A QUARTERLY REPORT FOR ACTIVITIES CARRIED OUT IN THE LOBEKE NATIONAL PARK ON THE AFRICAN GREY PARROTS

JANUARY-APRIL 2024

A closer look into at the Lobéké National Park

I. INTRODUCTION

I.1. The Lobéké National Park

The Lobéké National Park (LNP) is a protected area located in southeastern Cameroon between Latitude N 2°05'- 2°30' and Longitude E 15°33' - 16°11' in the Moloundou Subdivision, and the Boumba and Ngoko Division. It forms part of the Trinational Protected Area complex, which includes the Lobéké National Park in Cameroon, the Nouabalé-Ndoki National Park in the Republic of Congo and the Dzanga-Ndoki National Park in Central Africa Republic. In 2012, the entire Sangha Trinational protected area (including Lobéké National Park) became a World Heritage Site; the Lobéké National Park itself was created in 2001 and covers a surface area of 217,854Ha.

The LNP has a peripheral zone which is covered in the West by Hunting Zones with Community Management n° 1, 2, 3; to the North by Hunting Zones n° 28 and 30 and finally to the South by Hunting Zone n° 31. In addition, several Forest Management Units (FMU) also cover this zone, superimposed on the Hunting Zones and Hunting Zones with Community Management. These are FMUs n° 10-011, 10-012, in the North, 10-063, 10-064 in the South and 10-013 in the West (Fodom, 2021).

Also, the Park is surrounded by twenty-six villages including Libongo, Béla to the North of the Park, North-West of the park we have Momboué, Lokomo, Salapoumbé, Koumela, West Mambélé, Yenga, Dioula, Mbateka, Nguilili, Mbangoye, Makoka, Banana, Mokounounou, Malapa and Moloundou, South Socambo, Mongo Kéllé, Kika, Zéga, PK 27, Beza, Ngoko, lastly to the East Djembe. The principal activities of these people include; agriculture, hunting, picking of Non-Timber Forest Products (NTFP), fishing and commerce.

The park is home to large mammal populations of African forest elephants (*Loxodonta cyclotis*), lowland western gorilla (*Gorilla gorilla gorilla*), chimpanzees (*Pan troglodytes*), monkeys including Colob (*Colobus guereza*), *Cercocebus agilis*, crested macaque (*Macaca nigra)* and De Brazza (*Cercopithecus neglectus)* and ungulates including buffalo (*Cyncerus caffer*), bongo (*Tragelaphus eurycerus*) and sitatunga (*Tragelaphus spekii*). Water-dwelling mammals including hippopotamus (*Hippopotamus amphibius*) and Nile crocodile (*Crocodylus niloticus*) have also been confirmed in this area.

