

## The Rufford Foundation Final Report

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Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to [jane@rufford.org](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
<b>Your name</b>	María Daniela Rodríguez
<b>Project title</b>	Effect of fire on structure and functioning of mammal's communities in desertified aridlands
<b>RSG reference</b>	Rufford Small Grant-16618-B
<b>Reporting period</b>	August 2015 - September 2016
<b>Amount of grant</b>	£10,000
<b>Your email address</b>	mdrodrig@mendoza-conicet.gob.ar
<b>Date of this report</b>	October 2016

**1. Please 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
Creation of a fire map of the study site			x	We work together with the technical staff of Villavicencio Protected Area to search for all the fires in the Monte region of Villavicencio, check it out with the provincial plan of fire management information and with local ranger. After that a fire map was created.
Quantification of small mammals biodiversity		x		We established 21 permanent grids (5x5 sampling stations each) divided into four fire categories, and we sampled small mammal's biodiversity in summer, autumn and winter 2016 during four consecutive nights each season. We sampled for 5680 night/traps and captured 639 individuals from at least 8 species. It still rest spring sampling in November 2016
Small mammals species identification		x		Because of the difficulty in identifying species on field, we send tissue samples to the BarCode project to correctly identify them on march this year. We are still waiting for the results. We hope to receive them in November 2016.
Herbarium of vegetation from Villavicencio			x	Together with a botanist, a herbarium of the vegetation of Villavienio protected area was created. It stored at the Ruiz Leal herbarium in the IADIZA-CCT-CONICET available for whom needs to use it.

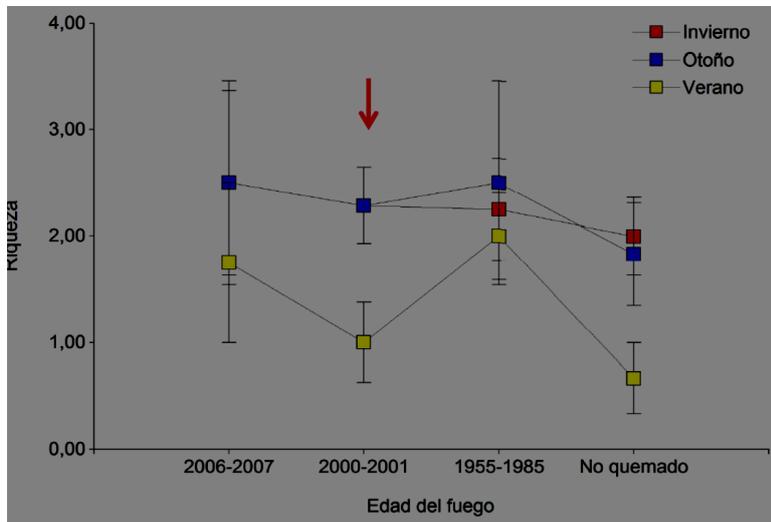
Vegetation sampling		x		We measured vegetation variables to evaluate the post-fire structure of ecosystem on each season. It still remains spring season in November 2016
Villavicencio Community co-working		x		We work together with technical staff and park rangers during our field trips, and we are organising a workshop with and for park rangers.
University practices			x	We invite students from different faculties to join us on the field trips and after that two students began their final thesis work within this project.

**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

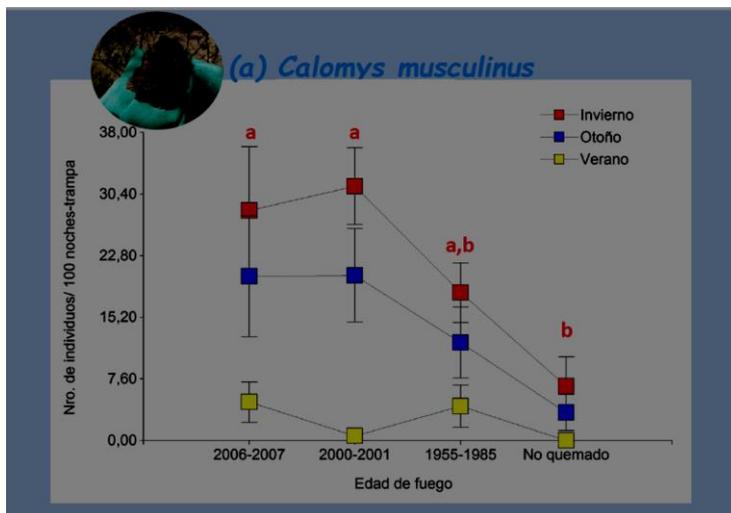
There were not important difficulties during the project. The main limiting factor was the time. Previous to the beginning of the sampling, we needed to build the grids in the field. This implied too much time and too many people. We start working on preparing the grids by August 2015 and finished in October 2015. In November 2015 we made a pre-sampling test of 1 week to evaluate all potential difficulties and all logistic needs to make the project successfully. Because of these, we still did not finished sampling the whole year, but we still have the funds of Rufford Small Grant for the spring sampling as was proposed in the project.

