

The Rufford Small Grants Foundation

Final Report

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

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. 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. 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.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Darío Alejandro Moreira Arce
Project title	Conservation of critically endangered Darwin's fox in a human-dominated and multi-competitor landscape
RSG reference	10410-1
Reporting period	November 2011- November 2012
Amount of grant	£5,898
Your email address	moreira.dario@gmail.com
Date of this report	November, 18th, 2012

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
To assess the current local distribution of Darwin's fox mainland population			x	Up to date, we have deployed 160 camera- stations. Sampling stations were deployed based on a habitat-stratified random design considering a minimal distance of 500 m between cameras.
To identify conflict hotspots between human and wildlife		x		We could spatially identify rural communities within the study area but we weren't able to use these information to build up a hotspots of conflicts. This was because we hadn't applied surveys to know attitude and perceptions of rural communities toward native carnivores and Darwin's fox. This step is basic to build a map of human-wildlife conflict. For that reason, during the next months, we will be working on the application of this survey.
To conduct training sessions for park ranger and other private rangers on the use of non-invasive methods for monitoring wildlife			x	We conducted training sessions about using non invasive tools for wildlife monitoring. Sessions were conducted at Chilean Forestry Agency station within the Nahuelbuta National Park. Training sessions were offered for park ranger and other private rangers.
To develop pilot educational campaigns about responsible pet ownership		x		We developed educational campaigns focused on secondary school and other rural people. These included topics such as conservation wild mammals including threatened species, ecological value of Nahuelbuta native forest.

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

We had two main problems which attempted on the normal development of our project. First to all, some remote cameras were stolen (~7%) in field. As a result, we missed records of carnivores in some suitable habitats for them. Unfortunately, during some specific seasons, rural people collect non-timber forest products and they go everywhere within the study area (native forest). We think some of those people may have stolen these remote cameras.

The second problem has been we were unable to include in the project some people from areas where Darwin's fox potentially may occur. For example, because detected Darwin's fox in areas close

to Cañete and Curanilahue towns (north of the study area), people living there were willing to take part in our project. On the contrary, because we have not detected foxes south of study area yet (although these areas have similar habitat conditions), our project in Angol and Los Sauces towns has been less known.

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

Firstly, using intensive fieldwork, we have confirmed new localities where Darwin's fox is occurring in mainland. Previously, rural people had provided informal records (without photos) and no clear identification had been possible (other two fox species occur within study area). Now, using remote cameras we recorded Darwin's foxes with 100% certainty. Also, by using this information, we know about some factors associated with occurrence of Darwin's fox and other carnivores.

Second, we were able to highlight the Darwin's fox conservation through local, regional and national institutions. For example, many local and regional media (radio, newspapers) were interested in knowing Darwin's fox project and its results (see appendix 1). Previous to this project, Darwin's fox conservation was mainly supported by local NGOs' efforts. During this project, other public and private agencies have decided to take part in this long-term conservation project. Also, local people such as park rangers have taken part in the fieldwork for detecting Darwin's fox through non-invasive methods.

Finally, because this project is the first attempt for quantifying some Darwin's fox population parameters, we generated the data baseline for a long-term conservation programme.

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

The involvement of local community may be seen through two ways.

1) Local rangers are taking part in camera-trapping fieldwork. Most of these people live in localities around study area. Currently, they are in charge of scanning areas within Nahuelbuta National Park and private lands with native forest around the national park in order to protect them from illegal timber-forest extraction and hunting. For example, they are using the general knowledge about non-invasive surveys (track and sign identification, camera trapping).

2) Where we have detected Darwin's fox records, local communities have actively participated in sessions about Darwin's fox conservation and the ecological value of Nahuelbuta Mountain Range (see appendix 1).

5. Are there any plans to continue this work?

In fact, we are currently planning the next steps of this project. The first phase showed general patterns about Darwin's fox habitat use and its ecological relationship with other carnivores. The second phase will raise the spatial ecology of Darwin's fox at smaller spatial scale and try to estimate local abundance by using non-invasive methods (on previous places where foxes were detected by camera-trapping). To do this, we hope to be supported by timber companies and other international grants (e.g. Rufford).

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

Currently, our work has been presented in local meeting and national and international congresses. For example, some results of this project were recently presented in the II Latin American Congress of Mammalogy. Also, previous results were showed at local universities and public institutions. Currently, we are preparing a peer-review paper to share our results. Also, we produced brochures about Darwin's fox ecology and conservation and a 2012 calendar on Nahuelbuta Mountain Range (see appendix 1).

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

Although Rufford budget was requested for 1 year's work, it was mainly used between January - August 2012 during different steps (fieldwork, diffusion, etc). Since this grant supported specific goals of our project (together with other funding), we think it properly matched the length of this phase of our project.

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
Round trip bus fare from Santiago to Concepcion	108	255	147	Bus companies increased their fares in summer. Therefore, we had to pay more for each ticket.
Salary for field assistant	1,571	1571	0	We conserved this item in order to maintain the money in other items
Lodging (field work and education campaigns)	1,547	1,900	353	Prices of some hostel during fieldwork increased their prices, especially in summer. Also, in some case, we had to pay lodging for other field assistants
Meals (field work and education campaigns)	928	1,400	185	Because we had to include other field assistants in some periods of fieldwork, this increased the living expenses.
Brochures and posters for education campaigns	1,220	1,220	0	
Predator Pee Bobcat	84	84	0	
TOTAL	5,898	6,730	832	Local exchange rate used: 1£=762 Chilean pesos

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

In my opinion, critical next steps should be:

1) To describe the spatial ecology of Darwin's fox at smaller scale in order to identify seasonal and other key habitats of Darwin's fox (e.g. reproductive habitats). This will allow us to make decisions about excluding these specific habitats to human and livestock activities.

2) We need to quantify the disease risk to Darwin's fox and reduce it. We currently know where Darwin's fox is occurring and also about the localities of rural people having domestic dogs. We have to assess the health conditions of those domestic dogs at these localities in order to create a free-disease buffer around the areas where Darwin's fox occurs

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

Yes, we did. We produced brochures and calendars with the RSGF logo (see appendix 1). Also, we use RSGF logo at the acknowledgement of each presentations (meeting and congress).

11. Any other comments?

I would like to highlight the elusiveness of Darwin's fox. We have set many camera stations with a small proportion of these having records of the species. It means, using traditional field methodologies to estimate population parameters (distribution and abundance) is difficult. Using camera-trapping, we have detected new subpopulation (or populations) over which we may conduct telemetry studies and do not waste money and time trapping foxes on a larger area where we know Darwin's fox is not occurring. This confirms the usefulness of this non invasive tool for detecting cryptic species in a preliminary phase. Finally, I would like to deeply thank to Rufford Small Grants Foundation for supporting this step of the project.

Appendix 1.





Educational campaign about the ecological value of Nahuelbuta Mountain Range



Workshop about using non invasive methods for monitoring carnivores



Darwin's fox in a Monkey-puzzle tree forest close to Nahuelbuta National Park