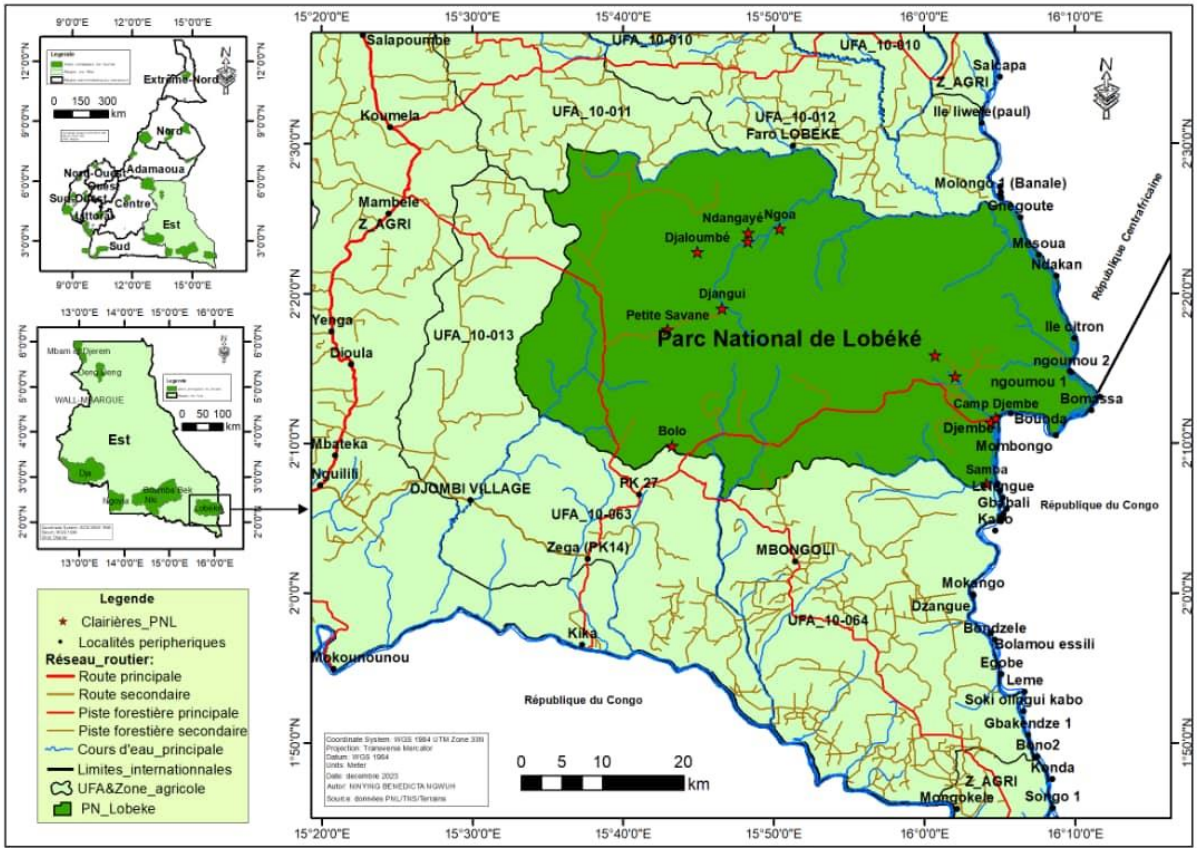


Figure 1: Map showing the Lobéké National Park

1.2.The African grey parrots

Parrots (order Psittaciformes) have long been hunted and captured in large numbers in the wild (Beissinger, 2001). Highly desired for their intelligence, beautiful appearance, and remarkable ability to mimic (Pepperberg, 2006; Pires, 2012), thousands of wild parrots are captured and traded around the world each year (UNODC, 2016), largely destined for the exotic pet trade (Bush et al., 2014; Yin et al., 2020). Aside from trapping, these parrots suffer from habitat loss due to deforestation and habitat degradation caused by legal and illegal logging and conversion of forest land to agricultural land. Additionally, the parrots suffer from disease outbreaks particularly avian diseases such as psittacine beak and feather disease (PBFD) and avian malaria, which pose a significant threat to African Grey Parrots (Kang et al., 2017)

African Grey Parrots (Psittacus erithacus) are native to the dense rainforests of West and Central Africa. They have a wide distribution range, including countries such as Ghana, Ivory Coast, Cameroon, Gabon, Congo, and parts of Angola. (Tamungang et al., 2013; Tamungang et al., 2016). Within this range, they inhabit various forest types, including lowland rainforests, gallery forests, and forest edges (Tamungang et al., 2016; BirdLife International, 2020). Also, the birds are hunted and captured for their red feathers and bush meat (Assou et al., 2021). In

addition to these threats, Climate change may also pose a threat to African Grey Parrots by altering their habitats, disrupting food availability, and increasing the frequency and intensity of extreme weather events. Lastly, Inadequate enforcement of wildlife protection laws, limited resources for conservation efforts, and insufficient community involvement in conservation initiatives contribute to the ongoing threats faced by African Grey Parrots.

The Lobéké National Park in Southeast Cameroon possesses a large population of African Grey Parrots owing to its rich soil and biodiversity. The majority of greys in Lobéké inhabit forest clearings in which they feed on various plants and soils rich in mineral salts; they nest in trees 10-30m high. The avifauna of the region is very rich: more than 283 species. The forest clearings attract a lot of African Grey Parrots (Psittacus erithacus) and Green Pigeons (Treron australis). According to a study carried out by Ngenyi, (2002), 80% of the parrots traded in Cameroon come from the Lobéké National Park. Two forest clearings in Lobéké, Bolo and Djangui harbor significant populations of Grey Parrots. More than 15,000 birds are taken out from these two clearings each year with half dying due to poor handling (Ngenyi, 2002, Fodom, 2021). Aside from trapping, the greys in this region suffer from habitat loss as a result of anthropogenic activities (logging, agriculture).

I.3. Research objective

The main aim of this study is to explore the movement ecology of African grey parrots in Lobéké National Park and investigate their seed dispersal role across different levels of plant diversity.

The specific objectives of the first field trip was to:

- To quantify the grey parrots and other wildlife species that visit the Djangui and Bolo Forest clearing and study their interactions within these clearings in the Lobéké National Park.
- To identify particular habitat resources that attract parrots to select and use the feeding sites.
- Assess the seeds fed on by the grey parrots within and around the forest clearing.

