

Final Evaluation Report

Your Details	
Full Name	María Victoria Brizio
Project Title	A critically endangered sand dune lizard in Vaca Muerta oil fields in Patagonia Argentina: a conservation challenge
Application ID	27078-1
Grant Amount	£5000
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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
Generate basic scientific information on the Añelo Sand Dune Lizard population dynamics, viability and extinction probability in all of their relict populations				The data were insufficient to estimate these population parameters. Instead, we were able to estimate the density of the population in three different sites of the Añelo sand dunes lizard (ASDL).
Update the previous assessment of the conservation status of the species				We could update the conservation status of three populations of the ASDL. In addition, we were able to determine that the extent of the distribution of the species is greater than the one published by IUCN (Avila, 2016).
Develop an action plan for the long-term conservation of ASDL that ensures appropriate territorial management and connectivity among the populations				We realised that the information gathered during these 2 years of sampling was not enough to develop a long-term management plan for the species. More specific studies as connectivity between patches and home range are necessary to improve our results.
Create the basic biological information background for future implementation of legally protected areas.				This was achieved in terms of thermal ecology and distribution of the species. To date, we have not been able to carry out any study on reproduction. The faecal analysis to determine diet are being processed by a colleague from another laboratory.
Provide environmental counselling and explain the conservation strategy for the Añelo Sand Dune Lizard to the oil companies				We were able to contact two companies that operate in the species' distribution area. But only one was interested in identifying if their operations overlapped with the environments that ASDL inhabits.
Promote the importance of environmentally friendly practices in oil exploitation		X		We were able to contact two companies that operate in the species' distribution area. But only one was interested in identifying if their operations overlapped with the environments that ASDL inhabits.

Work together with local schools (Añelo, Aguada San Roque and Chihuidos) to transmit appropriate conservation approaches involving children		X		Due to the global pandemic of COVID-19, we were unable to work with the local schools in Añelo. However, we successfully fulfil the educational campaigns in Aguada San Roque and Los Chihuidos.
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.

We had trouble getting temporary workers. We needed people without work capable of doing strength work. They would have to spend the whole day uncovering the pitfall traps that were covered with sand due to the wind. Eventually we ended up getting the workers, but it was a fight until the last minute.

Another difficulty happened in February of 2020 when I found out that the oil company that operates in my sampling sites was running pipes along the field and they were running through part of the dunes that were ASDL inhabits. I contacted the Environment and Hygiene Manager and explained our concern. Finally, they ended up putting the pipes next to the road without crossing the dunes.

Another problem was the weather. The last pitfall trap season (September 2019-March 2020) was colder and windier than normal. Therefore, our results reflect a lower capture rate than other years.

Finally, the COVID-19 pandemic delayed all our activities, both in the laboratory and in the field. To this day, it is very difficult to get permits for wildlife to go to the field and to the oil fields to enable entry. In some cases, it was impossible to access the oil fields to remove our own materials from the field.

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

- We studied the thermal physiology of the ASDL. We recorded field body temperatures (T_b), preferred body temperatures (T_{pref}), the operative temperature (T_e), and the thermal sensitivity of locomotion at different body temperatures. Our results indicate that this lizard is not currently under environmental stress or exceeding its thermal limits, but that it is thermoregulating below T_{pref} to avoid overheating, and that an increase in environmental temperature higher than 3.5 °C will strongly affect the use of microhabitats with direct sun exposure.
- We update the current distribution of the ASDL from two location to 16 locations and estimated its potential distribution, relating observed occurrence localities to environmental data.
- We raised awareness of the presence and importance of the ASDL in local schools and oil companies. We also established a cooperation with these schools, where they inform us when the ASDL or another reptiles species is seen in the area.

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

During our awareness activities, local communities learn how to deal with poisonous snake bites. Besides, the dangerousness of many species of lizards that were believed to be poisonous was demystified.

