

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	Gloriana Chaverri
Project title	Understanding how bats cope with habitat degradation and destruction
RSG reference	36.01.07
Reporting period	2007-2008
Amount of grant	£4967
Your email address	gchaverri@upacificosur.org
Date of this report	January 8, 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
Use a Before-After-Control-Impact design to measure the effect of habitat degradation on patch occupancy		X		Even though we did not use this experimental design (Before-After-Control-Impact), we addressed the issue of habitat quality (i.e., density of potential roosting sites) on demography and behaviour by surveying 5 sites with significantly different densities of tubular leaves.
Mimic habitat loss by experimentally removing all <i>Heliconia</i> plants in habitat patches used by <i>Thyroptera tricolor</i>			X	
Record dispersal patterns with radiotelemetry after the habitat patch has been removed			X	
Survey new patches that have been occupied by radiotracked individuals after their habitat was removed		X		We did not systematically survey these newly occupied patches for a long period, only through the duration of radiotelemetry (approximately 10 days), as these sites were not occupied by bats permanently.
Survey original habitat patches to determine if individuals returned after plants grew back			X	

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

Some of the major difficulties during this research pertained to the length of battery life in radiotransmitters used to track bats after habitat patches were removed. This difficulty could not be remedied, as these radiotransmitters were the only available at the time of the study small enough to be carried by a 4.0 g bat.

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

The three most important outcomes of my study were: 1) there are significant geographic differences in the social and spacing behaviour of *T. tricolor*. Some of these differences, particularly regarding home-range size and patterns of association, were correlated to the density of roosts, suggesting that resource abundance may be a critical ecological correlate of behaviour in bats; 2) habitat removal caused significant changes in the roosting ecology and social and dispersal behaviour of bats; and 3) individuals use other (one or several) low-quality patches with non-preferred plant species while their original patch is unusable, but once plants have re-grown they will immediately return to it (in approximately 4 weeks).

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

N/A

5. Are there any plans to continue this work?

With the preliminary data obtained during 2008 on the experimental removal of habitat patches I have demonstrated not only that this experiment is feasible, and thus that the study species is one of the few vertebrates whose behaviour and ecology can be modified through small-scale manipulation of habitat features, but also that the results indicate a significant effect of anthropogenic activities on bat populations. While these data are noteworthy in themselves, having a small sample size for these experiments will likely preclude my results from being published in high-quality scientific journals. Thus, I will continue to pursue additional funding to perform this experiment on three more sites and hence conclude this research for publication.

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

Some of my results have already been presented in the International Bat Research Conference in Mérida, México, 2007 (paper named *Comparative social structure of Spix's disc-winged bat, Thyroptera tricolor*). These same results have been prepared for publication in peer-reviewed journals (Title of paper: *Behavioral flexibility and resource abundance in the leaf-roosting bat Thyroptera tricolor*). I hope to collect additional data on the experiments on habitat removal to get these results published in peer-reviewed journals as well.

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 during the period of July 2007 through September 2008. The overall length of the project was estimated at 3 years (2007 through 2009). Thus, the grant was used only during the first two years of research, and additional funding is being sought for the remainder of the study.

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
Field vehicle gas	£526.20	£740.61	-£214.41	Budgeted prices for transportation were too low given the worldwide rises in oil
Food and lodging	£1,835.64	£2,855.12	-£1,019.48	I spent more money in this item than previously budgeted given not only the worldwide rise in food prices, but also because I was unable to secure more money for this project. Thus, I had to spend money into financing a longer period of subsistence (i.e., food and lodging) during field research
Equipment	£1,048.00	£1,471.10	-£422.00	The additional money was needed to pay custom charges and to refurbish 6 radiotransmitters
Field supplies	£180.00	£0	£180.00	This amount was covered with other funds
Assistants	£1,376.64	£0	£1,376.00	I performed most field surveys alone, and had volunteers help me during radiotelemetry.
TOTAL	£4,966.48	£5,066.83	-£99.89	

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

1) To complete collection of data on the experimental removal of habitat patches and publish these results, and 2) to publish results which are ready for publication.

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 did not use the logo, but RSGF was acknowledged during my paper presentation at the International Bat Research Conference in Mérida, México, 2007.