I.4. Significance and relevance of findings

By quantifying the number of African Grey Parrots and their interactions with other wildlife species, the study provides valuable insights into their habitat use and resource requirements. This information can inform conservation strategies to protect the habitats critical for African

Grey Parrots' survival within the national park. Also, by identifying specific habitat resources that attract African Grey Parrots to feeding sites, we will provide insights into their foraging behavior and preferences. Understanding the factors driving their selection of feeding sites can aid in habitat management and conservation planning within Lobéké National Park. Conservation actions targeted at preserving these important habitat resources can help support the long-term survival of African Grey Parrots and other wildlife species dependent on similar resources. Furthermore, by assessing the seeds fed on by the parrots, the study contributes to understanding their role as seed dispersers and their potential impact on plant community dynamics. This knowledge is essential for ecosystem management and restoration efforts, particularly in maintaining biodiversity and promoting forest regeneration. Lastly, by elucidating their interactions with plant communities, the findings can inform broader ecosystem management strategies aimed at maintaining ecosystem resilience and stability. And, recognizing the ecological services provided by African Grey Parrots underscores their importance in maintaining healthy forest ecosystems and highlights the need for their conservation.

II. Research method

Stakeholder meeting

Two stakeholder meetings were held in February with the Conservator of the Lobéké, the Project Manager of the World-Wide Fund for Nature (WWF), the local representative of CWCS, community focal point persons, Assistant Monitoring Agents (ASMO) and the Ecoguards. The meeting was held to introduce the project to the stakeholders and get their opinions on what needed to be ameliorated. This was done to ensure transparency at every step of the project implementation.


Photo 1: Photo during stakeholder meeting at the Lobéké National Park

Preliminary field studies

Preliminary field studies were undertaken in the Djangui I and Bolo Forest clearing in the months of February, March, and April. From information obtained from the stakeholder meeting, the Djangui I and Bolo Forest clearings were said to host a large population of the African grey parrot species. Preliminary field trip findings were carried out to confirm this theory.

II.1. To quantify the grey parrots and other wildlife species that visit the Djangui and Bolo Forest clearing in the Lobéké National Park.

Data on the abundance and density of the parrots in the forest clearing was collected using the distant sampling point count method from a fixed observation point (mirador) for ten (10) days. This was done by stationing two team members on both sides of the mirador; for ten (10) minutes, every parrot arriving was counted. Counting started at 06:00am every morning and ended at 08:00 am or sometimes10:30 am. Also, we counted and registered and registered all the other birds and mammals that visited the forest clearing, their interaction with the parrots,

and the activity they carried within the clearing. At the end of the counting period (10:30 am) the two counting sheets were compared and the average number of parrots registered every ten minutes of counting was registered in a data collection sheet (Tamungang et al., 2016; Oluwatobi, 2016; Fodom, 2021; Martins et al., 2021). An average observation distance of 200m was considered for the observation.

This technique was used because it is less demanding and a proficient approach to estimating the population of the grey parrots that visit the forest clearings. Also, it enhances deductibility which permits the estimation of density and abundance of wild creatures including birds (Nadeau et al., 2008; Martins et al., 2021).

Additionally, the distant sampling point count method is advantageous because the observer is sedentary and has more opportunity to detect all the birds including the shy ones (Martins et al., 2021). Also, it takes into consideration the decreasing probability of detection as observer distances increase (Tamungang et al., 2013). Furthermore, it minimizes the violation of the three (3) major assumptions of Buckland (1993) which states that 1. 100% of the individuals near the observer are counted; 2. The individuals are detected at their initial point; 3. Distance is accurately measured.

II.2. To identify particular habitat resources that attract parrots to select and use the feeding sites.

Data on habitat use in the feeding site was collected through direct observation. This was done in March and April 2024.

The following activities were recorded daily using a data collection sheet:

- The amount of time spent by the parrots in the forest clearing
- The activity pattern of the parrots within the clearings
- The specific vegetative characteristics that attract the parrots to the forest clearings.
- The interaction between the African grey parrots and other birds and mammals at the feeding site.

Aside from data on habitat selection and use, information on the daily weather conditions was collected. The information collected includes:

- Sunshine
- Rainfall
- Overhead cloud cast

In addition to this, ground trotting of the areas where the parrots frequent within the clearing was done to see what attracted them to particular spots of the clearing given, they didn't frequent the whole clearing but particular spots and the coordinate of such spots were recorded.

II.3. Assess the seeds fed on by the grey parrots within and around the forest clearing

The foraging behavior of the African grey parrots who visited the forest clearing was done using direct observation. The trees they visited, the seeds they preferred and their foraging preferences. Also, ground trotting of the sites frequented by the African grey parrots around the forest clearing. And, discussions were done with some Assistant Monitoring Agents and locals to find out the seed fed on by the parrots from their observations over the years.

Data analysis

The data collected was inserted into an Excel sheet. Analysis was done using Microsoft Excel 2022 and SPSS 3.1 Software.

