

# Floristic Diversity across the Cameroon Mountains: The Case of Bakossi National Park and Mt Nlonako



# Floristic Diversity across the Cameroon Mountains

The case of Bakossi National Park and Mt Nlonako

## Technical Report

Prepared and Submitted to the

Rufford Small Grant Foundation, UK

By

Saingé Nsanyi Moses, Ngoh Michael Lyonga and Benedicta Jailuhge

Tropical Plant Exploration Group (TroPEG) Cameroon

June 2018



## **To cite this work:**

Sainge, MN., Lyonga, NM., Jailuhge B., (2018) Floristic Diversity across the Cameroon Mountains: The case of Bakossi National Park, and Mt Nlonako. Technical Report to the Rufford Small Grant Foundation UK, by Tropical Plant Exploration Group (TroPEG) Cameroon

**Authors: Sainge, MN., Lyonga NM., and Jailuhge B.,**

Title: Floristic Diversity across the Cameroon Mountains: The case of Bakossi National Park, and Mt Nlonako.

Tropical Plant Exploration Group (TroPEG) Cameroon  
P.O. Box 18 Mundemba, Ndian division, Southwest Region  
mnsainge@tropegcam.org; moses.Sainge@gmail.com,  
Tel: (+237) 677513599

# Acknowledgement

We must comment that this is the fourth grant awarded as grant number 19476-D (being the second booster RSG ) which Tropical Plant Exploration Group (TroPEG) Cameroon has received from the Rufford Small Grant (RSG) Foundation UK. We are sincerely grateful and wish to express our deep hearted thanks for the immensed support since 2011.

Our sincere appreciation also goes to the Government of Cameroon through the Ministry of Scientific Research and Innovation (MINRESI) and the Ministry of Forestry and Wildlife (MINFOF) for granting authorization to carry out this work. .

Special gratitute goes to Dr. Mabel Nechia Wantim of the University of Buea for her contribution in developing the maps. We appreciate the chief of Muandelengoh village (Chief Ebah Divine Nnode) and the Chief council of Enyandong village (Mr. Ntoko Felix Njikang) in the Bakossi landscape and the people of Ekangmbeng village, Mr. Epanda Ewane Dagobert of Ngalmoa village in the Nlonako landscape for their hospitality and assistants during field work. Our gratitude also goes to all who assisted the biodiversity field team in the field and thereafter (See Annex 1& 2).

We sincerely appreciate the drivers who transported the team to Enyandong (Mr. Ekwoge Epie Felix, Ekane Henry, and Edgar Jean Paul) and to Ekangmbeng (Mr. Emmanuel Ako, Andore Kemeyou, Jude).

Lastly we are sincerely grateful for all the Tropical Plant Exploration Group (TroPEG) staff who immensely contributed to improve the quality of this document.

## Executive summary

The Bakossi National Park (BNP) and the Mt Nlonako (MN) are important biodiversity sites along the continental part of the Cameroon Volcanic Line (CVL). The Bakossi National Park was created as a protected area in 2007 with a size of 293.2 km<sup>2</sup>; even before its creation, the park had benefited from a series of botanical surveys thus earns the attribute “home of plant biodiversity”.

Mt Nlonako on the other hand is also a rich biodiversity site based on the different findings by scientists. A very precarious stake is that, the mountain is yet to gain a protected status; hence if nothing is done by the government of Cameroon, biodiversity loss due to degradation will be at alarming rate. Although relatively small in size (3,500 ha or 35 km<sup>2</sup>); this biodiversity jewel deserves a protected status to preserve its wealth of biodiversity and for posterity.

These two areas (BNP and MN) are key sites for biodiversity conservation owing to the collective role played by both in connecting other biodiversity hotspots along the mountain topography hence serving as homes and biological corridors for biodiversity lives. These two sites stands a better chance for comparing species composition, forest structure, distributions, tree biomass, tree carbon and other climatic patterns since they occur in the same geographic range (the rainforest zone).

To enhance data gathering and biodiversity monitoring in these two areas, a preliminary survey was carried out by the biodiversity team of Tropical Plant Exploration Group using established permanent plots with funds from the Rufford Small Grant Foundation.

The aim of this survey was to understand the flora diversity of the BNP and MN, train young Cameroonians in forest mensuration and ecological survey; thus twenty-four hectares were established within these sites, with each site having twelve hectares. .

Survey was carried out based on three categories: Plot transects of 500 x 20 whereby all trees with diameter  $\geq 10$  cm were measured, nested plots of 10 x 10 m whereby all trees with diameter  $< 10$  cm were measured, and observational data which entails a general collection of plant specimens in both fertile and sterile status. This was to enable the creation of a provisional

plant checklist of the areas. Tree heights were estimated in the field based on visual averaging by three staff. Two vegetation types were sampled at the BNP: degraded submontane and submontane with 7756 tree and liana stems in 327 species. At MN, three vegetation types were sampled: farmland, old secondary forest and primary forest all at submontane, 6923 tree and liana stems in 376 species were recorded.

At the moment, the rate of degradation at the BNP is low but still needs to be curbed so as to augment the biodiversity richness in degraded spots. At the level of MN Forest degradation is relatively high opposed to BNP thus our recommendation is that appropriate timely action is necessary at the moment to rescue the rich ecological landscape and the ultimate biodiversity integrity of this mountain.

By Sainge Nsanyi Moses

TroPEG Cameroon

# Table of Content

Floristic Diversity across the Cameroon Mountains: The Case of Bakossi National Park and Mt Nlonako.....	i
Floristic Diversity across the Cameroon Mountains.....	ii
To cite this work: .....	iii
Acknowledgement .....	iv
Executive summary.....	v
Table of Content .....	vii
List of Tables .....	ix
List of Figures.....	x
Annexes.....	xi
Abbreviations .....	xii
1. Introduction.....	13
1.1 Study Area .....	14
1.1.1 Bakossi National Park.....	14
1.1.2 Mt Nlonako .....	19
1.2 Objectives .....	20
1.3 Personnel's and training .....	20
1.4 Methods .....	21
1.4.1 Site Selection .....	21
1.4.2 Site Description.....	21
1.4.3 Transect Survey .....	22
1.4.4 Plot Demarcation .....	22
1.4.5 Plot Enumeration, data collection and plot distribution.....	22
1.4.7 Data Entry and Analysis .....	23

1.5 Results .....	26
1.5.1 Bakossi National Park.....	26
1.5.2 Mt Nlonako .....	41
References.....	83
Annexes.....	86
Permits .....	90



# List of Tables

Table 1. Data records from the database. A single spreadsheet separated into sheet 1, 2, and 3 .	25
Table 2. Number of plots recorded with their vegetation types, sites and GPS points.....	26
Table 3. Tree species, Abundance, and richness per hectare with dbh $\geq$ 10 cm in the Bakossi National Park, Cameroon.....	27
Table 4. Summary of Species abundance, Basal Area, Biomass, Carbon and Carbon dioxides sequestered per hectare in the Bakossi National Park, Cameroon.....	29
Table 5. Species list generated from Plot data in the Bakossi National Park, Cameroon .....	30
Table 6. Number of plots recorded with their vegetation types, sites and GPS points.....	41
Table 7. Tree species, Abundance, and richness per hectare with dbh $\geq$ 10 cm in Mt Nlonako, Cameroon.....	42
Table 8. Summary of Species abundance, Basal Area, Biomass, Carbon and Carbon dioxides sequestered per hectare Mt Nlonako, Cameroon .....	43
Table 9. Species list generated from Plot data in Mt Nlonako, Cameroon.....	44
Table 10. Provincial plant list from observation survey in the Bakossi National Park area, Cameroon.....	55
Table 11. Provincial plant list from observation survey in the Mt Nlonako forest area, Cameroon .....	65

# List of Figures

Figure 1. Bakossi National Park and Mt Nlonako (Letouzey, 1985).....	15
Figure 2. Gazette map of Bakossi National Park during Park establishment .....	16
Figure 3. Vegetation map of the Bakossi National Park, adapted from Letouzey 1985.....	17
Figure 4. Sketch map of Mt Nlonako.....	18

# **Annexes**

Annex 1. The field team at the Bakossi National Park, Cameroon .....	86
Annex 2. The field team at Mt Nlonako, Cameroon.....	88

# Abbreviations

AGB – Above Ground Biomass

BNP – Bakossi National Park

dbh – Diameter at Breast Height

GPS – Global Positioning System

ha. – Hectare

Mt. – Mountain

MUA – Enyandong

m<sup>2</sup>/ha – Square metres per hectare

PAST – Paleontological statistics software package for education and data analysis

t/ha – Ton per hectare

tC/ha – Ton of Carbon per hectare

TroPEG – Tropical Plant Exploration Group

WWF-Cameroon – World Widelife Fund for Nature

# 1. Introduction

The Cameroon Mountains is a stretch of isolated mountains covering an area of about 40,877 km<sup>2</sup>; it extends from Pagalu Island in the Gulf of Guinea through Western Cameroon to Southeastern Nigeria (Ayonghe et al. 1999; Frodin 2001). The continental part of this mountain runs diagonally across western Cameroon from Mount Cameroon around the coast to the Mandara Mountains with the Bakossi National Park, Rumpi Hills, Mt. Oku and Mt Nlonako located along this mountain range. The western Cameroon forest is a strip of 180 by 625 km that covers the Rumpi Hills, the Bakossi National Park, Mt Manengouba and Mt Kupe, excluding Mt Cameroon National Park in the South west, and Mt Nlonako in the Littoral Regions. It stretches to the Bamenda-Banso highlands in the North West Region of Cameroon and continuous to the North-East of Adamawa plateau (that extends from Tchabal Mbabo to Tchabal Gangdaba), and to South Eastern Nigeria stretching from Mambila, Obudu to the Biu plateau (Stuart 1986, Gartlan 1989).

The Bakossi National Park (also referred to as Bakossi Mountains) is located in Kupe-Muanenguba division in the South West Region of Cameroon at Latitude 4.917-5.500°N and Longitude 9.517-9.733°E at an elevation of 1895 m above sea level. This park covers a surface area of approximately 29,320 ha (293.2 km<sup>2</sup>) with submontane to montane forest type which occur on steep slopes. Isolated montane forest can be seen in the east around the villages of Muandelengoh, Mejelet, Kume Kume), and in the north around Mwedibmel Bajoh. Besides its high potential for research and ecotourism, this forest is also useful to the local inhabitants who harvest useful products such as mushrooms, bush meat, medicinal plants, and other necessary food stuff. A major research priority for this newly created National park is a detail survey on its flora and fauna. The physical environment of this range (Kupe, Mwenengumba and the Bakossi National Park) was exploited by Cheek and his colleagues (Cheek et al., 2004). The vegetation classification of this park has been widely studied by other authors (Letouzey 1968, 1985; Gartlan 1989, and Cheek et al., 2004). This range (Kupe, Mwenengumba and the Bakossi National Park) has also benefited from extensive botanical work (Tchouto & Ebwekoh, 1999; Tchengué, 2004; Cheek et al., 2004, Franke, 2004; Franke, 2007; Sainge, 2012).

The Mount Nlonako area found some 8 to 12 km southeast of Nkongsamba (a town in the Littoral Region of Cameroon) and located between latitude 4.683 to 4.950° N and longitude 9.917 to 10.200°E covers a surface area of approximately 3,500 ha (35 km<sup>2</sup>) with the highest

peak measuring 1825 m above sea level (Gartlan, 1989, Kenfack, 2001, Republic of Cameroon, 2012). This area has no defined conservation status to date. However, it has been proposed by WWF-Cameroon to be raised to a wildlife Reserve. The physical environment (geology, location, area, and peak) of Mt Nlonako was described by Gartlan (Gartlan 1989). Botanical exploration started here as far back as 1925 (Engler 1925, cited in Letouzey, 1989) and only followed by the work of Kenfack, 2001, and now this study.

It is important to note that with all the extensive botanical work that has been carried out in Bakossi National Park and Mt Nlonako; none was based on permanent plot sampling so as to permit monitoring and re-measurement in the future. It is in this perspective that Tropical Plant Exploration Group (TroPEG) Cameroon went further to understand the floristic diversity through permanent plots sampling in different vegetation types and elevations.

Thus, the establishment of the first forest inventory plots for monitoring biodiversity in Bakossi National Park and Mt Nlonako following a methodology designed by TroPEG Cameroon (adapted from Condit 1998 and Thomas et al., 2003) was done between May to November 2016; and this was made possible with funds from the Rufford Small Grant Foundation. Using this funds, TroPEG was able to established twenty-four (24) 1 ha monitoring plots across these landscapes with twelve hectare (12ha) at each site.

## **1.1 Study Area**

### **1.1.1 Bakossi National Park**

The Bakossi National Park is location in Kupe-Manengouba division South West Region of Cameroon between latitude 4.917° - 5.500°N and longitude 9.517° - 9.733°E with an elevation peak of 1895 m above sea level (Letouzey, 1985). Figures 1-3

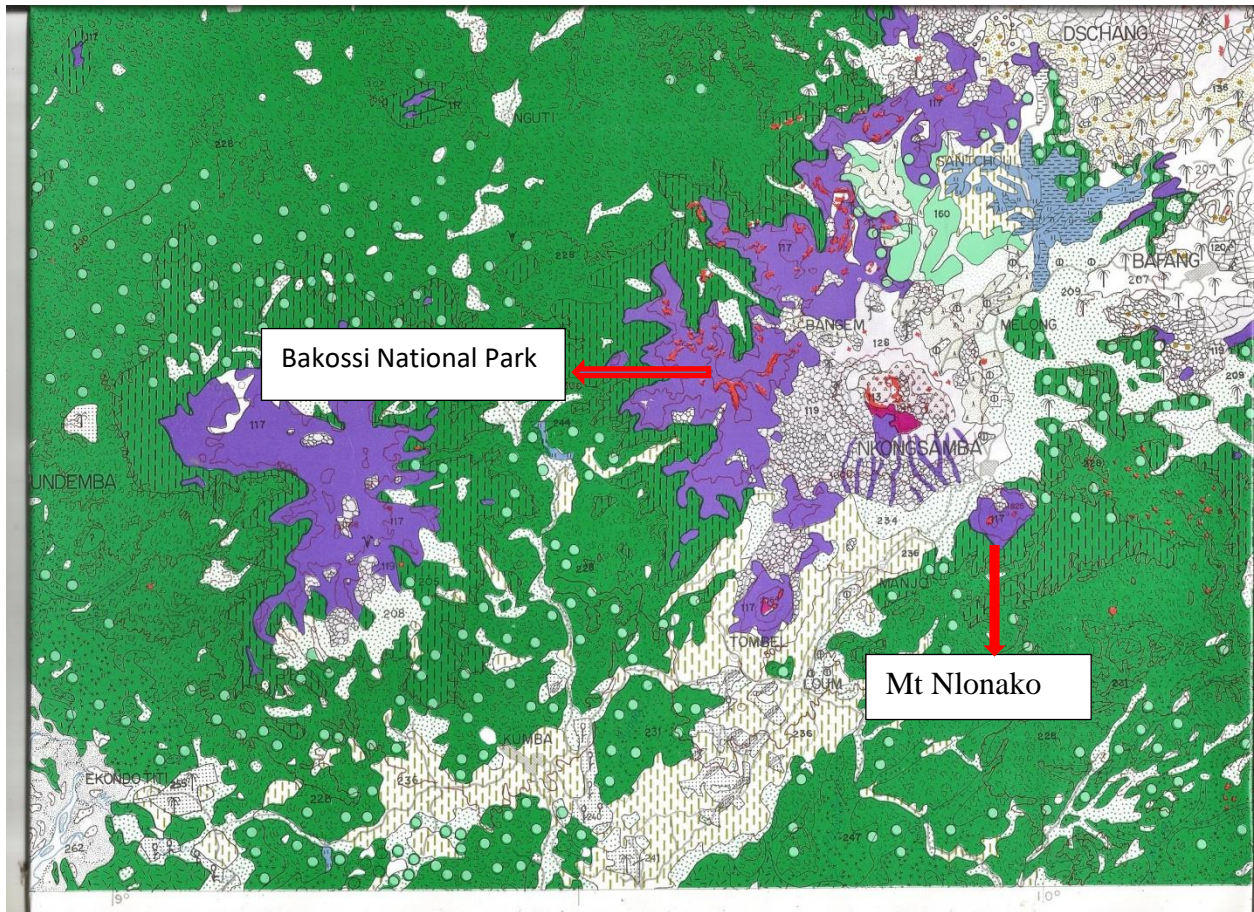


Figure 1. Bakossi National Park and Mt Nlonako (Letouzey, 1985).

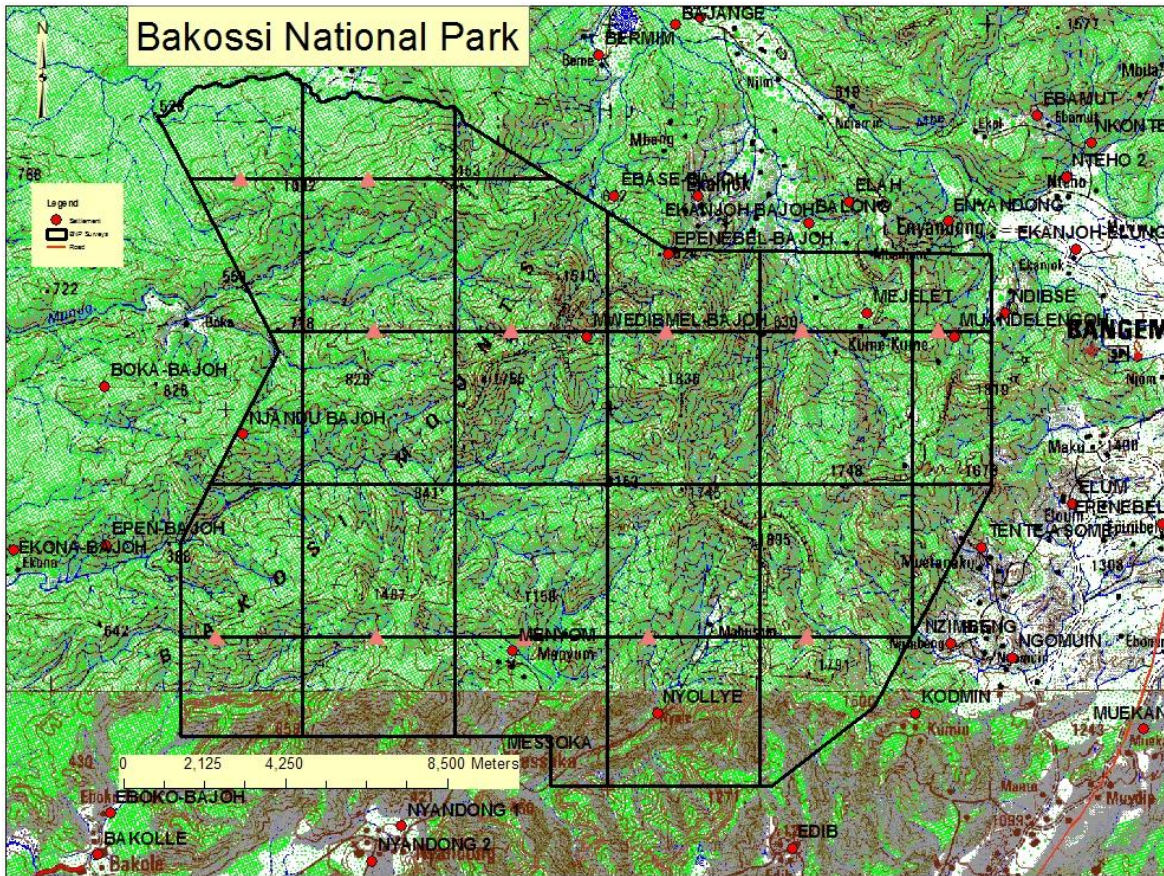


Figure 2. Gazette map of Bakossi National Park during Park establishment



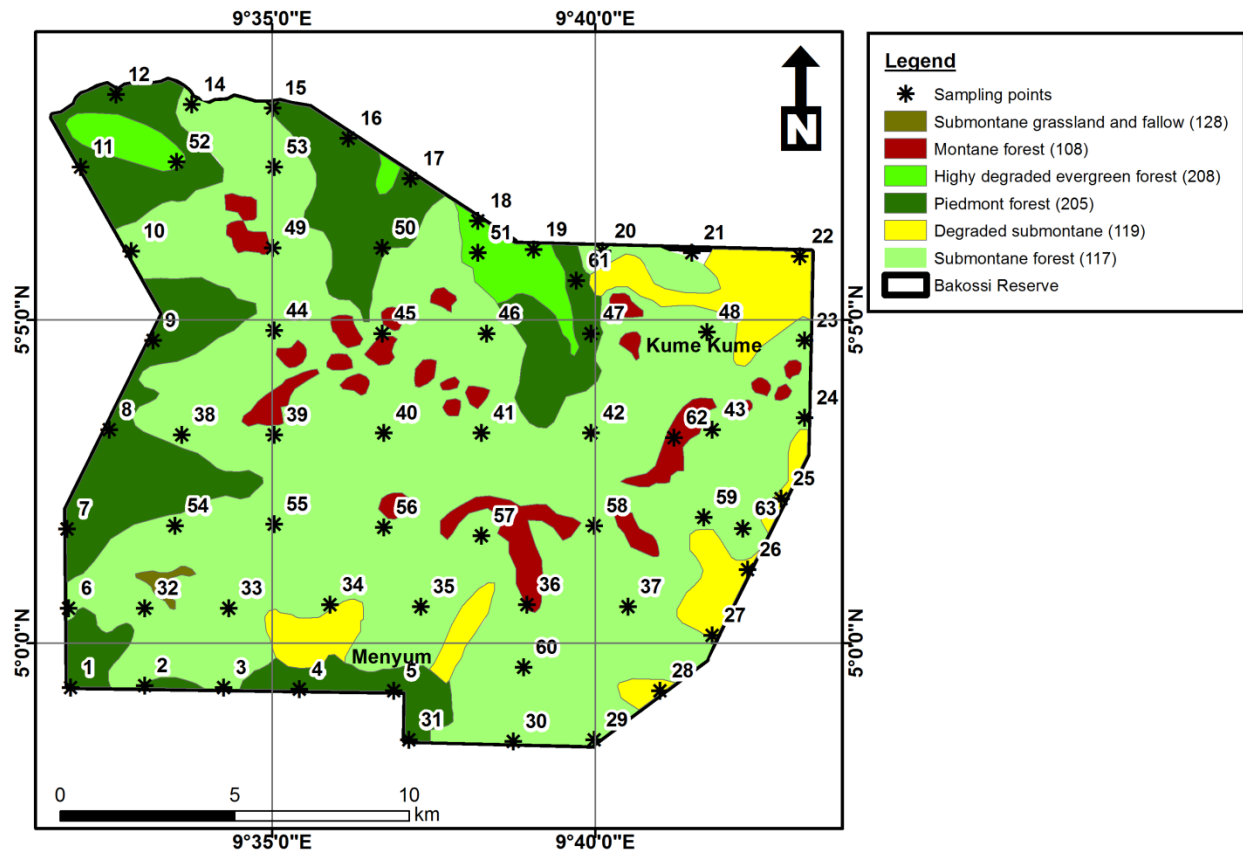


Figure 3. Vegetation map of the Bakossi National Park, adapted from Letouzey 1985.

