

The Rufford 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.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Steven Matema
Project title	Use of human-wildlife interaction databases to mitigate human-wildlife conflict and save mega fauna in a Transfrontier Conservation Area in Zimbabwe
RSG reference	17168-1
Reporting period	November 2015 – November 2016
Amount of grant	£4958
Your email address	smatemah@gmail.com
Date of this report	19 December 2016



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
Document the spatial and temporary dynamics of human-wildlife interactions by recording wildlife track counts at the human-wildlife interface (e.g. water points and agricultural fields)				Track counts were done along the major rivers using belt transects of 15 km length traversing different land uses: human settlements, forested areas and riverine fields. Different wildlife species (n = 26) used the riparian wetlands, with use of the Manyame River more intense in the dry season than the wet season, but in contrast, more use of the Angwa River in the dry season. In the Manyame River wards, elephants and buffalo tracks were not seen at all or rarely observed in both seasons. Lion, leopard and hyaena tracks were encountered at low frequencies for all river banks. Antelopes were infrequent on all river banks bushbuck and impala were comparatively more common in Angwa River Ward 11 whereas duikers and kudu were in similar proportions along both rivers. Hippos were present in Manyame River but were not present in Manyame River but were not present in Ward 11. Elephant and buffalo were largely absent from the riparian zone of Manyame River wards which were comparatively densely populated. In contrast, elephant and buffalo were observed in the less densely populated and settled Angwa River riparian zone



		with the land use plan for CAMPFIRE
		which reserves animal corridors. The
		uninterrupted babitat and the allure of
		crops in the wet season resulted in
		buffale apportunistically venturing close
		pullato opportunistically venturing close
		or into agricultural fields and numan
		settlements in Ward II. Elephant and
		buttalo tracks were most concentrated
		in forested segments of the rivers
		compared with wetland agricultural
		fields and human settlements in Angwa
		River Ward 11. Elephant and used
		specific crossing points from Chewore
		Safari Area across the Angwa River
		through the forest into Ward 11 where
		they then entered crop fields.
Map human-wildlife		Incidents of crop damage, human injury,
conflict hot spots in		human death, threat to humans, and
communal areas.		livestock depredation were used as
differentiated		variables to determine human-wildlife
according to wildlife		conflict hotspots. The frequency of
species and the		human-wildlife conflict incidents were:
nature of the conflict		crop damage (42.8%) threat to humans
Icrop or livestock		(19.3 %) killing of livestock $(17.2%)$
depredation)		(17.5, 70), kinning of investock (17.270) ,
depreduitorij		(10.5%), normal light (10.5%), normal light (7.0 $%$), retainstand killing (0.7 $%$), and does
		$\frac{1}{2}$, retaind by kining (0.7 %), and dogs
		these incidents were cleribert (22.1 %)
		nippo (20.7 %), crocodile (15.2 %),
		buttalo (13.1%), lion (11.0%), python (2.1
		%), bush pig (1.4 %), kudu (0.7 %), bees
		(0.7 %) and baboons (0.7 %). Elephants
		were the main crop raiders (56.5 %)
		followed by hippo (30.6 %), and then
		buffalo (8.1 %), bushpigs (3.2 %) and
		kudu (1.6 %). Crocodile accounted for
		53.3 % of cases of human death,
		followed by elephant (13.3%) and hippo



	(9 v r c E 3 r c	(13.3 %), then lion (6.7 %) and bees (6.7 %). Ward 1, Ward 2, Ward 3, Ward 9 and Ward 10 were conflict hotspots. These wards fall in different elephant movement routes. Part of Ward 10 falls in an elephant route along the Zambezi Escarpment mountain range while Ward 3 and 9 falls in the Shange elephant route. Ward 2 falls in the Chewore- Chikafa route.
Record satari hunting data (days taken to find trophy animal; trophy size/weight; sex and age of killed species; hunting outcome – animal killed or wounded; utilisation of quotas	lrcsfedsvovt2k9hiv0vviiofsFsc	There was no clear trend in the average number of days taken to find trophy animals from 2005 to 2015. However, sport hunters' comments on kill return forms suggest that ecological and socio- economic factors affect the number of days taken to find trophy. For instance, sport hunters complained of encounters with illegal hunters or seeing their tracks and hunting dogs, and "lots of lions" which drove away buffalo. Safari hunters targeted predominantly males between 2005 and 2015: elephant (87.5 %), buffalo (86.9 %), lion (75 %), leopard (100 %), hyena (100 %), crocodile (100 %), hippo (57.1 %) and all antelopes (kudu, mpala, sable, grysbok, kudu, bushbuck, waterbuck, zebra and duiker (100 %). Only 3.1 % cases were failed shots in which the animal was wounded, 75 % of which involved buffalo and 25 % nvolved elephant. Hunting quotas allocated were constant (data available from 2000 to 2016) suggesting that quota setting is not based on actual or projected species population. This is a strategy by the RDC to avoid often difficult negotiations with the parks and