The average number of parrots observed per day that visited the clearing was calculated using the formula:

$$Average\ number\ of\ parrots\ = \frac{Number\ of\ African\ grey\ parrots\ observed}{Total\ number\ of\ observation\ days}$$

III. Results and Discussion

III.1. To quantify the number of African grey parrots that visit the Djangui and Bolo Forest clearing in the Lobéké National Park.

The frequentation rate of the African grey parrots in the different forest clearings was 100% throughout the observation period. For February, the average number of parrots that visited the Djangui forest clearing was ± 292,2 parrots. For March in the Bolo forest clearing, the average number of parrots that visited per day was ±299,3 parrots and for April in the Djangui forest clearing, ±486,9 parrots. Upon the arrival of the rains, the number of parrots that visited the Djangui forest clearing increased. According to Woodman et al (2021), the arrival of rains often leads to increased growth in vegetation and availability of fruits and seeds preferred by parrots. Also, parrots like other animals require water to drink, the rains fill the streams within the forest and provide essential hydration for the birds. Furthermore, parrots are social animals that breed, feed and roost as a flock, so the presence of more parrots in forest clearings can attract other parrots (Hailu et al., 2019). Lastly, Certain parrots amongst the African grey parrot

species may have specific habitats of preference which are available mostly during the rainy season providing ideal conditions for feeding and roosting (Tamungang et al., 2016).

More parrots turned to visit the Djangui forest clearing than the Bolo forest clearing, we assumed that Djangui has more resources preferable to the parrots than Bolo. Also, the Bolo forest clearing has a more closed canopy as compared to the Djangui which makes it difficult for the parrots to flee from predators when need be or see predators easily when feeding.

III.2. To identify particular habitat resources that attract parrots to select and use the feeding sites.

- **The amount of time spent by the parrots in the forest clearing**

The number of parrots counted in the various forest clearings can be seen on figure 2,3, and 4.

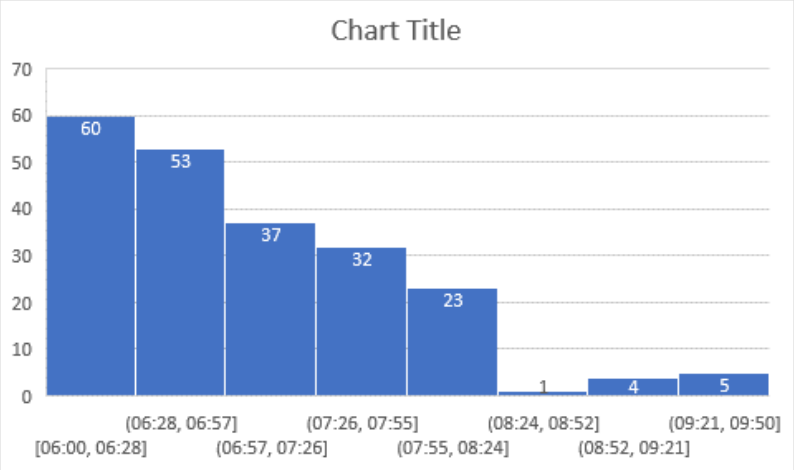


Figure 2: Number of parrots counted in the month of February; Djangui forest clearing

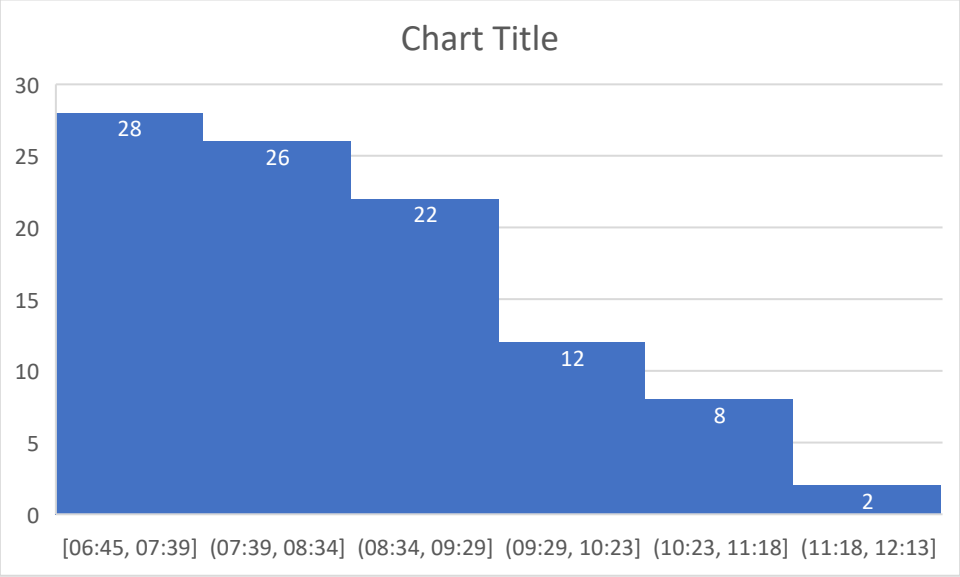


Figure 3: Number of parrots counted in March; Bolo Forest clearing.

