Final Evaluation Report

Your Details	
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Project Title	Desert Mammal Conservation: Effects of Human Disturbances on a Protected Area in Argentina
Application ID	31673-1
Date of this Report	11th April 2022

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
Talk directed to the local population, and to the staff of the protected area I will present my research with the aim of inviting the residents and the staff of the park.				Due to restrictions caused by COVID-19 in Argentina, the workshop with the local population and park staff, which was aimed to present the project, could not be held as planned. But our work was made known in every study campaign through the staff members on duty at the time of field trips.
Assessing the impact of different human disturbances on the diversity of meso- and macro-mammals in the IPP.				Fourteen species were recorded, three of which are listed under a conservation category. These species are: *Dolichotis patagonum* (near threatened, IUCN), *Pecari tajacu* (Vulnerable: SAyDS and SAREM 2019) and *Lama guanicoe* (endangered populations in the study area, SAyDS and SAREM 2019). Diversity values are higher as we approach the town. This may be due to more favourable environmental conditions (higher plant cover and proximity to water sources) and to a greater presence of domestic animals. On the other hand, there was a high record of domestic species in the area: cow, donkey and horse. We believe this is a very important point, given the conflicts undergone by natural areas around the world due to the introduction of species, mostly cattle.
Assessing the impact of different human disturbances on the abundance and activity patterns of recorded species.				Out of the 14 mammal species recorded, only three show values enough for them to be statistically analysed. However, there being species with such low records (<2) shows us that our study area could be very fragile in facing different disturbances. Among the three species able to be statistically analysed, we noticed that *L. guanicoe*

				has a positive association with tourist zones, and its activity patterns were not affected by them. In turn, *D. patagonum* relates negatively to roads, and its activity patterns were the ones described for the species. The third species that could be analysed due to the number of records is *Lycalopax gymnocercus* which, although not threatened (Least concern, IUCN) is very important to natural ecosystems. Our results show a positive association with the town located within the study area.
Workshop with the results obtained and species detection maps for the Park's staff and residents.				Despite the restrictions due to COVID-19, workshops showing the results of this project could be held in person. The results were very well received by the park staff and settlers, because in some cases they had no knowledge of the species recorded in the area. They could also learn about the conservation status of said species, for they did not know that many of the species with which they coexist are at potential risk of extinction. Moreover, they did not know the tool we use to collect data, which in our case are camera traps, and this aroused great curiosity to learn more about the way of working.
Pamphlets and leaflets delivered to teachers, students, community residents, tourists visiting the protected area and members of the park's staff.				Informative pamphlets about the species recorded in the area were delivered primarily to tourists visiting the area, highlighting the importance of their conservation status. Curiosities of these species were also included to grab the readers' attention. Besides, the pamphlet was focused on the care and respect that should be shown at the time of visiting the protected area, with emphasis on the speed at which to drive in the area, since in Argentina the maximum speed allowed in protected areas is 60 km/h.
A photographic exhibition will be made and will be permanently				Because of the great variation in the restrictions due to COVID-19, we did not know whether we would be able

placed at the school.				to carry out the sampling, so we decided to make a video, which is being developed by a group composed of different researchers, and where emphasis is laid not only on the conservation of species but also on the site's cultural worth. The video will be available in YouTube so that it may be accessible to any person, not only in Argentina but also across the world (https://bit.ly/RelatosLunaTeaser).

2. Describe the three most important outcomes of your project.

Although this work included many records of the same species, one of the most important results was the increase in records of the collared peccary (*Pecari tajacu*). This species is vulnerable in Argentina and was recently recorded in the park (2020), which could be indicating a widening of its range. In addition, although the puma (*Puma concolor*) is not a threatened species in the area, it is strongly rejected by the people because of its attacks on domestic livestock. We obtained seven records, which we consider are many compared to previous studies conducted in the area. This demonstrates the importance of monitoring to learning more about the different species at regional scale, since species in every area face different threats that can result in their local extinction. Occupation models were developed for three species, guanaco (*Lama guanicoe*), mara (*Dolichotis patagonum*) and fox, given the number of data obtained. The good news is that, in analysing the guanaco, we found no evidence of its being negatively affected by the human disturbances in the area, whilst the other two species show a negative trend toward certain disturbances. Knowing these patterns is of central importance, for the presence of man in natural areas is ever growing, as well as tourism in protected areas worldwide. Finally, worth mentioning is the exchange of information between the scientific community, residents and staff in charge of the protected area. They made various contributions in the different workshops, from cultural values of the area to the animals present in it. They coexist with these animals on a daily basis and detect different behaviours before we do. Different questions arose during these workshops, which are possible subjects for future joint studies.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

All the difficulties this project had to cope with are related to the restrictions imposed by the COVID-19 global emergency. The first inconvenience was the restrictions regarding direct contact with persons, which prevented us from holding the first workshops and developing outreach activities.

