

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

Thank you for your help.

**Josh Cole Grants Director**

#### Grant Recipient Details

|                            |                                                                                                                                     |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>Your name</b>           | Eric Moise Bakwo fils                                                                                                               |
| <b>Project title</b>       | Contribution to the knowledge of fruit bats of southern Cameroon rainforest: implication for seed dispersal and forest conservation |
| <b>RSG reference</b>       | 20.03.08                                                                                                                            |
| <b>Reporting period</b>    | July 2008-June 2009                                                                                                                 |
| <b>Amount of grant</b>     | £5984                                                                                                                               |
| <b>Your email address</b>  | <a href="mailto:bakwoeric@yahoo.fr">bakwoeric@yahoo.fr</a>                                                                          |
| <b>Date of this report</b> |                                                                                                                                     |

**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                                                                                                                                                                       |
|------------------------------------|--------------|--------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inventory and distribution         |              |                    | X              | A total of 29 species were collected in the study area: 8 fruit bat species and 21 microchiropteran species. One fruit bat species was found for the first time in Cameroon.   |
| Faecal collection (bat's diet)     |              | X                  |                | To date at least 34 plant species were identified in faecal samples. This list of food plants is not exhaustive because faecal analyses are still in progress.                 |
| Germination trials                 |              |                    | X              | The results of the seed germination experiments indicated that the seed passage through the entire digestive tract did not always enhance germination                          |
| Diurnal and nocturnal observations |              |                    | X              | During the study period, we have spent 30 days observing at feeding and day roosts. These observations allow us to discover 12 sites with bats colonies (4 caves and 8 trees). |

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

I started the field work one month later than it was planned because mist nets and night vision material were not available in Cameroon.

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

Prior to this study, data on the distribution of bats in Cameroon were extremely scarce in comparison with the other West African regions. The overall aim of this project was to study and evaluate the role of fruit bats as keystone species in plant-animal interactions in the southern Cameroon rainforest. The most important outcomes of this project are:

- This study has several implications for conservation of bats in the lowland forest habitats of southern Cameroon. The study reveals that fruit bats are an essential component of the frugivorous community in the Dja Reserve. Thus, all taken together, fruit bats represent 77.68 % of the bat community sampled (195 out of 251 captured individuals). We have also recorded one species for the first time in Cameroon. This record raises the number of fruit bat species in this country to 14.
- This study reveals a key ecological role of fruit bats in seed dispersal of many useful products to man. These products include valuable and endangered timber (*Chlorophora excelsa*, *Ceiba pentandra*); fruits (*Carica papaya*, *Musa* sp., *Psidium guajava*, *Mangifera indica*); medicine (*Azadirachta indica*, *Eucalyptus* sp., *Cola* sp.) and food items (*Elais guineensis*). These products contribute significantly to world markets and to local economies. For example, *Chlorophora excelsa* is a valuable and threatened timber in Cameroon and solely depends on *Eidolon helvum* and *Hypsignathus monstrosus* for seed dispersal.
- The study reveals that fruit bat species abundance and diversity in the study site are influenced by seasonality and fruit availability.

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

Three professional foresters (Assomo Mathurin, Okalle Robert and Mvodo Gervais) working in the Dja Reserve were trained in capture techniques and identification of species. It was important that these specific people were reached because we believe that the best way to change the current status of bats from persecuted to protected in Cameroon, would be to help those who manage forests and those that rely on them for their livelihood better understand the mutual interdependence between forest plants and bats. We have also give presentations on the ecological importance of bats to students, conservationists and local authorities' villages in and around the Dja reserve.

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

Yes.

##### 1. Research on the ecology of bat fauna in the Dja Reserve and our country:

- Study the distribution and the natural history of *Megaloglossus woermanni*. This obligate nectivorous bat species in Africa was described as rare in Cameroon (Vivien, 1991). However this species has the highest number of individuals per species (46). Little is known about its roosting behaviour, and further studies are needed into the distribution and natural history of this species (IUCN, 2009).
- Evaluate the abundance of echolocating species in the Dja reserve

2. Educate local tribes in and around the reserve on the ecological value of bats and about the importance of protecting their roosting sites and their foraging area. This will help to demystify bats, and teach that many of the stigmas about bats are unwarranted.

