

## The Rufford Foundation

### Final Report

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Congratulations on the completion of your project that was supported by The Rufford 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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
<b>Your name</b>	Paul Webala
<b>Project title</b>	The population ecology, diet and movement of Straw-coloured fruit bats, <i>Eidolon helvum</i> (Megachiroptera: Pteropodidae) in Western Kenya
<b>RSG reference</b>	12461-2
<b>Reporting period</b>	September 2012 - September 2013
<b>Amount of grant</b>	£6000
<b>Your email address</b>	paul.webala@gmail.com
<b>Date of this report</b>	24 <sup>th</sup> June 2014

**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
Identify, map and protect <i>E. helvum</i> roost sites			Yes	In addition to the three roost sites identified earlier, two more active roost sites have since been identified and mapped in western Kenya. One such roost site is located at Luanda in Vihiga County and the other in Kisii County, ca. 250 km east of Vihiga. Further away from western Kenya, we have also located other roost sites in Nyeri County, Central Kenya, and in Mombasa and Lamu Counties along the Kenyan Coast.
Monthly monitoring on population status, trends and migration patterns of the bats		Yes		This is still an ongoing exercise not only to understand seasonal (intra-annual) changes in local populations but also the long-term (inter-annual) patterns of these fluctuations in relation to climate and their annual migrations.
Document threats that the bats and their habitats face			Yes	Many threats to the bats and their habitats were identified. The main ones included deforestation and roost tree clearance and negative perceptions about the bats fuelled by ignorance, myth and superstitions
A detailed market survey to assess the tourist option using bats as an attraction alongside other attractions in western Kenya			Yes	The numbers of tourists visiting western Kenya was found to be minimal with most international tourists visiting areas around Lake Victoria, Kakamega forest, and Mt Elgon and Cherengany National Parks. The number of local tourists is negligible probably due to extreme poverty levels and/or the absence of middle class with disposal income. As a result of our efforts, however, now the Kenya Wildlife Service is marketing the Vihiga Eidolon colony as part of the western Kenya tourism

				<p>circuit. The number of tourists visiting the colony is a trickle but the impact on such visits in leveraging the protection of the <i>Eidolon</i> colony by local farm owners is immense because they now receive tangible benefits in the form of tourism revenues</p>
<p>Conduct a livelihood analysis among local communities</p>			<p>Yes</p>	<p>Dairy farming, poultry farming, bee keeping, horticulture farming (onions and tomatoes), agroforestry and bat-based tourism, in the decreasing order of importance, were identified by local communities as viable projects that local people were undertaking and/or could involved in to relieve pressure on <i>E. helvum</i> roosting sites and the roost trees in particular. However, because of initial financial outlays necessary for setting up some of the projects, we only managed to set up self-sustaining ones such as tree nurseries (agroforestry component), horticulture farming (onions and tomatoes), and bat-based tourism. These projects were taken up with gusto by several households in the area. Importantly, various tree planting exercises were undertaken by a team of trained local volunteers (30 in number) and local people themselves with our minimal supervision</p>

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

When we carried out a livelihood analysis, the local people wrongly expected to be financed with initial seed money to establish local projects. For instance, they expected the project to fund dairy and poultry farming. It was difficult to manage these expectations, but we dissuaded local people by together carrying a cost evaluation all possible projects they identified and indicating that the project can only assist with projects that didn't require higher initial capital investments. Consequently, it was agreed that the RSG project could

help set up a few tree nurseries, horticultural projects and help link up the *Eidolon* roost sites to the western Kenya tourist circuit. These were successfully implemented.

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

- ii Apart the three roost sites identified earlier with initial RSG funding, we have since identified and mapped more active roost sites in western Kenya. One such roost site is located at Luanda (0.00720°N, 34.60457°E) in Vihiga County and the other in Kisii County, ca. 250 km east of Vihiga. Further away from western Kenya, we have also located and mapped other roost sites in Nyeri County, Central Kenya, and at the Coastal Counties of Mombasa, and further north in Lamu County.
- iii A detailed market survey to assess the tourist option using bats as an attraction alongside other attractions in western Kenya. The numbers of tourists visiting western Kenya was found to be minimal with most international tourists visiting areas around Lake Victoria, Kakamega forest, and Mt Elgon and Cherengany National Parks. The number of local tourists is negligible probably due to extreme poverty levels and/or the absence of middle class with disposal income. However, the *Eidolon* colony is now linked to the western tourist circuit and now the Kenya Wildlife Service is marketing the Vihiga *Eidolon* colony as part of the western Kenya tourism circuit. The number of tourists visiting the colony is a trickle but the impact on such visits in leveraging the protection of the *Eidolon* colony by local farm owners is immense because they now receive tangible benefits in the form of tourism revenues.
- iiii Following a local livelihood analysis, we established self-sustaining projects in areas where *E. helvum* colonies are located with the help of the second RSG funding. These projects include tree nurseries and agroforestry small-holder farms, horticulture farming (onions and tomatoes), and bat-based tourism. These projects were taken up with gusto by several households in the area. Importantly, various tree planting exercises were undertaken by a team of trained local volunteers (30 in number) and local people themselves with our minimal supervision. It is hoped that these projects will sustain (bat) roost tree survival, whilst allowing local people to meet their livelihood needs. With these small environmentally friendly income-generating activities, local people are less inclined to cut down trees which are also used by bats. Instead, they are planting additional trees for bat roosting.
- iiv A publication on our work is in Press: - Webala P. W., Musila, S. and Makau, R. (2014). Roost occupancy, roost site selection and diet of straw-coloured fruit bats (Pteropodidae: *Eidolon helvum*) in western Kenya: the need for continued public education. *Acta Chiropterologica*, 16(1): xxx–xxx, 2014.

