but final results negative
31	33.1180	20.61762	nest found in active state, but final results negative

Nest searching at Loma Quemada did not lead to any additional nests. The area of Zapoten was not searched during the 2022/23 season.

3. Increase artificial nests at Loma del Toro

3.a Produce six additional artificial burrows (wooden boxes and/or cement boxes)

3.b Install six boxes at Loma del Toro

Eleven additional wooden boxes, most with corresponding entrance tunnels were placed at likely locations in the Loma del Toro site between February and May 2022. Based on the good occupation numbers of nest boxes in burrows, the same measurements were used as before: 70 cm (length) x 40 cm (width) x 30 cm (height). The wooden tunnels were 20 cm long, with a width and height of 15 cm. The material was pine board of 3 cm thickness. Additionally, the boxes were painted with nontoxic wood varnish to make them longer lasting by protecting against decay due to the high humidity prevailing at the nesting sites of Loma del Toro.

Note: Another six boxes were installed at sites of Loma del Toro during October 2023 (see table 4).

At the same time, three boxes were transported to and placed at Morne Vincent in Haiti to be installed within nests destroyed by dogs during the 2022-23 season.

As of November 2023, a total of 17 nest boxes are now present at new locations, near or next to known burrows at Loma del Toro. As shown in table 4, nest box 3 was occupied by an adult during the 22/23 season. The cameras placed at boxes 5, 6, and 7 showed passage of birds, but no occupation occurred.

Table 4: Details on the 17 artificial nests installed at Loma del Toro between March 2022 and October 2023. These are all new sites and did not replace old nests.

box	camera	coordinates		site and comments	date installation	type of box	Results 22	Results 23
		E NAD27	N NAD27					
1	cn01	213347	2024083	trail to nest tro 11	16.03.22	without tunnel		
2	cn03	213346	2024083	trail to nest tro11	16.03.22	without tunnel		
3	cn02	213323	2024094	close to nest 12	12.05.22	Wooden tunnel broken and removed		adult bird present until March/April
4	cn04	213315	2024100	left side of nest 12	12.05.22	with tunnel		
5	cn10	213323	2024123	below nest 17	16.03.22	with tunnel		passage bird
6	c49	213379	2024160	beside nest 18	17.03.22	with tunnel		passage bird
7	c28	213373	2024160	above nest 18	17.03.22	with tunnel		passage bird
8		213017	2024283	right side of nest nv 1	02.02.22	with tunnel		
9		212984	2024295	below nest nv1	02.02.22	with tunnel		
10		212993	2024264	part above nv2	02.02.22	with tunnel		
11		213018	2024018	above nest nv2	03.02.22	with tunnel		
boca1		213014	2024374	below nv1	03.02.22	only tunnel		
12	cn11	213360	2024089	30 m above nest 6	18.10.23	with tunnel		
13	c83	213350	2024108	15 m below nest 19	18.10.23	with tunnel		
14	c67	213317	2024107	between nests 17 and 5	18.10.23	with tunnel		
15		213363	2024162	below nest 8	19.10.23	with tunnel		
16		213362	2024167	below nest 8	19.10.23	with tunnel		
17		213361	2024173	below nest 8	19.10.23	with tunnel		

Additional nest boxes will be built during the 2023/24 season to increase nesting cavities at Loma del Toro and Morne Vincent.

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

Four ARU-s were placed close to active nests at Loma del Toro in January 2023. SD cards and batteries were replaced in March and May and the four units were retrieved in July 2023. The SD cards were sent to Yvan Satgé for further processing and analysis.

Appendix 1 Presence of Mongooses Valle Nuevo 2023

Fecha	hora	nv1	nv2	nv4 boca1	nv4 boca2	A8	A6 BT-22	nv5	BT-13	nv8	BT-03	A4 BT-21 c34	nv9
05/10/22	13:18									entrando saliendo			
05/10/22	14:36											chequeado trampa caja cerrada	
05/10/22	15:00												
11/10/22	11:56									entrando saliendo			
12/10/22	17:28												
13/10/22	09:52												
23/10/22	14:34							pasando					
06/11/22	15:40							entrando					
06/11/22	15:56	mirando brevemente nido, luego pasando trampa											
09/11/22	09:46	pasando trampa, posiblemente entrando esa hora encontrado vivo dentro de la trampa											
11/11/23	no hora												
13/11/22	10:30	acercando trampa											
14/11/22	06:54	Tres hurones acercando y entrando trampa											
18/12/22	17:02									pasando trampa con pequeño			
18/12/22	17:03							entrando y saliendo					
21/12/22	12:38				saliendo								
23/12/22	12:38						rodeando y entrando trampa haula						
23/12/22	16:21												
26/12/22							chequeando trampa automática, no entra cabeza						
01/01/23	16:21												
03/01/23	13:15						entrando cabeza a trampa automática, no seguimiento por cámara						
03/01/23	13:20				chequeando trampa cerrada al lado del nido								
18/02/2023								entrando saliendo					
22/02/2023	09:01							entrando					
22/02/2023	09:05							saliendo					
25/02/23	13:40							entrando saliendo					
27/02/23	09:41												
27/02/23	10:16												
27/02/23	14:11												
01/03/23	14:25							pasando					
02/03/23	08:26												
02/03/23	16:24												
03/03/23	08:32												
05/03/23	15:48							pasando					
12/03/23	16:24										tratando entrar trampa BT3 hasta 17:30		
12/03/23	16:25										tratando entrar trampa hasta 17:32		
13/03/23	05:36										vuelve tratando entrar hasta 9:48		
13/03/23	05:37										vuelve tratando entra hasta 9:49		
16/03/23	13:55												
16/03/23	13:56												
16/03/23	13:58												

