

Lion Guards Project in Cameroon
Monitoring large Carnivores in the Bénoué Complex
December, 2019 – April, 2020

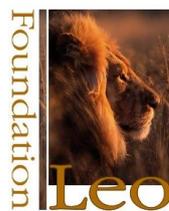


Interim report

By

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Background

The Bénoué Complex in Northern Cameroon is an important biodiversity area within the savannah ecosystem network of Cameroon. It shelters key wildlife species including elephant (*Loxodonta africana*), Derby's eland (*Taurotragus derbianus*), lion (*Panthera leo*), Leopard (*Panthera pardus*) and hyaena (*Crocuta crocuta*) found in National parks (Bénoué, Faro and Bouba-Ndjidda) and surrounding hunting zones (28). However, despite conservation measures taken by the Government and partners to protect the Bénoué Complex, this landscape continues facing severe threats among which are mentioned poaching, lion bone traffic, illegal mining, agriculture, livestock encroachment, wildfire, and human-wildlife conflict. Although the area is also identified as one of the three remaining large carnivores strongholds in West and Central Africa. In order to reduce these threats and ensure a viable population of lion in their natural habitat, Cameroon adopted in 2008 a national action plan for the conservation of lion with the aim to " *Maintain in Cameroon an ecologically and economically viable lion population in a natural habitat whose sustainable exploitation in terms of tourism and hunting provides benefits to the State and to the local populations surrounding its distribution range*".

Following this action plan in 2013, a project conducted by the Leo Foundation under a sub-contract with the Garoua wildlife School (EFG), with US FWS funding was started in which local guards were trained to be specialized 'Lion Guards'. In 2015 a joint survey by the Ministry of Forests and Wildlife (MINFOF), EFG, the Wildlife Conservation Research Unit of Oxford University (WildCRU) and the Leo Foundation has been conducted in the entire Bénoué Complex, and authors concluded an effective population size of 250 lions, 316 leopards and 1376 spotted hyenas in the area (Bauer et al. 2015). The monitoring of these populations is, therefore, an urgent need in order to assess population trends and inform conservation strategies.

The current lion guard project implemented by a local NGO called BEDD¹ is supported by funding from Born Free and WildCRU. The project started in December 2019 with the purchase of field material for a period of 5 months with a possible extension. The project was initially planned to be implemented in collaboration with EFG and Leo Foundation, however their Memorandum of Understanding expired and was no longer

¹ Biodiversité Environnement et Développement Durable

a suitable institutional framework. The project currently runs under permit no. XXXXX of MINFOF to Hans Bauer / WildCRU but this will be evaluated and a new arrangement may need to be concluded between stakeholders.

Material purchased

Before starting the fieldwork, some materials have been purchased and provided to lions guards (six in total). These materials include motorbikes (03) and smartphones (03). The database has been designed using Cybertracker, installed in smartphones, and lion guards have been trained on the use of Cybertracker and ObsMapp to collect data in the field. However, due to the poor network coverage in the field and limited capacity, lion guards were unable to use ObsMapp. The following pictures have been taken during the training of lion guards in December 2020 in Garoua.