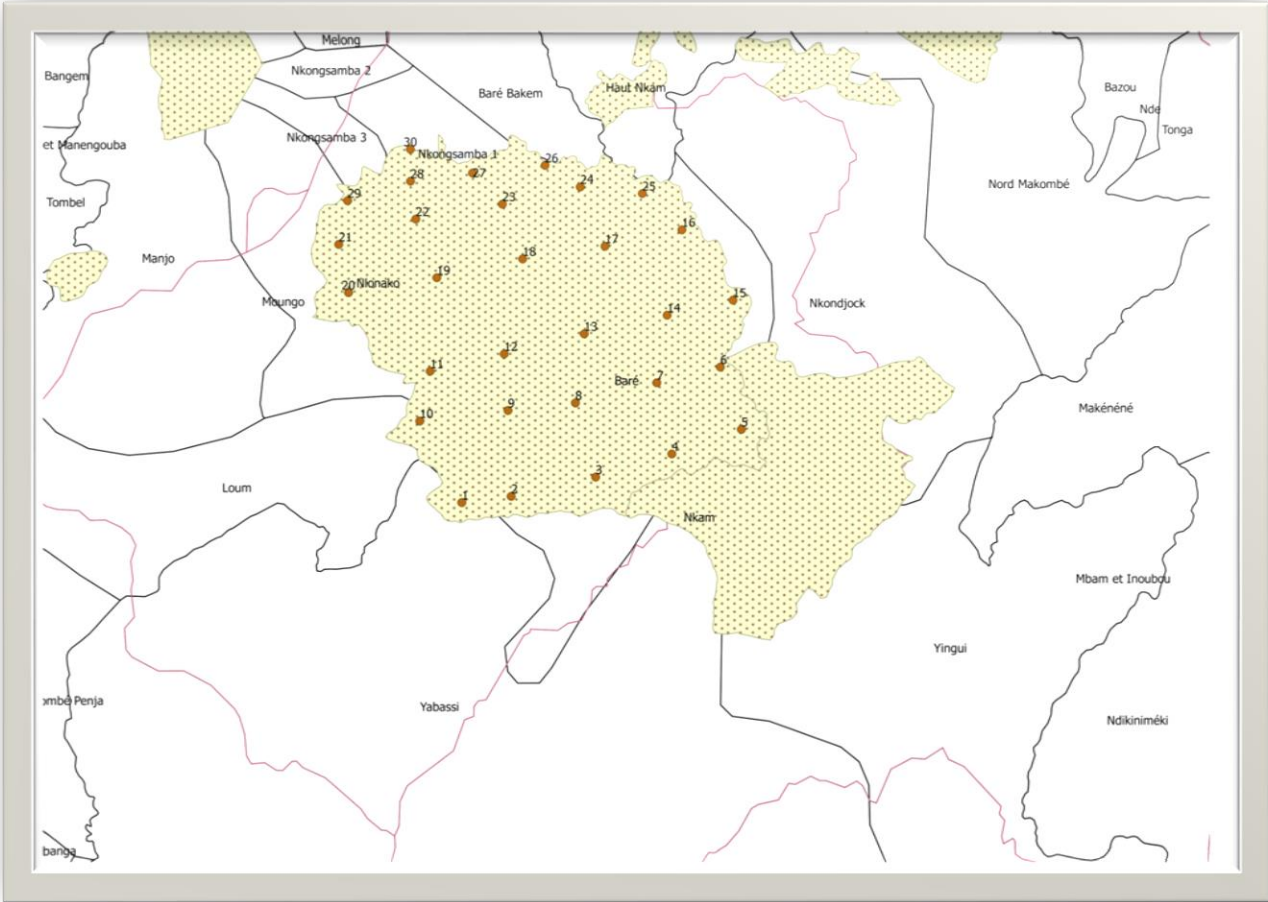


Figure 4. Sketch map of Mt Nlonako

## **Climate and Geology**

The climate of BNP is characterized by two seasons; the dry season which runs from November to March with the driest months being January and February. And the Rainy season from April to October with the wettest months being July and August. The mean annual temperature ranges from 22-25°C and rainfall of 4891 mm (Suchel 1972, Gartlan, 1989). The geology of BNP is mostly volcanic with fertile soil.

## **Vegetation**

According to Letouzey (1985) the Bakossi forest area now designated as Bakossi National Park (BNP) is characterized by six vegetation types: Submontane grassland and fallow, Montane forest, highly degraded evergreen forest, piedmont forest, degraded submontane and submontane forest (figure 3).

## **Fauna**

The BNP has been observed to have outstanding animal life thus it is reported to be very rich in fauna diversity across the entire landscape. Tchouto & Ekweleh, (1999) reported rich birds and butterflies diversity while Fonkwo et al., (2011), observed marked distribution and diversity of ungulates, primates and large mammals within the landscape. Other Authors have observed a rich species diversity of amphibians and reptiles in this landscape (Gouwono per. Com.).

### **1.1.2 Mt Nlonako**

Mt Nlonako is found about 8 to 12 km southeast of Nkongsamba with a surface area of about 3,500 ha (35 km<sup>2</sup>). It is located 4.883°N and 9.917°E at an elevation range of 877 m in Nkongsamba to 1825 m in Nlonako (Gartlan, 1989; Nembot & Tchanou, 1998).

## **Climate**

The climate of this area is that of two seasons: one rainy season that runs from Mid-March to October and dry season from November to Mid-March. Annual rainfall in Nlonako is 3000 mm (Valet, 1985) with a temperature range of 26°C at Ekembeng and Nkongsamba to 20°C at the summit of Mt Nlonako.

## **Vegetation**

Four vegetation types have been recorded in Mt Nlonako (Nembot & Tchanou, 1998): they include the Atlantic forest rich in Caesalpinaceae, Piedmont, Degraded Submontane, and Submontane forest.

## **Fauna**

Mt Nlonako is reported to be rich in reptiles, amphibians, birds, primates, and other mammal species (Gartlan, 1989, Gouwono per. Com.).

## **1.2 Objectives**

The purpose of this project was to produce a new body of knowledge on the plants of the Cameroon Mountains (Cameroon Volcanic Line); hence adding impetus in the effort to document the flora sites with limited studies as well as establishing baseline studies in different sites for future studies and documentation. In addition, this project was to incorporate the training of young Cameroonian professionals on forest mensuration, biodiversity and conservation as well as the establishment of permanent sampling plots. More also the project was to enable us measure biodiversity at different scales (alpha and beta) in the Bakossi National Park and Mt Nlonako forest landscape, and also measure element of ecosystem dynamics (mortality, growth, and recruitment) in the future.

## **1.3 Personnel's and training**

To establish a platform for the flow of scientific information among scientist, field technicians and other institutions in Cameroon, fieldwork was aimed at training young Cameroonian students, technicians and community leaders using the method developed by TroPEG Cameroon, from Condit 1998 and Thomas et al., 2003; as well as other relevant botanical methods. Hence training was based on transect establishment in sample sites of up to 500 m long, plot laying and demarcations of 500 x 20 m per plot (i.e. 25 quadrats of 20 x 20 m), forest mensuration using diameter tape for trees  $\geq 10$  cm in diameter at breast height (dbh=1.3 m), and caliper for trees  $< 10$  cm dbh, data collection, specimens collections and identification, specimens description, drying and sorting.

The field team was made-up of Community members; field Assistants, Consultants, TroPEG staff, and students on internship.

## **1.4 Methods**

### **1.4.1 Site Selection**

Prior to field survey, a thematic topographic map of the two study sites (Bakossi National Park and Mt Nlonako) was established. The vegetation classification of Cameroon (Letouzey 1985) and a detail literature survey was also carried out. At the Bakossi National Park, three sites were selected: Elah, Enyandong and Muandelengoh villages for a reconnaissance survey. After the first survey, Enyandong was selected because of its proximity to the park (<2 km) and Muandelengoh because it is inside the park. We finally did not work at Elah because the community did not collaborate with our field team.

At Mt Nlonako, Ekangmbeng village was selected because of its proximity (<5 km) to the forest, the fact that the forest is submontane, located within the park and has elements of disturbance (Letouzey 1985).

### **1.4.2 Site Description**

In Bakossi National Park, the sites chosen for surveys were Elah, Enyandong and Muandelengoh villages. In Enyandong, survey plots were established close to and above 500 m from the park boundary. Here, 4ha plots were established in the forest that was seen to be a disturbed forest but later realized in the course of the survey that some quadrats were not disturbed due to difficult topography. This was an apology to the team because species recorded were both of primary submontane forest and old disturbed submontane forest. Transects were then cut, plots demarcated and enumerated following Sainge 2016. Plots were located at 5.099°N, 9.718°E at 1024 m above sea level. In Muandelengoh, 8 ha plots were sampled in two submontane forest sites (4 ha plot in each site). The first site at elevation range of 1253-1361m, and the second site at elevation range of 1351-1414 m above sea level. Each hectare (500 x 20 m) was demarcated into 25 subplots (quadrats), of 20 x 20 m each. Given the topography at Muandelengoh, 25 subplots of 20 x 20 m were demarcated with temporary poles to represent 1-ha in some areas.

In Mt Nlonako, 12 ha plots were sampled. Out of the 12 ha plots, four of them were characterized by elements of primary forest in almost half of the plot and the other half by farmland. 6 ha plots had elements of primary forest and old secondary forest while the remaining 2 ha plots were established in primary submontane forest.

### **1.4.3 Transect Survey**

The transect team was made up of five persons as follows; 1 compass and transect tracing person, 2 persons handling the tape at both ends (0 and 20 m mark), 1 pole pinner pinning poles at the three points 0, 10 and 20 m mark along the transect, and 1 person for recording transect number, subplot number and transect length on a ribbon and tying the ribbon on the poles along the transect.

### **1.4.4 Plot Demarcation**

The laying team of 10 persons were responsible for demarcating (dividing) the plots in to 20 x 20 m subplots (quadrats). During this exercise, the team made use of measuring tapes, sticks and ribbons to enhance visibility and contrast within the forest for team members to understand positioning.

### **1.4.5 Plot Enumeration, data collection and plot distribution**

The enumeration team was composed of 4 members; a recorder, a measurer, a tagger, and a painter. Enumeration begins from the first (1<sup>st</sup>) 20 x 20 m subplot (0101) of each plot and runs upto the last (25<sup>th</sup>) 20 x 20 m subplot (0125). Each subplot has a specific data record that is unique to that subplot and plot, but numbering (tagging of trees) in subplots and plots are continuous from tag number 1 to the end. To commence enumeration, the recorder records information such as date of measurement, names of team mates, plot number and locality. To continue the enumeration exercise, the recorder takes down the tag number and diameter reading of all the trees as well as the GPS tracking time (tree or liana) from the measurer. Other parameters such as the physical features, growth form and the physical state of trees like point of measurement, and/or state such as leaning were also recorded.

After enumeration, the sheets were then handed to the botany team composed of 2 botanists, a Para taxonomist, a student on internship and a tree climber. At the start of each plot, the main Botanist records the GPS point at the left hand corner of the first subplot of that plot. Botanical identification starts from the first tag number to the end. At this point, each tree is assigned a morphospecies code and specimens collected. It usually starts slowly and progress in speed as the team becomes acquainted with the species of that locality. Five letter species codes were created during identification from a combination of five letters – three from genus and two from species were used to enable fast recording of species. For example *Oubanguia alata* was assigned the code OUBAL. In instances where the species was not certain or completely unknown or only family is known, morphospecies codes were created following the same pattern using 3-5 letters as the case may be. In some cases, species codes followed diagnostic characters for instance *Cola* sp. with lope leaves (COLLO). In the field, a brief description of the trees were made based on leaves, trunk, slash to determine present/absent of latex/ latex colour, flowers and fruits if any for every morphospecies code generated. All collected voucher specimens were pressed in separate newspapers carrying tree tag number, plot number, morphospecies code, family and species name if possible. Specimens were then stacked in plant press and placed in plant drier that takes approximately 24-48 hours to dry properly depending on the succulent nature of the specimen. Dry specimens were then sorted in different duplicates according to the different herbaria the specimens were to be sent for detail identification.

Generally, data collection was focus on the flora of these two mountains, hence our interest was on three different plant life forms: Trees  $\geq 10$  cm in diameter at breast height (dbh), trees  $< 10$  cm in dbh, and lianas  $\geq 1$  cm in dbh. Tree heights of individual stems were estimated by visual averaging of three field staff. In total, 24 plots of 1ha each were surveyed at BNP and Mt Nlonako. In the Bakossi National Park (BNP), these plots were distributed in three sites (1 site at Enyandong and 2 sites at Muandelengoh) with 4 ha in each site. In Mt Nlonako 12 ha were surveyed in one site at different habitat.

#### **1.4.7 Data Entry and Analysis**

The data generated from field activities was entered in Microsoft Excel 2010 and then cleaned for consistency. The data was then transformed into abundant matrix, and imported into statistical package (PAST) for analysis of basic descriptive statistics and ecological description such as

diversity and evenness. Other forestry parameteric calculations such as Biomass and Carbon were as well handled with the aid of Microsoft excel 2010.



Table 1. Data records from the database. A single spreadsheet separated into sheet 1, 2, and 3

OccID	Plot	Pcode	Quadrat	Vegtype	Habitatcode	Structure	Form	10x10	Tree No	Multiple	scode	Genus	Species
1	43	P	P4301	SDF	SL	C	T	43Q1_A	1		PSEMI	<i>Pseudospondias</i>	<i>microcarpa</i>
2	43	P	P4301	SDF	SL	C	T	43Q1_A	2		MEDMP	<i>Medusandra</i>	<i>mpomiana</i>
3	43	P	P4301	SDF	SL	C	T	43Q1_A	3		ALLFL	<i>Allanblackia</i>	<i>floribunda</i>
4	43	P	P4301	SDF	SL	C	T	43Q1_A	4		ALBAD	<i>Albizia</i>	<i>adianthifolia</i>
5	43	P	P4301	SDF	SL	C	T	43Q1_A	5		MEDRI	<i>Medusandra</i>	<i>richardsiana</i>
6	43	P	P4301	SDF	SL	C	T	43Q1_A	6		COE	<i>Coelocaryon</i>	<i>cf. preussii</i>
7	43	P	P4301	SDF	SL	C	T	43Q1_A	7		TREOB	<i>Treculia</i>	<i>obovoidea</i>
8	43	P	P4301	SDF	SL	C	T	43Q1_A	8		TREOB	<i>Treculia</i>	<i>obovoidea</i>
9	43	P	P4301	SDF	SL	C	T	43Q1_A	9		MEDRI	<i>Medusandra</i>	<i>richardsiana</i>
10	43	P	P4301	SDF	SL	C	T	43Q1_B	10		TREOB	<i>Treculia</i>	<i>obovoidea</i>

Sheet 1

ScientificName	Family	Diam(mm)	DBH(cm)	DBH(m)	Basal Area	Biomass AG (kg)	Carbon (kg)	Co2 Seq (kg)
<i>Pseudospondias microcarpa</i> (A.Rich.) Engl.	Anacardiaceae	255	25.5	0.25	0.051	470.71	235.35	863.75
<i>Medusandra mpomiana</i> Letouzey & Satabié	Medusandraceae	234	23.4	0.23	0.042	376.22	188.11	690.37
<i>Allanblackia gabonensis</i> (Pellegr.) Bamps	Clusiaceae	201	20.1	0.20	0.031	253.12	126.56	464.48
<i>Albizia adianthifolia</i> (Schum.) W.F. Wright	Fabaceae	246	24.6	0.246	0.047	428.62	214.31	786.51
<i>Medusandra richardsiana</i> Brenan	Medusandraceae	253	25.3	0.253	0.050	461.14	230.57	846.19
<i>Coelocaryon cf. preussii</i> Warb.	Myristicaceae	222	22.2	0.222	0.038688	327.98	163.99	601.84
<i>Treculia obovoidea</i> N.E.Br.	Moraceae	157	15.7	0.157	0.019349	132.93	66.46	243.92
<i>Treculia obovoidea</i> N.E.Br.	Moraceae	116	11.6	0.116	0.010563	60.39	30.19	110.81
<i>Medusandra richardsiana</i> Brenan	Medusandraceae	228	22.8	0.228	0.040807	351.59	175.79	645.17
<i>Treculia obovoidea</i> N.E.Br.	Moraceae	133	13.3	0.133	0.013886	86.25	43.13	158.28

Sheet 2

Biomass in tons	Carbon in tons	Co2 Seq tons1	POM	IUCN	EndCMR	HT	Site	Location
0.47	0.24	0.86	1.3			20	Bakossi National Park	Enyandong
0.38	0.19	0.69	1.3	NT	*	20	Bakossi National Park	Enyandong
0.25	0.13	0.46	1.3	VU		22	Bakossi National Park	Enyandong
0.43	0.21	0.79	1.3			18	Bakossi National Park	Enyandong
0.46	0.23	0.85	1.3	VU	*	25	Bakossi National Park	Enyandong
0.33	0.16	0.60	1.3			30	Bakossi National Park	Enyandong
0.13	0.07	0.24	1.3			20	Bakossi National Park	Enyandong
0.06	0.03	0.11	1.3			15	Bakossi National Park	Enyandong
0.35	0.18	0.65	1.3	VU	*	25	Bakossi National Park	Enyandong
0.09	0.04	0.16	1.3			15	Bakossi National Park	Enyandong

Sheet 3

In order to commence data analysis, data collated and cleaned was assembled into a single database composing of 12 ha representing 12 sampling units for the Bakossi National Park and 12 ha (12 sampling units) for Mt Nlonako. Thus, a total of 24 ha plot instead of 30 ha as initially planned. However, analysis was done separately within sites (i.e. Bakossi then Nlonako) and between sites for comparison. Results are presented in to forms; as a single floristic data, and then as different life forms and plots.

