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	Jean Bernard Dongmo
Project title	Study of genetic and morphological divergence in some African rain forest birds from the Upper Guinea (Ghana) and Lower Guinea (Cameroon).
RSG reference	47.01.10
Reporting period	July 2010 – June 2011
Amount of grant	£5836
Your email address	jbdoxy@yahoo.com
Date of this report	August 5th 2011

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
Identifying five passerine bird species find on the both sides of the Dahomey Gap.			✓	Identified birds are not found within the Gap. This could emphasise the lack of gene flow between Upper and lower Guinea, and thus facilitate bird's differentiation. Of five species that we initially planned to study, two were very difficult to meet. We have then replaced them by two others species easier to find, but meeting the same criteria. So we quickly adapted to the conditions offered by the field!
Locating in Cameroon and in Ghana, sites of isolated populations of the above bird species.			✓	Here again, we were due to further investigations in other to replace one of the sites where we had planned to work (Kumasi), by a different one (Afadjato). This was because the only guest house found there were occupied for a long periods when we arrived. In any case, the location of these sites was very tedious; especially the need to take into accounts the constraints of the habitat.
Carrying out morphological and genetic sampling of each individual from these bird populations in both upper and lower Guinea.			✓	Birds capture and sampling was a very interesting part of the work. This allowed us to be in direct contact with birds. During sampling, we were very encouraged by foresters and other villagers, who were very interested in what we were doing.
Quantifying the extent of morphological and genetic differentiation between allopatric bird populations.		✓		Preliminary analysis shows that there is clear morphological and genetic differentiation between bird populations of both sides of the Gap. Appropriate statistical tests would allow confirming this trend.

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

There is not Ghanaian Embassy in my country (Cameroon). So I was obliged to send visa money to Ghana so as to permit to my collaborators in Ghana to buy my visa and send it back to me in

Cameroon before I travel. This made the visa procedure longer than previously planned and more time consumed.

Ankasa Resource Reserve is a genuine rain forest. It can rain there at any moment and without any warning. This made mist netting very difficult. To tackle this difficulty, we settled the processing zone at the guest house, so as to have the possibility to keep birds alive when the rain comes.
In Ghana, it was very difficult to find suitable sites where to find the species subject to our study. This was because most of the forests there are much degraded. Additionally, one of the planned sample sites had no available structure for accommodation (as I mentioned above). We therefore traveled to several areas in order to find suitable sites.

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

The three most important outcomes of my project are:

3.1. We sampled a total of 179 individuals, among which 95 *Andropadus latirostris,* 16 *Spermophaga haematina,* 14 *Hylia prasina,* 14 *Stiphrornis erythrothorax* and 40 *Cyanomitra olivaceus.* For each individual, we took weight and the following measurements: wing length, tail length, tarsus length, bill length, depth and width. We collected a total of 422 blood, tissues and feather samples. Thirty-six voucher specimens were prepared and deposited at Harvard museum of natural history.

3.2. For *Andropadus latirostris* and *Hylia prasina,* we found a clear genetic differentiation between their populations from the Upper Guinea and from the Lower Guinea. This shows that the Dahomey-Gap is responsible for such variations. For other species (*Spermophaga haematina* an*d Stiphrornis erythrothorax*), divergences are observed, not only on the either sides of the Gap, but also among bird populations from different localities of the same side of the Gap. Such differentiation would have occurred before the formation of Gap.

3.3. For all the species, there were light morphological variations, not only between populations from the both sides of the Gap, but also among bird's populations from various patches of the same region.

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

My collaborators in Ghana Wildlife Society (Dr Ngeh Paulinus, Augustus Asamoah, Jacob Oti Awere) have been very helpful. They helped me to get my visa, to find save hotels and to travel inside the country from one site to another. In forestry zones, local peoples have been very welcoming and quite interested in what I was doing.