Fig. 1: Motorbikes purchased



Fig. 2: Smartphones purchased

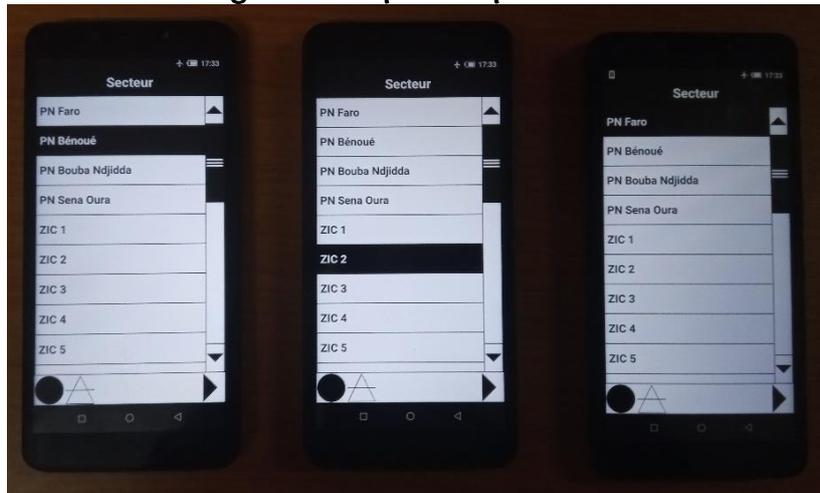


Fig. 3: Cybertracker database installed in the smartphones

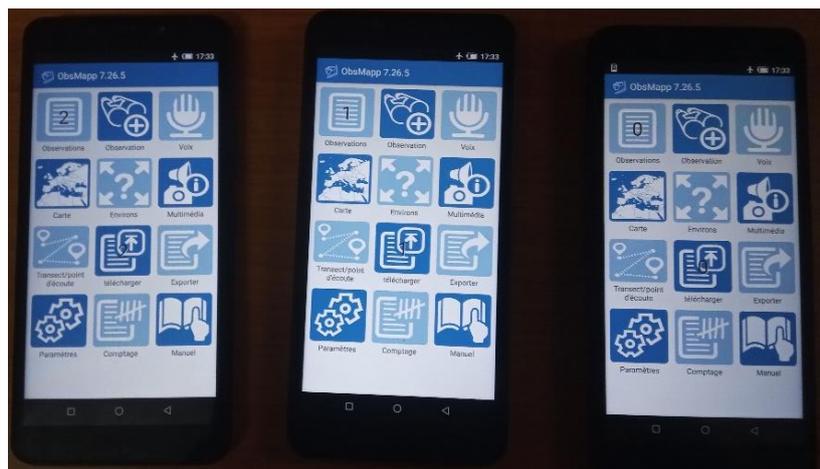


Fig. 4: ObsMapp installed in the smartphones



Fig. 5: Lion guards being trained on the use of field equipment

Survey method

To determine the population trends of lion, leopard, and spotted hyaena in space and time, spoor count based on Funston et al. (2010) has been used from 2008 in the Bénoué Complex. Tracks are repeatedly counted on 25 km transects; one or two transects in each NP and one or two transects in an adjacent Hunting Zone twice per month from January 2020 till April 2020 (Table 1). These transects are selected based on seasonal accessibility, substrate suitability, representativeness, and position within the Complex.

Table 1: Number of transects used in each national park and hunting zone

Protected area	# transects	Status	Remark
Bénoué NP	1	Used	
ZIC 5	1	Used	
Bouba-Ndjidda NP	2	Used	
ZIC 11	2	Used	
Faro NP	2	Used	
ZIC 13	1	Unused	Used only in January
Voko Bantadje	1	Unused	Used only in January

In order to compare findings, we used most of the transects selected by (Croes et al. 2011). Surveys are conducted by lion guards sitting on a motorcycle, driving

approximately 10 km/h. Observations are done in the early morning when tracks are most visible and to avoid disturbance from traffic, if any. Each zone has its own team of two lion guards, who have received training prior to the surveys to optimize the recognition of spoor and reduce observer bias over time and between areas. All spoor is counted, except those found within 500 m of another spoor of the same species that is not ostensibly a different individual (Funston et al. 2010); information registered include species, location, date/time stamp, substrate type, and spoor age and at least two pictures of each spoor in a template/Cybertracker. One person per team travels each month to Garoua for downloading data and collecting resources for next month's survey.

Overview of the data collected

From January to March 2020, 823 observations have been made along all transects. Figures 6 and 7 present the query and the location of transect in the respective protected areas. These data will be analyzed at the end of the current season.