Floristic composition, diversity, distribution, and species richness was done with the help of PAST statistical package. The allometric equation for estimating biomass (a forestry method) proposed by Djomo 2010 was used to calculate the Above-Ground Biomass (AGB) per individual stem and per hectare. Carbon estimates and basal area was calculated only for trees  $\geq 10$  cm in dbh.

$$AGB = \text{Exp} (-2.0815 + 2.5625 * \ln(D))$$

## 1.5 Results

### 1.5.1 Bakossi National Park

Table 2. Number of plots recorded with their vegetation types, sites and GPS points.

SN	TroPEG Plot #	Vegetation Type	Site	Site Code	Latitude (N)	Longitude (E)	Elevation (m)
1	43	Disturbed Submontane	Enyandong	ENY	5.09951	9.71801	1024
2	44	Disturbed Submontane	Enyandong	ENY	5.09970	9.71804	1015
3	45	Disturbed Submontane	Enyandong	ENY	5.09970	9.71804	1015
4	46	Disturbed Submontane	Enyandong	ENY	5.10020	9.71806	1001
5	47	Submontane	Muandelengoh	MUA	5.08273	9.71985	1268
6	48	Submontane	Muandelengoh	MUA	5.07808	9.72053	1361
7	49	Submontane	Muandelengoh	MUA	5.08282	9.72044	1265
8	50	Submontane	Muandelengoh	MUA	5.08286	9.72057	1253
9	51	Submontane	Muandelengoh	MUA	5.07546	9.72415	1374
10	52	Submontane	Muandelengoh	MUA	5.07697	9.72034	1414
11	53	Submontane	Muandelengoh	MUA	5.07600	9.72419	1356
12	54	Submontane	Muandelengoh	MUA	5.07670	9.72120	1351

### Floristic Composition and Species Richness

A total of 7,756 stems (from 7333 individual trees) were recorded comprising of trees and lianas of dbh  $\geq 1$  cm. This was represented in 336 morphospecies, 167 genera and 61 families with 423 plants having multiple stems. Trees  $\geq 10$  cm accounted for 5940 individuals, 257 morphospecies, 133 genera and 52 families. Shrubs  $< 10$  cm gave 1770 individuals with 185 morphospecies, 113 genera, and 49 families. Lianas  $\geq 10$  cm gave 36 individuals with 17 morphospecies, 11 genera and 10 families while lianas  $< 10$  cm gave only 10 individuals in 10 morphospecies, 8 genera and 6 families.

Trees with dbh  $\geq 10$  cm gave an average tree density of 498 trees/ha (337-621 trees/ha), tree species of 88 species/ha (68-108 species/ha). Using the PAST statistical package, we calculated tree species richness for trees  $\geq 10$  cm dbh with Simpson value being 0.9679, Shannon ( $H'$ ) 3.859 ranging from 3.712-4.156), Fisher Alpha of 31.12 (24.26-42.5) and Chao 1 of 120.73 (76.5-171.2).

Table 3. Tree species, Abundance, and richness per hectare with dbh  $\geq 10$  cm in the Bakossi National Park, Cameroon.

SN	TroPEG Plot #	# of Species/ha	Tree Density/ha	Shannon	Fisher Alpha	Chao1
1	43	108	497	4.16	42.5	141.3
2	44	105	555	3.95	38.3	171.2
3	45	90	533	3.84	31	123.2
4	46	101	573	3.98	35.6	147.9
5	47	95	598	3.87	31.8	128.1
6	48	85	543	3.82	28.3	112
7	49	93	586	3.98	31.1	116.4
8	50	86	621	3.72	27.1	113
9	51	74	360	3.75	28.2	99
10	52	73	337	3.82	28.7	127.2
11	53	73	391	3.71	26.5	93
12	54	68	376	3.72	24.3	76.5

High diversity was observed for plots 43, 46, 49 and 44 with Shannon diversity records of 4.16, 3.98, 3.98 and 3.95 respectively. However, tree density records trend did not follow the same pattern as diversity; it was observed to be highest for plot 50 with records of 621 followed by plot 47 and 49 with records 598 and 586 respectively.

**Above Ground Biomass (AGB), Carbon and Carbondioxides sequestration estimates.**

Plot data was used to estimate the available biomass, carbon, and carbondioxides sequestered per stem and per hectare (Table 4). It was realized that at the submontane forest of BNP, some plots (Plot 8) recorded comparatively high values for tree density (597 trees/ha), number of species (108 species/ha), basal area (42.5 m<sup>2</sup>/ha), biomass (643.3 t/ha), carbon (321.7 t/ha) and CO<sub>2</sub> (1179.5 t/ha) (Table 4). The mean of these parameters were calculated to obtain an average value for comparison with other results from different sites around Africa and the world. Although, the forest in our study sites showed high AGB and carbon in tons/hectare in some plots (Plots 9, 10, 11, 12), the mean values were closely in range when compare to other sites as seen in Lewis et al. 2013 and Kupsch et al. 2014 where the Above Ground Biomass, Carbon and Carbon dioxides are reported as 440.1 t/ha, 220.1 t/ha and 806.9 t/ha respectively. When these results are compared with that estimated for Central Africa forest by Lewis et al 2013, the respective results 429 t/ha and 249 tC/ha for AGB and Carbon; corroborates (Table 4).

Table 4. Summary of Species abundance, Basal Area, Biomass, Carbon and Carbon dioxides sequestered per hectare in the Bakossi National Park, Cameroon

Plot	Elevation (m)	Stem density $\geq 10$ cm dbh	Tree density $\geq 10$ cm dbh	# of species	Basal Area	Biomass (t/ha)	Carbon (t/ha)	CO <sub>2</sub> Seq. (t/ha)
1	1024	494	479	108	32.9	438.1	219	803
2	1015	549	518	105	35.9	484.3	242.2	888.1
3	1015	530	519	90	34.2	455.5	227.8	835.2
4	1001	571	553	101	42.5	643.3	321.7	1179.5
5	1268	597	591	95	39.8	544.7	272.4	998.8
6	1361	540	531	85	34.2	452.3	226.1	829.3
7	1265	581	571	93	34.6	437.5	218.7	802.1
8	1253	620	597	86	37	488.9	244.5	896.4
9	1374	359	339	74	25.3	352	176	645.4
10	1414	335	326	73	21.3	280.6	140.3	514.5
11	1356	387	374	73	29	393.7	196.9	721.9
12	1351	376	370	68	23.6	310.4	155.2	569.2
Mean		494.9	480.7	87.6	32.5	440.1	220.1	806.95
SD		102.4	101	13.5	6.5	99.6	49.8	182.6

Table 5. Species list generated from Plot data in the Bakossi National Park, Cameroon

Family	Species	Number of trees/species
?	?	24
Acanthaceae	??	2
Achariaceae	<i>Dasylepis racemosa</i> Oliv.	15
Anacardiaceae	???	61
Anacardiaceae	<i>Lannea welwitschii</i> (Hiern) Engl.	6
Anacardiaceae	<i>Pseudospondias microcarpa</i> (A.Rich.) Engl.	259
Anacardiaceae	<i>Pseudospondias microcarpa</i> var. <i>longifolia</i>	3
Anacardiaceae	<i>Sorindeia grandifolia</i> Engl.	14
Anacardiaceae	<i>Sorindeia</i> sp.	297
Anacardiaceae	<i>Trichoscypha bijuga</i> Engl.	42
Anacardiaceae	<i>Trichoscypha</i> sp.72	6
Anacardiaceae	<i>Trichoscypha</i> sp.I	41
Anacardiaceae	<i>Trichoscypha</i> sp.R	16
Annonaceae	<i>Boutiquea platypetala</i> Le Thomas	1
Annonaceae	<i>Monodora brevipes</i> Benth.	10
Annonaceae	<i>Monodora myristica</i> (Gaertn.) Dunal	35
Annonaceae	<i>Monodora</i> sp.	1
Annonaceae	<i>Piptostigma</i> cf. <i>multinervium</i> Engl. & Diels	1
Annonaceae	<i>Polyanthia suaveolens</i>	1
Annonaceae	<i>Uvariadendron</i> sp.	3
Annonaceae	<i>Uvariopsis submontana</i> Kenkack, Gosline & Gereau	9
Annonaceae	<i>Xylophia aethiopica</i> (Dunal) A.Rich.	2
Annonaceae	<i>Xylophia africana</i> (Benth.) Oliv.	25
Annonaceae	<i>Xylophia phloiodora</i>	2
Apocynaceae	<i>Alstonia boonei</i> De Wild.	8
Apocynaceae	<i>Funtumia elastica</i> (Preuss) Stapf	5
Apocynaceae	<i>Holarrhena floribunda</i> (G.Don.) Dur.& Schinz.	1

Apocynaceae	<i>Landolphia congolensis</i> (Stapf.) Pichon	1
Apocynaceae	<i>Landolphia dulcis</i> (Sabine) Pichon	2
Apocynaceae	<i>Landolphia landolphioides</i> (Hallier f.) A.Chev.	10
Apocynaceae	<i>Landolphia owariensis</i> P.Beauv.	1
Apocynaceae	<i>Landolphia</i> sp.4	1
Apocynaceae	<i>Landolphia</i> sp.45	1
Apocynaceae	<i>Rauvolfia mannii</i> Stapf.	5
Apocynaceae	<i>Rauvolfia vomitoria</i> Afzel.	2
Apocynaceae	<i>Tabernaemontana brachyantha</i> Stapf	18
Apocynaceae	<i>Tabernaemontana crassa</i> Benth.	5
Apocynaceae	<i>Tabernaemontana ventricosa</i>	24
Apocynaceae	<i>Voacanga africana</i> Stapf	41
Apocynaceae	<i>Voacanga psilocalyx</i> Pierre ex Stapf	19
Araliaceae	<i>Polysias fulva</i>	33
Arecaceae	<i>Elaeis guineensis</i> Jacq.	10
Arecaceae	<i>Phoenix reclinata</i> L.	6
Asteraceae	<i>Vernonia conferta</i> Benth.	1
Bignoniaceae	<i>Kigelia africana</i> (Lam.) Benth.	2
Bignoniaceae	<i>Markhamia lutea</i> (Benth.) K. Schum.	15
Bignoniaceae	<i>Newbouldia laevis</i> (P. Beauv.) Seeman ex Bureau	3
Bignoniaceae	<i>Stereospermum acuminatissimum</i> K.Schum.	3
Boraginaceae	<i>Cordia africana</i>	9
Boraginaceae	<i>Cordia aurantiaca</i> Bak.	11
Boraginaceae	<i>Cordia</i> sp.	44
Boraginaceae	<i>Cordia</i> sp.H	1
Buddlejaceae	<i>Nuxia congesta</i>	9
Burseraceae	<i>Canarium schweinfurthii</i> Engl.	3
Burseraceae	<i>Dacryodes edulis</i> (G.Don.) H.J. Lam.	101
Burseraceae	<i>Dacryodes klaineana</i> (Pierre) H.J. Lam.	76
Burseraceae	<i>Santiria balsamifera</i> Oliv.	151
Caricaceae	<i>Cylicomorpha solmsii</i> (Urb.) Urb.	127

Cecropiaceae	Musanga cecropioides R.Br.ex Tedlie	41
Cecropiaceae	Myrianthus fosi Cheek	114
Cecropiaceae	Myrianthus sp.2	12
Celastraceae	Salacia debilis (G.Don.) Walp.	7
Celastraceae	Salacia loloensis Loes	31
Celastraceae	Salacia sp.	2
Chrysobalanaceae	Dactyladenia johnstonii Hoyle	7
Chrysobalanaceae	Magnistipula tessmannii (Engl.) Prance	3
Chrysobalanaceae	Maranthes chrysophylla (Oliv.) Prance	69
Chrysobalanaceae	Maranthes gabunensis (Engl.) G.T. Prance	119
Clusiaceae	Allanblackia gabonensis (Pellegr.) Bamps	64
Clusiaceae	Garcinia kola Heckel	5
Clusiaceae	Garcinia lucida Vesque	84
Clusiaceae	Garcinia mannii Oliv.	240
Clusiaceae	Pentadesma grandifolia Bak.f.	204
Clusiaceae	Symphonia globulifera L.f.	34
Connaraceae	Agelaea sp.	2
Dichapetalaceae	Dichapetalium dewevrei	1
Dichapetalaceae	Dichapetalum heudelotii (Planch.ex Oliv.) Baill.)	2
Dichapetalaceae	Tapura africana Oliv.	5
Dracaenaceae	Dracaena arborea (Willd.) Link.	18
Dracaenaceae	Dracaena bicolor Hook.f.	7
Ebenaceae	Diospyros bipindensis Gürke	50
Ebenaceae	Diospyros kamerunensis Gürke	79
Ebenaceae	Diospyros kupensis Gosline	2
Ebenaceae	Diospyros monbuttensis Gürke	1
Euphorbiaceae	???	16
Euphorbiaceae	Alchornea floribunda Müll.Arg.	59
Euphorbiaceae	Alchornea hirtella Benth.	11
Euphorbiaceae	Alchornea sp.2	15
Euphorbiaceae	Croton longiracemosus Hutch.	1



Euphorbiaceae	<i>Crotonogyne manniana</i> Müll.Arg.	3
Euphorbiaceae	<i>Discoclaoxylon hexandrum</i> (Müll.Arg.) Pax & Hoffm.	1
Euphorbiaceae	<i>Discoglyprena caloneura</i> (Pax) Prain	4
Euphorbiaceae	<i>Elaeophorbia drupifera</i> (Thonn. Stapf	4
Euphorbiaceae	<i>Elaeophorbia drupifera</i> (Thonn.) Stapf	3
Euphorbiaceae	<i>Grossera multinervis</i> J. Léonard	48
Euphorbiaceae	<i>Ricinodendron heudelotii</i> (Baill.) Heckel	2
Euphorbiaceae	<i>Sapium ellipticum</i> (Krauss) Pax	42
Euphorbiaceae	<i>Sapium</i> sp.	1
Euphorbiaceae	<i>Tetracarpidium conophorum</i> (Müll.Arg.) Hutch. & Dalz	1
Euphorbiaceae	<i>Tetrorchidium didymostemon</i> (Baill.) Pax & K. Hoffm.	25
Fabaceae	<i>Albizia adianthifolia</i> (Schum.) W.F. Wright	17
Fabaceae	<i>Albizia ferruginea</i> (Guill. Perr.) Benth.	1
Fabaceae	<i>Albizia gummifera</i> (J.F. Gmel.) C.A. Sm.	5
Fabaceae	<i>Albizia zygia</i> (DC.) J.F. Macbr.	13
Fabaceae	<i>Amphimas pterocarpoides</i> Harms	4
Fabaceae	<i>Amphimas</i> sp.	4
Fabaceae	<i>Brachystegia milbraedii</i> Harms	1
Fabaceae	<i>Dalbergia hostilis</i> Benth.	1
Fabaceae	<i>Dialium guineense</i> Willd.	4
Fabaceae	<i>Dialium pachyphyllum</i> Harms	6
Fabaceae	<i>Dialium</i> sp.	6
Fabaceae	<i>Erythrina excelsa</i> Baker	15
Fabaceae	<i>Leonardoxa africana</i> subsp. <i>Rumpiensis</i> McKey	1
Fabaceae	<i>Leptoderris</i> cf. <i>ledermannii</i> Harms	1
Fabaceae	<i>Parkia bicolor</i> A. Chev.	1
Fabaceae	<i>Parkia</i> sp.	9
Fabaceae	<i>Piptadeniastrum africanum</i> (Hook.f. Brenan	33
Fabaceae	<i>Pterocarpus soyauxii</i> Taub.	1
Fabaceae	<i>Zenkerella citrina</i> Taub.	7
Gentianaceae	<i>Anthocleista vogelii</i> Planch.	3

Icacinaceae	<i>Icacina mannii</i> Oliv.	1
Icacinaceae	<i>Rhaphiostylis beninensis</i> (Hook.f.ex Planch.) Planch.	2
Irvingiaceae	<i>Desbordesia glaucescens</i> (Engl.) Tiegh.	14
Lamiaceae	<i>Vitex grandifolia</i> Gürke	11
Lamiaceae	<i>Vitex</i> sp.	10
Lauraceae	<i>Beilschmiedia</i> cf. <i>cuspidata</i> (K.Krause) Robyns	174
Lauraceae	<i>Beilschmiedia preussioides</i> Fouilloy & N. Halle	6
Lauraceae	<i>Beilschmiedia</i> sp.	1
Lauraceae	<i>Beilschmiedia</i> sp.3	1
Lauraceae	<i>Beilschmiedia</i> sp.N	16
Lecythidaceae	<i>Crateranthus</i> sp.	11
Leeaceae	<i>Leea guineensis</i> G.Don	10
Loganiaceae	<i>Strychnos camptoneura</i> Gilg. & Busse	2
Loganiaceae	<i>Strychnos staudtii</i> Gilg.	5
Malvaceae	???	1
Malvaceae	<i>Chlamydocola chlamydantha</i>	26
Malvaceae	<i>Cola digitata</i> Mast.	1
Malvaceae	<i>Cola ricinifolia</i> Engl. & K. Krause	8
Malvaceae	<i>Cola</i> sp.I	3
Malvaceae	<i>Cola verticilata</i> (Thonn.) Stapfex A.Chev.	12
Malvaceae	<i>Glyphaea brevis</i> (Spreng.) Monach.	5
Malvaceae	<i>Glyphaea</i> sp.	3
Malvaceae	<i>Glyphaea</i> sp.2	1
Malvaceae	<i>Leptonychia</i> sp.MU	1
Malvaceae	<i>Microcos coriacea</i> (Mast.) Burret	18
Malvaceae	<i>Pterygota</i> sp.	12
Malvaceae	<i>Sterculia</i> sp.	16
Malvaceae	<i>Sterculia tragacantha</i> Lindl.	84
Medusandraceae	<i>Medusandra mpomiana</i> Letouzey & Satabié	134
Medusandraceae	<i>Medusandra richardsiana</i> Brenan	20
Melastomataceae	<i>Memecylon afzelii</i> G. Don	19

Melastomataceae	Memecylon dasyanthum Gilg. & Ledermannii ex Engl.	23
Melastomataceae	Memecylon sp.	2
Melastomataceae	Memecylon sp. G. Don	1
Melastomataceae	Memecylon sp.3	5
Melastomataceae	Memecylon zenkeri Gilg.	1
Melastomataceae	Warneckea pulcherrima (Gilg.) Jacq.-Félix	2
Meliaceae	???	2
Meliaceae	Carapa angustifolia Harms	68
Meliaceae	Carapa dinklagei Harms	23
Meliaceae	Carapa grandifolia Sprague	2
Meliaceae	Carapa oreophila Kenfack	43
Meliaceae	Carapa parvifolia Harms	18
Meliaceae	Carapa sp.	1
Meliaceae	Entandrophragma cylindricum Sprague	1
Meliaceae	Entandrophragma utile Sprague	11
Meliaceae	Guarea glomerulata Harms	16
Meliaceae	Guarea mayombensis Pellegr.	4
Meliaceae	Guarea sp.2	1
Meliaceae	Guarea sp.H	2
Meliaceae	Guarea thompsonii Sprague & Hutch.	1
Meliaceae	Trichilia prieureana A. Juss	257
Meliaceae	Trichilia welwitschii C.DC.	205
Meliaceae	Turraeanthus africanus (Welw.ex C.DC.) Pellegr.	143
Meliantaceae	Bersama abyssinica Fresen.	5
Meliantaceae	Bersama sp.2	4
Menispermaceae	Penianthus camerounensis A.Dekker	61
Menispermaceae	Syrrhonema fasciculatum Miers	1
Moraceae	???	1
Moraceae	Ficus bubu	2
Moraceae	Ficus chlamydocarpa Mildbr.	1
Moraceae	Ficus exasperata Vahl	42

