

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	Julián N. Lescano
Project title	Habitat loss and its effects on amphibian diversity in the arid Chaco of Córdoba, Argentina
RSG reference	44.06.08
Reporting period	September 2008-April 2010
Amount of grant	£5646
Your email address	lescanojul@gmail.com
Date of this report	28.04.2010

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 quantify and describe the amphibian diversity patterns in the arid Chaco region.			x	
To analyse the relationships between amphibian diversity and local vegetation characteristics at the breeding sites in the area.			x	
To evaluate possible associations between water parameters of breeding ponds and amphibian diversity.			x	
To analyze the relationship between forest loss and degradation and amphibian diversity at a landscape scale in the arid Chaco of Córdoba Province, Argentina.			x	

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

Because of the climatic conditions (precipitations below the mean values) during amphibians' active period and given the known dependence of amphibians on rainfall, we had to increase field work efforts. In turn, we had to make a higher number of trips and use a higher amount of fuel than predicted. Despite the climatic drawback, we were able to take the necessary diversity measurements and to cover a number of sampling sites that provided an adequate amount of data. Furthermore, because of the terrain characteristics (lack of roads on good conditions) the vehicles used had to be repaired on several occasions (replacement of tyres, wheel bearings, shock absorbers and general maintenance).

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

1. We provide the first description of the diversity pattern of amphibians from this region, which are under great pressure due to logging and overgrazing. We also provide information on their distribution and use of habitats.
2. Local variables (mainly vegetation) of amphibian breeding sites are important to explain variations in diversity patterns.
3. We found a strong and positive association, which is statistically supported by field data, between amphibian diversity and forest percentage in the landscape surrounding breeding sites. This result, one of the most important findings of the present work, was found through the combined analysis of satellite images and field data.

These results were disseminated among the local scientific community as well as in formal and informal talks to land owners, local people and park rangers of protected areas in the region.

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

Rural people from the arid Chaco were directly involved in the project because most of the breeding sites analyzed (80%) are within privately-owned lands. We explained the aims of the project in detail in all cases and most of time the land owners were very interested and were willing to actively cooperate with our activities in their properties. Moreover, we offered printed material developed to recognize amphibians from the region. We also conducted activities along with local park rangers. An additional and complementary result of the project was our finding of high species diversity in the artificial ponds that were designed to provide livestock with water.

Deforestation for cropland usually hinders the presence of these watering places which are important sites for amphibian diversity and reproduction in the area. Therefore, traditional livestock production involving good management practices of the native forest usually conducted by local producers would be compatible with sustainability of amphibian diversity in the region. This aspect was one of the main topics addressed in the talks to local producers whose subsistence depends on a few goats.

5. Are there any plans to continue this work?

Yes. Specifically, we intend to continue working on the artificial ponds used to provide livestock with water. These ponds have been built by small-scale farmers who develop traditional, low impact management of the forest, which is important for local amphibian conservation and diversity. We also intend to extend the study to the semiarid Chaco region in Córdoba. Climatic conditions in this area have favoured agriculture, especially soybean monoculture. Hence, deforestation has been more intense in the 30 last years and traditional management of goat exploitation in the forest is being lost. Therefore, it would be very important to determine if ponds used for livestock in this region also hold high amphibian diversity and to establish to what extent forest fragmentation in the region affects diversity of this threatened group of organisms.

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

Based on the results obtained, we are preparing two scientific articles to be submitted to journals specialized in diversity and conservation. Thus, the results will be available to the international scientific community.

On the other hand, at a more regional scale, we are preparing the reports of the project funded by the Environment Agency of the provincial government, which permitted us to conduct field work in two protected areas of the arid Chaco.

In addition, part of the results obtained were presented in a local scientific meeting: X Congreso Argentino de Herpetología: "Patrones de diversidad de anfibios del Chaco árido y su relación con el hábitat" ("Diversity patterns of amphibian from the arid Chaco and their habitat relationships") and were discussed in two talks to local people and park rangers in the summer of 2009-2010.

The author was invited to give a lecture at the Facultad de Ciencias Exactas Físicas y Naturales (School of Exact, Physic and Natural Sciences, National University of Córdoba). The results obtained

were presented in the work entitled “Conservation status of the amphibians of the province of Córdoba: an evaluation of the main risk factors”.

Furthermore, illustrated printed material with distribution maps and conservation status was developed to recognize amphibians from the Chaco arid region and Córdoba Province.

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

The grant was used between December 2008 and March 2010 (16 months). In the beginning, the project was planned to be executed in 18 months; however, due to reasons beyond our control and of the RSG, the funds were available as late as December 2008.

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
Batteries	53.76	48	+5.76	Instead of buying 96 batteries we purchased 18 rechargeable batteries, which involved a lower expense.
Cooking field equipment	80.4	87	-6.6	
Food 2 people for 80 days	1028.8	1143	-114.2	Due to the climate difficulties mentioned above, sampling effort was much greater, and consequently a greater amount of food was necessary
Digital camera	255.38	290	-34.62	
Digital Recording System	300.00	289.5	+9.5	
Fuel	329.00	400	-71	As in point 3, the greater field effort required a greater fuel use
4-wheel drive vehicle rental	1200.00	1140	+60	
Headlights	96.2	86.4	+9.8	
Water analysis equipment	850.0	812.4	+37.6	
Satellite images	1014.28	950	+64.28	
Dissemination material	104.65	80	+24.65	
Congress presentations	64.4	70	-5.6	
Contingency (5%)	268.85	225	+43.85	As mentioned above, vehicle repair was necessary during field work.
Total	5645.72	5621.3	+24.42	

Exchange rate: 1 £sterling = Argentine pesos \$ 5.7

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

In the near future, it would be important to continue analyzing the effects of forest loss on amphibian diversity and conservation status in the province of Córdoba. The results obtained in this work evidence the negative impact of forest loss in the western portion of the province. However, it would be necessary to evaluate two key aspects to implement definite conservation actions: first, analyzing the effect of forest fragmentation and degradation in western Chaco, where the amphibian fauna is poorly known and that has been subjected to intense anthropogenic modifications in the last 40 years. On the other hand, one of us (Julián Lescano) has been working in Pampa de Achala, a mountain sector of the province of Córdoba for several years. Such sector has several endemic species (amphibians among them) and a great importance for nature conservation and for the large number of inhabitants that depend on the rivers of the region. We found that populations of an endemic amphibian species of the area are suffering a quickly declining so it would be of paramount importance to evaluate the conservation status of endemic amphibian fauna present in the highland forests of those mountains. The data obtained would contribute with quantitative information of amphibians present in the principal forest systems of central Argentina. Anthropogenic effects and conservation status of amphibians in the region could be also quantified.

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, the logo of RSGF was used in all the printed materials produced (diffusion material on conservation of amphibians from Córdoba and the arid Chaco and 2 posters presented at a scientific congress as well as in the oral presentation made at the Facultad de Ciencias Exactas, Físicas y Naturales).