Name	Trace	Secteu	Obsen	Obsen	Num T	Date	Time	Altitude	Latitud	Longit.	Espèc	Age tre	Qualité sc	Type c	Distan	Photo	Photo	Photo
ZIC 3	Souaibou	Aoudou	6		6	16/12/201	22:05:41	27.4	9.33132	13.386855			Moyen (3)	Argile con	7896	1	1	1
ZIC 3	Souaibou	Aoudou	6		6	16/12/201	22:06:48	27.4	9.3316483	13.38707	Leopard	< 24	Très bien (1)	Argile con	1500	1	1	1
ZIC 3	Souaibou	Aoudou	6		6	16/12/201	22:07:07	27.7	9.3313883	13.3874	Leopard				1822			
ZIC 3	Souaibou	Aoudou	6		6	16/12/201	22:07:34	215.9	9.3316816	13.387363	Lion				1750			
ZIC 3	Souaibou	Aoudou	6		6	16/12/201	22:07:52	215.9	9.3315316	13.387546	Civette	24	Moyen (3)	Gros grain	2656			
ZIC 3	Souaibou	Aoudou	6		6	16/12/201	22:08:06	216.1	9.3315383	13.387631			Bien (2)	Argile con	1236			
ZIC 3	Souaibou	Aoudou	6		6	16/12/201	22:08:19	222.2	9.3315933	13.38727	Hyène				12365			
ZIC 3	Souaibou	Aoudou	6		6	16/12/201	22:08:44	222.2	9.3315666	13.38723					1532			
PN Faro	Bobo	Aoudou	123		123	16/12/201	22:05:14	253.738	9.3315991	13.387569	Lion				700			
PN Faro	Bobo	Aoudou	123		123	16/12/201	22:05:35	262.987	9.3315224	13.387479	Leopard				10000			
PN Faro	Bobo	Aoudou	123		123	16/12/201	22:06:04	263.02	9.3315819	13.387542	Hyène				7800			
PN Faro	Bobo	Aoudou	123		123	16/12/201	22:06:35	252.696	9.3316246	13.387594	Civette	< 24	Très bien (1)	Sable	78000			
PN Faro	Bobo	Aoudou	123		123	16/12/201	22:06:53	252.587	9.3316343	13.387601			Bien (2)	Sable	400			
PN Faro	Bobo	Aoudou	123		123	16/12/201	22:07:07	255.97	9.3316339	13.387599	Chacal				800			
PN Faro	Bobo	Aoudou	123		123	16/12/201	22:07:30	259.426	9.3316102	13.387576					5			
PN Faro	Bobo	Aoudou	123		123	16/12/201	22:07:55	278.752	9.3317029	13.387562	Mengoust	< 24	Très bien (1)	Gros grain	600			
PN Faro	Bobo	Aoudou	123		123	16/12/201	22:08:41	278.02	9.3316994	13.387564			Très bien (1)	Argile con	900			
PN Faro	Bobo	Aoudou	123		123	16/12/201	22:08:57	276.596	9.3317158	13.387605	Chacal				900			
PN Bénou	Bobo	Aoudou	4		4	17/12/201	08:38:49	291.233	9.3307441	13.385726	Hyène	24	Bien (2)	Sable	1200	1	1	1
PN Bénou	Bobo	Aoudou	4		4	17/12/201	08:39:56	325.775	9.3306613	13.385769			Bien (2)	Gros grain	1000	1	1	1
ZIC 5	Bobo	Aoudou	6		6	17/12/201	08:42:08	257.368	9.3307515	13.385646	Mengoust	< 24	Très bien (1)	Sable	7000	1	1	1
ZIC 5	Bobo	Aoudou	6		6	17/12/201	08:43:37	260.627	9.3308494	13.385742			Moyen (3)	Argile con	5000	1	1	1