Moraceae	<i>Ficus lingua</i> Warb. ex De Wild. & T. Durand	75
Moraceae	<i>Ficus</i> sp.2	7
Moraceae	<i>Ficus</i> sp.45	4
Moraceae	<i>Ficus</i> sp.Mu	2
Moraceae	<i>Milicia excelsa</i> (Welw.) C.C. Berg	3
Moraceae	<i>Treculia africana</i> Decne.	32
Moraceae	<i>Treculia obovoidea</i> N.E.Br.	154
Moraceae	<i>Trilepisiium madagascariense</i> DC.	80
Myristicaceae	<i>Coelocaryon botryoides</i> Vermeesen	1
Myristicaceae	<i>Coelocaryon preussii</i> Warb.	109
Myristicaceae	<i>Pycnanthus angolensis</i> (Welw.) Warb.	324
Myrsinaceae	<i>Ardisia koupensis</i> Taton	37
Myrtaceae	<i>Eugenia fernandopoana</i> Engl. & Brehmer	6
Myrtaceae	<i>Eugenia obanensis</i> Baker f.	4
Myrtaceae	<i>Syzygium</i> sp.	2
Myrtaceae	<i>Syzygium staudtii</i> (Engl.) Mildbr.	36
Ochnaceae	<i>Campylospermum calanthum</i> (Gilg.) Farron	3
Ochnaceae	<i>Lophira alata</i> Banks ex Gaertn.f.	1
Octoknemaceae	<i>Octoknema bakossiense</i> Gosline & Malécot	11
Olacaceae	<i>Heisteria parvifolia</i> Sm.	2
Olacaceae	<i>Strombosia grandifolia</i> Hook.f.ex Benth.	304
Olacaceae	<i>Strombosia scheffleri</i> Engl.	12
Olacaceae	<i>Strombosia zenkeri</i> Engl.	138
Pandaceae	<i>Microdesmis puberula</i> Hook.f.ex Planch.	84
Passifloraceae	<i>Adenia lobata</i> (Jacq.) Engl.	2
Phyllanthaceae	<i>Antidesma chevaleri</i>	24
Phyllanthaceae	<i>Antidesma laciniatum</i> Müll.Arg	16
Phyllanthaceae	<i>Antidesma</i> sp.	1
Phyllanthaceae	<i>Antidesma</i> sp.B	6
Phyllanthaceae	<i>Antidesma</i> sp.I	1
Phyllanthaceae	<i>Antidesma venosum</i> Tul.	7

Phyllanthaceae	<i>Bridelia grandis</i> Pierre ex Hutch.	21
Phyllanthaceae	<i>Bridelia micrantha</i> (Hochst.) Baill.	8
Phyllanthaceae	<i>Macaranga monandra</i> Müll.Arg.	6
Phyllanthaceae	<i>Maesobotrya barteri</i> (Baill.) Hutch.	3
Phyllanthaceae	<i>Margaritaria discoidea</i> (Baill.) Webster	23
Phyllanthaceae	<i>Phyllanthus</i> sp.	1
Phyllanthaceae	<i>Uapaca</i> cf. <i>paludosa</i> Aubrév. & Léandri	1
Phyllanthaceae	<i>Uapaca</i> cf. <i>paludosa</i> Aubrév. & Léandri	1
Phyllanthaceae	<i>Uapaca</i> sp.I	2
Phyllanthaceae	<i>Uapaca staudtii</i> Pax	1
Phyllanthaceae	<i>Uapaca vanhouttei</i>	1
Phyllanthaceae	<i>Uapaca vanhouttei</i> De Wild.	2
Polygalaceae	<i>Carpolobia alba</i> G.Don	6
Putranjivaceae	DRYAF <i>Drypetes</i> Hutch.	1
Putranjivaceae	<i>Drypetes aframensis</i> Hutch.	125
Putranjivaceae	<i>Drypetes angustifolia</i> Pax & K. Hoffm.	22
Putranjivaceae	<i>Drypetes</i> cf. <i>klainei</i> Pierre ex Pax	1
Putranjivaceae	<i>Drypetes</i> cf. <i>klainei</i> Pierre ex Pax	6
Putranjivaceae	<i>Drypetes</i> cf. <i>molunduana</i> Pax & K. Hoffm.	3
Putranjivaceae	<i>Drypetes gossweileri</i> S. Moore	41
Putranjivaceae	<i>Drypetes magnistipula</i> (Pax) Hutch.	6
Putranjivaceae	<i>Drypetes molunduana</i> Pax & K. Hoffm.	6
Putranjivaceae	<i>Drypetes paxii</i>	6
Putranjivaceae	<i>Drypetes paxii</i> Hutch.	53
Putranjivaceae	<i>Drypetes</i> sp.48	1
Putranjivaceae	<i>Drypetes</i> sp.M	1
Putranjivaceae	<i>Drypetes staudtii</i> (Pax) Hutch.	14
Rhamnaceae	<i>Maesopsis eminii</i> Engl.	7
Rhizophoreaceae	<i>Cassipourea malosana</i> Alston	3
Rhizophoreaceae	<i>Cassipourea acuminata</i> Liben	12
Rhizophoreaceae	<i>Cassipourea</i> sp.Mu	1

Rubiaceae	???	7
Rubiaceae	<i>Aidia genipiflora</i> (DC) Dandy	3
Rubiaceae	<i>Aulacocalyx cf. mapiana</i> Sonké & Bridson	57
Rubiaceae	<i>Aulacocalyx talbotii</i> (Wernham) Keay	4
Rubiaceae	<i>Bertiera retrofracta</i> K. Schum.	13
Rubiaceae	<i>Bertiera</i> sp. Mu	1
Rubiaceae	<i>Canthium</i> sp.	1
Rubiaceae	<i>Coffea bakossii</i> Cheek & Bridson	95
Rubiaceae	<i>Coffea montekupensis</i> Stoffelen	17
Rubiaceae	<i>Craterispermum cerinanthum</i> Hiern	63
Rubiaceae	<i>Cuviera subulifolia</i> Benth.	56
Rubiaceae	<i>Euclinia longiflora</i> Salisb.	5
Rubiaceae	<i>Heinsia crinita</i> (Afzel.) G. Taylor	5
Rubiaceae	<i>Keetia acuminata</i> (De Wild) Bridson	1
Rubiaceae	<i>Keetia hispida</i> (Benth.) Bridson	1
Rubiaceae	<i>Morelia senegalensis</i> A. Rich. ex DC.	89
Rubiaceae	<i>Oxyanthus formosus</i> Hook f. ex Planch.	1
Rubiaceae	<i>Oxyanthus</i> sp. v	1
	<i>Pauridiantha floribunda</i> (K. Schum. & K. Krause)	
Rubiaceae	Bremek.	7
Rubiaceae	<i>Pauridiantha viridiflora</i> (Schweinf. ex Hiern) Hepper	2
Rubiaceae	<i>Pausinystalia macroceras</i> (K. Schum.) Pierre ex Beille	2
Rubiaceae	<i>Pausinystalia</i> sp.	2
Rubiaceae	<i>Pavett bidentata</i> Hiern	2
Rubiaceae	<i>Pavetta rigida</i> Hiern	1
Rubiaceae	<i>Pavetta staudtii</i> Hutch. & Dalziel	1
Rubiaceae	<i>Psilanthus mannii</i> Hook f.	9
Rubiaceae	<i>Psychotria bimbiensis</i> Bridson & Cheek	1
Rubiaceae	<i>Psychotria gabonica</i> Hiern	115
Rubiaceae	<i>Psychotria latistipula</i> Benth.	2
Rubiaceae	<i>Psychotria leptophylla</i> Hiern	7

Rubiaceae	Psychotria sp.E	1
Rubiaceae	Psychotria sp.F	1
Rubiaceae	Rothmannea sp.	4
Rubiaceae	Rothmannia talbotii (Wernham) Keay	4
Rubiaceae	Sericanthe sp.	1
Rubiaceae	Tricalysia macrophylla K. Schum.	2
Rutaceae	Zanthoxylon rubescens	2
Rutaceae	Zanthoxylum gilletii (De Wild.) P.G. Waterman	10
Rutaceae	Zanthoxylum leprieurii Guill. & Perr.	2
Salicaceae	Casearia barteri Mast.	7
Salicaceae	Homalium hypolasium Mildbr.	1
Salicaceae	Homalium letestui Pellegr.	28
Salicaceae	Oncoba glauca (P. Beauv.) Planch.	25
Sapindaceae	Allophylus africanus P.Beauv.	39
Sapindaceae	Blighia sapida Koenig	1
Sapindaceae	Blighia unijugata Baker (L.) Jacquin	24
Sapindaceae	Chytranthus setosus Radlk.	45
Sapindaceae	Chytranthus sp.22	1
Sapindaceae	Chytranthus sp.44	1
Sapindaceae	Chytranthus sp.I	2
Sapindaceae	Chytranthus sp.M	5
Sapindaceae	Chytranthus sp.Mu	8
Sapindaceae	Deinbollia cuneifolia Baker	6
Sapindaceae	Eriocoelum macrocarpum	60
Sapindaceae	Eriocoelum macrocarpum Gilg. Ex Engl.	1
Sapindaceae	Eriocoelum sp.	10
Sapindaceae	Laccodiscus ferrugineus (Baker) Radlk.	7
Sapotaceae	???	81
Sapotaceae	Englerophytum stelechanthum K. Krause	36
Sapotaceae	Manilkara sp.	8
Scytopetalaceae	Rhaptopetalum geophylax Cheek & Gosline	3

Scytopetalaceae	Rhaptopetalum Sp.nov.	2
Simaroubaceae	Quassia silvestris	100
Thymelaeaceae	Dicranolepis vestita Engl.	1
Ulmaceae	Trema orientalis (L.) Blume	1



## 1.5.2 Mt Nlonako

Table 6. Number of plots recorded with their vegetation types, sites and GPS points.

SN	TroPEG Plot #	Vegetation Type	Site	Site Code	Latitude (N)	Longitude (E)	Elevation (m)
1	55	Submontane	E Kangmbeng	EKA	4.92768	9.99905	806
2	56	Submontane	E Kangmbeng	EKA	4.92768	9.99905	806
3	57	Submontane	E Kangmbeng	EKA	4.92768	9.99905	806
4	58	Submontane	E Kangmbeng	EKA	4.92768	9.99905	806
5	59	Submontane	E Kangmbeng	EKA	4.92768	9.99905	806
6	60	Submontane	E Kangmbeng	EKA	4.92768	9.99905	806
7	61	Submontane	E Kangmbeng	EKA	4.92768	9.99905	806
8	62	Submontane	E Kangmbeng	EKA	4.92768	9.99905	806
9	63	Submontane	E Kangmbeng	EKA	4.92768	9.99905	806
10	64	Submontane	E Kangmbeng	EKA	4.92768	9.99905	806
11	65	Submontane	E Kangmbeng	EKA	4.92703	10	796
12	66	Submontane	E Kangmbeng	EKA	4.92725	9.99998	793

### Floristic Composition and Species Richness

A total of 6923 individuals were recorded comprising of trees  $\geq 1$  cm and lianas  $\geq 1$  cm in dbh (shrub, lianas, and trees). This represented 326 morphospecies (29 morphospecies not identified to genera and family and 297 morphospecies identified either to species, genera or family), 177 genera (103 individuals not identified to genera) and 51 families (14 individuals not identified to family). Trees with multiple stems numbered up to 294 where as Trees  $\geq 10$  cm accounted for 5484 individuals. Shrubs  $< 10$  cm gave 1199 individuals and lianas  $\geq 1$  cm gave only 34 individuals.

Trees with dbh  $\geq 10$  cm gave an average tree density of 474 trees/ha (373-576 trees/ha) and mean tree species of 99 species/ha (86-123 species/ha). Using the PAST statistical package, we calculated tree species richness for trees  $\geq 10$  cm dbh for Simpson, Shannon (H'), Fisher Alpha

and Chao 1. The result obtained showed 0.96 for Simpson, 3.90 for Shannon, a range of 3.67-4.25 for Fisher Alpha and 140 for Chao1 with a range of 110.3-192.2.

Table 7. Tree species, Abundance, and richness per hectare with dbh  $\geq$ 10 cm in Mt Nlonako, Cameroon.

SN	TroPEG Plot #	Stem density/ha	Tree Density/ha	# of species/ha	Shannon	Fisher Alpha	Chao1
1	55	386	362	86	3.9	34.3	117
2	56	373	354	103	4.1	47.1	135.8
3	57	376	349	98	3.9	43.1	146.2
4	58	406	375	87	3.8	33.9	110.3
5	59	548	526	107	3.9	39.7	174.6
6	60	508	497	95	3.7	34.5	155
7	61	510	495	93	3.8	33.3	120.8
8	62	496	488	89	3.7	31.6	122.1
9	63	479	465	95	3.9	35.6	124.2
10	64	576	555	108	3.9	39.2	137
11	65	552	543	123	4.2	49.1	192.2
12	66	480	475	108	4.2	43.4	147

Table 8. Summary of Species abundance, Basal Area, Biomass, Carbon and Carbon dioxides sequestered per hectare Mt Nlonako, Cameroon

Plot	Elevation (m)	Stem density $\geq 10$ cm dbh	Tree density $\geq 10$ cm dbh	# of species	Basal Area	Biomass (t/ha)	Carbon (t/ha)	Co <sub>2</sub> Seq. (t/ha)
1	806	386	362	86	22.2	280.7	140.4	515.1
2	806	373	354	103	31.4	464.2	232.1	851.8
3	806	376	349	98	29.9	455.9	227.9	836.6
4	806	406	375	87	26.6	352.4	176.2	646.7
5	806	548	526	107	41.4	577.9	288.9	1060.6
6	806	508	497	95	35.4	487	243.5	893.6
7	806	510	495	93	31.5	419.7	209.8	770.1
8	806	496	488	89	36	514.6	257.3	944.3
9	806	479	465	95	35.4	473.9	236.9	869.8
10	806	576	555	108	44.4	665.7	332.8	1221.5
11	796	552	543	123	43.9	664.4	332.2	1219.2
12	793	480	475	108	39.5	591	295.5	1084.6
Mean		474.2	457	99.3	36.9	495.6	247.8	909.5
SD		72.1	76.4	10.9	10.2	116.5	58.2	213.7

Table 9. Species list generated from Plot data in Mt Nlonako, Cameroon

Family	Speies	Number of trees/species
?	?	15
Achariaceae	<i>Scottellia klaineana</i> Pierre	7
Anacardiaceae	<i>Antrocaryon micraster</i> A. Chev. & Guillaum	2
Anacardiaceae	<i>Lannea</i> sp.	41
Anacardiaceae	<i>Mangifera indica</i> L.	4
Anacardiaceae	<i>Pseudospondias microcarpa</i> (A.Rich.) Engl.	325
Anacardiaceae	<i>Sorindeia grandifolia</i> Engl.	5
Anacardiaceae	<i>Sorindeia juglandifolia</i> (A.Rich.) Planch.ex Oliv.	26
Anacardiaceae	<i>Trichoscypha acuminata</i> Engl.	1
Anacardiaceae	<i>Trichoscypha preussi</i> Engl.	26
Anacardiaceae	<i>Trichoscypha</i> sp.NL	1
Annonaceae	<i>Annickia chlorantha</i> (Oliv.) Setten & P.J. Maas	2
Annonaceae	<i>Anonidium mannii</i> (Oliv.) Engl. & Diels	2
Annonaceae	<i>Cleistopholis patens</i> (Benth.) Engl. & Diels	9
Annonaceae	<i>Cleistopholis staudtii</i> Engl. & Diels	2
Annonaceae	<i>Hexalobus</i> sp.	2
Annonaceae	<i>Monodora brevipes</i> Benth.	27
Annonaceae	<i>Monodora myristica</i> (Gaerttn.) Dunal	3
Annonaceae	<i>Monodora tenuifolia</i> Benth.	1
Annonaceae	<i>Polyanthia suaveolens</i> Le Thomas	83
Annonaceae	<i>Uvariopsis</i> cf <i>vanderystii</i> Robyns & Ghesq.	1
Annonaceae	<i>Uvariopsis dioica</i> (Diels) Robyns & Ghesq.	18
Annonaceae	<i>Xylophia aethiopica</i> (Dunal) A.Rich.	3
Annonaceae	<i>Xylophia</i> cf. <i>acutiflora</i> (Dunal) A.Rich.	2
Annonaceae	<i>Xylophia</i> sp.	1
Annonaceae	<i>Xylophia</i> sp.3	4
Annonaceae	<i>Xylophia</i> sp.NL	2

Annonaceae	<i>Xylopia villosa</i> Chipp	3
Apocynaceae	?	2
Apocynaceae	<i>Funtumia elastica</i> (Preuss) Stapf	44
Apocynaceae	<i>Landolphia landolphioides</i> (Hallier f.) A. Chev.	2
Apocynaceae	<i>Orthopichonia visciflua</i> (K. Schum.ex Hallier f.) Vonk	3
Apocynaceae	<i>Picalima nitida</i> (Stapf.) T. Durand & H. Durand	20
Apocynaceae	<i>Pleiocarpa</i> sp.	1
Apocynaceae	<i>Rauvolfia caffra</i> Sond.	9
Apocynaceae	<i>Rauvolfia vomitoria</i> Afzel.	1
Apocynaceae	<i>Tabernaemontana brachyantha</i> Stapf	379
Apocynaceae	<i>Tabernaemontana crassa</i> Benth.	34
Apocynaceae	<i>Voacanga africana</i> Stapf	30
Araliaceae	<i>Polyscias fulva</i> (Hiern) Harms	12
Arecaceae	<i>Elaeis guineensis</i> Jacq.	243
Arecaceae	<i>Raphia cf.regalis</i> Becc.	9
Arecaceae	<i>Raphia hookeri</i> G. Mann & H. Wendl.	1
Arecaceae	<i>Raphia regalis</i> Becc.	1
Bignoniaceae	?	3
Bignoniaceae	<i>Kigelia africana</i> (Lam.) Benth.	11
Bignoniaceae	<i>Markhamia lutea</i> (Benth.) K. Schum.	19
Bignoniaceae	<i>Spathodea campanulata</i> P. Beauv.	16
Bombacaceae	<i>Ceiba pentandra</i> (L.) Gaertn.	23
Boraginaceae	<i>Cordia africana</i>	1
Boraginaceae	<i>Cordia africana</i> Lam.	21
Boraginaceae	<i>Cordia</i> sp.	3
Boraginaceae	<i>Cordia</i> sp.3	13
Boraginaceae	<i>Cordia</i> sp.I	3
Burseraceae	<i>Canarium schweinfurthii</i> Engl.	19
Burseraceae	<i>Dacryodes edulis</i> (G.Don) H.J. Lam.	55
Burseraceae	<i>Dacryodes klaineana</i> (Pierre) H.J. Lam	16
Burseraceae	<i>Santiria trimera</i> (Oliv.) Aubr.	7

Cecropiaceae	Musanga cecropioides R.Br.ex Tedlie	18
Cecropiaceae	Myrianthus arboreus P. Beauv.	129
Cecropiaceae	Myrianthus sp.	60
Celastraceae	Salacia sp.	1
Chrysobalancaee	Maranthes sp.	16
Clusiaceae	Allanblackia gabonensis (Pellegr.) Bamps	16
Clusiaceae	Garcinia kola Heckel	35
Clusiaceae	Garcinia lucida Vesque	4
Clusiaceae	Garcinia mannii Oliv.	61
Clusiaceae	Pentadesma grandifolia Baker f.	1
Clusiaceae	Symphonia globulifera L.F.	43
Combretaceae	?	1
Combretaceae	Combretum sp.I	1
Combretaceae	Terminalia superba Engl. & Diels	51
Dichapetalaceae	Dichapetalum pheotricha	2
Dichapetalaceae	Dichapetalum sp.	2
Ebenaceae	Diospyros conocarpa Gurke & K. Schum.	2
Ebenaceae	Diospyros gabunensis Gürke	3
Ebenaceae	Diospyros preussi Gürke	1
Ebenaceae	Diospyros sp.	1
Ebenaceae	Diospyros sp.EK	2
Ebenaceae	Diospyros sp.Y	17
Ebenaceae	Diospyros zenkeri (Gürke) F. White	7
Erythroxylaceae	Erythroxylum mannii Oliv.	1
Euphorbiaceae	?	9
Euphorbiaceae	Alchornea cordifolia (Schum. & Thonn.) Müll.Arg.	5
Euphorbiaceae	Alchornea floribunda Müll.Arg.	8
Euphorbiaceae	Alchornea hirtella Benth.	180
Euphorbiaceae	Alchornea sp.	5
Euphorbiaceae	Alchornea sp.2	24
Euphorbiaceae	Alchornea sp.3	9

