

Final Evaluation Report

Your Details							
Full Name	Alejandro Pereda Sanchez						
Project Title	Situation of domestic carnivores in San José district and his impact in wildlife carnivores of the southern patches of equatorial dry forest in Perú						
Application ID	29155-1						
Grant Amount	£5,000						
Email Address	rpsvet.25@gmail.com						
Date of this Report							



1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Identify and confirm species of wild carnivores that inhabit the patches of dry forest around the San José district.				We suffered a delay due to COVID restrictions and we had to modify the original plan. We made the camera trap assessment for 6 months (from August 2020 to February 2021) instead of 10 months that we planned (from February to December 2020).
Characterise the population of domestic carnivores in rural communities of the district of San José in the province of Pacasmayo, La Libertad region, Peru.				To begin this objective, we established a biosafety protocol and waited until COVID cases decreased in the zone.
Quantify habitat overlap of wild and domestic carnivores in dry forest patches.				We suffered a delay due to COVID restrictions and we had to modify the original plan. We made the camera trap assessment for 6 months (from August 2020 to February 2021) instead of 10 months that we planned (from February to December 2020).
Apply an education program in rural communities, for conservation of native wildlife carnivore.				To begin this objective, we established a biosafety protocol and waited until COVID cases decreased in the zone. In addition, to decrease direct contact with the local population, we modified the plan and designed visual material to achieve our education objective.

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.

The main difficulty was the COVID -19 pandemic. The government restrictions and the initial negativity of the rural communities did not allow us to start on time. We started 5 months later with biosafety measures. We had to start with the camera trap assessment, because this implied less contact with population and we had to hire



private transport that took us directly to the communities. During this period S.T.C, the local leader of one rural community died due to the COVID -19 outbreak; that was news that affected the local team who conserve the dry forest patches. We had problems in two grids because people did not allow us to get into their area for camera trap assessment, maybe due to fear of COVID-19. The second difficulty was the limited presence of local guardians in the forest, because they have many restrictions due to pandemic; that allowed an increase in the incidence of wildfires, illegal hunters and loggers. We lost a camera trap in a wildfire in the last month of evaluation and we lost three due to theft. Finally, the leader of our team got infected with COVID-19 and we suffered a new delay of one month during the activities on the education program.

3. Briefly describe the three most important outcomes of your project.



Figure 1. Wildlife of San José dry forest patches



Wildlife carnivores and other important animals for conservation:

We confirmed the presence of Sechuran fox (Lycalopex sechurae) (Figure 1.A), the striped hog nosed skunk (Conepatus semistriatus) (Figure 1.C) and the pampas cat (Leopardus colocola garleppi) (Figure 1.B); this wild cat has never been described before in the San José dry forest. Furthermore, we identified the presence of other wildlife that are important conservation objectives: northern mountain Viscacha (Lagidium peruanum) (Figure 1.D), the opossum (Didelphis sp.) (Figure 1.E) and the false monitor or brown iguana (Callopistes flavipunctatus) (Figure 1.F).

Demography of domestic carnivores and human perception toward wildlife carnivores in the rural communities.

The ratios of dogs to humans in the rural communities were: 0.4 in Santonte, 0.2 in Tecapa and 0.2 in Santa María. The three communities show poor sanitary and reproductive control of their pets. The most frequent sanitary problem was the presence of ectoparasites. Almost all dogs and cats had free ranging habits in the three communities (Figure 2). This information is important for future control measures in pets and it indirectly will improve wildlife carnivores and public health. Due to interview giving us poor information about gastrointestinal parasites in dogs and cats, one of our volunteers is developing her thesis about this issue (Figure 3). The rural population recognised the Sechuran fox more accurately than other carnivores. Most people indicated they like the Sechuran fox and the pampas cat because they are visually nice. In other hand, the most common reason to dislike wildlife carnivores was their attacks on farm animals or crops, however, in the case of the striped hog nosed skunk, the bad smell was the main reason. Many people reported aggressive interactions between dogs and Sechuran fox or striped hog skunk. No interaction between domestic carnivores and pampas cat was reported. These interactions happened most off the time near of the rural areas (Figure 4).



