

Final Project Evaluation Report

Your Details	
Full Name	Titus Adhola
Project Title	Key ecological determinants of depredation by large carnivores in relation to community practices and perceptions in Samburu, northern Kenya.
Application ID	23940 - 2
Grant Amount	£5000
Email Address	adholatitus@yahoo.com
Date of this Report	05/11/2018

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
<p>To investigate the role of seasonal surface-water dynamics on large carnivore diet and prey preference (livestock vs wild prey) in a pastoralist dominated landscape.</p>				<p>Our main goal was to derive a better understanding of key ecological and socio-cultural determinants of livestock depredation by large carnivores to foster coexistence. We made a great stride on the social-cultural front but still require more time and resources to make significant headway on the ecological basis for coexistence; this was occasioned in part by circumstances beyond our control.</p>
<p>To investigate the impacts of variation in local habitat on perceived and actual rates of livestock depredation by large carnivores.</p>				<p>There was a considerable number of human-carnivore conflict incidences that were unfortunately, not well documented due to a myriad of events that included a countrywide political unrest, remoteness of certain locations, and insecurity occasioned by violent inter-tribal cattle raids in the northern Kenya region. This led to our project activities being frequently halted due to safety concerns.</p>
<p>To assess the factors that need to be considered to enhance tolerance (social carrying capacity) of large carnivore presence in a pastoralist dominated landscape).</p>				<p>We successfully conducted an ethnographic survey in Meibae Community Wildlife Conservancy, in addition we facilitated through a Rufford Foundation co-sponsorship, a first ever locally organised Carnivore Conservation Workshop in Samburu, northern Kenya that gave us a big headway towards establishing a socio-cultural basis for co-existence. However, sustained efforts need to be put in place from key stakeholders (local communities,</p>

			government institutions, conservation non-governmental organisations) to ensure that community goodwill to co-exist with wildlife is harnessed to its full potential, to conserve carnivores; by positively addressing salient challenges raised by the local communities.
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.

- In Samburu when it rains, it pours! Add this to that mix, an already difficult and rugged terrain with a road network that criss-crosses dry seasonal rivers; then it means it would be very difficult and/or impossible to conduct any kind of fieldwork however urgent during such circumstances.
- One has to learn to be a car mechanic on the fly, performing 'band aids' to the field car and proceeding with fieldwork until a real mechanic can be found locally; or trying to trudge on up to some mechanic shop in town which could be miles away.
- Project activities were halted whenever inter-tribal cattle rustling incidences were reported within the study area until calm was restored; and it was safe to resume project activities.

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

- a) The project team successfully conducted a first ever locally organised community carnivore conservation workshop for northern Kenya with the theme: "To conserve our carnivores is to conserve our environment and our pasturelands". The workshop took place on the 15th March 2018 at the Kalama Community Wildlife Conservancy in Samburu, Kenya, with presentations on the management and conservation of wildlife in the area by researchers and community members. Issues discussed included: human-wildlife conflict, positive views of carnivores, and how an increased community participatory approach towards improved co-existence can contribute to key policy issues such as wildlife space on community land, sharing of benefits accrued from wildlife resources, and community responsibilities in conservation. This workshop was about deliberations between the stakeholders and representatives of the Samburu pastoralist community. Two key policy issues emerged: (1) The perceived lack of equitable sharing of benefits from wildlife earnings nationally with local communities, inadvertently reinforces negative views towards wildlife in general and carnivores specifically; and (2) Community goodwill to provide space for wildlife persists. The two key issues need to be addressed appropriately by policy makers for the benefit of the communities and wildlife. Future workshops will address other pertinent

issues such as association between livestock depredation and subsequent retributory killings of large carnivores.

