

## 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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

Grant Recipient Details	
Your name	Carolina Ramírez Orjuela
Project title	Feeding ecology of black and gold howler <i>Alouatta caraya</i> in fragmented forests of Northeast Argentina
RSG reference	26.11.07
Reporting period	2007-2009
Amount of grant	£4851
Your email address	<a href="mailto:cramirezorjuela@gmail.com">cramirezorjuela@gmail.com</a>
Date of this report	November 7th 2009

**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
Analyse variations in the feeding behavior with respect to the spatial distribution and the size of the fragments that the groups occupy.		X		In 2007 I worked on the recognition and habituation of the study groups to presence of observers, with a total of 559 hours. Since January 2009 I have been making the systematic register and observations of monkey groups. I will continue collecting this information until December 2009 to obtain an annual period of observations. During 2009, every 15 days I made a phenological register of 93 trees of the 5 species most important in the diet of black and golden howler monkeys in relation to the variation in the feeding behaviour. Also for the characterization and vegetational composition of fragments of forests, I marked 2000 trees with a diameter at breast height (DBH) of 10 cm or more.
Analyse variations in the home range with respect to the spatial distribution and the size of the fragments that the groups occupy.		X		Since January 2009, I collected information about inter-fragment movements of the study groups. I intend to continue the observations until December 2009 to obtain an annual pattern of variations in the home range in each one of the study groups.
Analyse variations in the group cohesion with respect to the spatial distribution and the size of the fragments that the groups occupy.		X		I am finding important variations in the group cohesion in two of the three study groups. In January 2010 I will start to analyse the annual variation of inter-individuals distances and the group cohesion.

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

The proposed work required the collaboration of field assistants in each of its stages. The participation of students as field assistants under conditions of extreme hardship is difficult to achieve. While on several occasions the withdrawal of the assistants at the last minute created a situation of tension and uncertainty about the possibility of carrying out tasks in a timely manner. In an attempt to solve this problem together with the scientific coordinator of the Corrientes Biological Station, at the Universidad Nacional del Nordeste, offered a cooperation agreement whereby students of Biological Sciences conducted internships at the station. Through these internships students had the opportunity to learn to register behavioural data, as well to make vegetation studies.

During 2009, the administration of the Corrientes Biological Station began to charge for the lodging of researchers and field assistants. This item was not taken into account within the original budget requested by the Rufford Small Grants Foundation in 2007.

During 2009, the monkeys made unusual movements and their following them was a difficult task. Consequently, I spent more days searching for them.

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

The results of this report include information from 2007 and from January to April 2009. The number of hours of behavioral observation surveyed during 2007 was 559 and in 2009 was 185.

- Howler monkeys had a mainly folivorous diet (63.6%) and spent long periods of time at rest (74.1%). These data are consistent with those previously reported for this species and others of the genus *Alouatta*. These long periods of inactivity would correspond to the need to conserve energy from a diet of leaves of low caloric value that are difficult to digest.
- Howler monkeys ate parts of plants of 28 species from 18 families. Sixteen species were trees and 5 shrubs and vines. Six species formed 70.6% of the diet: *Celtis sp* (16.7%), *Forsteronia glabrescens* (13.7%), *Enterolobium contortosiliquum* (13.1%), *Gleditsia amorphoides* (13.1%), *Ficus luschnathiana* (7.7%) and *Acrocomia aculeata* (6.3%). Comparing these results with other studies in other forests adjacent to the present study, I showed differences in floristic composition of the diet. This may indicate real changes in the structure and composition of forests inhabited by monkeys, probably due to human action over the past 23 years.
- The seasonal variation in the use of several small forest fragments (less than 5 ha), suggests the importance of conserving these forests for the extension of home range of the study groups.

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

The region where the project took place is the Universidad Nacional del Nordeste which has a course in biology. However, in this institution there is no research into primates. Six students and two graduates who participated in the work had the opportunity to learn theoretical and practical aspects related to the theme of the project.

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

Yes. I want to study the following topics in more depth:

- To analyze the effect of fragmentation on the development and dynamics of social activities among groups of howler monkeys that inhabit undisturbed forests and forests with different degrees of human disturbance.
- To evaluate the importance of small forest fragments in the conservation of biodiversity in north-eastern Argentina

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

#### Scientific Articles

On 10 October 2009, we sent an article to the journal *Neotropical Primates*:

PAVÉ R, PEKER SM, RAÑO M, **RAMÍREZ-ORJUELA C**, ZUNINO GE, KOWALEWSKI. Nectar-feeding in black and gold howler monkeys, *Alouatta caraya*, and their possible role as pollinators of *Grevillea robusta* (Proteaceae).

The information in this article comes from the campaigns in 2007 that was supported by Rufford Small Grants Foundation.

### Scientific Communications

**RAMÍREZ-ORJUELA C, ZUNINO G, CABRAL E.** Presupuesto de actividad y dieta en *Alouatta caraya*: Análisis entre clases de edad en bosques fragmentados del Noreste Argentino. Comunicaciones Científicas y Tecnológicas 2008. Universidad Nacional del Nordeste. Corrientes. Junio 22 - 24 de 2009. Presentación Oral.

**RAMÍREZ-ORJUELA C, ZUNINO G, CABRAL E.** 2008. Dieta y patrón de actividad del mono aullador negro y dorado, *Alouatta caraya* en bosques fragmentados del Noreste Argentino: Resultados Preliminares. Comunicaciones Científicas y Tecnológicas 2008. Universidad Nacional del Nordeste. Corrientes. Junio 11 – 13 de 2008. Presentación Oral.

**RAMÍREZ-ORJUELA C, ZUNINO G, CABRAL E.** 2008. Efectos de la dieta sobre el patrón de actividad diaria del mono aullador negro y dorado (*Alouatta caraya*) en bosques fragmentados del Noreste Argentino: Resultados Preliminares. II Congreso Colombiano de Primatología. Junio 26 – 28 de 2008. Bogotá. D. C. Colombia. Conferencia Magistral.

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

The funds requested for RSG were intended to develop the activities planned during 2007 and 2008. However, due to pregnancy and birth of my son, these activities were extended until 2009 and a few months of 2010.

### 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.

1£: \$6.40 argentinos, November 9th 2009.

Item	Budgeted Amount (£)	Actual Amount (£)	Difference	Comments
PERSONNEL TOTAL	1962,69	1526,54	436,15	These funds I will to use for the campaigns in November and December 2009 and the first four months of 2010.
FEEDING TOTAL	2419,20	1881,60	537,60	These funds I will to use for the campaigns in November and December 2009 and the first four months of 2010.
EQUIPMENT TOTAL	297,16	297,16	0	
MATERIALS TOTAL	39,59	39,59	0	
MISCELLANEOUS TOTAL	131,46	102,25	29,21	These funds I will to use for the campaigns of November and December 2009 and the first four months of 2010.
Total	4850,10	3847,14	1002,96	

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

To publish the project results in scientific journals and to participate in conferences, scientific meetings and public and private institutions.

To design management and conservation programmes for fragments of forests and associated fauna in the study area.

**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. In posters and oral presentations in Corrientes (Argentina) and Bogotá (Colombia). RSG's support is also in the acknowledgments of the paper submitted to the journal *Neotropical Primates*.

**11. Any other comments?**

In 2008, due to my pregnancy and the birth of my son, only a few transects were conducted to characterize the vegetation of the sampling sites. For the development of this activity, which I could not participate in, it was necessary to contract two qualified locals.