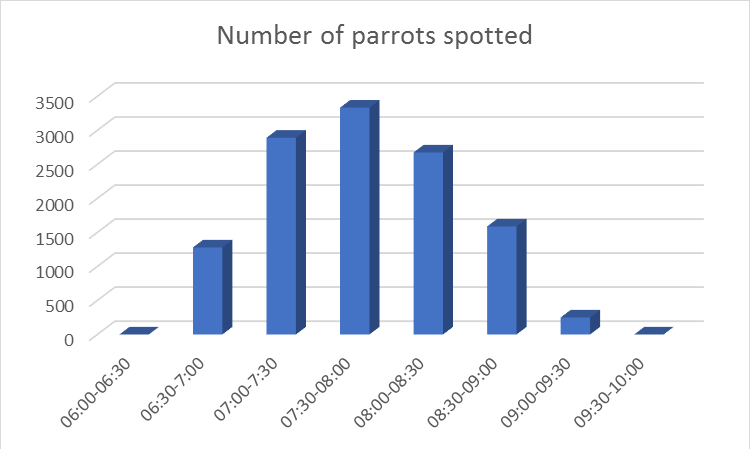


Figure 4: Number of parrots counted in April; Djangui forest clearing.

For the Bolo Forest Clearing, the arrival time of the parrots in the clearing they were ranged from 06:00 am to 07:00 am with 08:00 am to 09:00 am marking the peak number of parrots in the clearing. The birds came mostly from the West direction and spent most of their time on vegetation East of the clearing where they perch on precisely date palm (*Phoenix reclinata*) and Fraké (*Terminalia superba*). Usually, by 11:30 am, all the birds leave the forest clearing; a few of them are sighted in the afternoon. The same observation was done for the Djangui forest clearing with the parrot being at the peak from 07:00 am to 09:00 am. The only difference in the arrival of the parrots in the various clearings is the direction of arrival, in the Djangui forest clearing the parrots turn to come from the Northwest and South of the clearing.

In both clearings, the parrots turn to arrive of groups ranging from a minimum of two (02) to ten (10). According to Woodman et al, (2021) and Brakes, (2019), parrots often fly in groups for several reasons, primarily related to safety, socialization, and resource sharing. Flying in flocks provides them with protection from predators, as there are more eyes to spot danger and more individuals to collectively defend against threats. Additionally, flying in groups allows parrots to exchange information about food sources, breeding sites, and navigation routes, enhancing their chances of survival.

- **The activity pattern of the parrots within the clearings**

The principal activities carried out by the parrots around the forest clearings include; flying, perching, preening, feeding and hydration. The birds do not nest in or around the clearings given no nest (old or new) was recorded, but it is assumed that they roost in the primary forest around the clearing given few screeches could be heard coming from the forest around the camping site even at night. Also, we assume that the parrots fly as far as The Republic of the Congo and the Central African Republic, given these countries share borders with the Lobéké

National Park in Cameroon. Another factor which conditioned the activity pattern of the birds was the weather; during cold cloudy or rainy days, the birds came to the clearing later than usual.

- **The specific vegetative characteristics that attract the parrots to the forest clearings.**

The mixed forest (primary forest and clearing) of both forest clearings provides for the basic needs of the parrots (that is food, shelter, and roost). When present in the clearing, the parrots chose the tallest trees to perch on, and they perched on the tallest branch to give them a vantage point where they could see and monitor what was happening in their surrounding and to help them easily spot predators (Tamungang et al., 2016). The parrots use short flights to move from one branch to the other instead of their beaks. The parrots reuse and revisit particular spots in the clearing; this observation goes in line with observations made by Tamungang et al (2016) in the Korup National Park where the parrots turned to revisit particular areas or plots within the park.

The pattern of distribution of trees in the clearing is irregular with some areas North having Date palms (*Phoenix reclinata*) mixed with other trees like Dabema (*Piptadeniastrum africanum*), the East and West sides forming a primary forest with Ayous (*Triplochiton scleroxylon*) being the dominant tree species and the South predominantly covered by an invasive plant species *Pandanus tectorius*. The mean diameter of the trees in the clearings ranged from 5-30cm while the tree height ranged from 5-50m. The parrots fly between the trees and above the trees, and given the tree stands are not too concentrated, it permits them to flee easily from predators. Inside the forest clearing is dominated by *Rhynchospora corymbose, Ludwigia abyssinica,* and *Pentodon pentandrus.*

Photo 2: Picture of the Bolo Forest Clearing in the month of February in the early morning showing the heterogeneity of the forest clearing used by the African grey parrots.