Appendix 2 Nest Changes and Fate LOTO and LQ 2023

nest	changes made to nest after dog attack	Comments	Results 23	Results 22	Results 21	Results 20	Results 19
JGP01	tunnel altered	small wooden tunnel in entrance, nest itself not changed	abandonend	abandonend	dogs	doubtful	fledged
JGP02	artificial box with tunnel placed inside nest		abandonend	last photo adult 31.10	dogs	fledged	fledged
nv1	no change to nest		Fledged 5.7.23	last photo adult 13.4	fire	abandonend	not revised
nv2	no change to nest		not revised	doubtful	fire	abandonend	active, no chick
TRO01	no changes to nest	sides of nest reinforced with rocks and wooden stakes to prevent dogs from digging into nest	rests of chick inside nest, no predator on photos, adult last seen 6.5	fledged 15.7	dogs	abandonend	fledged
TRO02	nest box installed within nest	nest was reached by fire during previous season	last photo adult 18.11.22	last photo adult 14.12	dogs	fledged	fledged
TRO03	original tunnel altered and reinforced with rocks	side of nest reinforced with pine trunk	last photo adult 12.4.23	last photo adult 7.4	dogs	doubtful	active, no chick
TRO05	wooden tunnel installed	sides of nest reinforced with rocks and wooden stakes to prevent dogs from digging into nest	Last photo two adults 26.3.23	last photo adult 15.4	abandonend	fledged	fledged
TRO06	Nest and tunnel not changed	protection of rocks and wooden stakes placed on side where dogs intervened	Last photo adult 16.3.23	last photo adult 22.6, chick fledged 24.7	dogs	fledged	fledged
TRO08	artificial box placed within nest	Entrance not altered	Chick fledged 7.7	last photo adult 21.4	dogs	abandonend	fledged
TRO09	artificial box placed within nest	Entrance not altered	last photo adult 18.4.23, rat with egg 19.4.23	last photo adult 24.3	dogs	abandonend	fledged
TRO12	no change to nest		last photo adult 21.4.23	adult present until march/abril	dogs	fledged	fledged
TRO13	no change to nest		rests of chick in several small heaps outside nest, no information on cause of death because of malfunctioning of camera	adult dead(possible exhaustion), no predator impact	dogs	abandonend	active, no chick
TRO14	no change to nest		abandonend	doubtful	dogs	fledged	fledged
TRO15	wooden tunnel and box placed	original nest destroyed by dogs	Last photo adult 21.3.23	last photo adult 2.4	dogs	fledged	fledged
TRO 16	no change to nest		Last photo adult 14.4.23	adult present until march/april, egg shells close to nest	dogs	fledged	active, no chick
TRO17	artificial box placed within nest	Entrance not altered	Fledged 6.7.23	last photo adult 14.3	dogs	abandonend	eggs outside nest
TRO18	Entrance not changed	Nest had caved in due to fire. Sides and top reinforced with rocks and wooden stakes	not revised	abandonend	dogs	fledged	egg damaged
TRO19	Entrance changed	Entrance reinforced with rocks and wooden stakes	last photo adult 17.2.23	last photo adult 20.2	dogs	not monitored	not monitored
ca3	artificial box placed at new		adult presence until marzo/abril				
EST1	Entrance not changed	nest reinforced with rocks, again reinforced with rocks after dog attack in june 23	chick eaten by dog 1.6	fledged	dogs	fledged	fledged
EST2	Entrance not changed	sides of nest reinforced with rocks and wooden stakes to prevent dogs from digging into nest	Last photo adult 14.4.23	adult present until march/april	dogs	abandonend	fledged
TTRO2	Entrance not changed	Sides and top of nest reinforced with cement and rocks	nonhatched egg inside nest, last photo adult 12.5	last photo adult 13.4	dogs	fledged	fledged
TTRO4	Entrance changed	Entrance reduced in size with wooden stakes	abandonend	last photo adult 4.12	dogs	fledged	fledged
TTRO5	Entrance changed	front, sides and top of nest reinforced with rocks and cement	última foto ave 15.4.23	fledged 13.7	fledged	fledged	fledged
TTRO6	Entrance not changed	Rocks placed on sides of nest	última foto ave 31.3.23	fledged 27.6	fledged	abandonend	fledged
TTRO7	New nest established	nest had been completely destroyed by dogs. New nest excavated and reinforced and rebuilt with rocks	última foto ave 29.12.22	last photo adult 12.2	dogs	fledged	fledged
TTRO8	Entrance changed	nest reinforced with rocks	last photos adult 24.3	last photo adult 5.4	dogs	abandonend	fledged
TTRO9	Entrance not changed	nest reinforced on sides with wooden stakes	not revised	abandonend	dogs	abandonend	fledged
PRM1	no change to nest		fledged 25.6	last photo adult 17.3	fledged	fledged	fledged
PRM2	no change to nest		fledged on month late during daytime 24.7	Last photo adult 19.4	doubtful	doubtful	active, no chick
PRM3	no change to nest		abandonend	abandonend	abandonend	doubtful	active, no chick
PRM4	no change to nest		last photo adult 19.12	last photo adult 6.4	doubtful	doubtful	abandonend
PRM5	no change to nest		fledged 30.6	Last photo adult 29.4	fledged	doubtful	fledged
PRM6	no change to nest		Fledged 26.6	Last photo adult 30.3	fledged	fledged	doubtful
PRM7	no change to nest		fledged 30.6	fledged	fledged	abandonend	not monitored

Appendix 3 Nest Changes and Fate Valle Nuevo 2023				
nidos	fecha nido encontrado	Resultado 23	Resultado 22	Resultado 21
1	2017	no revisado	abandonado desde principio	abandonado desde principio
2	2019	última foto ave 16.4.23	nido fallado, última foto ave 15.3	hurón presente
3	2019	no revisado	abandonado desde principio	abandonado desde principio
4	2019	pichón voló	huevo tomado por hurón febrero 14	voló
5	2020	última foto ave 20.3.23, pichón parcialmente devorado al lado nido 11.2	nido fallado, última foto adulto 3.4	pichón matado por hurón
6	2020	no revisado	abandonado desde principio	abandonado desde principio
7	2020	nido nuevamente activo, pero no resultado positivo	abandonado desde principio	abandonado desde principio
8	2020	última foto ave 22.2, posible ataque hurón	nido fallado, última foto adulto 13.3	hurón presente
9	2020	última foto ave 7.4.23	nido fallado, última foto adulto 4.3	voló
10	2020	no revisado	abandonado desde principio	no revisado
11	2020	última foto ave 16.4.23	Nido fallado, última foto 25.3	pichón matado por hurón
14	2021	abandonado desde principio	hurón con pluma 14.3	nido poisiblemente activo a principio
15	2021	última presencia ave enero/febrero 2023	nido fallado, última foto 6.2	pichón matado por hurón
16	2021	ave adulto muerto fuera nido	nido fallado, última foto 19.3	pichón matado por hurón
17	2021	solo foto ave 8.10.22	nido fallado, última foto 26.2	pichón matado por hurón
18	2021	abandonado desde principio	nido fallado, última foto 29.1	voló
19	2021	hurón devora pichón 20.4	voló	voló
20	2022	hurón devora pichón 20.3	pichón visto visualmente, por fallo de cámara no se sabe resultado definitivo	no documentado
21	2022	poca visitas aves, 17.10.23 dos veces pero no entra nido, 11.1.23 no entra nido	nido fallado, última foto 6.3	no documentado
22	2022	pichón muerto nido abril 23	nido fallado, razón no muy clara	no documentado
23	2022	nido encontrado activo, pero no indicador pichón	nido fallado, no fotos	no documentado
24	2022	pichón voló	nido fallado, pichón comido	no documentado
25	2023	nido encontrado activo, pero no indicador pichón		
26	2023	nido encontrado con restos pichón		
27	2023	nido encontrado activo, pero no indicador pichón		
28	2023	casaron fuera nido, no indicador pichón		
29	2023	pichón voló		
30	2023	nido encontrado activo, pero no indicador pichón		
31	2023	nido encontrado activo, pero perdido luego, Nueva busqueda necesaria		

#21107C Grupo Jaragua

Black-capped Petrel conservation and monitoring 2022-2023

Camera trapping analysis



Report prepared by Yvan Satgé for Grupo Jaragua.
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1. Summary

Black-capped Petrel and predator activity were monitored throughout the 2022-2023 breeding season by camera traps at 55 nest sites, 11 of which were artificial nest boxes. Each nest was monitored with one camera, except for one nest with multiple entrances (VN4) that was monitored using two cameras. Predator species seen on cameras included rats, cats, mongoose, dogs and feral pigs. Predation events were recorded for mongooses at Valle Nuevo (n = 2) and dogs at Loma del Toro (n = 1). Despite their presence, rats, cats, and feral pigs were not observed in activities that could suggest predation upon Black-capped Petrel, although one rat was observed taking a failed egg from a burrow. Black-capped Petrel activity was recorded from nest initiation through fledging. Of 55 monitored nests, 22 were abandoned by mid-April 2023. In 11 nests, chicks were suspected to have fledged. Overall, breeding success was very low but the causes of nest desertion still remain unclear.

2. Methods

We deployed camera traps at 55 monitored nests at all three colonies in the Dominican Republic (Valle Nuevo n = 15, Loma Quemada n = 6, Loma del Toro n = 34). 11 of these nests were artificial nest boxes deployed in 2021 and 2022. 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 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. When, because of faulty camera, sun spots, or wrong camera setting, cameras recorded extremely large numbers of pictures (mean: 23,780; range 3,401 - 82,846), Yvan Satgé used the open-access computer-vision program DeepFaune (<https://www.deepfaune.cnrs.fr/>) to select images with wildlife. All usable images were then uploaded to the open platform Wildlife Insights (wildlifeinsights.org) for annotation and species identification. 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, Yvan Satgé 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.

We calculated camera trapping effort as the number of elapsed calendar days (i.e. total number of 24-hour days-nights during which camera traps were deployed and functioning). 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 ("overall" presence) and individual nesting areas.

We assessed petrel-predators 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.