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		Wildlife Management Authority (Parks).
		Once the RDC requests lower quotas, it is
		difficult to have these raised by parks
		when the RDC want that to be done.
		Thus, a higher quota is always requested
		even if demand is expected to be lower.
		For the years 2010 to 2015 quota
		utilisation was as follows (mean highest
		(1120)
		10 west). Liephan (71.2 %, 04 %, 57 %),
		DUITUIO (70.2 %, 00 %, 33 %), 11011 (87.3 %,
		%), nippo (67.7 %; 82 %, 55 %), crocodile
		(61.7 %, 80 %, 57 %). Variations in quota
		utilisation were a function of demand,
		competition with South Africa. There was
		a general decrease in the size of buffalo
		horn, from a mean of 53.3 inches in 2005
		to 31 inches in 2013, (41.5 % decrease)
		with a sharp increase to a mean of 57.6
		inches in 2014. The reason for this
		increase was unclear. Elephant tusk size
		decreased from a mean of 58 inches in
		2005 to 36 inches in 2015 (a 37.9 %
		decrease).
Analyse income data		Income distribution data for safari
and income		hunting under CAMPFIRE shows that the
distribution over the		community share of income is heavily
vears (Do		taxed with 71.3 % of the amount the
communities receive		community received lost to the RDC the
income at the right		CAMPEIRE Association and local
time and in		management costs and a more 20.7 %
		acing towards community development
		going rowards community development
amountsej		projects, compared with the 50 % that is
		otten quotea in literature. Communifies
		are also not receiving their share of
		income in time.
Analyse records of		The Parks and Wildlife Management
(legal and illegal)		Authority (PWMA) local office (Mbire



hunting and problem		district) did not provide data on illegal
animal control and		hunting which it classifies as protected
the type of control		information. However, sport hunters
method used.		reported cases of encounters with illegal
		hunters or their tracks on the kill return
		forms. PWMA's reaction to problem
		animals is very poor: of the 145 cases of
		problem animal reported no action was
		taken (71.5 %), 18.6 % of cases were
		attended to and 10.3 % involved lethal
		control. Because some cases were only
		reported as "action taken" (type of
		action not specified) there is a
		probability that lethal control may be
		higher. Findings from the household
		questionnaire survey show that 52 % of
		livestock owners had lost livestock to
		predators in the past five years.
		Predators contributed to 70 % of cases of
		livestock loss, whereas non-wildlife
		causes contributed 30 %. Hyaena, lions
		and crocodiles were the major predators
		killing livestock. Crocodiles contributed
		to 29.8 % of livestock depredation while
		other predators contributed 70.2 %. Of
		the cases of livestock depredation, 7.2 %
		took place in the riparian zones of major
		rivers, compared with 92.8 % outside the
		riparian zone (home and non-riparian
		grazing areas). Among households
		surveyed, 42.5 % took some measures to
		prevent depredation of livestock by
		wildlife. Among these 40.6 % constructed
		strong kraals or fortified them with thorn
		tree fences, 31.2 % herded cattle, while
		28.1 % always put cattle in kraals for the
		night. Of the cases of human injury
		recorded, hippo accounted for 46.2 %,



	crocodile (23.1 %), buffalo (15.4 %), and then elephant (7.7 %) and lion (7.7 %). Lion was responsible for most attacks on livestock (44.0 %), followed by crocodile (36.0 %), and baboon, hippo and leopard (4.0 %). Cases of threat to human life involved buffalo (39.3 %), elephant (35.7 %), lion (10.7 %), hippo (7.1 %), crocodile (3.6 %), and python
	(7.1 %), crocodile (3.6 %), and python (3.6 %).

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

Getting the Mbire RDC to record all details on hunting data on kill return forms was a challenge at the beginning of the project since some of the details such as age and the experiences of safari hunters were considered as potentially implicating from a conservation perspective. The RDC had recently removed the section on hunters' comments about the hunt from the kill return forms. After feedback sessions and gaining the trust of the researcher (that it was a well intentioned project), the Mbire RDC officials agreed to use the form designed to capture all critical information. The form that was designed for use during the project will be used starting in the 2017 hunting season. Data on wildlife censuses could also not be obtained from the Parks and Wildlife Management Authority; getting this information is a long process involving a number of authorisation stages. This engagement will continue as this data is important to be able to make concrete conclusions about the threat of safari hunting to wildlife.