Photo 3: Picture of the Djangui forest clearing taken in the month of March in the morning showing the openness of the site and it characteristic favorable to the parrots and other mammals and animal species.

The forest clearing is made of up mineral-rich soil which is fed on by the parrots and other bird species in the forest clearing a phenomenon known as geophagy. According to Bently (1999), the soil within the clearing is rich in sand and silt with a minimum proportion of clay and the parrots feed on the soil to compensate for the nutrients lacking in their diet. But, according to Gilardi (1996), the parrot in the neotropics preferred soils rich in clay. The high clay content in the soil acts as a neutralizing agent for the poisonous seeds they consume (Gilardi, 1996).

The water spot found around the forest clearing is also rich in minerals. This mineral-rich water spot not only attracts parrots to the forest clearings but also other mammals like Buffalo (*Syncerus caffer nanus*) and Sitatunga (*Tragelaphus spekii*).

After observation and ground trotting around the forest clearing, it was discovered that the parrots also fed on the *Pentodron pentandrus* herbs and occasionally they fed on *Ludwigia abyssinica* herbs. These two plant species are found in both clearings, especially in areas that are wet and moist.

Photo 4: Plot visited by the African grey parrots in the Djangui forest clearing and herbs fed on

Photo 5: Photo indicating geophagy by parrots within the Djangui forest clearing.

- **The interaction between the African grey parrots and other birds and mammal at the feeding site**

The first bird species other than the African grey parrots which are usually spotted in the forest clearing is the African fish eagle (*Haliaeetus vocifer*), the Palm-nut vulture (*Gypohierax angolensis*), and African harrier hawks (*Polyboroides typus*). Upon arrival these predatory bird species perch on tall trees or tall branches of trees and wait for their preys. The African green pigeon (*Treron calvus*) arrives the clearing at almost the same time as the African grey parrots. Other bird species like Hadada ibis (*Bostrychia hagedash*), hartlaub's ducks (*Pteronetta hartlaubii*), beautiful sunbird (*Cinnyris pulchellus*), square-tailed saw-wing (*Psalidoprocne nitens*), Swamp bulbul (*Thescelocichla leucopleura*), Eleonara's falcon (*Falco elenorae*), and Congo serpent eagle (*Drotriorchis spectabilis*) visit the Djangui and bolo forest clearing for various resources. These species were identified using the Birds for Africa mobile application.

A mutualistic relationship was observed between the African grey parrots and the African green pigeons. The two birds turn to "parade" or majestically fly together in circles around the forest clearing. The African grey parrots only start landing in the Forest clearings when the African green pigeons are landing. This is a form of camouflage against predators (Woodman et al., 2021). Meanwhile, a commercialism relationship was observed between other birds like the Hartlaub Duck and Hadada Ibis. Whereby they always moved around the forest clearing feeding on the soil and little fish species found in the streams within the clearings without disturbing any of the activities of the African grey parrots.

Also, a predator-prey relationship was observed between the African harrier hawks, the African fish eagle, the Palm-nut vulture, Eleonora's falcon and the Congo serpent eagle. The African fish eagles and palm-nut vultures all use the same type of trees as the African grey parrots, meanwhile, the others remain camouflaged on the ground with the bushy vegetation waiting for either a parrot or a pigeon. Whenever any of the predators approached where the parrots were, they would all fly away and at times the predators followed them with the aim of capture. The predators attacked the parrots only when their numbers had reduced in the clearing. Interspecific corporative predation was observed in the Djangui forest clearing, whereby Eleonora's falcon and the Congo serpent eagle jointly followed and captured a parrot. Due to the high predation rate within the forest clearing, the parrots adapted by landing less on the ground, flying in large flocks around the clearing and others remained perched on trees close to the landing site while others fed and they exchanged after some time.

The smaller birds like the beautiful sunbirds, square-tailed saw-wing, and swamp bulbul visited the forest clearing only when the African grey parrots and pigeons have left the forest clearing. Some of these birds have their nest hidden within the *Phoenix reclinata* bush found in the forest clearing.

Mammals who visit frequently the forest clearing include forest buffalo (*Syncerus caffer nanus*), Sitatunga (*Tragelaphus spekii*), mantled guereza (*Colobus guereza*), Lowland gorilla (*Gorilla gorilla gorilla*). The African grey parrots are always disturbed by the Gorilla and Mantled guereza who see them as competition for water resources and space. But the parrots turn not to be disturbed by the presence of the buffalo or sitatunga.