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. We calculated the median desertion date as the median of the latest dates an adult petrel was observed in a picture. For first and last appearance, and for median desertion date, we did not consider 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. In addition, for nest desertion, we did not consider data from cameras that were deployed too late, 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). As a result, we did not consider nests CA1 to CA8, EST2, JIM1, JPG1, TRO2, TRO12, TRO19, VN16, VN17, and VN21 in these calculations of median dates of first and last appearance, and nest desertion (see Figure 1). 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 09 September 2022 and 31 July 2023 (Table 1). Cameras recorded animals during a range of 46 – 280 nights per camera (mean: 220.7 nights per camera). Animals were recorded on 3,446 total nights in Loma del Toro, 564 total nights in Loma Quemada, and 1,103 total nights in Valle Nuevo. In Loma Quemada, cameras were not deployed between 5 February and 26 May 2023.

3.2. Petrel activity

We monitored 55 Black-capped Petrel nests: 34 at Loma del Toro (including 11 artificial nests), 6 at Loma Quemada, and 15 at Valle Nuevo. We observed regular breeding activity at 32 nests: 19 at Loma del Toro, 5 at Loma Quemada, and 9 at Valle Nuevo.

Adult Black-capped Petrels were observed on a total of 252 individual nights and juveniles were observed on 51 individual nights.

Black-capped Petrels first arrived at nest sites in September 2022 at Valle Nuevo (median arrival date: 26 September; range: 23 to 28 September; n = 9), and November at Loma del Toro (median arrival date: 06 November; range: 27 October to 19 November; n = 16) and Loma Quemada (median arrival date: 10 November; range: 02 to 20 November; n = 6) (Table 3 and Figure 1).

Adult petrels last appeared in camera trap pictures in April 2023 at Valle Nuevo (median date: 06 April; range: 22 February to 28 May; n = 9), April at Loma del Toro (median date: 13 April; range: 16 March to 26 June; n = 16), and June at Loma Quemada (median date: 20 June; range: 17 to 28 June; n = 5) (Table 3 and Figure 1). In total, 22 nests (out of 32 nests with petrel activity) appeared to have been deserted early in the season: 14 at Loma del Toro and 8 at Valle Nuevo (Table 3 and Figure 1).

Juveniles in fledging activities (e.g. stretching and flapping wings outside burrow, walking) were observed at 9 nests: 3 at Loma del Toro (although it is possible that nest TTRO2 fledged a chick, its camera stopped functioning too early in May to confirm it), 5 at Loma Quemada, and 1 at Valle Nuevo (Table 3 and Figure 1). At Valle Nuevo, two other nests, which were not monitored by camera traps, fledged a chick, for a total of 1 fledglings.

At Loma del Toro, juveniles first appeared in camera trap pictures in June (median date: 19 June; range: 18 to 29 June; n = 3) and last appeared in early July (median date: 06 July; range: 06 to 07 July; n = 3). At Loma Quemada, juveniles first appeared in June (median date: 20 June; range: 14 June 06 July; n = 5) and last appeared in late June (median date: 30 June; range: 25 June to 24 July; n = 5). At Valle Nuevo, a single juvenile was observed which first appeared on 16 May, and last appeared on 29 May.

Six artificial nest boxes were deployed in October 2021 at existing nesting sites (i.e. replacement boxes), all at Loma del Toro: JPG2, TRO2, TRO15, TRO17, TTRO8, TTRO9. TTRO9 was not monitored with camera traps during the 2022-2023 season. 11 additional nest boxes were installed at new locations (i.e. not in replacement of an existing nest site) during the 2022-2023 season (CA1 to CA11) (Table 3 and Figure 1). All monitored replacement boxes were visited by petrels, except for JPG2; a chick fledged at TRO17. Only one new box, CA3, was used by petrels, with petrel activity recorded on 27-29 January, and 20 March (a camera was not deployed until 27 January). However, the type of intensive activity recorded outside the burrow in January suggests an inexperienced bird.

Camera traps sometimes record life history moments besides breeding activity. For example, one adult and one juvenile petrels were recorded outside their burrows during the daytime (Pictures 1 and 2). On several occasions, petrels were recorded climbing tree trunks after leaving the nest site, supposedly to take off more easily (Picture 3 and 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 (*Rattus sp.*, observed in 100.0% of all individual nights overall), Black-capped Petrels (88.1%), La Selle Thrush (*Turdus swalesi*, 82.3%), and Western Chat-Tanager (*Calyptophilus tertius*, 49.3%)(Table 2). Hispaniola Hutia (*Plagiodontia aedium*), White-fronted Quail-dove (*Geotrygon leucometopia*), and Hispaniolan Crossbill (*Loxia megaplaga*), three species listed as Endangered by the IUCN, were also recorded (Appendix 1). Black-capped Petrel, La Selle Thrush, Western Chat-tanager, Hispaniolan Crossbill, Hispaniolan Hutia, and White-fronted Quail-dove (*Geotrygon leucometopia*) 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 Thrush (*Catharus bicknelli*), a Vulnerable species. Illustrative pictures of each species observed can be found in Appendix 1.

Potential predators of Black-capped Petrels included Rat sp. (recorded on n = 311 individual day-nights), Javan Mongoose (*Urva javanica*, n = 43), Feral Cat (*Felis catus*, n = 36), Domestic Dog (*Canis familiaris*, n = 16), and Feral Pig (*Sus scrofa*, n = 1) (Table 2 and Figures 2 and 3). Specifically:

- Rats were recorded at all three nesting areas. They 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). In one occasion, we detected a rat exiting a petrel burrow with an egg (see 3.3. Predation events, and Picture 5) but we did not detect obvious predatory behavior in this or other events. Rats appeared to avoid the area when petrels were present at the entrance of their burrow. In multiple occasions, rats were observed climbing trees (Picture 6).
- Cats were recorded at Loma Quemada and Loma del Toro. They were recorded throughout the period and were diurnal (Figures 2 and 4). Cats were observed at most (but not all) nests at both

colonies (Figure 5). A minimum of two individuals were observed at each colony (one black and one striped individual at each site). 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.

- Mongooses were regularly recorded at 13 nests in Valle Nuevo, and in one occasion at two nests in Loma del Toro (on 23 January 2023) (Figure 5). 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 2). Mongooses were diurnal (Figure 4). Since mongooses lack 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 recorded at 11 nests in Loma del Toro, and one nest in Valle Nuevo (Figure 3). In Loma del Toro, a minimum of three dogs were present (a large tan male, a smaller black and white female, and a black individual) that repeatedly tried to dig out burrow. On 01 June 2023, the male tan dog pulled a juvenile petrel out of nest EST1 (see 3.3. Predation events). In Valle Nuevo, one dog (black and tan male) was recorded on one occasion: it did not appear to interact with petrel burrows.
- A single Feral Pig was observed on one occasion in Loma Quemada (Figure 5). It did not interact with petrel burrows.

An Ashy-faced Owl (*Tyto glaucops*) was photographed on 25 January 2023 at nest sites TTRO7 and TTRO8 in Loma del Toro. Given their size and nocturnal habits, Ashy-faced Owls, which are endemic to Hispaniola, could potentially capture Black-capped Petrels. We did not observe predation events.

Humans were observed at Loma del Toro and Valle Nuevo: several groups of 5 to 10 people in Loma del Toro, who appeared to be lost (in January, March, and April 2023); and 2 farmers in Valle Nuevo (in October 2022). None of them interacted with petrel burrows and, although some of them noticed the camera traps, they did not tamper with them.

3.4. Predation events

During the 2022-2023 breeding season, petrels were impacted twice by mongoose (Figures 1-3, 5, and 6). Mongooses were observed depredated a chick on 16 March 2023 at nest VN20 (Picture 7), and a chick on 20 April at nest VN19 (Picture 8). Petrels were observed at those nests for 4 and 6 days respectively following the depredation.

At nest VN8, a mongoose appears to have interacted with a petrel on 22 February 2023: a mongoose entered the burrow for 4 minutes and exited with a petrel feather stuck to its snout, followed by an adult petrel. The camera trap did not record any evidence of predation.

Dogs were present regularly at Loma del Toro between late January and mid-July 2023 (Figures 2, 3, and 5). On 01 June, a large, short-hair tan male dug up nest site EST1 and depredated its chick (Picture 9). This is the only confirmed dog predation but chick remains were found outside nest sites TRO13, suggesting possible predation (the camera monitoring nest TRO13 stopped working before the suspected predation event).

