

### The Rufford Foundation Final Report

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.

Thank you for your help.

Grant Recipient Details	
Your name	ALPHONCE MSIGWA
Project title	Ecology and Role of Land Use on Diversity, relative abundance, and Distribution of Small Mammalian Carnivores in Ruaha Ecosystems, Tanzania
RSG reference	17756-1
Reporting period	Oct 2015-oct 2016
Amount of grant	£4998
Your email address	alphonce84@yahoo.com
Date of this report	August 2016

#### Josh Cole, Grants Director



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
Determine small				
mammalian carnivores				
(SMC) in Ruaha			·	
ecosystem				
Understanding diversity,				
relative abundance and			$\checkmark$	
distribution of SMC				
Training community				Six were trained.
village game scouts on		$\checkmark$		
SMC study methods				
Raising community				Following budget deficit, posters will
awareness on SMC				be printed and supplied in 21 village
		$\checkmark$		though awareness through DVD nights
				is highly needed as nothing has been
				done up to now.

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

- Permit delay. It was tackled by visiting the responsible authorities to their office and explaining to timeframe for funding and seasonality and hence decided to write the introductory letters so that I can proceed with the data collection.
- Borrowing camera traps (CTs) from other project as some mentioned that CTs are very expensive sometimes can be stolen or damaged and my small project cannot cover the replacement cost. The solution was to find project which are far from the study area like northern part.
- Seasonality; during rainfall roads were impassable, rivers flows in such a way we spent more days in collecting cameras from the field than time planned. In that case, survey stopped till dry season



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

I. Collection of first baseline data of small carnivores in Ruaha ecosystem and understand diversity, relative abundance index (RAI), distribution and occupancy

The diversity of small carnivores between the core protected area and wildlife management area is almost the same with small differences. In the national park (NP), 11 species were recorded and in WMA 10 species were recorded (Table 1). Despite RAI being somehow low for all species, paradoxically bateared fox were the most detected (RAI= 0.058) in the WMA and caracal (RAI=0.002) the least. In the NP, genet was the highest recorded (RAI=0.132) and dwarf mongoose (RAI=0.001) was the lowest (Graph 1). In terms of distribution genet spp, banded mongoose and African civet were the mostly distributed animals across the two protected areas. For occupancy, genet is scoring high in all areas (40% in WMA and 47.62% in NP) and the least was caracal 4.76% in WMA and dwarf mongoose 3.33% in NP (Graph 2).

Grid	No. Stations	No. trap nights	Months surveyed	No. species detected
Natioanl park	30	705	July to August 2016	1
Wildlife Management area	21	539	November to December 2016	1
Total	51	1244		



Graph1. Relative abundance index (RAI) of small carnivores in WMA and NP





Graph2. Small carnivore occupancy in WMA and NP

Training and involvement of different authorities and confirm the presence of serval cat and wild cat in Ruaha ecosystem

- II. The study was conducted by involving District Game Officer, Ruaha National Park ecologist, wildlife management area authority and some village leaders. All of them were puzzled with kind of the study which is just focusing on forgotten species (small carnivores). In that case they were very cooperative and hence the WMA selected six game scouts and national park one game ranger to be involved from setting cameras to up to removing the cameras and sorting some photos. Also has confirmed the presence of serval cat and wild cat which in Ruaha ecosystem.
- III. Project recognition by other institutions like Universities, TAWIRI and research projects

Since its commencement, PI has been invited into several scientific conference, meeting and forum to present about this study. TAWIRI also are very keen to receive data from the study and update into Tanzania small carnivore database. In addition, presentation have been done to university a forum titled *Raising conservation awareness to university student in* which students from different universities in Tanzania are involved.



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

Posters with introduction explaining the importance of conserving SMC, list of all species recorded from this study with common and vernacular names will be printed and displayed in all villages where community for the purpose of raising community awareness. Also during project implementation local community has been benefited through allowances and training like two research assistants and six village game scouts which are members of the communities.

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

Yes, this is because community perceive small carnivores as strange species as they have never heard any study focusing in them. Hence community awareness in small carnivore conservation using combination of campaigns such as leaflet, postures, DVD nights and brochures is very important. The awareness will be raised to 21 villages which are close to Ruaha National park and MBOMIPA WMA.

