

## Final Project Evaluation Report

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Your Details	
<b>Full Name</b>	Fotang, Chefor
<b>Project Title</b>	Ecology and Behaviour of the Nigeria-Cameroon Chimpanzee ( <i>Pan troglodytes ellioti</i> ) in Kom-Wum Forest Reserve and Mbi Crater Kefem Landscape in the North-West Region of Cameroon
<b>Application ID</b>	24025 -1
<b>Grant Amount</b>	£5000
<b>Email Address</b>	fortangchefor@gmail.com
<b>Date of this Report</b>	2019. 01.09

**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
To provide accurate population estimates of the Nigerian-Cameroon Chimpanzee in Kom-Wum Forest Reserve and Mbi Crater Kefem Landscape.				The population size of the Nigerian-Cameroon population has been estimated in Kom-Wum Forest Reserve. No signs of chimpanzees were recorded in Mbi Crater Kefem Landscape. Monitoring is needed to confirm their survival in Mbi Crater Kefem Landscape.
To determine feeding habits of chimpanzees and compare them between areas and with other subspecies.				12 plant and two animal species have been identified in chimpanzee faeces in Kom-Wum Forest Reserve. The results presented are just for one season (rainy season). Dry season data will be required to measure the influence of seasons on chimpanzees diet.
To investigate and document undescribed and new tool behaviour of the Nigerian - Cameroon Chimpanzee in both areas.				Army ant digging tools have been identified in Kom-Wum Forest Reserve. Follow up surveys are planned to be conducted between February and April 2019.
To evaluate the possibilities of gene exchange between populations of chimpanzees in Kom-Wum Forest Reserve and Mbi Crater Kefem Landscape				Chimpanzee hair and faeces samples collected in Kom-Wum Forest Reserve only have been taken to the laboratory of Multiparametric Diagnostics in Senftenberg and the Göttingen Primate Genetic Laboratory in Germany for the determination of population structure and group sizes.

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

Firstly, the team was unable to survey some parts of Mbi Crater Kefem Landscape because of the Anglophone crisis in the north-west region of Cameroon. To solve this problem, we continued monitoring for an extended period in Kom-Wum Forest

Reserve. I also obtained a special permit from the forces of law and order with the help of the mayor of Fundong council which helped to collect the data and achieved the results that I am presenting.

Secondly, the eco-guards assigned to work with my team did not master the terrain and were not willing to camp in the forest for more than 3 days. For this reason, we recruited other research assistants from the local communities who knew the area well enough to guide the team and were willing to spend at least 2 weeks with us in remote parts of the reserve.

Lastly, the research was constraint by the limited sampling effort (in time and space) and seasonal variable. Some parts of the study areas could not be surveyed because of the political atmosphere in the region. Also, time period (May to September) in which this research was conducted was too short. For this reason, the results presented are only for one season (wet season).

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

Fifty-one chimpanzees were observed directly in five different groups in Kom-Wum forest reserve. The maximum and minimum group sizes sighted was 10 and seven respectively. Nest group sizes ranged from two to 22 with an average nest group size of seven. Camera traps photographed three different chimpanzee groups. Group sizes captured on camera traps ranged from two (one male and one female) to a maximum group size of nine chimpanzees. The maximum group of nine consisted of two adult females each carrying a young, two juveniles probably from weaned from two adult females, one adult male, and two unknown adult chimpanzee whose sex and age could not be distinguished. Apart from chimpanzees, camera traps also photographed the baboon (*Papio anubis*), red duiker (*Cephalophus dorsalis*), bushbuck (*Tragelaphus scriptus*) and the giant ground pangolin (*Smutsia gigantean*). Chimpanzee densities were 1.0 [95% CI (0.4-2.7)] individuals km<sup>-2</sup> for distance sampling, 1.3 individual's km<sup>-2</sup> for Mark Nest Count and 1.8 individuals km<sup>-2</sup> for Standing Crop Nest Count methods. Extrapolating chimpanzee densities to the total forest area of the reserve provide an overall number of 80 to 140 chimpanzees in Kom-Wum Forest Reserve depending on the estimation method. The population size may be lower than the estimated numbers because chimpanzee occupies approximately 52 km<sup>2</sup> of forest area within the reserve.

Unfortunately, we did not find any signs of chimpanzees in Tubah Upland Forest while Mbi Crater was not accessible. These chimps might have migrated through Mbi Crater Game Reserve towards Oku which seems to be the best possible migratory route. We cannot give any solid conclusions if these chimps still survive in Tubah Upland Forest. Follow up surveys are planned from February to April 2019 to confirm their survival in this landscape.