One more problem was that, at the time of removing the cameras, 30 days after they had been set up, strict quarantine was established, and we could not remove them. Although this caused problems in terms of integrity of the equipment (extreme

cold, rains), it also allowed us to keep the equipment for more than 3 months, which increased the number of records. This was very important because of the low abundance of the species in the area. But it totally delayed the schedule proposed in the original project, as well as the proposed analyses and the activities for showing the results reached.

Another difficulty was that of exchange of currencies and purchase of material abroad, because in Argentina there are many restrictions regarding exchange of money and imports. This resulted in a delay in the delivery of the required material. However, despite these problems, the project could be carried out and the equipment obtained.

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

The park staff benefitted by knowing the species inhabiting the area, and by learning about their conservation status. Many of them were not aware of the conservation guidelines established by the IUCN and had no knowledge about the status of the species present there. Therefore, this is a starting point for paying more attention to species to be able to preserve them. Moreover, the whole community will benefit from the video that will be available on social networks in the course of this year. This material will help the community to make itself known and increase its sense of belonging to its environment.

5. Are there any plans to continue this work?

Yes, there are plans to continue this work, not only in the sampled area, but also at new sites which will shortly be accessible and which have not yet been explored by any researcher. This will allow us to know what a system without human intervention is like, which would be very interesting as it will enable us to draw comparisons with the studies we have so far, including this work. Going hand-in-hand with the above, we highlight these studies as a baseline since we expect that in the short term the Bio-Oceanic Corridor that will link Argentina, Brazil and Chile will be completed, which will bring about an increase in vehicle traffic in the protected area. Bearing this in mind, measures should be taken to reduce this impact on the area to the least possible extent.

Besides, the study area, Ischigualasto Provincial Park is part of the heritage of humankind, as declared by UNESCO, along with the Talampaya National Park. Although the latter park is adjacent to the IPP, different species have been recorded that we have not been able to detect, and other species with more records than ours. Being contiguous systems, one would expect similar diversity, richness and abundance, but it is not so. Therefore, several questions arise as to the cause of these differences and the implications of the management of these two areas, for they are totally differently managed. Moreover, this being a system, there should be an attempt to work together so as to achieve still better results in the conservation of species and of their habitat. This has already been pointed out and highlighted by the IUCN World Heritage Outlook (2020).

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

It is partly being shared through the design and delivery of informative pamphlets in the park. Besides, a video is being developed considering the cultural and biological value of the area. Moreover, we expect to be able to publish these results in scientific journals, congresses and through social networks so they can reach the general public. Taking this into account, these results were made available to the authorities of the protected area, so they can be considered at the time of defining management actions.

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

What is important is to continue to monitor the area to enhance knowledge of the current status of populations, because a single sampling is not enough. And that this information be analysed by government authorities so that they take the necessary measures for the protection of species. Moreover, it would be important to carry out joint sampling with the Talampaya National Park which would allow assessing the community in its entirety. Also important is to continue to hold informative workshops with locals and members of the park staff, so that, together with researchers, they may be able to device different conservation strategies.

8. 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?

Yes, we used the Rufford Foundation logo on the pamphlets delivered to staff members and tourists, as well as on maps and calendars made with the local people, and in the video developed in this project. Besides, the institution will be cited in the scientific articles published in relation to this project.

9. Provide a full list of all the members of your team and their role in the project.

Teresa Yamila Ontiveros: Project manager. Field work to set up camera traps, performance of statistical analyses, writing of reports and teaching at workshops. Writing and organization of publications.

Flavio Cappa: Field assistant, making of maps in QGIS and teaching at workshops in schools. Cooperation in publications.

Stella Giannoni: Writing of report. Cooperation in publications.

Natalia Andino: Specialist in statistical analyses. Cooperation in publications.

Carlos Borghi: Helped in the provision of materials to carry out this project. Cooperation in publications.

10. Any other comments?

We are very grateful to The Rufford Foundation for the grant that enabled us to develop this project. Also, for allowing us changes in the schedule proposed, given the current situation caused by the COVID-19 pandemic. We would also like to thank the foundation because we were able to purchase material that will allow us to continue to work hard in the area over time.