

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	Andrea Baquero
Project title	Divergence of adaptive phenotypic traits and mate recognition systems (song) in response to recent anthropogenic habitat changes in an oceanic island (São Tomé, Gulf of Guinea) endemic passerine (<i>Speirops lugubris</i>).
RSG reference	02.12.07
Reporting period	January – October 2008
Amount of grant	£3500
Your email address	baquero.andrea@gmail.com , and-baqu@uniandes.edu.co
Date of this report	April, 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
Song recording of <i>Speirops lugubris</i>			X	I was able to collect a large number of recordings at all sites planned.
Habitat structure description		X		I collected topographical and vegetation structure measurements at each area point from where we performed song recordings.
Description of song structure of <i>S. lugubris</i> from forest and plantation habitats.			X	Song recordings from each individual were digitalised and spectrograms were analysed, measuring temporal and frequency characteristics.
Assesed the impact of human disturbance on song of <i>Speirops lugubris</i>			X	Data suggests that divergence in song structure is associated to habitat degradation
Raising local awareness and training the local communities			X	We conducted workshops and educational activities with local field guides to instruct practical and theory lessons on biodiversity and conservation. They in turn outreached to the local schools about the importance of protecting their surrounding nature.

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

None.

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

- Data showed birds to diverge in general size between primary forest and plantation habitats, being larger in forests.
- Song structure diverged between primary forest and plantation habitats. The differences found in temporal and frequency structure of song related to habitat structure at each habitat type. The results found for song variation also
- This study suggests that the endemic *Speirops lugubris* is experiencing an adaptive evolutionary response to diverging habitat structures caused by anthropogenic destruction of the original environment. This supports the hypothesis that ecological adaptation to human modified habitats may drive signal evolution even in the face of gene flow.

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

The community of Bom Sucesso at São Tomé was involved in the project through the workers of the Bom Sucesso Botanical Garden and through the field guides of the Associação Monte Pico. They accompanied us in the field, learning methodology and techniques. We conducted a series of practical and seminar mini courses for the guides, where we provided them with information on the bird community of the island, practical lessons on mist-netting, playback and recording guidelines. They were also given basic theory lessons on taxonomy, ecology and conservation. This was very helpful to the field guides because the island frequently receives birdwatchers and researchers that seek their services thus, with these courses, the guides are now better prepared and will be providing better services. The guides, on behalf of their association, conducted a number of visits to isolated communities throughout the island, giving talks on the biodiversity of the country and the need for conservation of their forests and this way, they were applying the information we gave them earlier in the course.

5. Are there any plans to continue this work?

I am still very interested in gathering more information on the song transmission properties of both Forest and Plantation habitats and on performing a more precise habitat description, especially for those characteristics affecting sound transmission and light medium. However, for the time being, there are no plans for an extension of the project, though plans for the future are in mind.

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

The results of this project were presented at the American Ornithologist's Union Meeting and at the International Society for Behavioral Ecology Meeting this past August. I am currently finishing a manuscript for submission to Journal of Evolutionary Biology.

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

The RSG was used over a period of 6 months. The field season started in January and ended late March. Data processing and analysis took place from April until early July 2008. The time spent on the project matched the anticipated length.

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.

- Local exchange rate used for each of the currencies used throughout the project.

	Euros	USD	Colombian Peso	São Tomé Dobra STD
1 £ sterling	1.39	2.02	4,010.50	29,885.00

Item	Budgeted Amount	Actual Amount	Difference	Comments
Air Transportation	£ 2000	£ 1890	£ 110	A better price was found for the Bogotá – Lisbon leg of the flight.
Visas	£80	£80	£0	
Food and accommodation	£600	£810	- £ 210	Accommodation conditions at São Tomé varied due to the need to sample several sites around the island.
Contingency (Materials, land transportation)	£ 820	£900	- £80	Land Transportation cost was higher than expected due to the need to sample several sites around the island.
TOTAL	£ 3500	£ 3680	- £ 180	

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

Plasticity is a strong factor limiting an assertive conclusion on adaptation to habitat divergence, therefore, common garden experiments would be helpful to assess the heritability of morphological and song characters. Additionally, detailed qualitative song analysis is needed to further assess song variation and to test if cultural imprinting is taking place. Song structure adaptation to habitat conditions should be looked into with greater depth, performing sound transmission experiments and ambient noise measurements for each habitat, with the purpose of evaluating the adaptation of song characteristics to sound competition and habitat constraints.

Further mistnetting in the study sites and between, in order to record capture, recapture events, could help in assessing whether individuals from separate habitats are isolated or if migrants from site to site is occurring. This information would help to better understand the differences found and would give a better idea to whether gene flow is taking place.

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?

I used the RSGF logo in the posters presented at the American Ornithologists Union meeting at Portland, Oregon and at the International Society for Behavioral Ecology meeting at Cornell University in Ithaca, New York; both meetings were in August 2008.