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

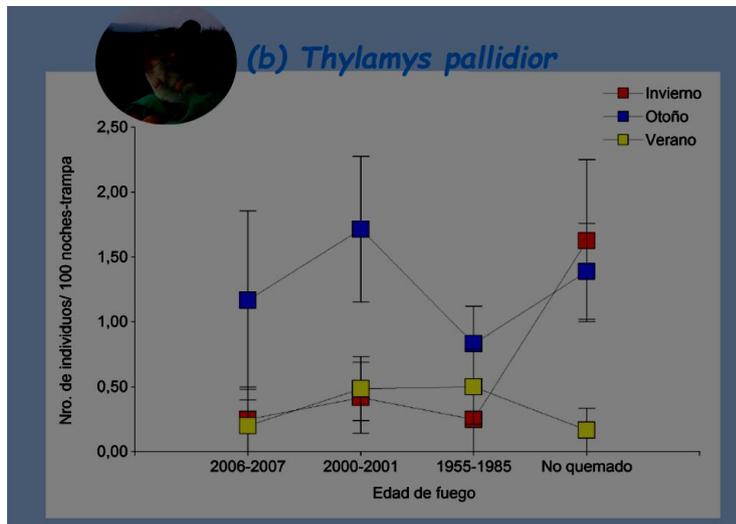
1) We captured at least 8 species of small mammals in the protected area of Villavicencio: *Calomys musculus* (83%), *Thylamys pallidior* (5,9%), *Akodon molinae* (3,1%); *A. sp.*(3,1%), *Graomys griseoflavus* (2,5%), *Galea leucoblepharum* (0,6%), *Eligmodontia Typus* (0,5%) and *Phyllotis xanthopygus* (0,3%). Species richness by site was between 1 and 3, and it does not vary according to the post-fire age. Nevertheless, identity of species actually does.



2) The rodent *C. musculus* was the most abundant species on every sampled season. Moreover *C. musculus* was the most abundant species on burned sites than in unburned sites, except in summer ( $H_{\text{outum}}=7, 51, p=0,056$ ;  $H_{\text{winter}}= 10, 70, p=0,013$ ).



3) Contrary to *C. musculus*, the marsupial *T. pallidior* shows a significantly higher abundance on not burned sites but only in winter. ( $H_{\text{winter}}= 3, 30, p=0, 22$ ; Fig. 2b).



**4. Briefly describe the involvement of local communities and how they have benefited from the project (if relevant).**

The involvement of the community of Villaviciencio was extremely important for the success of this project. Technical staff of the protected area worked with us from the beginning. On March 2015 we start to prepare a map of fire history of the protected area. This objective was performed by both teams by working together, and by the middle of 2015 we finally had the fire map. Moreover, we have had several work meeting, even to select the places to construct the grids. One of the objectives of the technical staff for the next year is to restore some of the burned places. Because of that, we choose between all of us the pilot areas for the restoration project, in the way that we already have a previous year of biodiversity sampling previous to restoration. We will continue to sampling the same area during and after the restoration process. Moreover, park rangers worked with us during some of the field sampling, and they learned not only the importance of the function of small mammals in the ecosystem, but also to capture, manipulate and identify the different species of small mammals of their protected area. They explain us that because this animals are so inconspicuous, they never had the opportunity to know this key component of their system.

**5. Are there any plans to continue this work?**

In Mendoza province, ecosystems are regulated by the ENSO (El Niño–Southern Oscillation) system, whit several years of dries and atypical years of too much rain. 2016 was one of those atypical raining years. Because of that, we plan to keep sampling for the next year, to evaluate if the results of this year are directly related to

a fire effect or to an atypical raining year, or both. To carry out this objective, the Villavicencio protected area offered us to fund the project expenditures for the next year (2017). Moreover, as mentioned previously, the technical staff of the protected area is planning to restore some of the burned sites. We are working together to evaluate restoration effect on short and long time for the future.