On 19 April, a rat was recorded exiting nest TRO9 at Loma del Toro with a petrel egg (Picture 5). It is unclear if an adult petrel was incubating the egg at the time but petrel activity recorded by camera traps suggests that the egg had been left alone: petrels were recorded on 03 and 05 April and during the night

of 17-18 April but no petrels were recorded after the predation, suggesting that the pair was aware of the egg's failure and did not return to the burrow after 18 April to continue incubating it.

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. Rats were killed by A24 traps.

Ten mongooses were captured in Tomahawk traps. One on 09 November 2022 near nest VN1; one on 11 November at dedicated trapping site BT01; three on 14 November near VN1; one on 01 January 2023 and one on 22 April at dedicated site BT14; one on 19 March and one on 31 March at dedicated site BT13; and one on 5 May near nest VN4. On at least 5 occasions, mongooses entered and exited traps without getting caught. On at least 11 occasions, mongooses attempted to enter closed traps. Rats caused Tomahawk traps to close on numerous occasions, preventing mongooses to enter traps.

4. Discussion

The 2022-2023 season showed the highest amount of camera trapping effort since Black-capped Petrel monitoring started in the Dominican Republic, with 55 nests being effectively monitored across three distinct areas (though 11 of these nests were artificial nest boxes deployed in Fall 2022). 6 of 7 known nests (86%) were monitored in Loma Quemada, 34 of 45 (75%) at Loma Quemada, and 15 of 23 (65%) at Valle Nuevo.

In general, all cameras performed correctly except for 13 that malfunctioned and took empty photos at very short intervals (TRO2, TRO8, TRO16, TRO17, JIM1, PMR1, PMR7, VN8, VN15, VN16, VN20, and VN21), three that did not take photos between 26 January and 18 March, one that took images of low quality (TRO9), and one that stopped recording too early (TTRO2). Except for the camera at nest JIM1, the cameras that took large numbers of photos recorded for the whole deployment periods and should have recorded petrels and predators; however, the extreme number of photos (mean: 29,800; range 13,995 - 82,846) prohibited a thorough analysis of every individual photo. Given these issues, it is possible that events were missed.

It appears that at least two (possibly three) depredations by mongoose occurred at Valle Nuevo this season. This is comparable to the rate of depredation observed in 2020-2021 and 2021-2022, when three nests and two nests were confirmed to be impacted by mongoose, respectively. This season, however, saw the highest trapping effort since the nesting area was discovered in 2018, with 9 Tomahawk traps deployed from October 2022 to April 2023 resulting in the capture of 10 mongooses. The high number of captures did not decrease the impact of mongoose predation on Black-capped Petrels. It appears that, once captured, mongooses were rapidly replaced by one or several incoming individuals (the lack of fur markings prevents the identification of individual mongooses), suggesting a high prevalence of mongoose in the surrounding habitat, or the presence of a nearby source.

Dogs were responsible for the predation of at least one Black-capped Petrel chick (possibly two) in Loma del Toro. This is the first time since the 2020-2021 season that dogs predated petrels, despite them being present in Loma del Toro during the 2021-2022 season.

Despite these shortcomings, predation does not seem to be the main cause of the low reproductive success observed at Loma del Toro and Valle Nuevo. Indeed, only 11 of 67 nests monitored in the Dominican Republic appeared to have fledged a chick this season (Table 3, and see main Grupo Jaragua report 21107C), though 5 of 6 monitored nests in Loma Quemada were successful in fledging a chick. Predation of eggs by rats (an occurrence of which was detected by camera trap, though it is likely that the egg had been abandoned) may be a cause of desertion but we did not find evidence that rats predated viable eggs in the presence of adult petrels. Instead, rat predation seems to be a consequence of nest desertion.

As during the 2021-2022 season, low levels of predation were recorded in Loma del Toro, suggesting that widespread failure may more be a result of external factors affecting the species outside the nesting areas. However, reports from Morne Vincent suggest that breeding success was higher there, with no recorded widespread failure.

The overall level of nest desertion was similar in 2022-2023 (68.8%) to levels in 2021-2022 (66.7%). No clear pattern of desertion emerged between 2021-2022 and 2022-2023 (Table 3), with 8 nests having a more positive fate in 2023 (no desertion) than 2022 (desertion or no breeding activity), 10 having a more negative fate (desertion or no breeding activity in 2023 vs no desertion in 2023), and 25 nests having a similar fate in both seasons.

Table 1. Summary of camera trapping effort during the 2022-2023 breeding season in the Dominican Republic.

Nesting area	Number of nests monitored	Nights Elapsed*	Median start	Earliest start	Latest start	Median end	Earliest end	Latest end
Loma del Toro	34	7349	22 Oct 2022	16 Oct 2022	12 May 2023	30 Jun 2023	27 Jan 2023	12 Jul 2023
Loma Quemada	6	1614	24 Oct 2022	24 Oct 2022	24 Oct 2022	31 Jul 2023	26 Jun 2023	31 Jul 2023
Valle Nuevo	15	3178	25 Sep 2022	23 Sep 2022	26 Sep 2022	9 Jun 2023	10 Nov 2022	16 Jun 2023

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

Table 2. Summary of animal species observed at camera traps during the 2022-2023 breeding season. Only species with a 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 number of days	Overall frequency of occurrence	Area-specific frequency of occurrence*		
				LdT	LQ	VN
<i>Rattus sp.</i>	Rat	311	100.0	19.6	55.8	37.7
<i>Pterodroma hasitata</i>	Black-capped Petrel	274	88.1	15.5	27.4	27.9
<i>Turdus swalesi</i>	La Selle Thrush	256	82.3	19.0	-	0.2
<i>Calyptophilus tertius</i>	Western Chat-tanager	155	49.8	11.4	1.7	-
<i>Catharus sp.</i>	Catharus sp.	141	45.3	10.4	-	0.2
<i>Turdus plumbeus</i>	Red-legged Thrush	100	32.2	6.8	3.3	-
<i>Zonotrichia capensis</i>	Rufous-collared Sparrow	72	23.2	-	-	11.3
<i>Seiurus aurocapilla</i>	Ovenbird	46	14.8	3.3	0.3	-
<i>Urva javanica</i>	Javan Mongoose	43	13.8	0.1	-	6.4
<i>Calyptophilus frugivorus</i>	Eastern Chat-tanager	42	13.5	-	-	6.6
<i>Felis catus</i>	Feral Cat	36	11.6	2.5	1.0	-
<i>Setophaga caerulescens</i>	Black-throated Blue Warbler	34	10.9	2.2	-	1.1
<i>Microligea palustris</i>	Green-tailed warbler	28	9.0	1.9	-	0.5
<i>Geotrygon leucometopia</i>	White-fronted Quail-dove	24	7.7	0.1	7.6	-
-	Unid. Bird	24	7.7	1.2	-	1.3
<i>Spindalis dominicensis</i>	Hispaniola Spindalis	17	5.5	1.1	-	0.3
<i>Canis familiaris</i>	Domestic Dog	16	5.1	1.1	-	0.2
<i>Myadestes genibarbis</i>	Rufous-throated Solitaire	16	5.1	1.0	-	0.3
<i>Plagiodontia aedium</i>	Hispaniolan Hutia	14	4.5	-	2.0	1.3
<i>Pyrrhulagra violacea</i>	Greater Antillean Bullfinch	12	3.9	0.2	-	1.4
<i>Chlorostilbon swainsonii</i>	Hispaniolan Emerald	11	3.5	0.5	-	0.6
<i>Setophaga pinus</i>	Pine Warbler	11	3.5	0.4	-	0.9
<i>Melanerpes striatus</i>	Hispaniolan Woodpecker	10	3.2	0.7	-	0.2
<i>Phaenicophilus palmarum</i>	Black-crowned Palm Tanager	5	1.6	0.1	-	0.5
<i>Mniotilta varia</i>	Black-and-white Warbler	4	1.3	0.3	-	-
<i>Elaenia fallax</i>	Greater Antillean Elaenia	4	1.3	-	-	0.6

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

Table 3. Summary of camera deployment and petrel activity recorded by camera traps during the 2022-2023 breeding season. Nests shown in bold are suspected to have fledged a chick. Artificial nest boxes are shown with an asterisk.