5. Are there any plans to continue this work?

Yes, our intention is to continue expanding the knowledge about this species. Initially, our next step is to study reproductive biology of ASDL, using non-invasive techniques like veterinary ultrasound. Moreover, during the exploratory fieldwork to determine ASDL distribution we identify several new populations of this species. It would be important to analyse the status of these population and the connectivity between all.

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

We presented some of our results to the National Congress of Herpetology in Argentina in 2019 and in the edition from this year. Also, at the International Congress of Herpetology in Chile (2020). We have already published our work about thermal ecology and susceptibility to global warming in the Canadian Journal of Zoology (<https://doi.org/10.1139/cjz-2020-0305>) and our work about the distribution of the species has already been submitted to a journal and we are awaiting its review.

In addition, all the news about our work was shared with the scientific and non-scientific community on our Facebook page (<https://www.facebook.com/Proyecto-Lagartija-End%C3%A9mica-del-Bajo-de-A%C3%B1elo-111612186930039/>).

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

Our project was sanctioned on May 2019, but we did not use it until the beginning of the activity time of lizards in spring (August 2019) until August 2021. This was a much longer period than the one anticipated in the initial project.

8. Budget: Provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ 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.

Exchange rate used from July 2019: 1 GBP = 52,3353 ARS. Most of the differences between the budgeted and the actual amount were due to the country's inflationary difference from 2019 to 2021. With an inflation of 54% in 2019, 36% in 2020 and 52% in the current year.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Additional features	400	413	+13	
GPS	167		-167	We got a borrowed GPS.
Lodging	300	241	-59	Some of the lodging we used were borrowed.
Internship	200	1128	+928	Two different internships were possible.
Temporary workers	321	390	+69	
Fuel for the vehicle	801	770	-31	Another project covered the cost of fuel for some campaigns.
Food supplies	403	401	-2	
Vehicle rent	1000		-1000	Another project covered the cost of renting a vehicle for fieldwork.
Educational campaign	605	360	-245	The global pandemic affected the possibility of complying with all scheduled visits. Also we get borrowed vehicle for this subject.
Notebook	700	1260	+560	Price for the notebook was higher than expected.
Brochures	51	22	-29	
Posters	31	12	-19	
Office supplies	21	3	-18	
TOTAL	5000	5000		

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

First, we think that the next important step is keep publishing and divulge the ASDL so that it can become a flagship species of these important environments. Second, start studying the reproductive biology of ASDL and third, analyse the status of all the new population identified thanks to this project and the connectivity between all. Once all these objectives have been fulfilled, we believe it would be possible to develop an appropriate action plan for the long-term conservation of ASDL that ensures appropriate territorial management.

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?

Effectively, we used The Rufford Foundation logo in the material presented in educational camping and on our Facebook page. In addition, the posters and power points published at the National and International Congress of Herpetology between 2019 and 2021 had the logo too. Finally, we mention Rufford Foundation in the acknowledgement of the published paper (<https://doi.org/10.1139/cjz-2020-0305>) and in the manuscript sent for publication.

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

Lic. María Victoria Brizio: Project leader, budget manager, Coordinator of project activities, participation in fieldwork and educational activities and purchase of necessary equipment for work.

Dr. Luciano Javier Avila: Professional advisor, budget manager, participation in fieldwork activities.

Lic. Gimena Rajnoch: Assistant in fieldwork and education campaigns.

Lic. Jorgelina Villanova: Assistant in fieldwork and education campaigns.

Lic María Florencia del Mar González: Advisor in education campaigns.

Lic. María Emilia Rodríguez Araujo: Advisor in education campaigns.

Lic. Cecilia Sosa: Assistant in fieldwork activities.

12. Any other comments?

This project really helps us to raise awareness among the local communities and oil companies about the importance of conserving Añelo sand dunes lizard. This is mostly merit of Rufford Foundation.

We are very grateful to the Rufford Foundation because it has recognised the problem and is the first foundation that funded this project. We also hope that Rufford Foundation will continue funding these lines of work, to help conservationists prevent species loss.