Figure 2. Free ranging dogs in Tecapa Community





Figure 3. Dog faeces collection in rural communities. **Figure 4.** Rural people interview: People recognising wildlife carnivores of San José.



Figure 5. Domestic and wildlife carnivores sharing habitat.

Temporal overlap between domestic and wildlife carnivores

The camera trap assessment revealed us that domestic dogs and cats and wildlife carnivores are sharing similar activity patterns and habitat (Figure 5). A high temporal overlap between pampas cat and domestic cats (Figure 6.A), low



temporal overlap between domestic dog and pampas cat (**Figure 6.B**), moderate temporal overlap between Sechuran fox and both domestic carnivores (dogs and cats) (**Figure 6. C and D**). In the case of striped hog nosed skunk, the interaction with both domestic carnivores was low. These results suggest the existence of interaction risk in the dry forest between domestic and wild carnivores, nevertheless, is necessary more studies to confirm this hypothesis.



Figure 6. Temporal overlap analysis: Mardia-Watson-Wheeler's test: W is the statistic of the test, where 0 indicate a perfect agreement between activity patterns and the statistic that take a large value indicate a large difference. The coefficient off overlap (Δ 1) for analysing differences in activity patterns between wildlife and domestic carnivores, (The Monterroso's threshold indicate low overlap: Δ is < 0.5, moderate overlap: Δ is between 0.5 and 0.75, and high overlap: Δ is <0.75) are presented.

4. Briefly describe the involvement of local communities and how they have benefitted from the project.

A strong working relationship was established with the Tecapa Agrarian Cooperative and the Muchik Group in Santonte Community, which administer the protected area of the "El Cañoncillo" Forest and the non-protected dry forest patches of San José (**Figure 7**), respectively. Despite the pandemic, the community successfully and happily participated in the survey and education activities (Figure 8). Local schools also participated in education activities and received a donation of colourable notebooks (**Figure 9 and 10**).

We hope that rural communities are going to be more aware and seek to have responsible ownership of their pets. Also, we are planning future actions with a local veterinarian to perform sanitary and reproductive control in domestic dogs and cats



of the rural communities.



Figure 7. S.T.C. leader of the Muchik group joining us in our field work. **Figure 8**. Local man participating in the perception interviews.



Figure 9. Rosa Elena Carranza director of rural school Tecapa, receiving a donation of colouring books. Figure 10. Children painting the striped hog nosed skunk in his colouring book.

5. Are there any plans to continue this work?

Yes, we are planning to obtain new funds and work in two new objectives:

• Determine a base line of pathogens in domestic and wildlife carnivores in the patches of dry forest around the San José district and its rural communities, focusing on the ones transmitted by vectors (ticks and flies).



• Assess an education plan for responsible ownership as a measure to control the presence of free ranging dogs and cats in dry forest patches and its possible negative consequences.

6. How do you plan to share the results of your work with others?

We have recently sent an abstract with preliminary results of temporal overlap between domestic and wildlife carnivores to the fifth Latin-American Congress of Mammalogy and fifth Peruvian Congress of Mammalogy in October 2021.

We also showed preliminary results in the IV Macro Regional Congress of Peruvian Dry Forest (December 2-4, 2020) and Webinar of Wildlife Coexistence (June 4-7,2020).

Through social media, we will continue to share the impact of domestic dogs and cats in the conservation of wildlife carnivores.

We are planning to show our results in local college and rural schools.

7. Timescale: Over what period was the grant used? How does this compare to the anticipated or actual length of the project?

Comparing the anticipated and actual length, we suffered delays due to pandemic restrictions. The grant was used since February 2020 to March 2020 and August 2020 to July 2021. From March until August we had to stop the activities due to quarantine.

Activities and update timescale:

- Local stakeholders coordination: February 2020.
- Prospection of potential camera trap sites: February 2020.
- Pilot monitoring of carnivores with camara traps: March 2020.
- Pilot surveys of domestic carnivores: March 2020.
- Official monitoring of carnivores with camara traps: From August 2020 to February 2021.
- Official surveys of domestic carnivores: From March to April 2021.
- Environmental education and perception surveys: From May to July 2021.
- Data analysis: From May to July 2021.