- b) From our analysed human-carnivore conflict data thus far, it can be stated that for every 10 reported depredation incidences on 'shoats' (sheep and goats) by the large carnivores in Samburu; six of those incidences will most likely be leopard attacks; two from cheetah; and one apiece from the African wild dog and hyaena. Even though the actual rates indicate that the leopard has the highest number of recorded depredation incidences on shoats, in general, through our semi-structured questionnaire surveys using a stratified randomised design, the locals rank the cheetah as highest in the 'notoriety' index followed by the African wild dog, leopard, hyaena with the lion scoring lowest on 'notoriety' index for depredation on shoats. The same 'notoriety' index when scored by the locals for depredation attacks on the large stock (cattle, donkey and camel), the lion scored the highest, followed by hyaena with the leopard scoring the least. The cheetah and African wild dog were not perceived to pose any threat to the large stock according to the interviewed households. In reality, for every 10 reported large stock depredation incidences by the large carnivores, six of those incidences will most likely be hyaena attacks with two apiece from the lion and leopard. What the locals perceive has a high tendency to influence their attitudes towards specific species of carnivores; and, due to the economic implications of losing large stock to carnivores, the lion will most likely bear the brunt of retaliatory attacks on large carnivores even if, it is the spotted hyaena that is responsible for majority of depredation conflict incidences on large stock in Samburu County.
- c) Samburu County is unique in the sense that it hosts populations of the six large carnivore species found in East Africa, namely lion, leopard, spotted hyaena, striped hyaena, African wild dog and cheetah. It is therefore an ideal surrogate, for implementing community wildlife awareness and conservation strategies geared towards mitigation of human-carnivore conflict. To this end, coexistence is the core mission of our carnivore conservation work; to be able to achieve this, our research team has involved the local Samburu pastoralist community members as key stakeholders of the project since its inception in order to build a strong sense of ownership towards our large carnivore conservation activities. We also work in close partnerships with The Samburu County Government, University of Nairobi, Kenya Wildlife Service, National Museums of Kenya, The Samburu National Reserve Management, Community Wildlife Conservancy Managers in Samburu, Action for Cheetahs in Kenya (ACK) and, the Northern Rangelands Trust (NRT). We strongly believe that if we can harness a sustained and concerted effort from the above listed partnerships to implement effective conflict resolution schemes; then it will be a big step closer towards addressing pertinent policy hurdles, including fostering a productive ecological, socio-cultural and political environment that has significant benefits for both human and wildlife populations.

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

- Our project team conducts joint community scout training in partnership with NRT and ACK for robust long-term ecological monitoring by community scouts in their respective community conservancies in Samburu. From 5th to 10th September 2017, the PI joined a team from NRT and Lewa Conservancy Trust to train community scouts at the Sera Wildlife Conservancy in Samburu on ecological monitoring techniques with a focus on lion population monitoring.
- Seven field assistants (two rangers from the Samburu National Reserve and five community scouts) got short-term employment to participate in our carnivore conservation project; in addition, to being given hands on training in the duration of the project to gain and/or improve on their skills on data collection in ecological monitoring work and social science techniques.
- Our project team conducted a 1-day carnivore conservation workshop in Samburu and the locals were happy to be given an opportunity to air their grievances and deliberate with experts on best ways forward in mitigating human carnivore conflict.

5. Are there any plans to continue this work?

Yes, through our carnivore project, we have identified gaps in the existing monitoring programme on human-carnivore conflict coordinated by our project collaborators. We plan to promptly address these gaps through joint capacity building initiatives between our project team, NRT and ACK. These trainings will target community conservancy managers, rangers and community scouts to ensure quality data collection at the community conservancy level that will enhance our capability to detect and/or determine any associations between livestock depredation and any subsequent killings of carnivores in retaliation in the northern Kenyan region.

The next planned follow-up carnivore conservation workshop in Samburu in early 2019 (subject to successful fundraising) will attempt to address association between livestock depredation and subsequent retributory killings of large carnivores.

Ground-truthing the study area to produce a GIS vegetation map of Samburu County to be able to correctly determine depredation conflict hotspots remains an on-going activity that requires sustained resources and dedicated efforts from project team members and collaborators. We will be able to determine depredation conflict hotspots for Samburu County after achieving a sustained data collection on vegetation attributes and accurate locational GPS coordinates of reported livestock depredation conflicts; validating and verifying the circumstances that might have contributed to such incidences; including exact details (whenever possible) of carnivore species responsible, and the nature and extent of damage caused.

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

I am authoring a chapter in a Conservation Workbook to be published by the Northern Rangelands Trust (NRT), highlighting my carnivore conservation work in Samburu County. The workbook is expected to be published in early 2019.

Publishing project outputs in popular science magazines and peer reviewed scientific journals, to keep the conservation community updated and informed about our carnivore conservation activities.

Periodic presentations of project outputs/updates in workshops and/or conferences, both local and international.

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

Project funds were utilised between November 2017 to October 2018 to conduct project activities for the current Rufford grant. This second Rufford grant contributed immensely towards our carnivore project goals and activities towards identifying the ecological and socio-cultural basis for coexistence with large carnivores in Samburu County northern Kenya; with an active and/or sustained community involvement. To this end, it is recommended that the project should go on for another 4 years at a bare minimum.