Euphorbiaceae	<i>Cyrtogonone argentea</i> (Pax) Prain	2
Euphorbiaceae	<i>Discoclaoxylon hexandrum</i> (Mull.Arg.) Pax & K.Hoffm.	1
Euphorbiaceae	<i>Elaeophorbia drupifera</i> (Thonn.) Stapf.	2
Euphorbiaceae	<i>Erythrococca</i> sp.	1
Euphorbiaceae	<i>Neoboutonia glabrescens</i> Prain	11
Euphorbiaceae	<i>Plagiostyles africana</i> (Müll.Arg.) Prain	68
Euphorbiaceae	<i>Pycnocomma macrophylla</i> Benth.	1
Euphorbiaceae	<i>Ricinodendron heudelotii</i> (Baill.) Heckel	17
Euphorbiaceae	<i>Sapium ellipticum</i> (Krauss) Pax	6
Euphorbiaceae	<i>Sapium</i> sp.	1
Euphorbiaceae	<i>Tetrorchidium didymostemon</i> (Baill.) Pax & K. Hoffm.	4
Fabaceae	?	7
Fabaceae	<i>Afzelia bipindensis</i> Harms	32
Fabaceae	<i>Albizia adianthifolia</i> (Schum.) W.F. Wright	16
Fabaceae	<i>Albizia gummifera</i> (J.F.Gmel.) C.A. Sm.	1
Fabaceae	<i>Albizia</i> sp.NL	1
Fabaceae	<i>Albizia zygia</i> (DC.) J.F. Macbr.	122
Fabaceae	<i>Amphimas pterocarpoides</i> Harms	12
Fabaceae	<i>Angylocalyx oligophyllus</i> (Baker) Baker f.	1
Fabaceae	<i>Angylocalyx pynaertii</i> De Wild	6
Fabaceae	<i>Angylocalyx talbotii</i> Baker f.	24
Fabaceae	<i>Bikinia le-testui</i> (Pellegr.) Wieringa	15
Fabaceae	<i>Cynometra mannii</i> Oliv.	2
Fabaceae	<i>Dalbergia oligophylla</i> Baker ex Hutch. & Dalziel	3
Fabaceae	<i>Dalbergia</i> sp.	1
Fabaceae	<i>Detarium macrocarpum</i> Harms	2
Fabaceae	<i>Dialium dinklagei</i> Harms	4
Fabaceae	<i>Dialium guineense</i> Wild	1
Fabaceae	<i>Dialium pachyphyllum</i> Harms	7
Fabaceae	<i>Dialium</i> sp.	12
Fabaceae	<i>Dialium</i> sp.EK	50

Fabaceae	<i>Dialium</i> sp.N12	1
Fabaceae	<i>Distemonanthus benthamianus</i> Baill.	6
Fabaceae	<i>Erythrina excelsa</i> Baker	6
Fabaceae	<i>Erythrophleum ivorense</i> A. Chev.	12
Fabaceae	<i>Hylodendron gabunense</i> Taub.	158
Fabaceae	<i>Millettia</i> sp.	2
Fabaceae	<i>Millettia</i> sp.NL	19
Fabaceae	<i>Mimosa</i> sp.	2
Fabaceae	<i>Parkia bicolor</i> A.Chev.	1
Fabaceae	<i>Parkia</i> sp.	3
Fabaceae	<i>Pentaclethra</i> sp.	6
Fabaceae	<i>Piptadeniastrum africanum</i> (Hook.f.) Brenan	58
Fabaceae	<i>Plagiosiphon longitubus</i> (Harms) J.Leonard	1
Fabaceae	<i>Pterocarpus mildbraedii</i> Harms	42
Fabaceae	<i>Pterocarpus soyauxii</i> Taub.	15
Fabaceae	<i>Stemonocoleus micranthus</i> Harms	5
Fabaceae	<i>Tetrapleura tetraptera</i> (Schum. & Thonn.) Taub.	14
Icacinaceae	<i>Iodes kamerunensis</i> Engl.	6
Icacinaceae	<i>Lasianthera africana</i> P. Beauv.	5
Irvingiaceae	<i>Irvingia gabonensis</i> (Aubry-lecomte ex O'Rorke) Baill.	8
Irvingiaceae	<i>Irvingia grandifolia</i> (Engl.) Engl.	14
Irvingiaceae	<i>Klainedoxa gabonensis</i> Pierre ex Engl.	3
Irvingiaceae	<i>Klainedoxa trillestii</i> Pierre ex Prain	29
Lamiaceae	<i>Vitex grandifolia</i> Gürke	16
Lamiaceae	<i>Vitex</i> sp.	9
Lauraceae	?	1
Lauraceae	<i>Beilschmiedia</i>	1
Lauraceae	<i>Beilschmiedia acuta</i> Costermans	5
Lauraceae	<i>Beilschmiedia jacques-felixii</i> Rob. & Wilcz.	6
Lauraceae	<i>Beilschmiedia</i> sp.	15
Lauraceae	<i>Beilschmiedia</i> sp.1	1



Lauraceae	<i>Persea americana</i> Miller	31
Lecythidaceae	<i>Napoleonaea egertonii</i> Baker f.	19
Lecythidaceae	<i>Napoleonaea vogelii</i> Hook f. & Planch.	2
Lecythidaceae	<i>Petersianthus macrocarpus</i> (P.Beauv.) Liben	29
Leeaceae	<i>Leea guineensis</i> G.Don	1
Lepidobotryaceae	<i>Lepidobotrys staudtii</i> Engl.	3
Loganiaceae	<i>Strychnos urceolata</i>	1
Malvaceae	?	18
Malvaceae	<i>Cola acuminata</i> (P.Beauv.) Schott & Endl.	11
Malvaceae	<i>Cola cf. ficifolia</i> Mast.	1
Malvaceae	<i>Cola heterophylla</i> (P. Beauv.) Schott & Endl.	5
Malvaceae	<i>Cola lepidota</i> K. Schum.	1
Malvaceae	<i>Cola pachycarpa</i> K. Schum.	15
Malvaceae	<i>Cola</i> sp.	8
Malvaceae	<i>Cola</i> sp.A	1
Malvaceae	<i>Desplatsia chrysochlamys</i> (Mildbr. & Burret) Mildbr. & Burret	1
Malvaceae	<i>Duboscia macrocarpa</i> Bocq.	30
Malvaceae	<i>Duboscia</i> sp.	5
Malvaceae	<i>Glyphaea brevis</i> (Spreng.) Monach.	1
Malvaceae	<i>Glyphaea</i> sp.	88
Malvaceae	<i>Glyphaea</i> sp.2	1
Malvaceae	<i>Leptonychia pallida</i> K. Schum.	9
Malvaceae	<i>Microcos coriacea</i> (Mast.) Burret	24
Malvaceae	<i>Sterculia oblonga</i> Mast.	1
Malvaceae	<i>Sterculia tragacantha</i> Lindl.	75
Malvaceae	<i>Theobroma cacao</i> L.	2
Meliaceae	?	1
Meliaceae	<i>Carapa angustifolia</i>	1
Meliaceae	<i>Carapa dinklagei</i> Harms	59
Meliaceae	<i>Carapa parvifolia</i> Harms	2

Meliaceae	Entandrophragma angolense (Welw.) C.DC.	7
Meliaceae	Guarea cedrata (A.Chev.) Pellegr	12
Meliaceae	Guarea glomerulata Harms	2
Meliaceae	Trichilia prieureana A.Juss	160
Meliaceae	Trichilia welwitschii C.DC.	47
Meliaceae	Turraeanthus africanus (Welw.ex C.DC.) Pellegr.	28
Menispermaceae	Penianthus camerounensis A. Dekker	10
Moraceae	Antiaris africana Engl.	25
Moraceae	Ficus bubu	14
Moraceae	Ficus exasperata Vahl	65
Moraceae	Ficus mucoso Welw.ex Ficalho	29
Moraceae	Ficus sp.	51
Moraceae	Ficus sp.NL	1
Moraceae	Ficus vogeliana (Miq.) Miq.	1
Moraceae	Milicia excelsa (Welw.) C.C. Berg	43
Moraceae	Treculia africana Decne.	18
Moraceae	Treculia obovoidea N.E.Br.	10
Moraceae	Trilepisium madagascariense DC.	142
Myristicaceae	Coelocaryon preussi Warb.	223
Myristicaceae	Pycnanthus angolensis (Welw.) Warb.	530
Myristicaceae	Staudtia gabonensis (Warb.) Fouilloy	11
Myristicaceae	Staudtia kamerunensis Warb.	4
Myrtaceae	Eugenia fernandopoana Engl. & Diels	1
Myrtaceae	Eugenia sp.EK	3
Myrtaceae	Psidium quajava L.	8
Myrtaceae	Syzygium guineense (Willd.) DC.	2
Ochnaceae	Campylospermum laxiflorum (De Wild. & T. Durand) Tiegh.	1
Ochnaceae	Lophira alata Banks ex Gaertn.f.	99
Olacaceae	Engomegoma gordonii Breteler	4
Olacaceae	Octoknema affinis Pierre	4

Olacaceae	<i>Olax</i> sp.NL	1
Olacaceae	<i>Ptychopetalum petiolatum</i> Oliv.	10
Olacaceae	<i>Strombosia grandifolia</i> Hook.f.ex Benth.	459
Olacaceae	<i>Strombosia pustulata</i> Oliv.	5
Olacaceae	<i>Strombosiosis tetrandra</i> Engl.	6
Pandaceae	<i>Microdesmis puberula</i> Hook.f.ex Planch.	9
Pandaceae	<i>Microdesmis</i> sp.NL	1
Pandaceae	<i>Panda oleosa</i> Pierre	16
Passifloraceae	<i>Adenia</i> sp.	1
Passifloraceae	<i>Barteria fistulosa</i> Mast.	3
Phyllanthaceae	<i>Antidesma</i> sp.	42
Phyllanthaceae	<i>Antidesma</i> sp.65	1
Phyllanthaceae	<i>Antidesma</i> sp.NL	1
Phyllanthaceae	<i>Antidesma vogelianum</i> Müll.Arg.	1
Phyllanthaceae	<i>Bridelia grandis</i> Pierre ex Hutch.	7
Phyllanthaceae	<i>Bridelia micrantha</i> (Hochst.) Baill.	19
Phyllanthaceae	<i>Macaranga monandra</i> Müll.Arg.	44
Phyllanthaceae	<i>Macaranga spinosa</i> Mull.Arg.	3
Phyllanthaceae	<i>Maesobotrya barteri</i> (Baill.) Hutch.	4
Phyllanthaceae	<i>Maesobotrya staudtii</i> (Pax) Hutch.	1
Phyllanthaceae	<i>Margaritaria discoidea</i> (Baill.) Webster	29
Phyllanthaceae	<i>Uapaca guineensis</i> Müll.Arg.	5
Phyllanthaceae	<i>Uapaca</i> sp.I	71
Polygalaceae	<i>Carpolobia alba</i> G.Don	8
Putranjivaceae	<i>Drypetes gossweileri</i>	4
Putranjivaceae	<i>Drypetes paxii</i> Hutch.	8
Putranjivaceae	<i>Drypetes paxii</i> Hutch.	3
Putranjivaceae	<i>Drypetes</i> sp.	1
Putranjivaceae	<i>Drypetes</i> sp.L2	1
Putranjivaceae	<i>Drypetes</i> sp.NL	3
Putranjivaceae	<i>Drypetes</i> sp.P2	15

Rhamnaceae	<i>Maesopsis eminii</i> Engl.	5
Rubiaceae	?	3
Rubiaceae	<i>Aidia</i> sp.	34
Rubiaceae	<i>Aulacocalyx caudata</i> (Hiern) Keay	7
Rubiaceae	<i>Aulacocalyx talbotii</i> (Wernham) Keay	10
Rubiaceae	<i>Bertiera</i> sp.	1
Rubiaceae	<i>Bertiera</i> sp.I	1
Rubiaceae	<i>Coffea liberica</i> Bull.ex Hiern	19
Rubiaceae	<i>Coffea</i> sp.	2
Rubiaceae	<i>Cuviera subuliflora</i> Benth.	12
Rubiaceae	<i>Heinsia crinita</i> (Afzel.) G. Taylor	14
Rubiaceae	<i>Keetia</i> sp.	1
Rubiaceae	<i>Massularia acuminata</i> (G.Don) Bullock ex Hoyle	10
Rubiaceae	<i>Morinda lucida</i> Benth.	11
Rubiaceae	<i>Mussaenda</i> sp.	1
Rubiaceae	<i>Nauclea diderrichii</i> (De Wild. & T. Durand) Merrill	2
Rubiaceae	<i>Oxyanthus gracilis</i> Hiern	5
Rubiaceae	<i>Oxyanthus laxiflorus</i> K. Schum.ex Hutch. & Dalziel	21
Rubiaceae	<i>Pauridiantha viridiflora</i> (Schweinf.ex Hiern) Hepper	2
Rubiaceae	<i>Pausinystalia macroceras</i> (K. Schum.) Pierre ex Beille	45
Rubiaceae	<i>Pavetta staudtii</i> Hutch. & Dalziel	3
Rubiaceae	<i>Psilanthus manni</i> Hook.f.	3
Rubiaceae	<i>Psilanthus</i> sp.NL	1
Rubiaceae	<i>Psychotria</i> sp.	12
Rubiaceae	<i>Psydrax subcordata</i> (DC.) Bridson	2
Rubiaceae	<i>Rothmannia hispida</i> (K. Schum.) Fagerlind	2
Rubiaceae	<i>Rothmannia</i> sp.F	6
Rubiaceae	<i>Rothmannia talbotii</i> (Wernham) Keay	2
Rubiaceae	<i>Schumanniphyton magnificum</i> (K. Schum.) Harms	4
Rubiaceae	<i>Tricalysia</i> sp.	83
Rubiaceae	<i>Tricalysia</i> sp.S	2

Rutaceae	?	4
Rutaceae	?	3
Rutaceae	Citrus sinensis (L.) Obs. (Cult.)	1
Rutaceae	Zanthoxylum gillettii (De Wild.) P.G. Waterman	1
Rutaceae	Zanthoxylum macrophyllum	22
Rutaceae	Zanthoxylum rubescens Planch.ex Hook.f.	12
Salicaceae	Casearia sp.	3
Salicaceae	Homalium africanum (Hook.f.) Benth.	12
Salicaceae	Homalium longistylum Mast.	26
Salicaceae	Oncoba glauca (P. Beauv.) Planch.	189
Sapindaceae	Allophylus africanus P. Beauv.	63
Sapindaceae	Blighia sapida Koenig	3
Sapindaceae	Blighia sp.	9
Sapindaceae	Blighia sp.2	2
Sapindaceae	Blighia sp.NL	17
Sapindaceae	Blighia unijugata Baker	3
Sapindaceae	Chytranthus gillettii De Wild	2
Sapindaceae	Chytranthus sp.	1
Sapindaceae	Chytranthus talbotii (Baker f.) Keay	1
Sapindaceae	Eriocoelum macrocarpum Gilg.	22
Sapindaceae	Laccodiscus ferrugineus (Baker) Radlk.	1
Sapindaceae	Laccodiscus sp.	1
Sapindaceae	Pancovia sp.	45
Sapindaceae	Placodiscus glandulosus Radlk	2
Sapotaceae	?	4
Sapotaceae	?	33
Sapotaceae	Gambeya africanum	1
Simaroubaceae	Quassia sylvestris	16
Thymeliaeaceae	Dicranolepis grandiflora Engl.	4
Ulmaceae	Celtis mildbraedii Engl.	9
Ulmaceae	Celtis sp.	46

Ulmaceae	<i>Celtis zenkeri</i> Engl.	1
Ulmaceae	<i>Trema orientalis</i> (L.) Blume	1
Violaceae	<i>Rinorea oblongifolia</i> (C.H. Wright) Marqua	2
Violaceae	<i>Rinorea</i> sp.	4
Violaceae	<i>Rinorea</i> sp.NL	11

---

### **Anthropogenic Activities in the Mt Nlonako Forest Area**

In the past, the Mt Nlonako forest area has been logged mostly in the lowland forest area through commercial logging in legal concessions (Kenfack, 2001). Presently illegal artisanal logging is rampant mostly in the lowland, and subsistence farming is flourishing both in the lowland and montane forest. In the forest, there are many cleared patches of farmland with sapling of useful medium size trees such as bitter kola (*Garcinia kola*) planted all over the cultivated area. The major activities of the inhabitants are subsistence farming, hunting, and fishing. However, a few individuals practices plantation agriculture of the usual economic crops in Cameroon that is coffee, cocoa, and palms. Beside all these, the population also gathered valuable non-timber forest products as reported in Kenfack (2001). These were the major threats encountered during the survey.

Generally, the Mt Nlonako forest area is rich and diverse in flora, reptiles, and amphibians and holds important species that are worth the need/capacity to be protected. Our data shows a high tree density, number of species, above ground biomass and carbon per hectare even in plots that most of its portions were sampled in in farmlands like plot 1-4 (Table 9). The only two floristic surveys that have been carried out in recent time in the Mt Nlonako forest area is that of Kenfack (2001) and the present study. Both studies have recorded interesting species when compared to surveys of neighboring mountains (Cheek et al., 2004, Harvey et al., 2010, Sainge, 2016) and hence we recommend by concluding that Mt Nlonako forest should be given the status of a full protected forest and well intense scientific studies are needed to uncover the rich wealth of diversity found in the area.

Table 10. Provincial plant list from observation survey in the Bakossi National Park area, Cameroon

Family	Species
Acanthaceae	<i>Acanthopale decempedalis</i> C.B.Clarke
Achariaceae	<i>Dasylepis racemosa</i> Oliv.
Anacardiaceae	<i>Lanea welwitschii</i> (Hiern) Engl.
Anacardiaceae	<i>Pseudospondias microcarpa</i> (A.Rich.) Engl.
Anacardiaceae	<i>Pseudospondias microcarpa</i> var. <i>longifolia</i>
Anacardiaceae	<i>Sorindeia grandifolia</i> Engl.
Anacardiaceae	<i>Sorindeia</i> sp.
Anacardiaceae	<i>Trichoscypha bijuga</i> Engl.
Anacardiaceae	<i>Trichoscypha</i> sp.
Anacardiaceae	<i>Trichoscypha</i> sp.72
Anacardiaceae	<i>Trichoscypha</i> sp.I
Anacardiaceae	<i>Trichoscypha</i> sp.R
Annonaceae	<i>Boutiquea platypetala</i> Le Thomas
Annonaceae	<i>Monodora brevipes</i> Benth.
Annonaceae	<i>Monodora myristica</i> (Gaertn.) Dunal
Annonaceae	<i>Monodora</i> sp.
Annonaceae	<i>Piptostigma</i> cf. <i>multinervium</i> Engl. & Diels
Annonaceae	<i>Polyanthia suaveolens</i>
Annonaceae	<i>Uvariadendron</i> sp.
Annonaceae	<i>Uvariopsis submontana</i> Kenkack, Gosline & Gereau
Annonaceae	<i>Xylophia aethiopica</i> (Dunal) A.Rich.
Annonaceae	<i>Xylophia africana</i> (Benth.) Oliv.
Annonaceae	<i>Xylophia phloiodora</i>
Annonaceae	<i>Xylophia</i> sp.
Apocynaceae	<i>Alstonia boonei</i> De Wild.
Apocynaceae	<i>Funtumia elastica</i> (Preuss) Stapf
Apocynaceae	<i>Holarrhena floribunda</i> (G.Don.) Dur.& Schinz.
Apocynaceae	<i>Landolphia landolphioides</i> (Hallier f.) A.Chev.

