

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 Aleiandro Moreira Arce			
	Concernation of critically and angered Derwin's fav in a hymon			
Project title	Conservation of critically endangered Darwin's fox in a numan-			
	dominated and multi-competitor landscape			
RSG reference	10/10-1			
	10410-1			
Reporting period	November 2011- November 2012			
Amount of grant	£5.898			
0				
Vour omail addross	manaina daria Romail ann			
Tour 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.

	Not	Partially	Fully	
Objective	achieved	achieved	achieved	Comments
To assess the			х	Up to date, we have deployed 160
current local				camera- stations. Sampling stations were
distribution of				deployed based on a habitat-stratified
Darwin's fox				random design considering a minimal
mainland population				distance of 500 m between cameras.
To identify conflict		х		We could spatially identify rural
hotspots between				communities within the study area but
human and wildlife				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			х	We conducted training sessions about
sessions for park				using non invasive tools for wildlife
ranger and other				monitoring. Sessions were conducted at
private rangers on				Chilean Forestry Agency station within
the use of non-				the Nahuelbuta National Park. Training
invasive methods for				sessions were offered for park ranger
monitoring wildlife				and other private rangers.
To develop pilot		х		We developed educational campaigns
educational				focused on secondary school and other
campaigns about				rural people. These included topics such
responsible pet				as conservation wild mammals including
ownership				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.

Item	Budgeted	Actual	Difference	Comments
	Amount	Amount		
Round trip bus fare from	108	255	147	Bus companies increased their
Santiago to Concepcion				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	1,547	1,900	353	Prices of some hostel during
education campaigns)				fieldwork increased their prices,
				especially in summer. Also, in
				some case, we had to pay lodging
				for other field assistants
Meals (field work and	928	1,400	185	Because we had to include other
education campaigns)				field assistants in some periods of
				fieldwork, this increased the living
				expenses.
Brochures and posters for	1,220	1,220	0	
education campaigns				
Predator Pee Bobcat	84	84	0	
TOTAL	5 <i>,</i> 898	6,730	832	Local exchange rate used: 1£=762
				Chilean pesos

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.

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.







Brochure produced for environmental educational campaigns with local communities

Tendencias

reddealtadi<u>rección*</u>

-

Biodiversidad: Capital natural para el desarrollo sosteniole de Chile

La Bootten card - enter detail carda la componente generalregistre politication de la factoria constructivo en constructivo constructuro di constructivo en constructivo del constructivo unanza si la la segura scata de constructivo del manarado la preparatoria de la desegura scata de constructivo del manarado de registra de la desegura scata de constructivo de la deservanatoria de la deservación constructivo de la deservación de la deservación de la constructivo de la deservación de la deservación de la constructivo de la deservación de la deservación de la constructivo de la deservación de la deservación de la constructivo de la deservación de la de la deservación de la deservación de la deservación de la de la deservación de la deservación de la deservación de la de

Comparing the legitime is the entertainty or use industry as an encourse of the international sector in the encourse of the legitime is the international sector in the encourse data is signature to constrain the constraint of the international sector is a sector in the legitime is the encourse international sector is a sector in the constraint and the sector is a sector of the sector is a sector in the sector is a sector of the sector is a sector in the sector is a sector in the sector of the sector is a sector in the sector is a sector in the sector of the sector is a sector in the sector is the sector is a sector in the sector of the sector is a sector in the sector is a sector.

te blodiwealded as un capital nature.

que debe ser preservedo y promovido, porque de la forma en que lo gestionemos depende nuestro desarrollo."

convertiente verle como lo que restruente escuencipital netural Le defen sur preservador, preservado, par que de la farma ens Le la collocatoria departo e mantes deservalio

Exception and any part is the bounders replaced on separate of calculations in the boundershape we have proceeder recommendations a private in the calculation of the second of the exception bound on a private interval of the second of the recommendations are of the second of the second of the restorement of the second of the second of the second second of the seco



and the second s

ACUMANIA IN A

tamotica la realistagenera tero

[ESPECIE EN PELIGRO] Cerca de 600 ejemplares sobrevhem en el país, pocu menos de 100 en Nahuelbuta, donde un estudio está desemblendo se comportamiento, que ayudará a mejorar se, supervivencia, Por Parkis Lacons

El plan para evitar extinción del zorro de Darwin

20450 DWPD, GRODE DUTING ON



(A) prophetical A detection of an experimental and a production of an experimental and a production of an experimental and a problem in the control of an experimental detection of an experimental and a control of a state of a proterior of an experimental and a state of a state of a prosection of a state and a state of a s

ALSO IMPROVED

Deres, derer polis, wie is unter trans. Area for applies enterer instantion intervention (area) dere and an and a second area instantion intervention (area) dere and an and thereinen, and applie deren differentienen and applie der anderen angeweichen anderen anderen angeweichen anderen anderen angeweichen der in an anderen angeweichen der in anderen angeweichen angeweichen angeweichen der eine angeweichen der eine angeweichen angeweichen angeweichen der eine angeweichen angeweichen der eine angeweichen angeweichen der eine angeweichen angeweichen der eine angeweichen angeweichen angew

The determination of the increased is a 30 may net a discussion of the ingeneration is an event to be a source of the anti-trained the event of the interaction of the interaction is a structure of the interaction of the intertion of the event of the interaction of the intertion of the interaction of the interaction is a structure of the interaction of the interplet of the interaction of the interaction of the interplet of the interaction of the interaction of the interplet of the interaction of the interaction of the interplet of the interaction of the interaction of the interplet of the interaction of the interaction of the interplet of the interaction of the interaction of the interlet of the interaction of the interaction of the interlet of the interaction of the interaction of the interlet of the interaction of the interaction of the interlet of the interaction of the interaction of the intertion of the interaction of the interaction

14.4

One of the main Chilean newspaper (El Mercurio) showing the Darwin's fox project in Nahuelbuta Mountain Range





2012-2013 Calendar supported by Rufford Foundation and other institutions.





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