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

The local communities were involved in a myriad way. First, there were workshops with teachers from local schools and representatives of local communities and the seminars held in a few local schools. Secondly, the 30 30 volunteers initially trained on aspects of the bats'

roles in seed dispersal, plant pollination and insectivory, basic monitoring techniques and environmental monitoring and conservation, continued with their monitoring activities. Thirdly, local communities were involved in the livelihood analysis study and the cost evaluation of the projects they identified. Self-sustaining projects of agroforestry, horticulture and bat-based tourism started with RSG funding are up and running directly benefiting local communities, taking pressure away from *Eidolon* roost sites and key roost trees. Finally, local people were involved in awareness events/activities like tree planting, cultural days and football match competitions, through which the conservation message of bats and other local fauna was delivered.

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

Yes, but we would like to replicate research and conservation activities for this highly mobile and migratory species elsewhere in Kenya. Specifically, we would like to focus our attention in addressing area-specific conservation challenges facing *Eidolon helvum* bats in other parts of Kenya with large *Eidolon* colonies that we have mapped. These colonies occur in urban settings of Kisii, Mombasa and Lamu Counties. This species is classified as Near Threatened (NT) on the IUCN Red List, and because of its migratory nature, and its habit of shifting between roost sites, in order to ensure its long-term survival it is important to conserve and protect its roost sites across its range, rather than focusing on a single colony or roost site. The survival of the species may in large part depend on saving many smaller groups over a very large area, and hence the need to us focus on other colonies elsewhere in Kenya. With possible funding, we would like to buy a few GPS tags to track a few individuals in order to understand the migratory behaviour of the species and prioritize important roost sites in Kenya.

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

We have already held a number of seminars with local stakeholders, including amongst the local communities, to specifically demonstrate the link between straw-coloured fruit bats and forest regeneration in the region. Our findings will also be presented at invited seminars both locally and internationally. I am also part of a team of volunteers, coordinated by Dr Jakob Fahr (<http://sites.google.com/site/jakobfahr>), monitoring the population of *Eidolon helvum* across its sub-Saharan African range to provide a picture of seasonal and inter-annual fluctuations of the bats via monthly counts. These data and other information on *Eidolon helvum* are readily available online via <https://sites.google.com/site/eidolonafrica/>. Our article is in press: - A publication on our work is in Press: - Webala P. W., Musila, S. and Makau, R. (2014). Roost occupancy, roost site selection and diet of straw-coloured fruit bats (Pteropodidae: *Eidolon helvum*) in western Kenya: the need for continued public education. *Acta Chiropterologica*, 16(1): xxx-xxx, 2014...

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

Most of the (second) RSG funds were spent over the entire year (September 2012 - September 2013). However, some activities, especially monthly Eidolon counts at the Vihiga Colony roost sites, spilled over and are still ongoing to date. We have supplemented the monthly counts from other local sources and with volunteers doing most of the counts

**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
Garmin GPS eTrex 20	192	180	12	
Tree nursery and planting	500	400	100	
Income-generating activities	1500	1700	-200	We spent more on income-generating activities because of high demand but we also felt these could make a bigger difference on changing peoples' attitudes towards conserving bats
Stationery	50	0	50	Stationery were obtained from Karatina University as in-kind support
Dry cells (batteries)	100	100	0	
Field travel (Fuel)	2050	2300	-250	We spent more on fuel due to increased fuel costs during the project periods
STAFF COSTS (Research Scientist)	1296	1000	296	Sometimes we did camp, thus minimizing costs on accommodation in hotels
Workshops and training	300	350	-50	
<b>Total</b>	<b>5988</b>	<b>6080</b>	<b>-92</b>	

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

Please see section 5 above! We will be applying for a booster grant from the Rufford Foundation and matching funds from other sources, especially from Bat Conservation International (<http://www.batcon.org/>), to carry out envisaged activities.

**10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?**

RSGF logo was used on posters and training project volunteers drawn from local communities. The logo was also used on T-shirts during local awareness events such local football competitions. We have also acknowledged RSG support in our imminent publication in Acta Chiropterologica, a peer-reviewed Journal

**11. Any other comments?**

We greatly appreciate the support of Rufford Small Grant Foundation for Eidolon project in Kenya. Conservation outcomes have been very encouraging.