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

On the one hand, we submitted technical reports with our findings to the Reserva Provincial Villavicencio. On the other hand, as mentioned previously, we are planning to me a workshop with park rangers and technical staff of the protected area to show how the project is going. Nevertheless, as mentioned before, during our field trips, most of the park rangers had come with us to help us in the field, and they had already been instructed by us about the objective of the project and the technical procedures that we work with when handling animals. From 18th-21st October 2016 takes place the XXIX Mastozological Argentinian Congress, and there we reported the preliminary results from summer to winter of this sampling year.

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

The Rufford grant was used from August 2015 to December 2016. The proposed length of the project was one sampling year, and this time scale is going to be totally completed with the Rufford funds (February 2016-December 2016). Nevertheless, we need 4 months previous to the starting of the sampling to prepare the grids and set up the sampling logistic on field. That’s the reason because we still have to finished sampling the spring period on 2016.

**8. Budget: Please 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.**

Item	Budgeted Amount	Actual Amount	Difference	Comments
Sherman Traps (60 x £21.7 each)	600	600	0	
Desktop pc (1 x £800)	800	800	0	

gps (1 garmin x £400)	400	0	0	We could not buy the GPS because we need this money to pay the inter-banking transference (see the last line). We used an old one.
Field Supplies (batteries, chargers, etc.)	300	250	-50	
Office supplies (copies, books, printer, toner, white board, markers)	400	400	0	
Professional field assistance (£308 x month)	3700	3700	0	
Congress assistance (inscription, buss travel and 3 nights hotel)	500	500	0	
Rent a car (£48,5 x day, 8 field trips (2 x month) of 6 days each)	2400	1300	-1100	We get bored some field tracks from the institute so we can redirect some money from this item to another ones.
Gasoline and vehicle maintenance (48 days in field, 120 km x day = 5760 km total. If 100 km=18 lts, so 1036 total litres. If 1litre=£0,78 so 1036lts=£808; what remains is for vehicle maintenance)	900	1300	+400	Because of the inflation of the Argentinian peso, the total amount of gasoline litres were correctly estimates, but total money was higher than expected.
Field food	0	700	+700	We did not include this item in the original budget, but we need to buy the food for researchers.
Interbanking transfer	0	450	+450	We did not include in the original budget the cost of interbank transfer, so we did not get all the budgeted money.

Actually, 1GBP=18.50 ARS, but at the moment of writing the budget it was 1GBP=13.49 ARS. In Argentina mean annual devaluation was around 40%, that's the reason why we should reassigned some found to another items.

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

As mentioned previously, next step is to keep the project alive 1 more year to get more reliable results. The financial support for that objective is going to be reached with a grant from the Villavicencio Protected Area Foundation. But looking ahead for a long period, I think we must get deeper on the knowledge of community structure and functioning patterns of small mammals in relation to another disturbance factors and the synergy between them. This will allow managements to detect ecosystem threshold in the way to stop and reverse degradation processes.

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

Yes. RSG grant was used to cover the cost of the congress were we presented these results, and the logo of the RSGF was included in the poster (please, see the adjunct poster). Moreover, in the project submitted to the protected area we reported that we already have funding for this year from the Rufford Foundation.

**11. Any other comments?**

This is my 3rd grant from Rufford foundation, and the three projects follow the same research line, we first study how does biodiversity is organized and then in 2nd and 3rd grants we analysed what human factor influences the biodiversity (grazing in the 2nd and fire in the 3rd) and how strong is this process in driving the patterns and process of biodiversity. Final analyses of the last two projects are still ongoing, but now we can understand how persistent or pulse disturbance influence differentially to desert ecosystems. For the 2nd Rufford we published a book chapter on year 2015 (please see attached too). Definitely, this project could not be accomplished without the funding of the RSGF. I certainly appreciated the continuous financial support of the RSGF to our projects on Monte desert of South America, and the ultimate contribution to the understanding of how human activities influence the conservation of these hyper arid ecosystem.

Moreover, together with another Argentinian researchers who get another grants from Rufford Foundation, we are going to make a workshop next year to integrate all our results in order to rise a complete report to the Rufford Foundation about how this processes affect differentially not only to different ecosystems components, but also could influence differentially on different types of ecosystems, from desert to forest systems.