8. Budget: Provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in \pounds sterling, indicating the local exchange rate used. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Bugeted Amount	Actual Amount	Difference	Comments
Environmental education: viatics (lodging, food, internal transport) and transport from City to rural community.	324	224	-100	We reduced the cost of viatics and transport from city to rural community because it was forbidden live activities due to pandemic restriction.
Photo exhibition in community (printing)	100	200	+100	We printed other graphical materials (colourable notebooks and calendars) as a measure to replace activities in public areas that Had restrictions due to the pandemic. However, we compensated with the difference of viatics and transport of the environmental education item.
Workshop with local stakeholders	108		-108	We could not make this item due to pandemic restriction and the impossibility of make virtual activities because the rural population did not have good internet. We save the money and destine to official survey item.
Sixten camera traps: Bushnell Trophy Cam 20M	1738	1738		
Carnivore monitoring: viatics (lodging, food, internal transport) (2 people/ 2 dates per month)	600	600		We had to reduce the time of monitoring from 10 to 6 month. Despite this change, we used the total budget because local transport and lodging increase their cost and we had to buy biosafety material.
Carnivore monitoring: transport to forest (2 people/ 2 dates per month)	644	644		We had to reduce the time of monitoring from 10 to 6 month. Despite this change, we used the total budget because the cost of transport increases their cost.
Official survey: viatics (4 people/3 dates)	180276	+96		We did not expect the increase of cost due to pandemic,



9. Looking ahead, what do you feel are the important next steps?

- The most important steps would be determine the health status of native carnivores and if they are in risk by sharing habitat with dogs and cats.
- Make spatial models to determine if environmental factors affect the occupancy and detectability of wildlife and domestic carnivores.
- Take measures for sanitary control of rural dogs and cats will avoid the spillover of infectious diseases in wildlife carnivores.
- Improve the human perception toward wildlife carnivores through education plan is important to avoid future conflicts.
- Expand our study range in other sites with similar context is important to improve our knowledge of threatens and health status of the three carnivores in the arid ecosystems.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

We used the Rufford foundation logo in education material (Figure 11 and 12), and some presentations as in IV Macro Regional Congress of Peruvian Dry Forest and Webinar of Wildlife Coexistence.



DRYCOP



Figure 11. Colourable notebook design of Wildlife Carnivores of San José.



Figure 11. Calendar of Wildlife Carnivores of San José and their threats.



11. Please provide a full list of all the members of your team and briefly what was their role in the project.

Alejandro Pereda Sanchez: Veterinarian and Project leader

Carlos Calvo Mac: Project supervisor of NGO, PhD candidate and collaborator in field work and data analysis.

Micaela De La Puente León: PhD candidate and collaborator in data analysis. Walter Flores Miranda: Bachelor of Agronomy and field assistant.

Bernadette Zavala De La Cruz: Environmental engineering working on education activities.

Sheyla Lavado Sapo: Bachelor of Agronomy and volunteer in remote work.

Belén Artiaga Arteaga: Undergraduate student of Veterinary Medicine, volunteer in population interviews and working on thesis

Irina Cerna Chihuala: Undergraduate student of Biology, volunteer in population interviews and working on thesis.

Javiera Romero Aravena: Chilean undergraduate student of Veterinary, volunteer in field work.

Diego Alonso Torres Salinas: Udergraduate student of Veterinary, volunteer in field work and population interviews.

Sofia Elías: Undergraduate student of Veterinary, volunteer in field work and population interviews.

12. Any other comments?

We are very thankful to The Rufford Foundation for supporting us with this grant to start working with conflicts between wildlife and domestic carnivores in San José. Likewise, we wouldn't have succeeded without help of many involving people and institution: volunteers, CAU Tecapa, Muchik Group, our referees and the rural communities. We hope to still working with The Rufford Foundation for future conservation objectives in benefit of wildlife carnivores of San José district.