Another factor that conditioned the arrival and the presence of the African grey parrots within the forest is the weather. During foggy, cloudy, and rainy days, fewer parrots turn to arrive later

than usual to the forest clearings, while during sunny and warm days, the parrots arrive early and stay longer in the forest clearing.

II.3. Assess the seeds fed on by the grey parrots within and around the forest clearing.

It was observed that the parrots fed on the fruits of *Myrianthus arboreus* of the Cercopiaceae family, and *Margaritaria discoidea* of the Phyllanthaceae family. The fruits of these plants are also consumed by monkeys, birds (like Turaco and hornbills which are also seed dispersers) and rodents. Also, these plants contribute to soil stability, and nutrient cycling and the *Margaritaria discoideae* are always found beside streams or rivers, their dense foliage contributes to *water* temperature regulation which benefits the aquatic ecosystem.

It was also observed that the parrots preferred to use the Fraké, Azobé and Phoenix trees, given they were the tallest trees found around the clearing. According to Bently (1996), the parrots also feed on the bark of these trees. Also, due to the soft nature of the fraké tree, parrots make their nest within the hollow of this tree, making it an important species to the parrots.

Additionally, the Assistant monitoring agents and locals used during the mission mentioned that parrots turn to frequent the villages more often during fruiting seasons of fruits like plums (Dacryodes edulis), pawpaw (Carica papaya) and palm-nuts (Elaeis guineensis).

IV. Planned activities for the next reporting period

We plan on carrying out the following activities for the next reporting period:

Planned activities	Date
Administer of 350 questionnaires	May 2024
Analyze and discuss results of questionnaires	May 2024
Discussion of results with stakeholders	June 2024
Focus group discussion with community members	June 2024
Carryout sensitization	July 2024
Mount trackers	July 2024
Observation of habitat utilization	May – August 2024
Analysis of the genetic data base of plant species within the park and assess the transportation distance by the African grey parrots.	July – August 2024

V. Study Limitation

The direct observation methods can be subject to human biases and errors. Also, the study methods do not explore whether the presence of observers or researchers in the park may have induced changes in the behavior of the parrots. Additionally, this study method does not study in detail the implications of these capture activities in depth. Understanding their impact and finding potential solutions would be valuable.

Conclusion

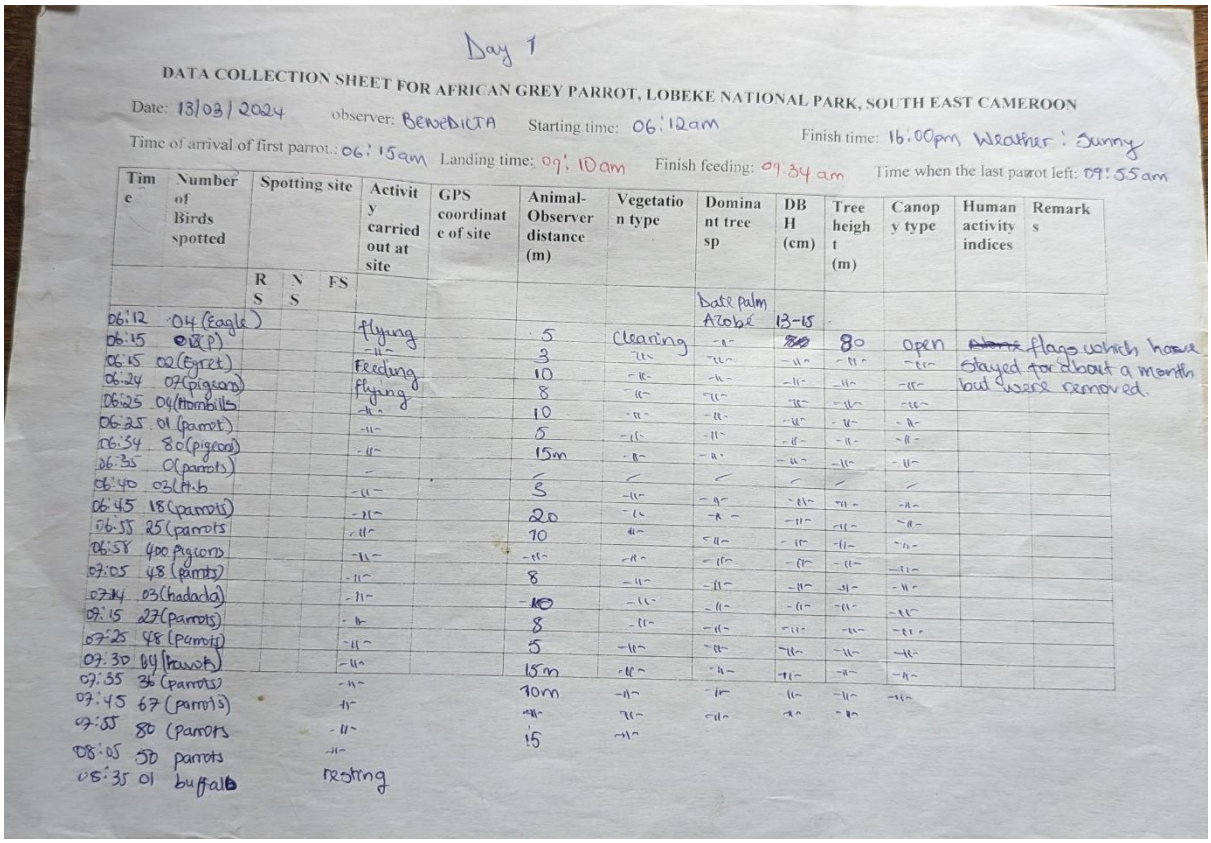
This field study aimed to understand and assess the behavioral pattern, habitat use and interaction of the African grey parrot species with other wildlife in the Djangui and Bolo forest clearing and to assess the seeds fed by the grey parrots in and around the forest clearing. We used the distant sampling point count method from a fixed point to observe and count the birds, and we also used ground trotting to assess the sites frequently visited by the parrots. From the results, we observed that more grey parrots turn to visit the Djangui forest cleating especially during the rainy season. We also discovered that in the forest clearing, the parrots preferred to use and feed on certain trees and seeds concerning others. We observed commercialism, mutualism and predatory relationship between the parrots and the other wildlife species. This knowledge helps enhance our understanding of the ecosystem dynamics of the African grey parrots and supports evidence-based initiatives aimed at protecting the biodiversity of the Lobéké National Park.