The second most important result is the diet of the Nigeria-Cameroon chimpanzee in Kom-Wum Forest Reserve. A total of 12 plant species were identified in chimpanzee faeces based on macroscopic analysis of faeces samples. The plant species identified were: *Monodora myristica*, *Landolphia* spp., *Myrianthus arboreus*,

*Cyclomorpha solmsii*, *Canarium* spp., *Staudtia kamerouniensis*, *Pycnanthus angolensis*, *Canarium schewinfurthii*, *Vitex grandifolia*, *Antrocaryon klaineianum*, *Diospyros* spp. and *Garcinia cola*. Partially digested leaves of unidentified plant species were found in a few faecal samples.

Fresh food remains of chimpanzees (wedges) were encountered along their tracks. These wedges included: the soft basal part of the stem of plants of the family Marantaceae and stalks of the branches of *Elaeis guineensis*. Chimpanzee diet was dominated by *Landolphia* spp, *Myrianthus arboreus*, *Cyclomorpha solmsii*, *Canarium* spp, and *Monodora myristica*. The proportion of fruits was high in chimpanzee diet with a deficient percentage of fibre and animals. This high proportion of fruits might be due to the fact that the study was conducted in a period of high fruit availability. The short duration of fieldwork (May to September 2018) and low encounter rates of faeces could also have influenced our results. Faecal samples for genetic analysis have been taken to the laboratory of Multiparametric Diagnostics in Senftenberg, Germany.

The third most important outcome of this research is the tool used behaviour of the Nigeria- Cameroon chimpanzees in Kom-Wum Forest reserve. We identified 13 tool used signs and recorded up 60 plant parts used by chimpanzees to feed on army ants in Kom-Wum Forest Reserve. Most plant species used by chimps could not be identified. Camera trap did not capture any tool used by chimpanzee hence all tool used signs were from direct observations. The highest number of tool site was encountered in Baiso forest segment of the reserve. Lastly, 150 hair samples were collected from fresh arboreal and ground nest, chimpanzee playgrounds, tool used sites and in chimpanzee faeces in Kom-Wum Forest Reserve. These hair samples have been taken to the Goettingen Primate Genetic laboratory in Germany to analyse for population structure and group size estimates. Generally, the results of this research have been influencing by time, space and effort.

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

Local people from Bu, Baiso, Mbengkas, Mbongkissu, Finge and kedjom keku were employed as porters and field guides in this project. Akou Emmanuel Mbeng, Ambe Godwill Akou and Kum Evaristus were employed permanently throughout my project after receiving training on using the GPS and installing camera traps. They were also trained in modern techniques to collect chimpanzee faecal and hair samples.

The community eco-guards also benefited training on camera trapping installation and the use of the GPS unit. More youths were trained in Baiso to assist the main field guides in this project. This was a particular recommendation from the Chief of Biaso village. Two local assistants from Finge and Kedjom Keku (David Achomochi and Alukeh Moses) were employed in the first phase of my research in Tubah Upland Forest. I paid a tourist fee to the Conservation Association for Sustainable Development (CASUD) of Kedjom Keku. Most foodstuff was bought from local shops and local farmers from Baiso, Bu, Mbongkissu, Mbengkas, Kedjom Keku and Finge.

Farmers were informed on environmentally friendly strategies to apply in areas of human-wildlife conflicts.

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

The results will be communicated through scientific publications, presentation in international conferences, workshops and seminars. An abstract has been submitted for presentation in the 16<sup>th</sup> conference of Gesellschaft für Primatologie in Göttingen, Germany in February 2019. The first manuscript is almost completed and will soon be published. The results of this project will be presented in the PhD research seminars organised by BTU-Cottbus-Senftenberg at the end of January 2019. Preliminary results of this project were presented in a workshop organised by the Ministry of Forestry (MINFOF) in Bamenda in September 2018. Some results were shared with the Limbe Wildlife Center. The final report of this project will be shared with the Fundong and Wum Councils.

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

We used The Rufford Foundation grant between May and August 2018. This grant was used for the first phase of data collection of my PhD project. The grant was enough for the length of time I had anticipated for the first phase of my PhD studies.

**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 two years as these may be required for inspection at our discretion. Exchange rate: 1£ sterling was approximately equal to 740 Francs CFA during the period in which the research was conducted.**

Item	Budgeted Amount	Actual Amount	Difference	Comments
Accommodation	400	400	0	
Food for the survey team	350	350	0	
Transportation	400	457	-57	We used motorbikes which were more expensive than cars for some days because the roads were blocked due to the crisis in the region. Several trips were made from Bamenda to Yaounde to follow up the research permit.
Equipment	500	1000	-500	More material was bought: Slide

				calliper, densitometer, compass, camera trap batteries and battery charger.
Fieldwork	2600	2793	-193	Additional field assistants and porters were hired from the local community.
International travel	750	933	-183	
<b>Total</b>	<b>5000</b>	<b>5993</b>	<b>-933</b>	Extra funds were mobilised by the Brandenburg University of Technology Cottbus-Senftenberg to cover up the additional cost.