Nest	Cameras		Adults		Deser-tion 2023?	Deser-tion 2022?	Juvenile		Notes
	Start	End	Earliest date	Last date			Earliest date	Last date	
Loma del Toro									
CA1*	24-Oct-2022	11-Jul-2023	21-Nov-2022	21-Nov-2022	-	NA	-	-	Not used by observed petrels
CA2*	27-Nov-2022	21-Jun-2023	-	-	-	NA	-	-	No petrels observed
CA3*	27-Jan-2023	11-May-2023	27-Jan-2023	20-Mar-2023	-	NA	-	-	
CA4*	21-Oct-2022	11-May-2023	30-Nov-2022	16-Feb-2023	-	NA	-	-	Not used by observed petrels
CA5*	20-Oct-2022	11-Jul-2023	20-Nov-2022	13-Feb-2023	-	NA	-	-	Not used by observed petrels
CA6*	22-Oct-2022	10-Jul-2023	12-Nov-2022	29-Nov-2022	-	NA	-	-	Not used by observed petrels
CA7*	23-Oct-2022	13-Jun-2023	18-Nov-2022	21-May-2023	-	NA	-	-	Not used by observed petrels
CA8*	22-Oct-2022	12-Jul-2023	2-Apr-2023	2-Apr-2023	-	NA	-	-	Not used by observed petrels
CA9*	23-Oct-2022	12-Jul-2023	-	-	-	NA	-	-	No petrels observed
CA10*	22-Oct-2022	21-Jun-2023	-	-	-	NA	-	-	No petrels observed
CA11*	22-Oct-2022	9-Jun-2023	-	-	-	NA	-	-	No petrels observed
EST1	21-Oct-2022	12-Jul-2023	15-Nov-2022	1-Jun-2023	N	N	-	-	Dog predation (chick) 1 June 2023
EST2	28-Jan-2023	23-May-2023	28-Jan-2023	14-Apr-2023	Y	-	-	-	
JIM1	12-May-2023	9-Jul-2023	12-May-2023	21-Jun-2023	N	-	18-Jun-2023	6-Jul-2023	No photos before 12 May 2023
JPG1	22-Oct-2022	19-Mar-2023	1-Nov-2022	15-Nov-2022	-	-	-	-	
JPG2*	22-Oct-2022	12-May-2023	-	-	-	-	-	-	No petrels observed
TRO1	21-Oct-2022	10-Jul-2023	4-Nov-2022	14-May-2023	Y	N	-	-	
TRO2*	21-Oct-2022	27-Jan-2023	9-Nov-2022	21-Nov-2022	-	N	-	-	
TRO3	22-Oct-2022	11-Jul-2023	31-Oct-2022	12-Apr-2023	Y	Y	-	-	
TRO5	21-Oct-2022	6-Jul-2023	8-Nov-2022	26-Mar-2023	Y	Y	-	-	
TRO6	24-Oct-2022	23-May-2023	7-Nov-2022	16-Mar-2023	Y	N	-	-	
TRO8*	21-Oct-2022	10-Jul-2023	3-Nov-2022	17-Jun-2023	N	Y	19-Jun-2023	7-Jul-2023	
TRO9*	22-Oct-2022	25-Jun-2023	1-Nov-2022	18-Apr-2023	Y	Y	-	-	
TRO12	27-Jan-2023	11-Jul-2023	28-Jan-2023	21-Apr-2023	Y	-	-	-	
TRO13	21-Oct-2022	30-Mar-2023	4-Nov-2022	30-Mar-2023	Y	-	-	-	
TRO15*	28-Oct-2022	20-Jun-2023	6-Nov-2022	21-Mar-2023	Y	Y	-	-	
TRO16	21-Oct-2022	11-Jul-2023	6-Nov-2022	15-Apr-2023	Y	-	-	-	
TRO17*	23-Oct-2022	11-Jul-2023	2-Nov-2022	26-Jun-2023	N	Y	29-Jun-2023	6-Jul-2023	
TRO19	23-Oct-2022	15-Apr-2023	7-Nov-2022	17-Feb-2023	-	Y	-	-	
TTRO2	20-Oct-2022	13-May-2023	8-Nov-2022	12-May-2023	-	Y	-	-	Possibly fledged a chick (camera stopped functioning too early)
TTRO5	20-Oct-2022	12-Jul-2023	19-Nov-2022	15-Apr-2023	Y	N	-	-	
TTRO6	24-Oct-2022	16-Apr-2023	16-Nov-2022	31-Mar-2023	Y	N	-	-	
TTRO7	16-Oct-2022	12-Jul-2023	11-Nov-2022	24-Mar-2023	Y	Y	-	-	
TTRO8*	20-Oct-2022	12-Jul-2023	27-Oct-2022	24-Mar-2023	Y	Y	-	-	

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Nest	Cameras		Adults		Deser-tion 2023?	Deser-tion 2022?	Juvenile		Notes
	Start	End	Earliest date	Last date			Earliest date	Last date	
Loma Quemada									
PMR1	24-Oct-2022	31-Jul-2023	16-Nov-2022	17-Jun-2023	N	Y	14-Jun-2023	25-Jun-2023	
PMR2	24-Oct-2022	31-Jul-2023	20-Nov-2022	28-Jun-2023	N	Y	6-Jul-2023	24-Jul-2023	
PMR4	24-Oct-2022	31-Jul-2023	9-Nov-2022	19-Dec-2022	-	Y	-	-	
PMR5	24-Oct-2022	31-Jul-2023	2-Nov-2022	20-Jun-2023	N	Y	20-Jun-2023	30-Jun-2023	
PMR6	24-Oct-2022	26-Jun-2023	5-Nov-2022	17-Jun-2023	N	Y	16-Jun-2023	26-Jun-2023	
PMR7	24-Oct-2022	30-Jun-2023	11-Nov-2022	20-Jun-2023	N	N	22-Jun-2023	30-Jun-2023	
Valle Nuevo									
VN1	25-Sep-2022	10-Nov-2022	-	-	-	-	-	-	No petrels observed
VN2	23-Sep-2022	13-Jun-2023	23-Sep-2022	6-Apr-2023	Y	Y	-	-	
VN4	26-Sep-2022	16-Jun-2023	27-Sep-2022	28-May-2023	N	Y	16-May-2023	29-May-2023	
VN5	25-Sep-2022	24-Apr-2023	25-Sep-2022	20-Mar-2023	Y	N	-	-	
VN8	24-Sep-2022	9-Jun-2023	25-Sep-2022	22-Feb-2023	Y	Y	-	-	
VN9	25-Sep-2022	16-Jun-2023	25-Sep-2022	7-Apr-2023	Y	Y	-	-	
VN11	25-Sep-2022	28-Apr-2023	27-Sep-2022	16-Apr-2023	Y	N	-	-	
VN14	23-Sep-2022	9-Mar-2023	-	-	-	Y	-	-	No petrels observed
VN15	25-Sep-2022	12-Jun-2023	26-Sep-2022	21-Mar-2023	Y	Y	-	-	
VN16	25-Sep-2022	16-Jun-2023	26-Sep-2022	4-Oct-2022	-	N	-	-	
VN17	25-Sep-2022	18-Jan-2023	8-Oct-2022	8-Oct-2022	-	Y	-	-	
VN18	25-Sep-2022	23-Feb-2023	-	-	-	Y	-	-	No petrels observed
VN19	23-Sep-2022	13-Jun-2023	28-Sep-2022	26-Apr-2023	Y	N	-	-	Mongoose predation (chick) 20 April 2023
VN20	26-Sep-2022	12-Jun-2023	26-Sep-2022	20-Mar-2023	Y	N	-	-	Mongoose predation (chick) 16 March 2023
VN21	26-Sep-2022	24-Mar-2023	7-Oct-2022	11-Jan-2023	-	Y	-	-	No petrels observed

