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. 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.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Juan Valqui
Project title	Population genetics of the Marine Otter *(Lontra felina)* and environmental education along the Peruvian coast.
RSG reference	52.11.09
Reporting period	12 months
Amount of grant	£5911
Your email address	juanuco@hotmail.com
Date of this report	15th January 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
Determine population size of the marine otter in Peru			OK	
Determine genetic variability and inbreeding as a threat.		OK		We determined genetic variability through mitochondrial gene analyses, while nuclear gene analyses are still going on. No inbreeding could be detected. Still, ecological threats to the population are increasing.
Determine subpopulations		OK		No subpopulations could be detected via mitochondrial gene analyses. Nuclear gene analyses will provide a deeper look in the population structure in Peru.
Seize the flagship-species character of the marine otter			OK	The marine otter was enthusiastically accepted by kids and fishermen in the environmental work done at the Peruvian Coast.

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

To obtain sample collection and export permits took us longer than expected (over 3 months), so the permits were obtained later. Fortunately, the process was started earlier than originally planned, so we could still start the project in time. As faeces represent difficult material to work with regarding the genetics, the results at the laboratory were only partially obtained. We are still working on the nuclear gene analyses to complete the results.

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

3.1. Scientific results. We have estimated the population of marine otter at the coast of Peru at 789 to 2131 individuals. Although genetic results up to date suggest that there is no threat through inbreeding depression or isolation by distance yet, the population numbers are still low to be overseen. Habitat modification, invasive species coming with urbanisation (dogs, cats and rats) and pollution are factors that are increasing at the Peruvian coast.

A very thorough work on official and grey literature was done, producing the publication of a landmark review (Valqui, 2011, *The marine otter* Lontra felina *(Molina 1782): A review of its present status and implications for future conservation* in Mammalian Biology Journal) that presents the

main threats and proposes conservation actions to be taken in the future. The Rufford Small Grant was mentioned as one of the main collaborators of this project. The work on the nuclear gene analyses is going on in the lab and will produce a further publication on a renowned journal as well.

3.2. Environmental education. Workshops were held in collaboration with Pro Delphinus at fishing ports at the Peruvian coast. With the help of "Pro Delphinus" and "Zoovenirs Peru" stickers and key holders were produced figuring the name of the Rufford Small Grants and distributed at all times. During this process the potential of the species as a flagship for Peruvian coastal conservation was perceived. Not only the kids, but also adult fishermen showed great sympathy towards the animal and through the presented material, discussions on environmental issues at the marine habitat were opened. The state school "Miguel Grau" in Pucusana, Peru has asked for collaboration to include environmental education in their regular teaching programme throughout the year. This initiative could set an example to other state schools.

3.3. Public awareness. The "Proyecto Lontra felina" was created to unite the efforts done for marine otter and coastal conservation in Peru. A facebook page (The Rufford Small Grant is mentioned as funding organisation) has been created figuring the obtained results, news and future plans. Since then, several new contacts have been created which will result in developing new projects and conservation efforts.

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

Young students and scientists were involved in the field work of this project. They were motivated to start their own conservation studies on the marine habitat. State schools at the Peruvian coast where involved in environmental education. Especially in one school ("Miguel Grau") students as well as teachers show the progress of the permanent work (see next point, 5. Future plans). Fishermen participating in the field work (through interviews we made with them or at boat trips they provided to us) showed interest in the species and represent a potential multiplier of the information about the species we transmit to them. A dead marine otter was found in Punta Corrientes and was donated to the "Centro de Ornitologia y Biodiversidad" where it now forms part of their mammal collection. In January 2011 a population genetics practical course was given at the "Universidad Cayetano Heredia" where students learned about the field and laboratory work to perform in such a project. Talks about the project were given at the "Universidad de Ciencias del Sur" to give concrete ideas of studies that can be performed about the species. In December 2011 similar talks were given at the "Universidad Nacional Agraria", at the "Trener High School" and at the Zoo "Parque de Las Leyendas" in Lima. Vanessa Bachmann, Director of the Zoological Division has showed interest in starting studies on the species with the zoo´s scientific staff.

5. Are there any plans to continue this work?

Up to this point the studies are part of my PhD thesis. After finishing it, continuous registration of the threats to the marine otter population as well as further genetic sampling is planned to monitor the species status. Moreover, under the name of the "Proyecto Lontra felina", Carlos Calvo is doing a pilot study on zoonotic bacteria and pollutants found in marine otter faeces. Through determining the influence of human contamination to a wildlife species, the role of the marine otter as a bio-indicator could be established. The environmental work will also be continued and enhanced with

collaboration of Pro Delphinus. At the state school "Miguel Grau" environmental education is intended to be included in the regular teaching programme.

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

Apart from the Rufford Small Grant website, a facebook page (named "Proyecto Lontra felina") is already serving as a network to share the news and results of this project as well as exchange information about the species at its complete occurrence range. Scientific publications providing solid arguments for conservation management will also help to share the results. A landmark review on the species has been published and a publication on the nuclear gene analyses is in work.

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

The Rufford Small Grant was used over the period of a year such as it was intended, covering the field work in 2011. The laboratory work of the samples collected in 2011 could not be finished yet as faeces represent challenging conditions in genetic analyses. It will be finished this year and the results will be published – funding for this is guaranteed. The whole project comprehends a work of several years (see point 5. Future plans).

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
Scientific permits	81	120	-40	Permit fees change permanently. From 2012 on they are no fees at all. This might change again in the future.
Sampling material	80	80	0	As planned
Sending of samples	200	400	-200	Sending fees are related to governmental rules, therefore they change as well as the permits
Food for a 4-person team	1200	1100	+100	The team managed to save on food to compensate the higher expenses in other items.
Shelter for a 4-person team	1200	1100	+100	See above.
Car Rental (4x4 truck)	2100	2100	0	As planned
Fuel (9000 km, 300 km a day)	1050	1050	0	As planned
Total	**5911**	**5951**	**-40**	The overall expenditure fits the planned budget.

Local exchange rate: 1 £ Sterling = 4,17 Nuevos Soles

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

The laboratory work pending has to be completed, the results analysed and published in a genetic journal. A plan for a project monitoring the species´ threats as well as genetic sampling has to be executed. Further studies done by other scientists (ecology, behaviour, among others) have to be supported to improve the understanding of this endangered species.

The environmental work has also to be enhanced with collaboration of Pro Delphinus. Especially at the state school "Miguel Grau" environmental education should be included in the regular teaching programme.

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?

In collaboration with Pro Delphinus 4000 stickers were printed, with the help of Zoovenirs Peru 300 key holders were elaborated. Both items were distributed in workshops (mainly to school children), during the field work (mainly to fishermen) and to the public in general. They both figured the "Rufford" logo on them (see attached pictures). The facebook page also features Rufford as one of the supporters of the project.

11. Any other comments?

During the execution of the field work (sample collection) of this project, the environmental education issue (using the marine otter as a flag-ship) showed great potential to complement the scientific results about the species. Therefore, along with genetic and

Pictures of the Project **"Population genetics of the Marine Otter *(Lontra felina)* and environmental education along the Peruvian coast"** by Juan Valqui

<u>Field work and lab work</u>

Left: Covering the coast of Peru. Right: Collecting samples between the rocks.


Left: Collecting sample of faeces. Right: Working in the lab (DNA extraction).

Environmental education


Left: School kids with their own otter puppets. Right: School kid with marine otter picture.

Left: Giving a talk about the marine otter. Right: Meeting with teachers.

Material with the logo of Rufford

Left: Key holders made by “Zoovenirs Peru”. Right: Key holder (detail).

Sticker.