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. *Exchange rate: £1=Ksh134 as at 24th November 2017.*

Item	Budgeted Amount	Actual Amount	Difference	Comments
Laboratory costs and related expenses for preservation and analysis of scat, tissue and/or hair samples.	700	300	400	£400 was hived off the Laboratory costs and related expenses budget line to help contribute towards co-sponsorship of the community carnivore workshop at Kalama Community Wildlife Conservancy in Samburu County. Any arising deficits in this budget line were catered for by complementary budget lines from co-sponsorship.
Expendable supplies cost (vials, absolute	600	300	300	£300 was hived off the expendable supplies budget line to help

ethanol, disposable gloves, zip lock bags).				contribute towards co-sponsorship of the community carnivore workshop; and the more sustainable annual camping fee at Meibae Community Wildlife Conservancy. Any arising deficits in this budget line were catered for by complementary budget lines from co-sponsorship.
Project team maintenance (food and other miscellaneous expenses) for 90 days @£15 per day.	900	1,600	-700	Miscellaneous expenses proved essential towards achievement of our project goals: 1) Conducting a first ever community carnivore conservation workshop became indispensable due to an overwhelming request/demand to hold one from the Samburu National Reserve Management, Community conservancy managers and locals; and, mainly due to its effective role in giving a great push towards achieving our project goals for an increased participatory community approach in carnivore conservation in Samburu County. We used the miscellaneous budget lines from Rufford and co-sponsorship to facilitate this community carnivore workshop. 2) The second essential expenditure was facilitation towards covering cost of a more affordable subsidized £200 annual camping fee at Meibae Community Wildlife Conservancy as opposed to a £8 a night rate which was not sustainable in the long term. As a result, we had unlimited access within the conservancy boundaries for 12 months to conduct project activities. Any deficits in our maintenance budget for team members were catered for by complementary budget lines from co-sponsorship.
Field assistants allowance	1600	1600	0	The field assistants were very cooperative and helpful in

(subsistence payments for 4 community scouts) for 90 days @£10 per day.				conducting project activities. Any additional field assistant allowance costs were covered through complementary budget lines from co-sponsorship.
Car maintenance (repairs for wear and tear) costs for 90 days @£10 per day.	500	500	0	Carefully planned for logistics and effective team work ensured that data collection was maximised effectively during actual field days in Samburu. Any additional car maintenance costs were covered through complementary budget lines from co-sponsorship.
Car fuel for 90 field days @£15 per day.	700	700	0	This allocated budget for fuel was carefully planned for and utilised sustainably for effective data collection during fieldwork. Any additional fuel costs were covered through complementary budget lines from co-sponsorship.

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

Our project continues to champion for increased local community input in carnivore management and conservation initiatives, in close collaboration with government agencies and project partnerships to implement effective conflict resolution schemes, including addressing pertinent policy hurdles to foster a productive socio-cultural and political environment that has significant benefits for both human and wildlife populations.

We would like to advance our carnivore scat analysis capabilities from the microscope level to the costlier, more advanced, accurate, and widely accepted metagenomics level (extracting DNA from faecal samples; to amplify DNA through PCR; utilizing Next Generation Sequencing especially for faecal samples; and bioinformatics associated with molecular genetics techniques) to address conservation challenges in management of wildlife populations across human dominated landscapes.

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?

Yes, our project team organised a first ever locally organised carnivore conservation workshop in Samburu. We included the Rufford logo in workshop banners for the said event; and, publicly acknowledged the Rufford Foundation's co-sponsorship to make the workshop possible.

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

Dr Ogeto Mwebi	Project advisor	Senior Research Scientist	National Museums of Kenya (NMK)
Professor William Ogara			University of Nairobi.
Professor Nicholas Oguge			
Dr. Jean-Philip Brugal			Aix-Marseille University, France
Mary Wykstra	Project collaborator	Director	Action for Cheetahs in Kenya (ACK)
Anthony Wandera			Northern Rangelands Trust (NRT)
Mresi Lekaile	Providing security and assisting in data collection within SNR	Rangers	Samburu National Reserve (SNR)
Eunice Lenyakopiro			
David Lesan	Project field assistant		Meibae Community Wildlife Conservancy
Christopher Lentam	Co-opted ACK field assistants		
Nyerere Letongoine			
Sylvester Lekermui			
Joseph Learkeri			

12. Any other comments?

A very big thank you to the Rufford Foundation for giving upcoming conservation practitioners like myself, a chance to make a difference locally; by facilitating through financial sponsorship, the initiation and implementation of sustainable community wildlife conservation projects globally!