Fig. 6: Sample database collected from January to March 2020

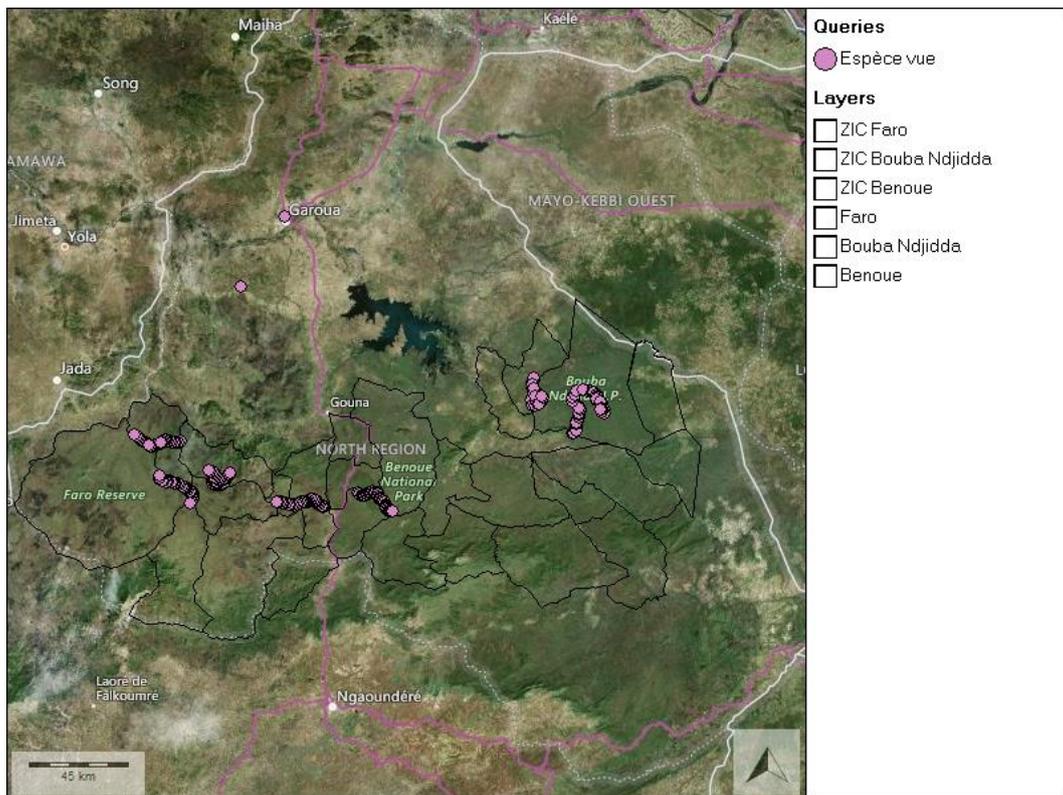


Fig. 7: Location of transects within the Bénoué Complex

The points "espèces vues" on the map refer to any detection made by observers along respective transects. This could be tracks, soil, direct observation, hearn.

Difficulties and perspectives

Difficulties encountered during the fieldwork include:

- lack of cooperation of the Hunting zone 13 and Voko Bantadje. The Faro team has not been able to collect data in these areas since February 2020);
- lion guards were unable to use the ObsMapp program (insufficient network coverage and somewhat limited capacity);
- negligence of equipment by some lion guards;
- defective (Bénoué team) and obsolete GPS;
- limited memory of the computer to download the collected data;
- the Covid-19 pandemic (lockdown, restriction to travel, and limited activity in Protected area) .

As for perspectives, the lion guards approved the idea of continuing the project while waiting for another source of funding to afford essential costs.

Acknowledgement

We thank the Born Free Foundation and WildCRU for providing funds for this work. We are so grateful to the Leo Foundation and the Garoua Wildlife College for their pioneering work in the past and their continued interest in this project. We also thank the hunting zone managers and wardens of Bénoué, Faro, and Bouba-Ndjidda National Park for their collaboration and support provided to lion guards during fieldwork.

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