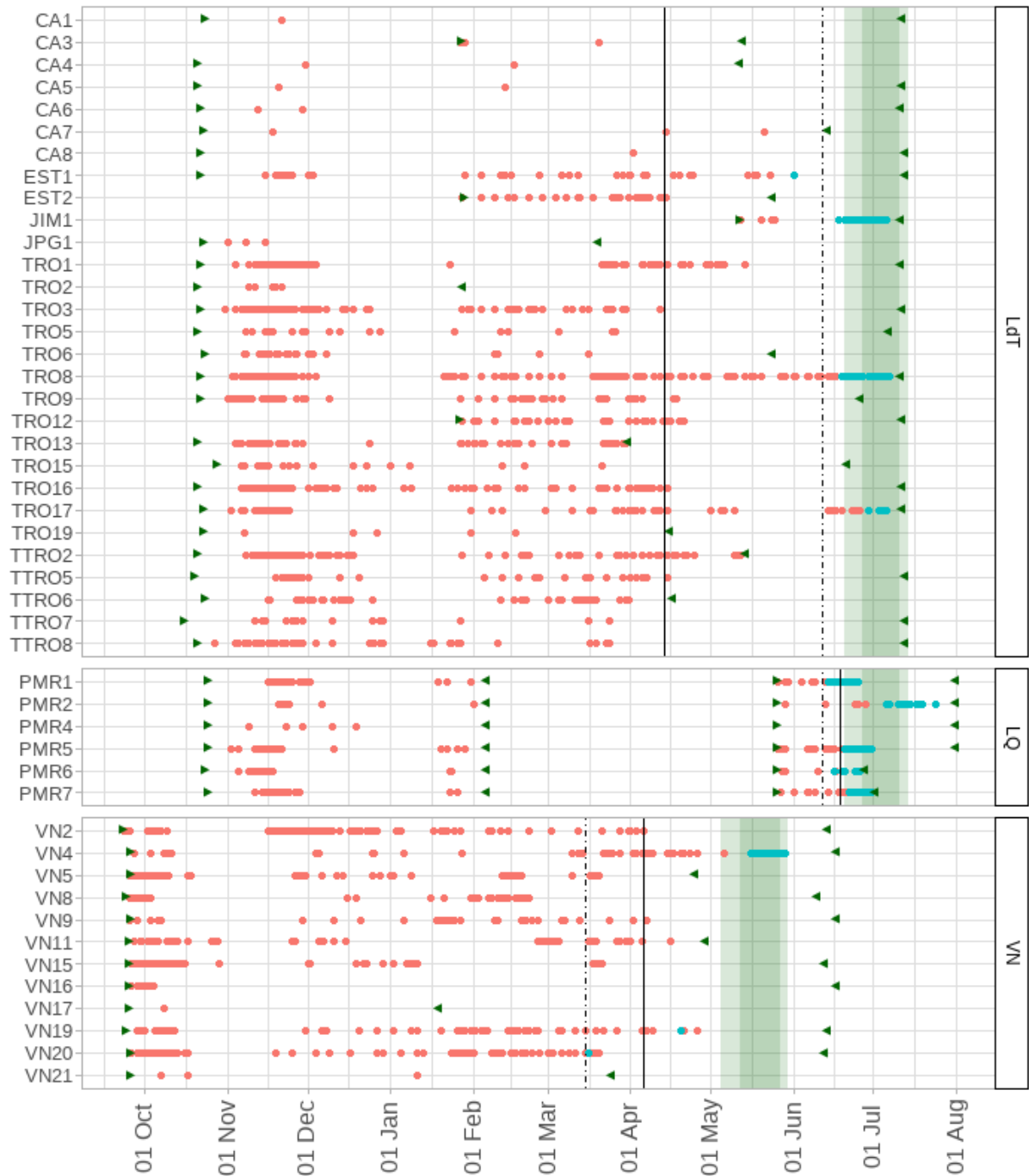


Figure 1. Daily occurrence of Black-capped Petrels at nest sites throughout the 2022-2023 breeding period. Only nests with recorded petrel activity are shown. Red dots = adult petrels; blue dots = juveniles. For nests EST1, VN19, and VN20, blue dots represent depredation events. Green triangles visualize 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 2022-2023; dashed line, for 2011-2018. Shaded areas represent typical periods when fledglings were first and last observed in camera trap pictures between 2011-2018.

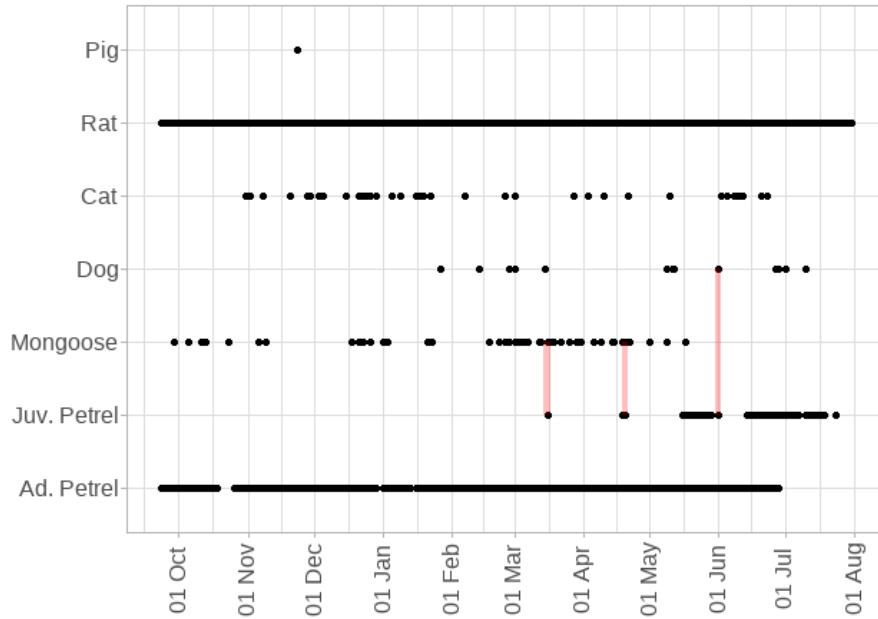


Figure 2. Occurrence of Black-capped Petrels and predator species throughout the 2022-2023 breeding period, all nesting areas combined. Each point represents a day when a species was recorded. Red shading visualizes dates when mongooses and dogs predated juvenile petrels.

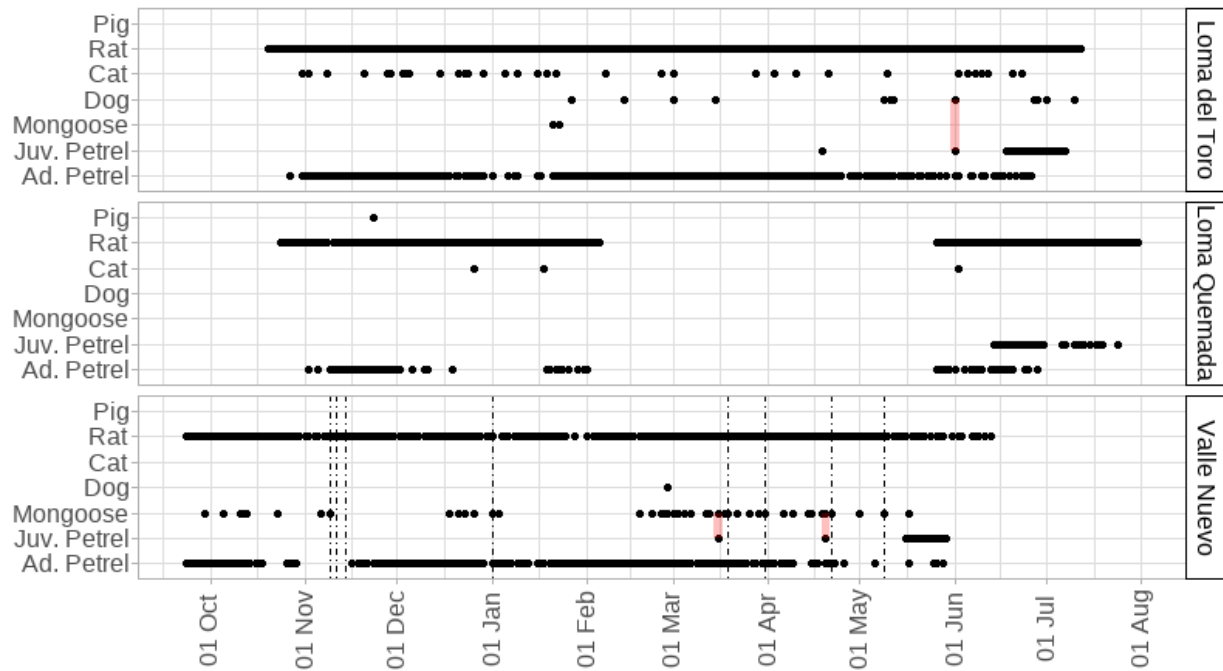


Figure 3. Occurrence of Black-capped Petrels and predator species at nesting areas throughout the 2022-2023 breeding period. Each point represents a day when a species was recorded. Red shading visualize dates when mongooses and dogs predated juvenile petrels. For Valle Nuevo, dashed lines represent dates when mongooses were trapped.

