

Final Evaluation Report

Your Details	
Full Name	Jennifer Awuah Owusua
Project Title	Developing a Spatial Database of Bat-bushmeat Hunting and Trade to Enhance Conservation Planning and Disease Surveillance in Southern Ghana
Application ID	24360-1
Grant Amount	£5,000
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1. 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
Assess the dimensions of bat meat hunting and trade in southern Ghana.				<p>We succeeded with data collection on bat bushmeat activities in two out of the three proposed study regions in southern Ghana (Nkawkaw, Techiman). In our third region (Kumasi), we were unable to gather the needed data due to difficulty finding bat bushmeat actors (see question 2 for details). Nonetheless, within Nkawkaw and Techiman, we combed extensively in six bat eating communities (Tanoboase, Buoyem, Tanokrom, Asikam, Ntomem and Kyinsuase) and interviewed 130 actors (incl. 68 hunters, six traders and 56 consumers).</p> <p>We documented important socio-demographic data on bat bushmeat actors (data including age, gender, education and geographic coordinates). We also probed into the patterns of bat meat exploitation: we detailed the timing of exploitation, species and numbers exploited, methods of hunting bats and reasons for eating bats, average price of bat meat and the number of year's actors have been engaging in hunting, trading and eating bats.</p>
Identify people and areas at risk of diseases that can be transmitted from bats to humans (bat zoonoses)				<p>We evaluated the vulnerability of bat meat actors to contracting bat zoonotic pathogens in all six study localities, and developed maps to show potential bat zoonotic outbreak hotspots; areas where bat zoonoses can emanate and spread through the general population. We are yet to establish the zoonoses risk in other important bat eating localities in southern Ghana.</p>

<p>Create awareness among communities about the ecological benefits of bats alongside their disease risk.</p>				<p>We launched educational campaigns in schools and community centres in the six communities. We organised video shows, radio shows, and talks in community centres. We used Power Point presentations in schools and distributed educational materials including project branded t-shirts, fact sheets, and flyers to schoolchildren and their teachers. Throughout these campaigns we adopted the One Health simultaneous communication of both benefit (e.g. ecological benefits of bats) and risk (e.g. risks of eating bat meat) information to educate local people.</p> <p>In addition to community campaigns, we launched an educational programme on several social-media networks (Facebook, LinkedIn and WhatsApp), dubbed "Bat Lives Matter in Ghana" - which promoted knowledge about the ecological benefits of bats and their zoonoses, and inspired interest in bat conservation.</p> <p>We will continue to gather further information on the new threats we identified, in order to finalise plans to develop a Strategic Action Plan for targeted conservation planning and management of zoonotic threats in bat eating communities.</p>
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.

During the project, a major government crackdown on hawkers in the Kumasi metropolis including notable bat meat markets, impeded our surveys.

In Kumasi, we targeted popular bushmeat markets to first identify bat meat vendors, as this was the best approach to build our respondents list in the Kumasi metropolis. However, our surveys coincided with a major government clean-up of hawking activities in the central Kumasi business district that affected bat meat vendors. Several visits to popular bat meat market joints did not locate vendors. Therefore, we could not gather the needed data on bat bushmeat activities in Kumasi. Nonetheless, we visited more communities in the other regions (Techiman and Nkawkaw) to accumulate more information on bat bushmeat activities. Also, we were able to gather information about bat meat activities in some satellite markets

(e.g. Ayigya market near KNUST) in the Kumasi metropolis, which we plan to investigate in future.

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

- I. Our project has provided a valuable set of data on bat bushmeat activities in southern Ghana. This database describes bat exploitation patterns, characteristics of bat meat actors, and geographic details about people and places at risk of potential zoonoses outbreaks.

For instance, we discovered that more than 6,000 fruit bats are hunted in a month across the six surveyed localities. It was also evident that people are still actively hunting and eating fruit bats in southern Ghana, despite the Ebola crisis, which was partly associated with fruit bats in West Africa. We have completed a technical report (<https://www.rufford.org/files/243601%20Detailed%20Final%20Report.pdf>) of our findings, which will form the basis for peer reviewed publications and ongoing efforts to draft a Strategic Action Plan that will detail pragmatic measures (e.g. alternative livelihood options to bat meat and local regulations to hunting bats) to curb bat meat exploitation and manage zoonoses risk in Ghana.

- II. Our project has also brought to the forefront the bat meat crisis in Ghana through social media campaigns and community outreach programmes, which reached thousands of people. Our campaigns outlined the importance of bats, for example as ecological indicators, enhancers of vegetation growth and pollination, control of agricultural pests and mosquitoes that cause malaria. Meanwhile, we educated local people about the dangers of engaging in bat bushmeat activities, explaining to them the common bat zoonoses and measures to prevent them. Local people attended in large numbers and fully participated in all our activities.
- III. This project has increased the interest of local people to become advocates for bat populations and their habitats. We also asked the actors whether they will protect bats in the future. All hunters were willing to stop hunting if they have alternatives except two hunters who were unsure about stopping hunting. Likewise, all consumers said they will consider ceasing to eating bat meat when provided with alternatives, except nine who said they will continue to eat and another seven who were unsure whether they will continue eating bat meat when provided with an alternative. Three vendors said they will stop selling when provided with alternatives, two said they will continue to sell even with alternative and one was unsure.