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

I am working in collaboration with the conservation service of the Dja Reserve and ECOFAC (Ecosystème des Forêts d'Afrique Centrale), an organization conducting conservation programs in the Dja Reserve. We will use the information gained from this research as a foundation for developing an education programme on the role of bats in preserving the balance of rain forest ecosystems.

I will present the results of this work at the 13<sup>th</sup> Biosciences (Yaoundé December 2009).

I have submitted three manuscripts in peer reviewed journals for publication:

- Notes préliminaires sur la communauté de chauves-souris de la réserve du Dja. E.M. Bakwo Fils. *Journal Canopée*.
- First record of Buettikofer's epauletted bat (*Epomops buettikoferi*; Matschie, 1899) in Cameroon. E.M. Bakwo Fils. 4P. *African Bat Conservation News*.
- Inventaire des chauves souris de la réserve de biosphère du Dja, Cameroun. E. Bakwo Fils. *le vespere* (2).

I will also submit the following manuscript for publication in a peer reviewed journal during the next months:

- On the role of frugivorous bats as seed dispersers in the southern Cameroon rainforest. E. M . Bakwo Fils

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

I used the RSG between July 2008 and June 2009. I planned to use the RSG between June 2008 and July 2009. I used the grant in the same amount of time but I started one month later than planned because Night vision material and mist nets were not available in Cameroon.

**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£= 885 FCFA**

| Item                           | Budgeted Amount | Actual Amount | Difference | Comments                                                                                                                         |
|--------------------------------|-----------------|---------------|------------|----------------------------------------------------------------------------------------------------------------------------------|
| Mist net                       | 979.2           | 979.2         | 0          |                                                                                                                                  |
| Night vision material          | 476             | 462           | -14        | I buy night vision material less than originally budgeted                                                                        |
| Binoculars                     | 102             | 102           | 0          |                                                                                                                                  |
| Hand held GPS                  | 272             | 272           | 0          |                                                                                                                                  |
| Camera + batteries             | 204             | 320           | +116       | I buy camera more than originally budgeted                                                                                       |
| Dial calipers                  | 30.6            | 30.6          | 0          |                                                                                                                                  |
| Mechanical spring balance      | 47.6            | 47.6          | 0          |                                                                                                                                  |
| Headlamps+ batteries           | 81.9            | 81.9          | 0          |                                                                                                                                  |
| Lamps                          | 68              | 68            | 0          |                                                                                                                                  |
| Gloves                         | 20.4            | 20.4          | 0          |                                                                                                                                  |
| Compass                        | 13.6            | 13.6          | 0          |                                                                                                                                  |
| Cloth bag                      | 170             | 170           | 0          |                                                                                                                                  |
| Envelope                       | 40.8            | 40.8          | 0          |                                                                                                                                  |
| Plastic sheets                 | 81.6            | 81.6          | 0          |                                                                                                                                  |
| Travel (in and out study site) | 1360            | 1074          | -286       | Travel was less expensive than originally budgeted because less fuel was used during this study                                  |
| Accommodation + food           | 1220            | 1200          | -20        | Accommodation and food were more expensive than originally budgeted                                                              |
| Seed identification cost       | 340             | 400           | +60        | Seed identification costs were more than originally budgeted                                                                     |
| Local guide cost               | 476             | 620           | +144       | Local guide costs were more than originally budgeted because I have used two locals during the rainy season (August-October 08). |
| <b>TOTAL</b>                   | <b>5984</b>     | <b>5984</b>   |            |                                                                                                                                  |

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

Although this study reveals a low exploitation rate of fruit bat as bushmeat in the reserve, education projects are needed to ensure that the local people recognize the importance of bats and do not inadvertently cause harm through the careless destruction of vital habitat.

**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 logo in a brochure of the project to explain the purpose of the project to the local communities in and around the reserve. I also used the logo in two partial presentation of the project at two scientific congress (Biosciences 2008, plan d'aménagement de la reserve de biosphere du Dja).

**11. Any other comments?**

I wish to thanks the Rufford Small Grant Foundation for providing funds to start this project and for contributing to bat conservation in Cameroon.