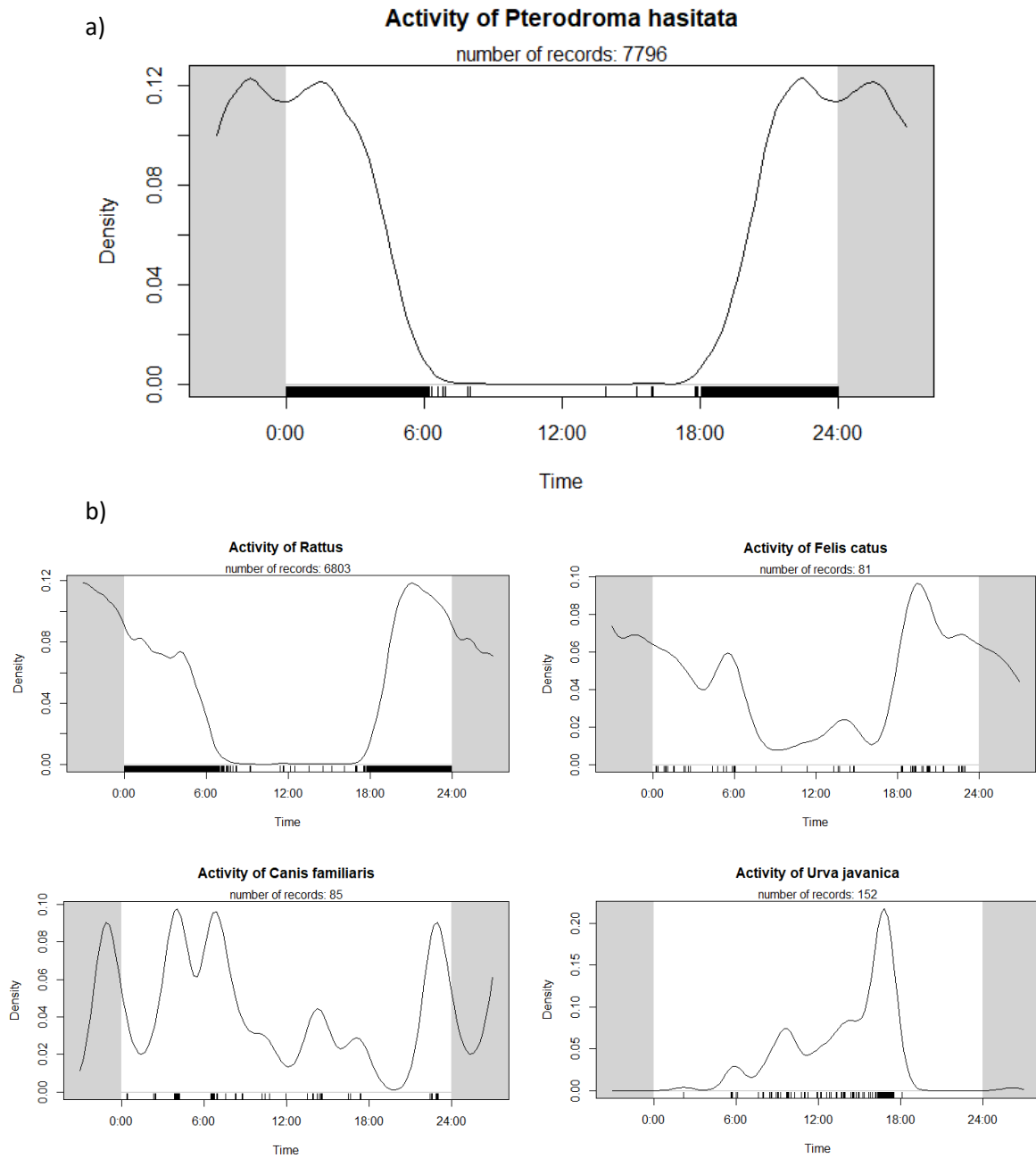


Figure 4. Diel activity of Black-capped Petrel and predators species observed during the 2022-2023 breeding season. a) Diel activity of Black-capped Petrel, and b) activity of petrel predators. Activity is inferred by the density of records for a species at a given time of the day. The grey areas represent the continuity of the data before and after 00h00 and 24h00, respectively.

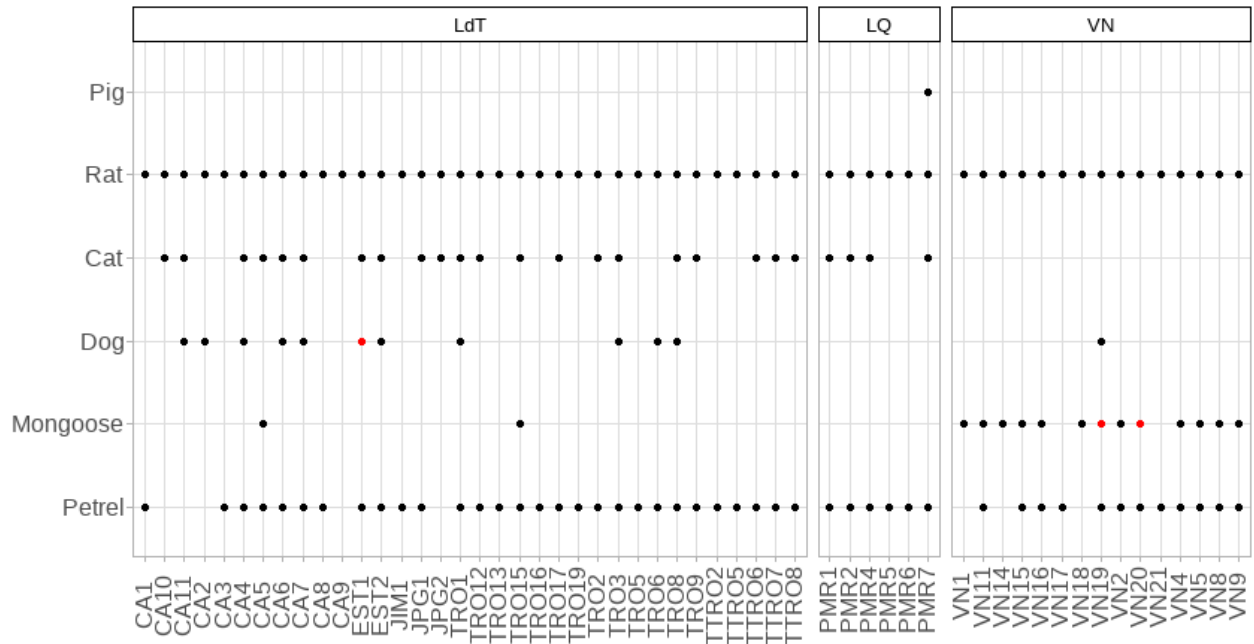


Figure 5. Occurrence of Black-capped Petrel predator species at nest sites throughout the 2022-2023 breeding period. Red points visualize nests depredated by mongooses or dogs.