In Ankasa Resource Reserve, there were in need of a bird data collector. So the conservator of this forest reserve just sent one of his employees (Kenneth Frank Eshum) for me to train him on bird's identification and data collection. Kenneth was also my field assistant. So, at the end of my work there, they were very happy to have one person that they can send to the field to collect data on a specific bird. In Afadjato, I also recruited one young man from this locality as my field assistant and trained him during my stay.

These locally trained peoples are able to collect and send samples to me for the good continuation of this project.

5. Are there any plans to continue this work?

Surely. We had some very pertinent and interesting observations during this project (Please, see section 9 of this report for details). And that could not allow us to stop our project in such a good perspectives.

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

- I have began sharing the results of this work with my collaborators in the United States, at a meeting held between our laboratory at the Boston University and the laboratory Prof Scotts Edward from Harvard University. During this meeting, each researcher was to present his work.
- I am writing some articles so as to publish my results in scientific journals.
- I am also planning to organise some seminars to communicate my results to individuals.
- I will also deposit my research results in the national and the international organisations and national Government offices actively involved in conservation efforts.

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

The RSG I received was used over a 12-month period. This corresponds to the anticipated project length; but is a little shorter than the actual length of the project. This is because of the complexity of data analysis.

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
Binoculars (Nikon 10x42Monarch)	156.3	156.3	0	
Mist net	552.6	552.6	0	
Digital Camera (Canon Power Shot A1000IS)	223.7	223.7	0	
Rechargeable batteries	78.4	39.2	+39.2	I got additional batteries as a gift from a friend
Batteries Charger	10.5	10.5	0	
GPS (Garmin Etrex legend GPS NC9098588)	269	269	0	
Pesola (PESOLA Spring Scale , 100g and 20g)	52.8	52.8	0	
Dial callipers (Tracebale Digital Callipers)	134	134	0	

Blood collection kits (Needles, Hematocrit Tubes, Plastic Tubes, Lyses solutions, FTA Whatman Minicards)	450.5	370.5	+80	I got some collection tubes and needles from my supervisor.
Airfares to Ghana (roundtrip)	606.58	606.58	0	
Visa fee	118.2	170.6	-52.4	There have been too many transactions in buying the visa in Ghana and sending to me in Cameroon before I travel.
Local Travel in Ghana	526.3	642	-115.7	We travailed more to find new sites.
Lodging	592	696	-104	Hotels were more expensives than expected.
Food	710.5	630.2	+80.3	Food were a little cheep out of towns.
Local guides	828	726	+102	I tried to negotiate so as to save some money.
Research, Capture, Export Permits	526	526	0	
Total	5835.38	5805.98	+29.4	

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

For the present study, we tested the influence of a geographical barrier (the Dahomey Gap) on bird's diversification. So, we had collected data on a global scale, while taking into account mostly the two forest blocks separated by the Gap: Upper Guinea (Ghana) and Lower Guinea (Cameroon). We have then found that there is a tendency for variations of bird populations, not only between the two forest blocks, but also from one locality to another within the same forest block.

Our important next step is therefore to collect representative data in various localities of each forest block, in order to study the divergences at a local scale. This will permit to determine ongoing evolutionary processes within each block, and focus conservation efforts at the local level.
We would also, at the limit of available resources, test the influence of the cross-River, between Cameroon and Nigeria on the one hand, and between Cameroon and Ghana on the other hand. This would allow us to find out if it is the Cross-River or the Dahomey Gap which is responsible for bird divergences between Upper and Lower Guinea.

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, I used the RSGF logo in many materials produced in relation to this project as binoculars. Moreover if you allow it, I wish to continue using the logo while sharing the results of this work with others as I mentioned in section 6 of this report.

I encouraged many of my research mates to apply for RSG once they have a good project on biodiversity conservation. Explaining them that RSGF is a very interesting and powerful structure, ready to help serious peoples able to set up interesting projects.

11. Any other comments?

I am very grateful to Rufford Small Grants Foundation. Their grant has been very useful for my research. I am not sure I could have been able to carry out this specific project without RSGF. Many thanks and long live to RSGF. I am in contact with many researchers that are very encouraged by your support.