4. Briefly describe the involvement of local communities and how they have benefited from the project.

This project was largely focused on local people and their communities. During the beginning of the project, we organised community entry meetings with chiefs, opinion leaders and key informants to discuss our project activities and gathered

information to design questionnaires and plan our surveys. We trained and employed three community members to assist with the collection of questionnaire data. Community members (130 in total) voluntarily participated in these questionnaire interviews to provide detailed information about bat bushmeat activities in their communities.

Within the communities, we launched educational campaigns in schools and community centres in all the communities we surveyed. We organised video and radio shows and talks in community centres. Hundreds of local adults attended our meetings in community centres and shared their knowledge about bats. We used PowerPoint presentations in schools and distributed educational materials including project branded t-shirts, fact sheets and flyers to schoolchildren and their teachers. Based on the keen interest that local people showed in this project, we are positive that we can work together to sustain our conservation efforts.

5. Are there any plans to continue this work?

Yes. As a top priority, we will continue to work with the local communities to develop an effective long-term strategy to reduce bat bushmeat activities and associated zoonoses risks. We will also continue surveys to update and expand our geographic database of bat exploitation patterns and zoonoses profiling.

Another potential threat to bats that we uncovered is their alleged destruction of cashew farms. Cashew nut is an important cash crop in Ghana. Some colonies of fruit bats use cashew farms as feeding fields. The widely held belief that bats destroy this crop may lead to the massive persecution of bat populations by local farmers in the future. We suggest that future investigations should work to establish a significant link between bats and cashew nut crop output.

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

We will share our technical report with relevant stakeholders, including the Ghana Wildlife Division and Department of Public Health and Disease Surveillance. We plan to share our findings in both local and international conferences, and to publish in peer reviewed journals. We will always make any new information available on the Rufford Foundation website.

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

The grant was used from mid-February 2018 to June 2019. We decided to prolong the surveys to track bat meat vendors in Kumasi, who had been displaced from their popular vending locations. We also used the extension period to draft a detailed technical report of our findings.

8. Budget: 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. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Travel cost (vehicle rent & fuel)	700	722	+22	This was due to increases in fuel prices over the project lifespan.
Community awareness campaigns and workshops	1,150	1,185	+35	This increase was due to inflation.
Internet charges for social media campaigns	240	240		
Field supplies (incl. questionnaire design & development of coloured photo guides)	225	225		
Map cost	15	15		
Printing cost (t-shirts, posters, factsheets, flyers)	600	600		
Monthly subsistence for core team members	1,080	1,080		
Accommodation	720	300	-420	We arranged for free accommodation in some project communities.
Feeding allowance for additional team members	270	540	+270	We recruited additional volunteers to help with surveys.
Other costs for bank charges & surveys		100	+100	This was not budgeted for but became necessary as we spent more time on field surveys. There were bank charges for money transfers and over the project timeline.
TOTAL	5000	5007	+7	

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

We recommend that the following measures be prioritised:

- I. Awareness creation about the bat meat crisis should be strengthened and expanded. This should be done by working closely with bat bushmeat actors to design robust and long term educational programmes to suit their specific needs, such as risk level and educational backgrounds.
- II. Alternative livelihood options that will help actors generate sustainable income and access other protein sources should be assessed and implemented.
- III. Efforts should be made to develop regulations concerning bat-bushmeat activities. This can be achieved at the community and national levels, thus working with traditional/opinion leaders and the Ghana Wildlife Division to implement restrictions.
- IV. Data on exploitation patterns and zoonoses risk should be updated for the six communities. Satellite markets in Kumasi (incl. Ayigya market near KNUST) should be investigated for bat meat activities. In addition, this project should be expanded to other important regions in Ghana.
- V. Investigations should be conducted to gather more information about the activities of bats in cashew farms.

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

We used the Rufford Foundation logo on all printed materials for our project (including t-shirts, flyers, factsheets, questionnaire and PowerPoint slides). The foundation was mentioned during educational campaigns and questionnaire administration. We will always acknowledge and use the Rufford logo in all future undertakings related to this project.

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

Jennifer Awuah Owusua (Team Leader): coordinated all project activities (planning, field surveys, and outreach programs).

Prince Boama & Michael Baafuor Awuah: assisted with field surveys, outreach programs and data analysis.

Bismark Appiah Opoku (a Ghanaian bat expert): contributed important information to help us plan surveys in bat eating communities.

Two postgraduate students (**Victor Agyei Kwaku & Afrifa Dwumah**) and a Teaching Assistant (Anita Asantewaa Appiah-Adjei) from the Faculty of Renewable Natural Resources, KNUST volunteered on the project; assisted with extended surveys in the Kumasi metropolis.

12. Any other comments?

This project was made possible with funding support from the Rufford Small Grants. We are therefore extremely grateful to the Rufford Foundation for all the accomplishments this project has made. We are also very thankful to Dr. Bright Obeng Kankam, Dr. Sam Davis and Dr. Ruth Cross for their endorsement of this project. Finally, we thank all the local communities we surveyed and the host families and assistants for their support of our project.