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

First, before the project the communities were arguing for higher hunting quotas for trophy animals in the context of crop and livestock depredation. When presented with data on decreasing trophy quality, attitudes and perceptions attitudes. Led by their chief (customary leader but also senator at national level), they now want to establish a community-based game ranch which will be a non-hunting breeding area. Animals will be systematically released into adjacent unfenced areas for sport hunting only when populations are deemed viable for sustainable offtake. Second, the Mbire Rural District Council (RDC) has started to reduce hunting quotas for



buffalo and elephant on the evidence of declining trophy quality. This, however, will be implemented according to the threat status of species in particular hunting concessions (Mbire has three hunting concessions). Decreases in trophy quality have been more acute in the north and south hunting concessions for all species, and less in the east hunting concession, which is a result of individual concessionaires' preferences of species to hunt. In the east, the concessionaire focused more on elephant. Third, participatory track counts proved a useful way to reconcile peopleparks and people-RDC conflict about problem animal control. A comparison of actual track count data and the household survey data on presence of wildlife in crop fields and settlements showed that people overstated the presence of elephant, lion and buffalo but accurately reported species such as primates (monkeys and baboons). This exaggeration, according to local people who participated in community feedback meetings, was a strategy to make the Parks and Wildlife Management Authority (ZimParks) to pay more attention to problem animals. Local people reported that ZimParks' response to cases of crop and livestock depredation was poor.

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

Local game scouts were involved in track counts. They were trained on use of handheld GPS units. The GPS units were donated to the community so that the scouts continue recording location of wildlife presence in their areas. Discussions on the effects of CAMPFIRE on wildlife populations were participatory, allowing people to have a deeper understanding of the impact of safari hunting on wildlife.

5. Are there any plans to continue this work?

Yes. See section 2 above. In addition, scouts involved in the project will record incidents and locations of illegal hunting (snares, dog and human tracks etc) to make in place of the unavailable data from the Parks and Wildlife Management Authority. If data from parks is eventually obtained, this will then be compared with the data gathered by Mbire RDC scouts. The Zambezi Escarpment elephant movement route is experiencing rapid human settlement and agricultural expansion and displacing wildlife. As a consequence, the Mbire RDC no longer has interest in maintaining this 'corridor'. Work will therefore continue with documenting elephant movements, in the Shange and Chewore-Chikafa corridor to inform land use planning to preserve these corridors.



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

A policy brief will be produced. A paper will be published in peer reviewed journal with the objective of drawing tentative conclusions on whether commercialisation saves wildlife.

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

The grant was used for the entire duration of the project.

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.

ltem	Budgeted Amount	Actual Amount	Difference	Comments
GPS Unit x 1 Garmin eTrex hand held unit	128	106	+22	
Voice recorder and accessories x 1	209	276	-67	A Samsung Galaxy A3 phone was bought to also combine as camera.
Community focus group discussions/meetings X 4 @ 100	400	680	-312	Community level feedback meetings held in place of all-stakeholder meeting
All stakeholder meeting X 1	483	0	+483	An all-stakeholder meeting was an ambitious idea. Costs proved much higher than anticipated.
Travel 5790 km @ 19.32/100 km	1118	1118	0	
Trackers for track counts x 4 @ 6.44 for 48 days	1236	1236	0	
Assistants for questionnaire administration x 2 @ 6.44 x 30 days	386	386	0	
Stationery for printing of 350 questionnaires and data recording sheets	78	110	-32	



GIS expert	500	500	0	
Accommodation	420	546	-126	Cost of lodges increased
Atlas.ti software	65	0	+65	Systematic qualitative analysis dropped because envisaged training in using the software was not done.
TOTAL	4958	4958		

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

I intend to continue this work in areas where data is inconclusive, or could not be collected as well as working with the Mbire RDC to develop a conservation-based land use plan sensitive to local livelihood needs (food security) and wildlife movements (see sections 2 and 5 above).

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?

The logo was used on presentations to the Mbire RDC. RSGF also received publicity during interactions with colleagues in academic research. For instance, a joint proposal to evaluate CBNRM, involving colleagues from the Netherlands, Zimbabwe and Namibia made reference to preliminary findings from the RSGF project. At CASS discussion of findings from the project led others to know of the RSGF. My understanding is that some of them have already applied, or are planning to apply for RSGF funding for their own proposed projects.

11. Any other comments?

One of the major questions that the research sought to answer was: does commercialisation of wildlife through safari hunting save wildlife by making it pay for itself? Findings from this study suggest that without monitoring (external), commercialisation of wildlife does not save wildlife. Interviews with key stakeholders emphasised that CAMPFIRE is more of a poverty alleviation programme or development programme, rather than a wildlife conservation strategy. Thus, to save mega fauna in Mbire, focus should be on diversification, and building the resilience of local livelihoods strategies, and Mbire RDC revenue generation strategies in ways that reduce dependence on natural resource harvesting.