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

The first next most crucial step is to the conduct a dry season survey for feeding and tool used behaviour. It is scientifically valuable to compare the results from a dry and wet season to evaluate the effects of seasons on diet and to make valid conclusions. Conducting a dry season survey will also enable us to increase the number of faecal and hair samples for genetic analysis which is a crucial determinant to the reliability of the results we intend to obtain. Secondly, it would be imperative to study the phenology of the 10 most important chimpanzee feeding trees identified in this research in Kom-Wum Forest Reserve. The spatial distribution of these fruiting trees and the essential nesting-tree species should be mapped to evaluate the quantity of suitable habitat for the survival of chimpanzees in this reserve. This research is conducted for my PhD studies which require two phases of fieldwork. I am finished with step one (wet season survey) and planned to begin step two (dry season survey) in February 2019. I want to inform the Rufford Foundation that the International Foundation for Science has funded the second phase of fieldwork. This 36 months project grant of \$11,544 will help us to cover aspects and areas that we did not include in the first phase of my research.

**10. Did you use The Rufford Foundation logo in any materials produced about this project? Did the Foundation receive any publicity during your work?**

Yes, I used the Rufford logo each time I was presenting in a seminar or a workshop. I also used the Rufford Foundation logo on the questionnaires I administered during my research.

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

Name	Post	Location
<b>Fotang Chefor</b>	Principal Investigator	
<b>Mvo Denis Chou, PhD</b>	Main research assistant	Kom-Wum Forest Reserve
<b>Ambe God Will Akou</b>	Field guide	(Bu)-Kom-Wum Forest

		Reserve
<b>Akou Emmanuel Mbeng</b>	Field guide	(Bu/Mbongkissu)-Kom-Wum Forest Reserve
<b>Ngem Evaristus Kum</b>	Field guide	(Bu)-Kom-Wum Forest Reserve
<b>Achai Genesis Kam</b>	Field guide	(Baiso)-Kom-Wum Forest Reserve
<b>Chai John</b>	Field guide	(Baiso)-Kom-Wum Forest Reserve
<b>Achomochi David</b>	Field guide	(Finge)-Tubah Upland Forest
<b>Alukeh Moses</b>	Field guide	
<b>Soh Narcis</b>	Porter	(Baiso)-Kom-Wum Forest Reserve
<b>Nkemtaji Frankline Nda</b>	Porter	
<b>Chai Cosmas</b>	Community eco-guard	(Baiso)-Kom-Wum Reserve
<b>Soh Clotild</b>	Community eco-guard	(Mbengkas)-Kom-Wum Forest Reserve
<b>Semei Cyprian</b>	Community eco-guard	(Kedjom-Keku)- Tubah Upland Forest
<b>Ngala Maimo Wajiri</b>	Student assistant and potter	(Baiso)-Kom-Wum Forest
<b>Serge Alexis Kamgang, PhD student</b>	GIS specialists - He contributed in survey design and data analysis	
<b>Evidence Chinedu, MSc</b>	GIS specialists - He assisted in the acquiring satellite images	
<b>Kenneth Tah Kumecha, MSc</b>	GIS specialists - He produced the sampling plan	
<b>Bartosz Lysakowski, MSc</b>	GIS specialists - contributed in data analysis	
<b>Damprey Gyasi Frederick, Msc</b>	GIS specialists - He assisted in data analysis	
<b>Claudia Tluste, MSc</b>	GIS specialists - She contribution in data analysis	
<b>Tacham Walter Ndam, PhD</b>	Botanists - He contributed in plant identification	
<b>Nkemnkeng Francoline, Jong Msc</b>	Botanists - He participated in plant identification	
<b>Viban Bongbinsin Jude, Bsc</b>	Botanists - He participated in plant identification	
<b>Ekwoge Enang Abwe, PhD</b>	Technical advisors - He assisted in plant identification	
<b>Paul Dutton, PhD</b>	Technical advisors - Contributed in survey design and data analysis	

<b>Marry Katherin Gonder PhD</b>	Technical advisors - Advisor	
<b>Osiris Doumbe, MSc</b>	Technical advisors - He contributed in the conception of the project	
<b>Diangha Mercy Nambu, PhD</b>	Technical advisors - She assisted in research design	
<b>Eileen Boghwe Nchanji, PhD</b>	Technical advisors - She helped in research design	
<b>Tsi Angwafo Evaristus, PhD</b>	Technical advisors - He contributed in the conception of the research	
<b>Prof. Dr Klaus Birkhofer</b>	Academic supervisors	
<b>PD.Dr Udo Bröring</b>	Academic supervisors	
<b>Prof. Dr Manfred Wanner</b>	Academic supervisors	
<b>Peter Schierack</b>	Collaborators - Provided materials for faecal sample collection	
<b>Christain Ross, PhD</b>	Collaborators - He will coordinate the analysis of hair samples	