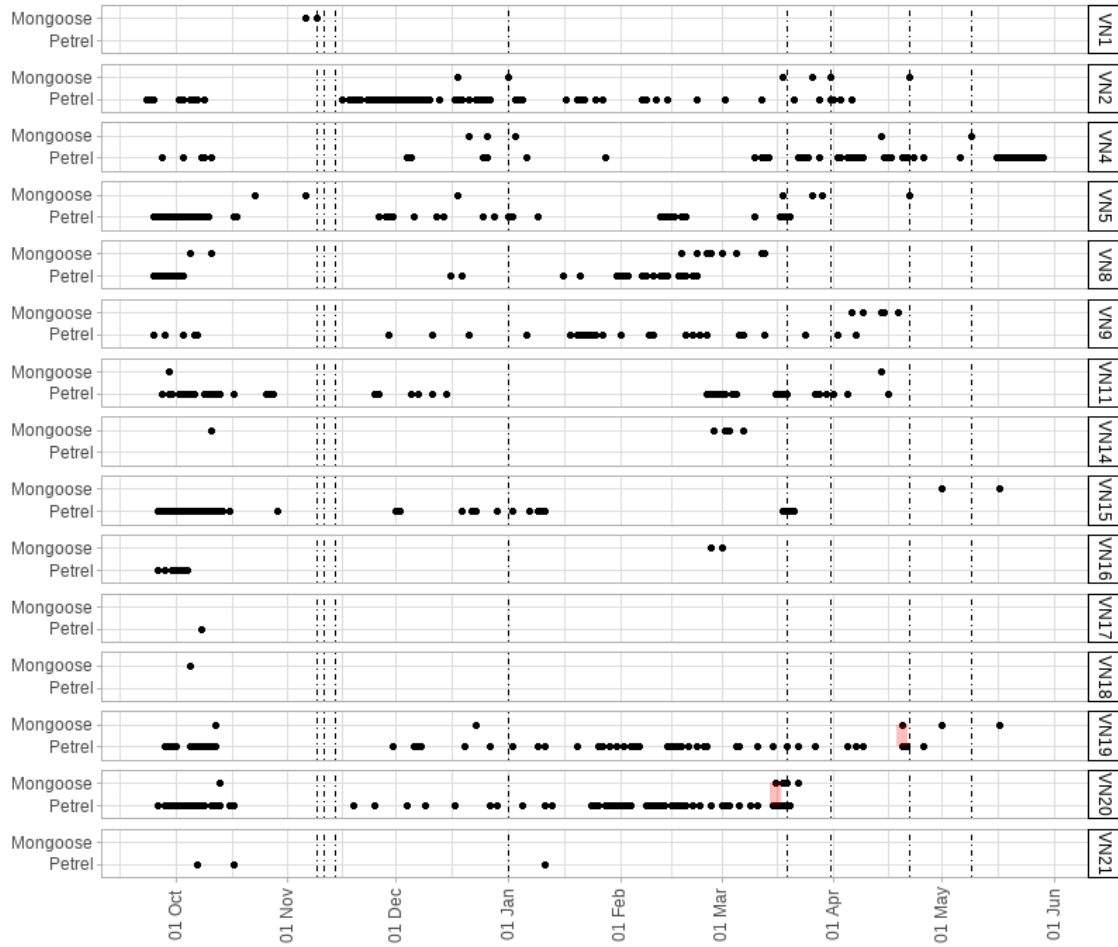


Figure 6. Daily occurrence of mongoose and Black-capped Petrel at Valle Nuevo nest sites throughout the 2022-2023 breeding period. Red shading represents confirmed predation (chicks). Dashed lines represent dates when mongooses were trapped



Picture 1. Black-capped Petrel exiting its burrow during daytime. Picture taken at Loma del Toro, nest TRO9, on 17 November 2022 at 08:00.



Picture 2. Juvenile Black-capped Petrel fledging during the daytime. Picture taken at Loma Quemada, nest site PMR2, on 24 July 2023.



Picture 3. Black-capped Petrel climbing a tree trunk to take off after leaving its burrow. Picture taken at Loma del Toro, nest site TRO3, on 20 November 2022.



Picture 4. Black-capped Petrel climbing a tree trunk to take off after leaving its burrow. Picture taken at Loma del Toro, nest site TRO13, on 02 March 2023.



Picture 5. Rat exiting a Black-capped Petrel burrow with a petrel egg. Picture taken at Loma del Toro, nest TRO9, on 19 April 2023.



Picture 6. Rat climbing a tree trunk. Picture taken at Loma del Toro, nest site TRO3, on 10 July 2023.



Picture 7. Mongoose with Black-capped Petrel chick. Picture taken at Valle Nuevo, nest site VN20, on 16 March 2023.



Picture 8. Mongoose with Black-capped Petrel chick. Picture taken at Valle Nuevo, nest site VN19, on 20 April 2023.



Picture 9. Dog with Black-capped Petrel chick. Picture taken at Loma del Toro, nest site EST1, on 01 June 2023.

5. APPENDIX 1: ANIMAL SPECIES IDENTIFIED DURING THE 2022-2023 BREEDING SEASON

Calyptophilus frugivorus, Eastern Chat-tanager – 21 December 2022, Valle Nuevo



Calyptophilus tertius, Western Chat-tanager – 24 April 2023, Loma del Toro



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



Catharus sp., *Catharus* (Bicknell's) thrush – 26 April 2023, Loma del Toro



Chlorostilbon swainsonii, Hispaniolan Emerald – 06 July 2023, Loma del Toro



Coccyzus longirostris, Hispaniolan Lizard-cuckoo— 07 July 2023, Loma Quemada



Elaenia fallax, Greater Antillean Elaenia – 20 December 2022, Valle Nuevo



Felis catus, Feral Cat – 02 November 2022, Loma del Toro



Geotrygon leucometopia, White-fronted Quail-dove – 24 June 2023, Loma del Toro



Geotrygon montana, Ruddy Quail-dove – 25 November 2022, Loma Quemada



Loxia megaplaga, Hispaniolan Crossbill – 17 February 2023, Loma del Toro



Melanerpes striatus, Hispaniolan Woodpecker – 13 March 2023, Valle Nuevo



Microligea palustris, Green-tailed Warbler – 26 April 2023, Valle Nuevo



Mniotilta varia, Black-and-white Warbler – 13 December 2022, Loma del Toro



Myadestes genibarbis, Rufous-throated Solitaire (juvenile) – 20 October 2022, Valle Nuevo



Patagioenas squamosa, Scaly-naped Pigeon – 08 July 2023, Valle Nuevo



Phaenicophilus palmarum, Black-crowned Tanager – 03 May 2023, Loma del Toro



Plagiodontia aedium, Hispaniolan Hutia – 05 December 2022, Valle Nuevo



Pterodroma hasitata, Black-capped Petrel – 04 July 2023, Loma del Toro



Pyrrhulagra violacea, Greater Antillean Bullfinch – 31 March 2023, Valle Nuevo



Rattus sp., Rat – 15 February 2023, Loma del Toro



Seiurus aurocapilla, Ovenbird – 06 February 2023, Loma del Toro



Setophaga caerulescens, Black-throated Blue Warbler – 13 March 2023, Loma del Toro



Setophaga palmarum, Palm Warbler – 03 March 2023, Loma del Toro



Setophaga pinus, Pine Warbler (with Black-capped Petrel feather) – 24 April 2023, Loma del Toro



Spindalis dominicensis, Hispaniolan Spindalis – 27 November 2022, Loma del Toro



Spinus dominicensis, Antillean Siskin – 05 June 2023, Valle Nuevo



Sus scrofa scrofa, Feral Pig – 23 November 2022, Loma Quemada



Turdus plumbeus, Red-legged Thrush – 07 June 2023, Loma del Toro



Turdus swalesi, La Selle Thrush – 07 July 2023, Loma del Toro



Tyto glaucops, Ashy-faced Owl – 25 January 2023, Loma del Toro



Urva javanica, Javan Mongoose – 09 May 2023, Valle Nuevo



Zonotrichia capensis, Rufous-collared Sparrow – 06 April 2023, Valle Nuevo