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

Small carnivores data collected will be submitted to TAWIRI to update into carnivore database for preparing the action plan which is a used as national framework by different conservation stakeholders. Also one article will be send to Tanzania wildlife magazine to share our findings with the wider community and one publication will be send to one journal of ecology. Last but not least, presentation will be given to 11<sup>th</sup> TAWIRI scientific, Rufford conference, Ruaha Round table meeting and any other opportunity that will come across with the intension to share results with the public.

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

The RSG grant was anticipated to be used from September to December 2015. Unfortunately, the delay for getting research permit and challenge of borrowing camera traps and rain season led to this study to be finished in early September 2016. After end of rain season, the project which I used to borrow cameras was using them and hence shifted my order to early August 2016. At last, data was collected and diversity, relative abundance and distribution of small carnivores were understood in this area.



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	Budg Amo	Actu Amo	Diffe	Comments
	gete ount	ıal ount	rend	
	à		e	
Printer	115	110	-5	Changed printer model
External hard drive	77	80	+3	Under estimate
SD card	240	200	-40	Some camera has SD card
Digital camera	154	185	+31	Under estimate
GPS	133	100	-33	Over estimated
Hiring camera trap	500	400	-100	replaced broken camera and
				transportation
Pen drive	30	30	0	
Alkaline batteries	660	800	+140	Camera trap number increased
				from 50 to 60 and hence batteries
				increases from 300pcs to 380 pcs
Stationery	154	124	-30	Over estimate
Car hire and	935	935	0	
maintenance				
Fuel	600	600	0	
Driver allowance	420	420	0	
Researcher allowance	600	600	0	
Assistant researcher	300	300	0	
allowance				
Fees	80	126	+46	Under estimated
Total	4998	5010		

1£ sterling =2700 Tanzanian shillings

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

• Publishing the results into scientific journal, presenting into conferences and forum and writing one article to Tanzania wildlife magazine so as to share the results with larger community around the world.



- Making poster and putting into 21 villages surrounding the two protected areas and explaining the species SMC available.
- The most important part of this project is to raise community awareness in small mammalian carnivores their ecological, economical and social significances. Raising this activity will help in conservation and management of these important animals as up to date none of the project has done such kind of awareness. Message of small carnivore conservation will reach wider people using combination of method like words and DVD nights where illiterate and literate people of all ages will be able to understand. Community will be able to understand the excellent work that has been done by Rufford foundation for sponsoring the work.

# 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?

Yes. The Log was used during the 10<sup>th</sup> Tanzania Wildlife Research Institute scientific conference held in Arusha Tanzania to explaining about the continuation of Small mammalian carnivores study at this important ecosystem with the support from Rufford

- Also the log was used in the vehicle rented to be used by the project.
- Also it has been placed in the printer.
- In addition, the log will be displayed in all poster which will be displayed in each village.

### 11. Any other comments?

The RSG has improved my level of knowledge in terms of conducting scientific research, management of project funds, leadership and data analysis. The grand received will change the image of severe paucity of data of small carnivores from Ruaha ecosystem as it has been known before. Small carnivores project with truly heart acknowledge the support received from RSG and hence will continue to work hard and look for more funding so as to proceed with this exception research in Ruaha.



### Appendix 1

List of Small Carnivores of Ruaha National park and MBOMIPA Wildlife Management

<u>Area</u>				
S/No.	English Name	Swahili name	Scientific Name	Source
1	African civet	Fungo fungo	Civettictis civetta	Camera
				trap/sighted
2	Honey badger	Nyegere	Mellivora capensis	Camera trap
3	Serval cat	Mondo	Felis serval	Camera trap
4	Slender	Nguchiro	Herpestes sanguinea	Camera
	mongoose			trap/sighted
5	Zorilla	Kicheche	Ictonix striatus	Sighting/Sighted
6	Dwarf	Kitafe	Helogale parvula	Camera trap
	mongoose			
7	White-tailed	Karambago/	Ichneumia albicauda	Camera trap
	mongoose	Nguchiro		
8	Genet spp	Kanu	Genetta spp	Camera trap
9	Wild cat	Paka pori	Felis sylvestris	Camera trap
10	Black backed	Bweha	Canis mesomelas	Camera trap
	Jackal			
11	Banded	Nguchiro	Mungos mungo	Camera
	mongoose			trap/sighted
12	Caracal	Simba	Caracal caracal	Camera trap
		mangu		
13	Aaardwolf	Fisi wa nkole	Proteles cristatus	Camera trap
14	Bat eared Fox	Bweha	Octocyon megalotis	Camera
		masikio		trap/sighted
15	Cape clawless	Fisi maji	Aonyx capensis	Sighted/
	otter			Literature