ANNEX PHOTOS OF FIELD WORK

Photo 6: Training of assistant monitoring agent (Azebam Placid) on data collection method and how to fill the data collection sheet

Photo 7: Counting of the African grey parrots from the Mirador in the morning, month of March.

Photo 8: African grey parrots landing to feed in the Djangui forest clearing



Day 1

DATA COLLECTION SHEET FOR AFRICAN GREY PARROT, LOBEKE NATIONAL PARK, SOUTH EAST CAMEROON

Date: 13/03/2024 observer: BENEDICTA Starting time: 06:12am Finish time: 16:00pm Weather: Sunny

Time of arrival of first parrot.: 06:15am Landing time: 09:10am Finish feeding: 09:34 am Time when the last parrot left: 09:55am

Time	Number of Birds spotted	Spotting site			Activity carried out at site	GPS coordinate of site	Animal-Observer distance (m)	Vegetation type	Dominant tree sp	DBH (cm)	Tree height (m)	Canopy type	Human activity indices	Remarks
		RS	NS	FS					Date palm Azobé	13-15				
06:12	04 (Eagle)				flying		5	clearing	-"-	~~80~~	80	open	~~None~~ flags which have stayed for about a month but were removed.	
06:15	02(P)				-"-		3	-"-	-"-	-"-	-"-	-"-		
06:15	02(Egret)				Feeding		10	-"-	-"-	-"-	-"-	-"-		
06:24	07(pigeons)				flying		8	-"-	-"-	-"-	-"-	-"-		
06:25	04(Hornbills				-"-		10	-"-	-"-	-"-	-"-	-"-		
06:25	01 (parrot)				-"-		5	-"-	-"-	-"-	-"-	-"-		
06:34	80(pigeons)				-"-		15m	-"-	-"-	-"-	-"-	-"-		
06:35	0(parrots)				-		/	/	/	/	/	/		
06:40	03(H.b				-"-		5	-"-	-"-	-"-	-"-	-"-		
06:45	18(parrots)				-"-		20	-"-	-"-	-"-	-"-	-"-		
06:55	25(parrots				-"-		10	-"-	-"-	-"-	-"-	-"-		
06:58	400 pigeons				-"-		-"-	-"-	-"-	-"-	-"-	-"-		
07:05	48 (parrots)				-"-		8	-"-	-"-	-"-	-"-	-"-		
07:14	03(hadada)				-"-		~~10~~	-"-	-"-	-"-	-"-	-"-		
09:15	27(parrots)				-		8	-"-	-"-	-"-	-"-	-"-		
07:25	48 (parrots)				-"-		5	-"-	-"-	-"-	-"-	-"-		
07:30	84 (parrots)				-"-		15m	-"-	-"-	-"-	-"-	-"-		
07:35	36 (parrots)				-"-		10m	-"-	-"-	-"-	-"-	-"-		
07:45	67 (parrots)				-"-		-"-	-"-	-"-	-"-	-"-			
07:55	80 (parrots				-"-		15	-"-						
08:05	50 parrots				-"-									
08:35	01 buffalo				resting									

Photo 9: Example of filled data collection sheet