Apocynaceae	Landolphia sp.
Apocynaceae	Landolphia sp.2
Apocynaceae	Landolphia sp.4
Apocynaceae	Landolphia sp.45
Apocynaceae	Landolphia sp.I
Apocynaceae	Rauvolfia mannii Stapf.
Apocynaceae	Rauvolfia vomitoria Afzel.
Apocynaceae	Tabernaemontana brachyantha Stapf
Apocynaceae	Tabernaemontana crassa Benth.
Apocynaceae	Tabernaemontana ventricosa
Apocynaceae	Voacanga africana Stapf
Apocynaceae	Voacanga psilocalyx Pierre ex Stapf
Araliaceae	Polysias fulva
Araliaceae	Schefflera hierniana Harms
Arecaceae	Elaeis guineensis Jacq.
Arecaceae	Phoenix reclinata L.
Asteraceae	Vernonia conferta Benth.
Begoniaceae	Begonia pseudoviola Gilg.
Bignoniaceae	Kigelia africana (Lam.) Benth.
Bignoniaceae	Markhamia sp.
Bignoniaceae	Newbouldia laevis (P. Beauv.) Seeman ex Bureau
Boraginaceae	Cordia africana
Boraginaceae	Cordia aurantiaca Bak.
Boraginaceae	Cordia sp.
Boraginaceae	Cordia sp.H
Buddlejaceae	Nuxia congesta
Burseraceae	Canarium schweinfurthii Engl.
Burseraceae	Dacryodes edulis (G.Don.) H.J. Lam.
Burseraceae	Dacryodes klaineana (Pierre) H.J. Lam.
Burseraceae	Santiria balsamifera Oliv.
Caricaceae	Cylicomorpha solmsii (Urb.) Urb.



Cecropiaceae	<i>Musanga cecropioides</i> R.Br.ex Tedlie
Cecropiaceae	<i>Myrianthus fosi</i> Cheek
Cecropiaceae	<i>Myrianthus</i> sp.2
Celastraceae	<i>Salacia loloensis</i> Loes
Celastraceae	<i>Salacia</i> sp.
Chrysobalanaceae	<i>Dactyladenia</i> sp.
Chrysobalanaceae	<i>Magnistipula</i> sp.
Chrysobalanaceae	<i>Maranthes gabunensis</i> (Engl.) G.T. Prance
Chrysobalanaceae	<i>Maranthes</i> sp.2
Clusiaceae	<i>Allanblackia gabonensis</i> (Pellegr.) Bamps
Clusiaceae	<i>Garcinia kola</i> Heckel
Clusiaceae	<i>Garcinia lucida</i> Vesque
Clusiaceae	<i>Garcinia mannii</i> Oliv.
Clusiaceae	<i>Pentadesma grandifolia</i> Bak.f.
Clusiaceae	<i>Symphonia globulifera</i> L.f.
Connaraceae	<i>Agelaea</i> sp.
Delliniaceae	<i>Tetracera potatoria</i> Afzel. Ex G. Don
Dichapetalaceae	<i>Dichapetalium dewevrei</i>
Dichapetalaceae	<i>Dichapetalum heudelotii</i> (Planch.ex Oliv.) Baill.)
Dichapetalaceae	<i>Tapura africana</i> Oliv.
Dracaenaceae	<i>Dracaena arborea</i> (Willd.) Link.
Dracaenaceae	<i>Dracaena bicolor</i> Hook.f.
Ebenaceae	<i>Diospyros bipindensis</i> Gürke
Ebenaceae	<i>Diospyros kamerunensis</i> Gürke
Ebenaceae	<i>Diospyros monbuttensis</i> Gürke
Ebenaceae	<i>Diospyros</i> sp.I
Euphorbiaceae	<i>Alchornea floribunda</i> Müll.Arg.
Euphorbiaceae	<i>Alchornea</i> sp.2
Euphorbiaceae	<i>Alchornea</i> sp.Mu
Euphorbiaceae	<i>Croton longiracemosus</i> Hutch.
Euphorbiaceae	<i>Crotonogyne</i> sp.

Euphorbiaceae	<i>Discoclaoxylon hexandrum</i> (Müll.Arg.) Pax & Hoffm.
Euphorbiaceae	<i>Discoglyprena caloneura</i> (Pax) Prain
Euphorbiaceae	<i>Elaeophorbia drupifera</i>
Euphorbiaceae	<i>Grossera multinervis</i> J. Léonard
Euphorbiaceae	<i>Ricinodendron heudelotii</i> (Baill.) Heckel
Euphorbiaceae	<i>Sapium ellipticum</i> (Krauss) Pax
Euphorbiaceae	<i>Sapium</i> sp.
Euphorbiaceae	<i>Tetracarpidium conophorum</i> (Müll.Arg.) Hutch. & Dalziel
Euphorbiaceae	<i>Tetrorchidium didymostemon</i> (Baill.) Pax & K. Hoffm.
Fabaceae	<i>Albizia adianthifolia</i> (Schum.) W.F. Wright
Fabaceae	<i>Albizia ferruginea</i> (Guill. Perr.) Benth.
Fabaceae	<i>Albizia</i> sp.2
Fabaceae	<i>Albizia zygia</i> (DC.) J.F. Macbr.
Fabaceae	<i>Amphimas</i> cf. <i>pterocarpoides</i>
Fabaceae	<i>Amphimas pterocarpoides</i> Harms
Fabaceae	<i>Amphimas</i> sp.
Fabaceae	<i>Brachystegia milbraedii</i> Harms
Fabaceae	<i>Dalbergia</i> sp.
Fabaceae	<i>Dialium guineense</i> Willd.
Fabaceae	<i>Dialium pachyphyllum</i> Harms
Fabaceae	<i>Dialium</i> sp.
Fabaceae	<i>Erythrina excelsa</i> Baker
Fabaceae	<i>Leonardoxa africana</i> subsp. <i>Rumpiensis</i> McKey
Fabaceae	<i>Leptoderris</i> sp.
Fabaceae	<i>Parkia bicolor</i> A. Chev.
Fabaceae	<i>Parkia</i> sp.
Fabaceae	<i>Piptadeniastrum africanum</i> (Hook.f.) Brenan
Fabaceae	<i>Pterocarpus soyauxii</i> Taub.
Fabaceae	<i>Zenkerella citrina</i> Taub.
Gentianaceae	<i>Anthocleista nobilis</i>
Icacinaceae	<i>Icacina</i> sp.

Icacinaceae	<i>Rhaphiostylis beninensis</i> (Hook.f.ex Planch.) Planch.
Irvingiaceae	<i>Desbordesia glaucescens</i> (Engl.) Tiegh.
Lamiaceae	<i>Vitex grandifolia</i> Gürke
Lamiaceae	<i>Vitex</i> sp.
Lauraceae	<i>Beilschmiedia</i> sp.
Lauraceae	<i>Beilschmiedia</i> sp.3
Lauraceae	<i>Beilschmiedia</i> sp.E
Lauraceae	<i>Beilschmiedia</i> sp.I
Lauraceae	<i>Beilschmiedia</i> sp.N
Lecythidaceae	<i>Crateranthus</i> sp.
Lecythidaceae	<i>Rhaptopetalum</i> sp.
Lecythidaceae	<i>Rhaptopetalum</i> Sp.nov.
Leeaceae	<i>Leea guineensis</i> G.Don
Linaceae	<i>Hugonia macrophylla</i> Oliv.
Linaceae	<i>Hugonia platysepala</i> Welw. ex Oliv.
Loganiaceae	<i>Strychnos camptoneura</i> Gilg. & Busse
Loganiaceae	<i>Strychnos</i> sp.
Malvaceae	<i>Chlamydocola chlamydantha</i>
Malvaceae	<i>Cola digitata</i> Mast.
Malvaceae	<i>Cola</i> sp.I
Malvaceae	<i>Cola</i> sp.Mu
Malvaceae	<i>Cola verticilata</i> (Thonn.) Stapfex A.Chev.
Malvaceae	<i>Glyphaea</i> sp.
Malvaceae	<i>Glyphaea</i> sp.2
Malvaceae	<i>Glyphaea</i> sp.Mu
Malvaceae	<i>Leptonychia</i> sp.MU
Malvaceae	<i>Microcos coriacea</i> (Mast.) Burret
Malvaceae	<i>Sterculia</i> sp.
Malvaceae	<i>Sterculia tragacantha</i>
Malvaceae	<i>Sterculia tragacantha</i> Lindl.
Medusandraceae	<i>Medusandra mpomiana</i> Letouzey & Satabié

Medusandraceae	<i>Medusandra richardsiana</i> Brenan
Melastomataceae	<i>Memecylon</i> sp.
Melastomataceae	<i>Memecylon</i> sp.2
Melastomataceae	<i>Memecylon</i> sp.3
Melastomataceae	<i>Memecylon zenkeri</i> Gilg.
Melastomataceae	<i>Warneckea pulcherrima</i> (Gilg.) Jacq.-Félix
Meliaceae	<i>Carapa angustifolia</i>
Meliaceae	<i>Carapa dinklagei</i> Harms
Meliaceae	<i>Carapa grandifolia</i>
Meliaceae	<i>Carapa oreophila</i> Kenfack
Meliaceae	<i>Carapa parvifolia</i> Harms
Meliaceae	<i>Carapa</i> sp.
Meliaceae	<i>Entandrophragma cylindricum</i> Sprague
Meliaceae	<i>Entandrophragma utile</i> Sprague
Meliaceae	<i>Guarea glomerulata</i> Harms
Meliaceae	<i>Guarea</i> sp.
Meliaceae	<i>Guarea</i> sp.2
Meliaceae	<i>Guarea</i> sp.H
Meliaceae	<i>Guarea thompsonii</i> Sprague & Hutch.
Meliaceae	<i>Trichilia prieureana</i> A. Juss
Meliaceae	<i>Trichilia welwitschii</i> C.DC.
Meliaceae	<i>Turraeanthus africanus</i> (Welw.ex C.DC.) Pellegr.
Meliantaceae	<i>Bersama abyssinica</i> Fresen.
Meliantaceae	<i>Bersama</i> sp.2
Menispermaceae	<i>Penianthus camerounensis</i> A.Dekker
Moraceae	<i>Ficus bubu</i>
Moraceae	<i>Ficus exasperata</i> Vahl
Moraceae	<i>Ficus</i> sp.2
Moraceae	<i>Ficus</i> sp.45
Moraceae	<i>Ficus</i> sp.E
Moraceae	<i>Ficus</i> sp.H

Moraceae	<i>Ficus</i> sp.Mu
Moraceae	<i>Milicia excelsa</i> (Welw.) C.C. Berg
Moraceae	<i>Treculia africana</i> Decne.
Moraceae	<i>Treculia obovoidea</i> N.E.Br.
Moraceae	<i>Trilepisium madagascariense</i> DC.
Myristicaceae	<i>Coelocaryon</i> cf. <i>preussii</i> Warb.
Myristicaceae	<i>Coelocaryon preussii</i> Warb.
Myristicaceae	<i>Pycnanthus angolensis</i> (Welw.) Warb.
Myrsinaceae	<i>Ardisia koupensis</i> Taton
Myrtaceae	<i>Eugenia</i> sp.
Myrtaceae	<i>Eugenia</i> sp.
Myrtaceae	<i>Eugenia</i> sp.I
Myrtaceae	<i>Syzygium</i> sp.
Ochnaceae	<i>Campylopermum calanthum</i> (Gilg.) Farron
Ochnaceae	<i>Lophira alata</i> Banks ex Gaertn.f.
Octoknemataceae	<i>Octoknema bakossiense</i> Gosline & Malécot
Olacaceae	<i>Heisteria</i> sp.
Olacaceae	<i>Strombosia</i> cf. <i>grandifolia</i> Hook.f.ex Benth.
Olacaceae	<i>Strombosia grandifolia</i> Hook.f.ex Benth.
Olacaceae	<i>Strombosia scheffleri</i> Engl.
Pandaceae	<i>Microdesmis puberula</i> Hook.f.ex Planch.
Passifloraceae	<i>Adenia</i> sp.
Phyllanthaceae	<i>Antidesma chevaleri</i>
Phyllanthaceae	<i>Antidesma laciniatum</i> Müll.Arg
Phyllanthaceae	<i>Antidesma</i> sp.
Phyllanthaceae	<i>Antidesma</i> sp.B
Phyllanthaceae	<i>Antidesma</i> sp.I
Phyllanthaceae	<i>Bridelia grandis</i> Pierre ex Hutch.
Phyllanthaceae	<i>Bridelia micrantha</i> (Hochst.) Baill.
Phyllanthaceae	<i>Macaranga monandra</i> Müll.Arg.
Phyllanthaceae	<i>Maesobotrya barteri</i> (Baill.) Hutch.

Phyllanthaceae	<i>Margaritaria discoidea</i> (Baill.) Webster
Phyllanthaceae	<i>Phyllanthus</i> sp.
Phyllanthaceae	<i>Uapaca</i> cf. <i>paludosa</i> Aubrév. & Léandri
Phyllanthaceae	<i>Uapaca</i> sp.
Phyllanthaceae	<i>Uapaca</i> sp.I
Phyllanthaceae	<i>Uapaca staudtii</i> Pax
Piperaceae	<i>Piper guineense</i> Schum. & Thonn.
Polygalaceae	<i>Carpolobia alba</i> G.Don
Putranjivaceae	<i>Drypetes</i> cf. <i>molunduana</i> Pax & K. Hoffm.
Putranjivaceae	<i>Drypetes gossweileri</i> S. Moore
Putranjivaceae	<i>Drypetes paxii</i> Hutch.
Putranjivaceae	<i>Drypetes</i> sp.3
Putranjivaceae	<i>Drypetes</i> sp.48
Putranjivaceae	<i>Drypetes</i> sp.B
Putranjivaceae	<i>Drypetes</i> sp.B2
Putranjivaceae	<i>Drypetes</i> sp.S
Putranjivaceae	<i>Drypetes</i> sp.S2
Putranjivaceae	<i>Drypetes staudtii</i> (Pax) Hutch.
Rhamnaceae	<i>Maesopsis eminii</i> Engl.
Rhizophoraceae	<i>Cassipourea</i> sp.
Rhizophoraceae	<i>Cassipourea</i> sp.Mu
Rubiaceae	<i>Aidia genipiflora</i> (DC) Dandy
Rubiaceae	<i>Aulacocalyx</i> cf. <i>mapiana</i> Sonké & Bridson
Rubiaceae	<i>Aulacocalyx talbotii</i> (Wernham) keay
Rubiaceae	<i>Bertiera</i> sp.I
Rubiaceae	<i>Bertiera</i> sp.Mu
Rubiaceae	<i>Canthium</i> sp.
Rubiaceae	<i>Coffea bakossii</i> Cheek & Bridson
Rubiaceae	<i>Coffea</i> sp.Mu
Rubiaceae	<i>Craterispermum</i> sp.
Rubiaceae	<i>Cuviera subulifolia</i>

Rubiaceae	<i>Euclinia longiflora</i> Salisb.
Rubiaceae	<i>Heinsia crinita</i> (Afzel.) G. Taylor
Rubiaceae	<i>Keetia</i> sp.
Rubiaceae	<i>Keetia</i> sp.2
Rubiaceae	<i>Massularia acuminata</i> (G.Don) Bullock ex Hoyle
Rubiaceae	<i>Morelia senegalensis</i> A.Rich.ex DC.
Rubiaceae	<i>Nichallea soyauxii</i>
Rubiaceae	<i>Oxyanthus</i> sp.
Rubiaceae	<i>Oxyanthus</i> sp.v
Rubiaceae	<i>Pauridiantha floribunda</i> (K.Schum. & K.Krause) Bremek.
Rubiaceae	<i>Pauridiantha viridiflora</i> (Schweinf.ex Hiern) Hepper
Rubiaceae	<i>Pausinystalia macroceras</i> (K.Schum.) Pierre ex Beille
Rubiaceae	<i>Pausinystalia</i> sp.
Rubiaceae	<i>Pavetta rigida</i> Hiern
Rubiaceae	<i>Pavetta</i> sp.
Rubiaceae	<i>Pavetta</i> sp.
Rubiaceae	<i>Psilanthus</i> sp.
Rubiaceae	<i>Psychotria bimbiensis</i> Bridson & Cheek
Rubiaceae	<i>Psychotria</i> sp.47
Rubiaceae	<i>Psychotria</i> sp.50
Rubiaceae	<i>Psychotria</i> sp.E
Rubiaceae	<i>Psychotria</i> sp.F
Rubiaceae	<i>Psychotria</i> sp.Mu
Rubiaceae	<i>Rothmannea</i> sp.
Rubiaceae	<i>Rothmannia lujae</i> (De Wild.) Keay
Rubiaceae	<i>Sericanthe</i> sp.
Rutaceae	<i>Oricia</i> sp.
Rutaceae	<i>Zanthoxylon rubescens</i>
Rutaceae	<i>Zanthoxylum gillettii</i> (De Wild.) P.G. Waterman
Rutaceae	<i>Zanthoxylum macrophylla</i>
Rutaceae	<i>Zanthoxylum</i> sp.Mu

Salicaceae	Casearia barteri Mast.
Salicaceae	Homalium sp.
Salicaceae	Homalium sp.H
Salicaceae	Oncoba Glauca (P. Beauv.) Planch.
Salicaceae	Oncoba lophocarpa Oliv.
Sapindaceae	Allophylus africanus P.Beauv.
Sapindaceae	Blighia sapida Koenig
Sapindaceae	Blighia sp.I
Sapindaceae	Chytranthus sp.2
Sapindaceae	Chytranthus sp.22
Sapindaceae	Chytranthus sp.44
Sapindaceae	Chytranthus sp.I
Sapindaceae	Chytranthus sp.M
Sapindaceae	Chytranthus sp.Mu
Sapindaceae	Deinbollia sp.
Sapindaceae	Eriocoelum sp.
Sapindaceae	Laccodiscus ferrugineus (Baker) Radlk.
Sapotaceae	Englerophytum sp.
Sapotaceae	Manilkara sp.
Sapotaceae	Synsepalum sp.
Simaroubaceae	Quassia silvestris
Thymelaeaceae	Dicranolepis sp.
Ulmaceae	Trema orientalis (L.) Blume

---



Table 11. Provincial plant list from observation survey in the Mt Nlonako forest area, Cameroon

Family	Species
Acanthaceae	<i>Acanthus montanus</i> (Nees) T. Anderson
Acanthaceae	<i>Asystasia macrophylla</i> (T. Anderson) Lindau
Acanthaceae	<i>Elytraria marginata</i> Vahl
Acanthaceae	<i>Thomandersia laurifolia</i> (Benth.) Baill
Acanthaceae	<i>Thumbergia vogeliana</i> Gilg
Achariaceae	<i>Scottellia klaineana</i> Pierre
Amaranthaceae	<i>Achyranthes aspera</i> L
Anacardiaceae	<i>Antrocaryon micraster</i> A. Chev. & Guillaum
Anacardiaceae	<i>Lanea</i> sp.
Anacardiaceae	<i>Lanea welwitschii</i> (Hiern) Engl.
Anacardiaceae	<i>Mangifera indica</i> L.
Anacardiaceae	<i>Pseudospondias microcarpa</i> (A.Rich.) Engl.
Anacardiaceae	<i>Sorindeia grandifolia</i> Engl.
Anacardiaceae	<i>Sorindeia juglandifolia</i> (A.Rich.) Planch.ex Oliv.
Anacardiaceae	<i>Sorindeia mildbraedii</i> Engl. And Brehmer
Anacardiaceae	<i>Trichoscypha acuminata</i> Engl.
Anacardiaceae	<i>Trichoscypha preussi</i> Engl.
Anacardiaceae	<i>Trichoscypha</i> sp.NL
Anisophylleaceae	<i>Anisophyllea sororia</i> Pierre
Annonaceae	<i>Annickia chlorantha</i> (Oliv.) Setten & P.J. Maas
Annonaceae	<i>Anonidium mannii</i> (Oliv.) Engl. & Diels
Annonaceae	<i>Cleistopholis patens</i> (Benth.) Engl. & Diels
Annonaceae	<i>Cleistopholis staudtii</i> Engl. & Diels
Annonaceae	<i>Friesodielsia hirsuta</i> (Benth.) Steenis
Annonaceae	<i>Hexalobus</i> sp.
Annonaceae	<i>Isolona</i> sp.
Annonaceae	<i>Monodora brevipes</i> Benth.
Annonaceae	<i>Monodora myristica</i> (Gaerttn.) Dunal
Annonaceae	<i>Monodora tenuifolia</i> Benth.

Annonaceae	<i>Piptostigma</i> sp.
Annonaceae	<i>Polyanthia suaveolens</i> Le Thomas
Annonaceae	<i>Polyceratocarpus parviflorus</i> (Baker f.) Ghesq.
Annonaceae	<i>Uvariadendron giganteum</i> (Engl.) R.E.Fr.
Annonaceae	<i>Uvariopsis</i> cf <i>vanderystii</i> Robyns & Ghesq.
Annonaceae	<i>Uvariopsis dioica</i> (Diels) Robyns and Ghesq.
Annonaceae	<i>Xylophia acutiflora</i> (Dunal) A. Rich.
Annonaceae	<i>Xylophia aethiopica</i> (Dunal) A. Rich.
Annonaceae	<i>Xylophia</i> cf. <i>acutiflora</i> (Dunal) A.Rich.
Annonaceae	<i>Xylophia rubescens</i> Oliv.
Annonaceae	<i>Xylophia</i> sp.
Annonaceae	<i>Xylophia</i> sp.3
Annonaceae	<i>Xylophia</i> sp.NL
Annonaceae	<i>Xylophia staudtii</i> Engl. And Diels
Annonaceae	<i>Xylophia villosa</i> Chipp
Apocynaceae	<i>Alstonia boonei</i> De Wild
Apocynaceae	<i>Funtumia elastica</i> (preuss) Stapf
Apocynaceae	<i>Hunteria umbellata</i> (K. Schum.) Hallier f.
Apocynaceae	<i>Landolphia landolphioides</i> (Hallier f.) A. Chev.
Apocynaceae	<i>Orthopichonia visciflua</i> (K. Schum.ex Hallier f.) Vonk
Apocynaceae	<i>Picalima nitida</i> (Stapf.) T. Durand & H. Durand
Apocynaceae	<i>Pleiocarpa rostrata</i> Benth.
Apocynaceae	<i>Pleiocarpa</i> sp.
Apocynaceae	<i>Rauvolfia caffra</i> Sond.
Apocynaceae	<i>Rauvolfia macrophylla</i> Stapf.
Apocynaceae	<i>Rauvolfia vomitoria</i> Afzel.
Apocynaceae	<i>Tabernaemontana brachyantha</i> Stapf
Apocynaceae	<i>Tabernaemontana crassa</i> Benth.
Apocynaceae	<i>Tabernaemontana penduliflora</i> K.Schum.
Apocynaceae	<i>Voacanga africana</i> Stapf
Apocynaceae	<i>Voacanga bracteata</i> Stapf.

Apocynaceae	<i>Voacanga psilocalyx</i> Pierre ex Stapf
Araceae	<i>Anubias barteri</i> Schott
Araceae	<i>Cercestis camerunensis</i> (Ntepe-Nyame) Bogner
Araceae	<i>Cercestis mirabilis</i> (N.E. Br.) Bogner
Araceae	<i>Culcasia dinklagei</i> Engl.
Araceae	<i>Culcasia mannii</i> (Hook. F.) Engl.
Araceae	<i>Nephtytis poissonii</i> (Engl.) N. E. Br.
Araceae	<i>Rhaphidophora africana</i> N.E. Br.
Araceae	<i>Stylochaeton zenkeri</i> Engl.
Araliaceae	<i>Polyscias fulva</i> (Hiern) Harms
Arecaceae	<i>Elaeis guineensis</i> Jacq.
Arecaceae	<i>Raphia cf. regalis</i> Becc.
Arecaceae	<i>Raphia hookeri</i> G. Mann & H. Wendl.
Arecaceae	<i>Raphia regalis</i> Becc.
Aristolochiaceae	<i>Pararistolochia goldieana</i> (Hook. F.) Hutch and Dalziel.
Begoniaceae	<i>Begonia pseudoviola</i> Gilg.
Begoniaceae	<i>Begonia schaeferi</i> Engl.
Bignoniaceae	<i>Kigelia africana</i> (Lam.) Benth.
Bignoniaceae	<i>Markhamia lutea</i> (Benth.) K. Schum.
Bignoniaceae	<i>Newbouldia laevis</i> (P.Beauv.) Seeman ex Bureau
Bignoniaceae	<i>Spathodea campanulata</i> P. Beauv.
Bombacaceae	<i>Bombax buonopopozense</i> P. Beauv
Bombacaceae	<i>Ceiba pentandra</i> (L.) Gaertn.
Bombacaceae	<i>Rhodognaphalon breviscuspe</i> (Sprague) Roberty
Bombaceae	<i>Rhodognaphalon breviscuspe</i> (Sprague) Roberty
Boraginaceae	<i>Cordia africana</i> Lam.
Boraginaceae	<i>Cordia</i> sp.
Boraginaceae	<i>Cordia</i> sp.3
Boraginaceae	<i>Cordia</i> sp.I
Burseraceae	<i>Canarium schweinfurthii</i> Engl.
Burseraceae	<i>Dacryodes edulis</i> (G.Don) H.J. Lam

Burseraceae	Dacryodes klaineana (Pierre) H.J. Lam.
Burseraceae	Sanitiria balsamifera Engl. And Diels
Burseraceae	Santiria trimera (Oliv.) Aubr.
Capparaceae	Ritchea sp.
Cecropiaceae	Musanga cecropioides R.Br.ex Tedlie
Cecropiaceae	Myrianthus arboreus P. Beauv.
Cecropiaceae	Myrianthus preussii Engl.
Cecropiaceae	Myrianthus sp.
Cecropiaceae	Myrianthus sp.
Celastraceae	Salacia alata De wilde.
Celastraceae	Salacia sp.
Celastraceae	Salacia Sp. 1
Celastraceae	Salacia Sp. Nov.
Chrysobalanaceae	Dactyladenia staudtii (Engl.) Prance And F. White.
Chrysobalanaceae	Parinari excelsa Sabine
Chrysobalanaceae	Maranthes sp.
Clusiaceae	Allanblackia gabonensis (Pellegr.) Bamps
Clusiaceae	Endodesmia calophylloides Benth.
Clusiaceae	Garcinia gnetoides Hutch And Dalziel
Clusiaceae	Garcinia kola Heckel
Clusiaceae	Garcinia lucida Vesque
Clusiaceae	Garcinia mannii Oliv.
Clusiaceae	Garcinia ovalifolia Oliv.
Clusiaceae	Garcinia smeathmannii (Planch. And Triana) Oliv.
Clusiaceae	Garcinia staudtii Engl.
Clusiaceae	Pentadesma butyracea Sabine
Clusiaceae	Pentadesma grandifolia Baker f.
Clusiaceae	Symphonia globulifera L.F.
Combretaceae	Combretum sp.I
Combretaceae	Terminalia superba Engl. & Diels
Commelinaceae	Palisota ambigua (P.Beauv) C.B. Clarke

Commelinaceae	<i>Palisota lagopus</i> Mildbr.
Commelinaceae	<i>Palisota mannii</i> C.B. Clarke
Compositae	<i>Vernonia frondosa</i> Oliv. And Hiern
Connaraceae	<i>Cnestis ferruginea</i> Vahl ex DC.
Connaraceae	<i>Jollydora duparquetiana</i> (Baill.) Pierre
Connaraceae	<i>Jollydora glandulosa</i> Schellenb.
Connaraceae	<i>Rourea thomsonii</i> (Baker) Jongkind
Costaceae	<i>Costus afer</i> Ker Gawl.
Cyatheaaceae	<i>Cyathea camerooniana</i> Hook
Dichapetalaceae	<i>Dichapetalum affine</i> (Planch ex Benth.) Breteler
Dichapetalaceae	<i>Dichapetalum pheotricha</i>
Dichapetalaceae	<i>Dichapetalum</i> sp.
Dichapetalaceae	<i>Dichapetalum</i> sp. 3
Dichapetalaceae	<i>Tapura africana</i> Oliv.
Dilleniaceae	<i>Tetracera alnifolia</i> Wild.
Dioscoreaceae	<i>Dioscrea preussii</i> Pax
Dracaenaceae	<i>Dracaena arborea</i> (Willd) Link.
Dracaenaceae	<i>Dracaena fragrans</i> (L.) Ker-Gawl.
Dracaenaceae	<i>Dracaena goldiana</i>
Dracaenaceae	<i>Dracaena phrynioides</i> Hook.
Dracaenaceae	<i>Dracaena preussii</i>
Dracaenaceae	<i>Dracaena surculosa</i> Lindley
Ebenaceae	<i>Diospyros bipindensis</i> Gurke
Ebenaceae	<i>Diospyros cinnabarina</i> (Gurke) F. White
Ebenaceae	<i>Diospyros conocarpa</i> Gurke & K. Schum.
Ebenaceae	<i>Diospyros gabunensis</i> Gürke
Ebenaceae	<i>Diospyros preussi</i> Gürke
Ebenaceae	<i>Diospyros</i> sp.
Ebenaceae	<i>Diospyros</i> sp.EK
Ebenaceae	<i>Diospyros</i> sp.Y
Ebenaceae	<i>Diospyros zenkeri</i> (Gürke) F. White

Erythroxylaceae	<i>Erythroxylum manni</i> Oliv.
Euphorbiaceae	<i>Alchornea cordifolia</i> (Schum. & Thonn.) Müll.Arg.
Euphorbiaceae	<i>Alchornea floribunda</i> Müll.Arg.
Euphorbiaceae	<i>Alchornea hirtella</i> Benth.
Euphorbiaceae	<i>Alchornea</i> sp.
Euphorbiaceae	<i>Alchornea</i> sp.2
Euphorbiaceae	<i>Alchornea</i> sp.3
Euphorbiaceae	<i>Cyrtogonone argentea</i> (Pax) Prain
Euphorbiaceae	<i>Discoclaoxylon hexandrum</i> (Müll.Arg.) Pax & K.Hoffm.
Euphorbiaceae	<i>Elaeophorbia drupifera</i> (Thonn.) Stapf.
Euphorbiaceae	<i>Erythrococca</i> sp.
Euphorbiaceae	<i>Neoboutonia glabrescens</i> Prain
Euphorbiaceae	<i>Plagiostyles africana</i> (Müll.Arg.) Prain
Euphorbiaceae	<i>Pycnocomma macrophylla</i> Benth.
Euphorbiaceae	<i>Pycnocomma</i> sp.
Euphorbiaceae	<i>Ricinodendron heudelotii</i> (Baill) Heckel
Euphorbiaceae	<i>Sapium ellipticum</i> (Krauss) Pax
Euphorbiaceae	<i>Sapium</i> sp.
Euphorbiaceae	<i>Tetracarpidium conophorum</i> (Müll.Arg.) Hutch And Dalziel
Euphorbiaceae	<i>Tetrorchidium didymostemon</i> (Baill.) Pax & K. Hoffm.
Euphorbiaceae	<i>Thecacoris annobonae</i> Pax And K.Hoffm.
Fabaceae	<i>Afzelia bipindensis</i> Harms
Fabaceae	<i>Albizia adianthifolia</i> (Schum.) W.F. Wright
Fabaceae	<i>Albizia gummifera</i> (J.F.Gmel.) C.A. Sm.
Fabaceae	<i>Albizia</i> sp.NL
Fabaceae	<i>Albizia zygia</i> (DC.) J.F. Macbr.
Fabaceae	<i>Amphimas pterocarpoides</i> Harms
Fabaceae	<i>Angylocalyx oligophyllus</i> (Baker) Baker f.
Fabaceae	<i>Angylocalyx pynaertii</i> De Wild
Fabaceae	<i>Angylocalyx talbotii</i> Baker f.
Fabaceae	<i>Aphanocalyx marginervatus</i> Scott-Elliot

Fabaceae	<i>Aubrevillea kerstingii</i> (Harms) Pellegr.
Fabaceae	<i>Baikiaea insignis</i> Benth.
Fabaceae	<i>Baphia capparidifolia</i> Baker
Fabaceae	<i>Baphia laurifolia</i> Baill.
Fabaceae	<i>Bikinia le-testui</i> (Pellegr.) Wieringa
Fabaceae	<i>Calpocalyx dinklagei</i> Harms
Fabaceae	<i>Copaifera mildbraedii</i> Harms
Fabaceae	<i>Crudia gabonensis</i> Pierre ex Harms
Fabaceae	<i>Cynometra mannii</i> Oliv.
Fabaceae	<i>Dalbergia lactea</i> Vatke
Fabaceae	<i>Dalbergia oligophylla</i> Baker ex Hutch. & Dalziel
Fabaceae	<i>Dalbergia saxatilis</i> Hook.f.
Fabaceae	<i>Dalbergia</i> sp.
Fabaceae	<i>Daniellia</i> sp.
Fabaceae	<i>Detarium macrocarpum</i> Harms
Fabaceae	<i>Dialium dinklagei</i> Harms
Fabaceae	<i>Dialium dinklagei</i> Pierre and Harms
Fabaceae	<i>Dialium guineense</i> Wild
Fabaceae	<i>Dialium pachyphyllum</i> Harms
Fabaceae	<i>Dialium</i> sp.
Fabaceae	<i>Dialium</i> sp.EK
Fabaceae	<i>Dialium</i> sp.NI2
Fabaceae	<i>Didelotia letouzeyi</i> Pellegr.
Fabaceae	<i>Distemonanthus benthamianus</i> Baill.
Fabaceae	<i>Erythrina excelsa</i> Baker
Fabaceae	<i>Erythrina excelsa</i> Baker
Fabaceae	<i>Erythrophleum ivorense</i> A. Chev.
Fabaceae	<i>Gilbertiodendron</i> sp.
Fabaceae	<i>Guibourtia demeusei</i> (Harms) J.L, onard.
Fabaceae	<i>Guibourtia tessmannii</i> (Harms) J.L, onard.
Fabaceae	<i>Hylodendron gabunense</i> Taub.

Fabaceae	<i>Hymenostegia</i> sp.
Fabaceae	<i>Julbernardia seretii</i> (De Wild.) Troupin
Fabaceae	<i>Millettia</i> sp.
Fabaceae	<i>Millettia</i> sp.NL
Fabaceae	<i>Mimosa</i> sp.
Fabaceae	<i>Newtonia griffoniana</i> (Baill) Baker f.
Fabaceae	<i>Oxystigma buchholzii</i> Harms
Fabaceae	<i>Parkia bicolor</i> A.Chev.
Fabaceae	<i>Parkia</i> sp.
Fabaceae	<i>Pentaclethra macrophylla</i> Benth.
Fabaceae	<i>Pentaclethra</i> sp.
Fabaceae	<i>Piptadeniastrum africanum</i> (Hook.f.) Brenan
Fabaceae	<i>Plagiosphon longitubus</i> (Harms) J.L,onard
Fabaceae	<i>Pterocarpus mildbraedii</i> Harms
Fabaceae	<i>Pterocarpus soyauxii</i> Taub.
Fabaceae	<i>Stemonocoleus micranthus</i> Harms
Fabaceae	<i>Tetraberlinia bifoliolata</i> (Harms) Hauman
Fabaceae	<i>Tetrapleura tetraptera</i> (Schum. & Thonn.) Taub.
Gramineae	<i>Guaduella densiflora</i> Pilg.
Huaceae	<i>Afrostryax lepidophyllus</i> Mildbr.
Icacinaceae	<i>Iodes kamerunensis</i> Engl.
Icacinaceae	<i>Lasianthera africana</i> P. Beauv.
Icacinaceae	<i>Lavigeria macrocarpa</i> (Oliv.) Pierre
Icacinaceae	<i>Leptaulus daphnoides</i> Benth.
Irvingiaceae	<i>Desbordesia glaucescens</i> (Engl.) Tiegh.
Irvingiaceae	<i>Irvingia gabonensis</i> (Aubry-Lecomte ex O'Rorke) Bai
Irvingiaceae	<i>Irvingia grandifolia</i> (Engl.) Engl.
Irvingiaceae	<i>Klainedoxa gabonensis</i> Pierre ex Engl.
Irvingiaceae	<i>Klainedoxa trillesii</i> Pierre ex Tiegh.
Lauraceae	<i>Beilschmeidia jacques-felixii</i> Robyns And R. Wilczek
Lauraceae	<i>Beilschmeidia</i> sp.



Lauraceae	Beilschmiedia
Lauraceae	Beilschmiedia acuta Costermans
Lauraceae	Beilschmiedia jacques-felixii Rob. & Wilcz.
Lauraceae	Beilschmiedia sp.
Lauraceae	Beilschmiedia sp.1
Lauraceae	Hypodaphnis zenkeri (Engl.) Stapf.
Lauraceae	Persea americana Miller
Lecythidaceae	Crateranthus talbotii Baker f.
Lecythidaceae	Napoleonaea egertonii Baker f.
Lecythidaceae	Napoleonaea talbotii Baker f.
Lecythidaceae	Napoleonaea vogelii Hook f. & Planch.
Lecythidaceae	Petersianthus macrocarpus (P.Beauv.) Liben
Leeaceae	Leea guineensis G.Don
Lepidobotryaceae	Lepidobotrys staudtii Engl.
Loganiaceae	Strychnos aculeata Soler.
Loganiaceae	Strychnos gnetifolia Gilg. Ex Onochie and Hepper
Loganiaceae	Strychnos phaeotricha Gilg.
Loganiaceae	Strychnos sp.
Loganiaceae	Strychnos ternata Gilg. Ex Leeuwenberg
Loganiaceae	Strychnos urceolata
Lomariopsidaceae	Lomariopsis guineensis (Underw.) Alston
Lomariopsidaceae	Lomariopsis mannii (Underw.) Alston
Malvaceae	Cola acuminata (P.Beauv.) Schott & Endl.
Malvaceae	Cola cauliflora Mast.
Malvaceae	Cola cf. ficifolia Mast.
Malvaceae	Cola digitata Mast.
Malvaceae	Cola ficifolia Mast.
Malvaceae	Cola flaviflora Engl. And K.Krause
Malvaceae	Cola heterophylla (P. Beauv.) Schott & Endl.
Malvaceae	Cola lateritia K.Schum
Malvaceae	Cola lepidota K. Schum.

Malvaceae	<i>Cola marsupium</i> K.Schum
Malvaceae	<i>Cola megalophylla</i> Brenam and Keay
Malvaceae	<i>Cola pachycarpa</i> K. Schum.
Malvaceae	<i>Cola rostrata</i> K.Schum
Malvaceae	<i>Cola</i> sp.
Malvaceae	<i>Cola</i> sp.1
Malvaceae	<i>Cola</i> sp.A
Malvaceae	<i>Desplatsia chrysochlamys</i> (Mildbr. & Burret) Mildbr. & Burret
Malvaceae	<i>Duboscia macrocarpa</i> Bocq.
Malvaceae	<i>Duboscia</i> sp.
Malvaceae	<i>Glyphaea brevis</i> (Spreng.) Monach.
Malvaceae	<i>Glyphaea</i> sp.
Malvaceae	<i>Glyphaea</i> sp.2
Malvaceae	<i>Leptonychia echinocarpa</i> K.Schum
Malvaceae	<i>Leptonychia pallida</i> K. Schum.
Malvaceae	<i>Leptonychia</i> sp.
Malvaceae	<i>Microcos coriacea</i> (Mast.) Burret.
Malvaceae	<i>Octolobus spectabilis</i> Welw.
Malvaceae	<i>Pterygota bequaertii</i> De Wild.
Malvaceae	<i>Pterygota macrocarpa</i> K.Schum
Malvaceae	<i>Pterygota mildbraedii</i>
Malvaceae	<i>Scaphopetalum</i> sp
Malvaceae	<i>Sterculia oblonga</i> Mast.
Malvaceae	<i>Sterculia tragacantha</i> Lindl.
Malvaceae	<i>Theobroma cacao</i> L.
Marantaceae	<i>Ataenidia conferta</i> (Benth.) Milne-Redh.
Marantaceae	<i>Hypselodelphys violacea</i> (Ridl.) Milne-Redh.
Marattiaceae	<i>Marattia fraxinea</i> J.Sm.
Medusandraceae	<i>Medusandra mpomiana</i>
Melastomataceae	<i>Dichaetanthera africana</i> (Hook.f.) Jacq.-F, I.
Melastomataceae	<i>Dichaetanthera</i> sp.

Melastomataceae	<i>Memecylon englerianum</i> Cogn.
Melastomataceae	<i>Memecylon laurentii</i>
Melastomataceae	<i>Memecylon zenkeri</i> Gilg.
Melastomataceae	<i>Warneckea cinnamomoides</i> (G.Don) Jacq.-F, I.
Melastomataceae	<i>Warneckea jasminoides</i> (Baill.)
Melastomataceae	<i>Warneckea</i> sp.
Meliaceae	<i>Carapa angustifolia</i>
Meliaceae	<i>Carapa dinklagei</i> Harms
Meliaceae	<i>Carapa grandiflora</i> Sprague
Meliaceae	<i>Carapa parvifolia</i> Harms
Meliaceae	<i>Carapa</i> sp.1
Meliaceae	<i>Carapa</i> sp.3
Meliaceae	<i>Entandrophragma angolense</i> (Welw.) C.DC.
Meliaceae	<i>Entandrophragma cylindricum</i> (Sprague) Sprague
Meliaceae	<i>Entandrophragma utile</i> (Dawe And Sprague) Sprague
Meliaceae	<i>Guarea cedrata</i> (A.Chev.) Pellegr
Meliaceae	<i>Guarea glomerulata</i> Harms
Meliaceae	<i>Guarea</i> sp.
Meliaceae	<i>Guarea thompsonii</i> Sprague And Hutch.
Meliaceae	<i>Trichilia monadelpha</i> (Thonn.) J.J. de Wilde.
Meliaceae	<i>Trichilia priureana</i> A.Juss
Meliaceae	<i>Trichilia rubscens</i> Oliv.
Meliaceae	<i>Trichilia welwitschii</i> C.DC.
Meliaceae	<i>Turraeanthus africanus</i> (Welw. Ex C. DC.) Pellegr.
Menispermaceae	<i>Penianthus camerounensis</i> A. Dekker
Menispermaceae	<i>Penianthus longifolius</i> Miers
Menispermaceae	<i>Triclisia dictyophylla</i> Diels
Menispermaceae	<i>Triclisia macrophylla</i> Oliv.
Monimiaceae	<i>Glossocalyx brevipes</i> Benth.
Moraceae	<i>Antiaris africana</i> Engl.
Moraceae	<i>Ficus bubu</i>

Moraceae	<i>Ficus exasperata</i> Vahl
Moraceae	<i>Ficus mucoso</i> Welw.ex Ficalho
Moraceae	<i>Ficus</i> sp.
Moraceae	<i>Ficus</i> sp.NL
Moraceae	<i>Ficus vogeliana</i> (Miq.) Miq.
Moraceae	<i>Milicia excelsa</i> (Welw.) C.C. Berg
Moraceae	<i>Treculia acuminata</i> Baill.
Moraceae	<i>Treculia africana</i> Decne.
Moraceae	<i>Treculia obovoidea</i> N.E.Br.
Moraceae	<i>Trilepisium madagascariense</i> DC.
Myristicaceae	<i>Coelocaryon preussii</i> Warb.
Myristicaceae	<i>Pycnanthus angolensis</i> (Welw.) Warb.
Myristicaceae	<i>Scyphocephalum mannii</i> (Benth) warb.
Myristicaceae	<i>Staudtia gabonensis</i> (Warb.) Fouilloy
Myristicaceae	<i>Staudtia kamerunensis</i> Warb.
Myristicaceae	<i>Staudtia stipitata</i> Warb.
Myrtaceae	<i>Eugenia fernandopoana</i> Engl. & Diels
Myrtaceae	<i>Eugenia</i> sp.
Myrtaceae	<i>Eugenia</i> sp.EK
Myrtaceae	<i>Eugenia talbotii</i> Keay
Myrtaceae	<i>Psidium quajava</i> L.
Myrtaceae	<i>Syzygium guineense</i> (Willd.) DC.
Myrtaceae	<i>Syzygium staudtii</i> (Engl.) Mildbr.
Ochnaceae	<i>Campylospermum calanthum</i> (Gilg) Farron
Ochnaceae	<i>Campylospermum laxiflorum</i> (De Wild. & T. Durand) Tiegh.
Ochnaceae	<i>Campylospermum mannii</i> (Oliv.) Tiegh.
Ochnaceae	<i>Lophira alata</i> Banks ex Gaertn.f.
Ochnaceae	<i>Lophira alata</i> Banks ex Gaertn.f.
Ochnaceae	<i>Ochna membranacea</i> Oliv.
Ochnaceae	<i>Ouratea</i> sp.
Ochnaceae	<i>Rhabdophyllum affine</i> (Hook.f.) Tiegh

Ochnaceae	<i>Rhabdophyllum</i> sp.
Olacaceae	<i>Diogoa zenkeri</i> (Engl.) Exell And Mendon
Olacaceae	<i>Engomegoma gordonii</i> Breteler
Olacaceae	<i>Heisteria parvifolia</i> Sm.
Olacaceae	<i>Octoknema affinis</i> Pierre
Olacaceae	<i>Olax latifolia</i> Engl.
Olacaceae	<i>Olax</i> sp.
Olacaceae	<i>Olax</i> sp.NL
Olacaceae	<i>Ptychopetalum petiolatum</i> Oliv.
Olacaceae	<i>Strombosia grandifolia</i> Hook.f.ex Benth.
Olacaceae	<i>Strombosia pustulata</i> Oliv.
Olacaceae	<i>Strombosia scheffleri</i> Engl.
Olacaceae	<i>Strombosia</i> sp.
Olacaceae	<i>Strombosiopsis tetrandra</i> Engl.
Pandaceae	<i>Microdesmis puberula</i> Hook.f.ex Planch.
Pandaceae	<i>Microdesmis</i> sp.NL
Pandaceae	<i>Panda oleosa</i> Pierre
Passifloraceae	<i>Adenia</i> sp.
Passifloraceae	<i>Barteria fistulosa</i> Mast.
Phyllanthaceae	<i>Antidesma</i> sp.
Phyllanthaceae	<i>Antidesma</i> sp.65
Phyllanthaceae	<i>Antidesma</i> sp.NL
Phyllanthaceae	<i>Antidesma vogelianum</i> Müll.Arg.
Phyllanthaceae	<i>Bridelia grandis</i> Pierre ex Hutch.
Phyllanthaceae	<i>Bridelia micrantha</i> (Hochst.) Baill.
Phyllanthaceae	<i>Macaranga monandra</i> Müll.Arg.
Phyllanthaceae	<i>Macaranga spinosa</i> Mull.Arg.
Phyllanthaceae	<i>Maesobotrya barteri</i> (Baill.) Hutch.
Phyllanthaceae	<i>Maesobotrya staudtii</i> (Pax) Hutch.
Phyllanthaceae	<i>Margaritaria discoidea</i> (Baill.) Webster
Phyllanthaceae	<i>Protomegabaria stapfiana</i> (Beille) Hutch.

Phyllanthaceae	<i>Uapaca acuminata</i> (Hutch) Pax And K.Hoffm.
Phyllanthaceae	<i>Uapaca chevalieri</i> Beille
Phyllanthaceae	<i>Uapaca guineensis</i> Müll.Arg.
Phyllanthaceae	<i>Uapaca heudelotii</i> Baill.
Phyllanthaceae	<i>Uapaca</i> sp.
Phyllanthaceae	<i>Uapaca</i> sp.I
Phyllanthaceae	<i>Uapaca staudtii</i> Pax
Piperaceae	<i>Piper guineense</i> Schum. And Thonn.
Piperaceae	<i>Piper</i> sp.
Polygalaceae	<i>Carpolobia alba</i> G.Don
Polygalaceae	<i>Carpolobia lutea</i> G.Don
Putranjivaceae	<i>Drypetes gossweleri</i>
Putranjivaceae	<i>Drypetes paxii</i> Hutch.
Putranjivaceae	<i>Drypetes</i> sp.
Putranjivaceae	<i>Drypetes</i> sp.L2
Putranjivaceae	<i>Drypetes</i> sp.NL
Putranjivaceae	<i>Drypetes</i> sp.P2
Rhamnaceae	<i>Maesopsis eminii</i> Engl.
Rubiaceae	<i>Aidia</i> sp.
Rubiaceae	<i>Aorantho cladantha</i> (K.Schum.) Somers
Rubiaceae	<i>Aulacocalyx caudata</i> (Hiern) Keay
Rubiaceae	<i>Aulacocalyx jasminiflora</i> Hook.f.
Rubiaceae	<i>Aulacocalyx talbotii</i> (Wernham) Keay
Rubiaceae	<i>Belonophora wernhamii</i> Hutch And Dalziel
Rubiaceae	<i>Bertiera laxa</i> Benth.
Rubiaceae	<i>Bertiera racemosa</i> (G.Don.) K.Schum
Rubiaceae	<i>Bertiera</i> sp.
Rubiaceae	<i>Bertiera</i> sp.I
Rubiaceae	<i>Brenania brieryi</i> (De Wild) Petit
Rubiaceae	<i>Coffea ebracteolata</i> Sensu Hepper And Keay p.p.
Rubiaceae	<i>Coffea liberica</i> Bull.ex Hiern

Rubiaceae	<i>Coffea</i> sp.
Rubiaceae	<i>Craterispermum caudatum</i> Hutch
Rubiaceae	<i>Cuviera acutiflora</i> DC.
Rubiaceae	<i>Cuviera</i> sp.
Rubiaceae	<i>Cuviera subuliflora</i> Benth.
Rubiaceae	<i>Euclinia longiflora</i> Salisb.
Rubiaceae	<i>Gardenia</i> sp.
Rubiaceae	<i>Geophila</i> sp.
Rubiaceae	<i>Heinsia crinita</i> (Afzel.) G. Taylor
Rubiaceae	<i>Ixora guineensis</i> Benth
Rubiaceae	<i>Ixora hippoperifera</i> Bremek
Rubiaceae	<i>Ixora nematopoda</i> K.Schum.
Rubiaceae	<i>Keetia</i> sp.
Rubiaceae	<i>Massularia acuminata</i> (G.Don) Bullock ex Hoyle
Rubiaceae	<i>Massularia acuminata</i> (G.Don) Bullock ex Hoyle
Rubiaceae	<i>Morinda lucida</i> Benth.
Rubiaceae	<i>Mussaenda</i> sp.
Rubiaceae	<i>Nauclea diderrichii</i> (De Wild. & T. Durand) Merrill
Rubiaceae	<i>Oxyanthus formosus</i> Hook f. ex Planch.
Rubiaceae	<i>Oxyanthus gracilis</i> Hiern
Rubiaceae	<i>Oxyanthus laxiflorus</i> K. Schum.ex Hutch. & Dalziel
Rubiaceae	<i>Oxyanthus unilocularis</i> Hiern
Rubiaceae	<i>Pauridiantha floribunda</i> (K.Schum. And k. Krause) Bremek.
Rubiaceae	<i>Pauridiantha viridiflora</i> (Schweinf.ex Hiern) Hepper
Rubiaceae	<i>Pausinystalia macroceras</i> (K. Schum.) Pierre ex Beille
Rubiaceae	<i>Pavetta camerounensis</i> S.Manning
Rubiaceae	<i>Pavetta gracilipes</i> Hiern
Rubiaceae	<i>Pavetta rigida</i> Hiern
Rubiaceae	<i>Pavetta staudtii</i> Hutch. & Dalziel
Rubiaceae	<i>Petitiocodon parviflorum</i> (Keay) Robbr.
Rubiaceae	<i>Polysphaeria macrophylla</i> K.Schum

Rubiaceae	<i>Psilanthus mannii</i> Hook.f.
Rubiaceae	<i>Psilanthus</i> sp.NL
Rubiaceae	<i>Psychotria bifaria</i> Hiern
Rubiaceae	<i>Psychotria</i> sp.
Rubiaceae	<i>Psydrax subcordata</i> (DC.) Bridson
Rubiaceae	<i>Rothmannia hispida</i> (K. Schum.) Fagerlind
Rubiaceae	<i>Rothmannia longiflora</i> Salisb.
Rubiaceae	<i>Rothmannia</i> sp.
Rubiaceae	<i>Rothmannia</i> sp.F
Rubiaceae	<i>Rothmannia talbotii</i> (Wernham) Keay
Rubiaceae	<i>Schumanniophyton magnificum</i> (K. Schum.) Harms
Rubiaceae	<i>Tarenna conferta</i> (Benth) Hiern
Rubiaceae	<i>Tricalysia</i> sp.
Rubiaceae	<i>Tricalysia</i> sp.S
Rutaceae	<i>Araliopsis soyauxii</i> Engl.
Rutaceae	<i>Citropsis articulata</i> (Spreng) Swingle And M.Kellerm.
Rutaceae	<i>Citrus sinensis</i> (L.) Obs. (Cult.)
Rutaceae	<i>Orcia trifoliata</i> (Engl.) Verdoorn
Rutaceae	<i>Zanthoxylum buesgenii</i> (Engl.) P.G waterman
Rutaceae	<i>Zanthoxylum dinklagei</i> (Engl.) P.G waterman
Rutaceae	<i>Zanthoxylum gillettii</i> (De Wilde) P.G Waterman
Rutaceae	<i>Zanthoxylum macrophyllum</i>
Rutaceae	<i>Zanthoxylum rubescens</i> Planch.ex Hook.f.
Rutaceae	<i>Zanthoxylum</i> sp.
Salicaceae	<i>Casearia</i> sp.
Salicaceae	<i>Homalium africanum</i> (Hook.f.) Benth.
Salicaceae	<i>Homalium longistylum</i> Mast.
Salicaceae	<i>Homalium</i> sp.
Salicaceae	<i>Oncoba dentata</i> Oliv.
Salicaceae	<i>Oncoba glauca</i> (P. Beauv.) Planch.
Salicaceae	<i>Oncoba mannii</i> Oliv.



Salicaceae	<i>Phyllobotryon spathulatum</i> Mull.Arg.
Sapindaceae	<i>Allophylus africanus</i> P. Beauv.
Sapindaceae	<i>Allophylus megaphyllus</i> Hutch. And Dalziel
Sapindaceae	<i>Allophylus</i> sp.
Sapindaceae	<i>Blighia sapida</i> Koenig
Sapindaceae	<i>Blighia</i> sp.
Sapindaceae	<i>Blighia</i> sp.2
Sapindaceae	<i>Blighia</i> sp.NL
Sapindaceae	<i>Blighia unijugata</i> Baker
Sapindaceae	<i>Chytranthus gillettii</i> De Wild.
Sapindaceae	<i>Chytranthus</i> sp.
Sapindaceae	<i>Chytranthus talbotii</i> (Baker f.) Keay
Sapindaceae	<i>Eriocoelum macrocarpum</i> Gilg.
Sapindaceae	<i>Laccodiscus ferrugineus</i> (Baker.f.) Radlk
Sapindaceae	<i>Laccodiscus</i> sp.
Sapindaceae	<i>Pancovia</i> sp.
Sapindaceae	<i>Placodiscus glandulosus</i> Radlk.
Sapotaceae	<i>Baillonella toxisperma</i> Pierre
Sapotaceae	<i>Chrysophyllum delevoyi</i> De Wild.
Sapotaceae	<i>Gambeya africanum</i>
Scytopetalaceae	<i>Rhaptopetalum</i> sp. (Vahl) Kuntze
Selaginellaceae	<i>Selaginalla myosurus</i> (S.W.) Alston
Simaroubaceae	<i>Hannoa klaineana</i> Pierre And Engl.
Simaroubaceae	<i>Quassia sylvestris</i>
Thymelaeaceae	<i>Dicranolepis disticha</i> Planch
Thymelaeaceae	<i>Dicranolepis glandulosa</i> H.H.W Pearson
Thymelaeaceae	<i>Dicranolepis grandiflora</i> Engl.
Thymelaeaceae	<i>Dicranolepis</i> sp.
Thymelaeaceae	<i>Octolepis casearia</i> Oliv.
Ulmaceae	<i>Celtis mildbraedii</i> Engl.
Ulmaceae	<i>Celtis</i> sp.

Ulmaceae	<i>Celtis zenkeri</i> Engl.
Ulmaceae	<i>Trema orientalis</i> (L.) Blume
Verbenaceae	<i>Vitex grandifolia</i> Gurke
Verbenaceae	<i>Vitex</i> sp.
Violaceae	<i>Rinorea gabunensis</i>
Violaceae	<i>Rinorea kamerunensis</i> Engl.
Violaceae	<i>Rinorea longisepala</i> Engl.
Violaceae	<i>Rinorea oblongifolia</i> (C.H. Wright) Marqua
Violaceae	<i>Rinorea</i> sp.
Violaceae	<i>Rinorea</i> sp.NL
Violaceae	<i>Rinorea</i> sp.nov
Zingiberaceae	<i>Aframomum limbatum</i> (Oliv. And Hanb.) K. schum

---

## References

- Ayonghe, S.N., Mafany, G.T., Ntasin, E. & Samalang, P. 1999. Seismically activated swarm of landslides, tension cracks, and a rockfall after heavy rainfall in Bafaka, Cameroon. *Natural Hazards*. 19:13-27.
- Cheek, M., Pollard, B.J., Darbyshire, L., Onana, J.M., & Wild, C. 2004. The plants of Kupe, Mwanenguba, and the Bakossi Mountains, Cameroon, a conservation checklist. Royal Botanic Garden, Kew. p. 508.
- Djomo, A.N. 2010. Ecological management of tropical forests: Implications for climate change and carbon fluxes. PhD thesis, University of Goettingen, Germany. p. 110.
- Fonkwo, N.S., Angwafo, T.E., & Mbida, M. 2011. Abundance and distribution of large mammals in the Bakossi landscape area, Cameroon. *Journal of soil science and environmental management* 2: 43-48
- Franke, T. 2004. *Afrothismia saingei* (Burmanniaceae), a new myco-heterotrophic plant from Cameroon. *Systematics and Geography of Plants*. 74: 27-33.
- Franke T. 2007. Miscellaneous contributions to the taxonomy and mycorrhiza of AMF-exploiting myco-heterotrophic plants. PhD thesis, Ludwig-Maximilians-University, München, Germany.
- Frodin, D. G. 2001. *Guide to the Standard Floras of the World*, 2nd ed. Cambridge University Press.
- Gartlan, S. 1989. *La conservation des écosystèmes forestiers du Cameroun*. IUCN, Gland and Cambridge.
- Harvey, Y., Tchiengué, B., & Cheek, M. 2010. The plants of Lebialem Highlands, Cameroon: A conservation checklist. Royal Botanic Gardens, Kew. p. 170.
- Kenfack, D. 2001. Preliminary botanical survey of Mt Nlonako, Makombe, Ebo, and Lake Ossa. Report to the Cross-Sanaga – Bioko Coastal Forest Project. Worldwide Fund for Nature-Coastal Forest Program, Cameroon. p. 84.
- Kupsch, D., Bobo, K.S., & Waltert, M. 2014. Biodiversity, carbon stock and market value assessment for the Sustainable Oil (SGSOC) project area, Southwest Region, Cameroon. Report submitted to World Wide Fund for Nature (WWF), Germany. p. 41.

- Letouzey, R. 1968. Etude phytogéographique du Cameroun. Encyclopedie Biologique. Paris; Lechevalier, 49. p. 508.
- Letouzey, R. 1985. Carte phytogéographique du Cameroun. vol. 1-5. Institut de la Carte Internationale de la Végétation, Toulouse-France. p. 240.
- Lewis, S.L., Sonké, B., Sunderland, T., Begne, S.K., Lopez-Gonzalez, G., Van der Heijden, G.M.F., Philips, O.L., Affum-Baffoe, K., Baker, T.R., Banin, L., Bastin, J-F., Beeckman, H., Boeckx, P., Bogaert, J., De Cannière, C., Chezeaux, E., Clark, C.J., Collins, M., Djangbletey, G., Djuikouo, M.N.K., Droissart, V., Doucet, J-L., Ewango, C.E.N., Fauset, S., Feldpausch, T.R., Foli, E.G., Gillet, J-F., Hamilton, A.C., Harris, D.J., Hart, T.B., de Haulleville, T., Hladik, A., Hufkens, K., Huygens, D., Jeanmart, P., Jeffery, K.J., Kearsley, E., Leal, M.E., Lloyd, J., Lovett, J.C., Makana, J-R., Malhi, Y., Marshall, A.R., Ojo, L., Peh, K.S-H., Pickavance, G., Poulsen, J.R., Reitsma, J.M., Sheil, D., Simo, M., Steppe, K., Taedoumg, H.E., Talbot, J., Taplin, J.R.D., Taylor, D., Thomas, S.C., Toirambe, B., Verbeeck, H., Vleminckx, J., White, L.J.T., Willcock, S., Woell, H., & Zemagho, L. 2013. Above ground biomass and structure of 260 African tropical forests. *Philosophical Transaction of the Royal Society Biology*. 368: 1-14.
- Nembot, T.F., & Tchanou, Z. 1998. La Gestion des ecosystems forestiers du Cameroun a l'aube de l'an (2000). vol. 2. Monographies des sites critiques. International Union for Conservation of Nature, Yaounde, Cameroun. p. 283.
- Republic of Cameroon, 2012. National Biodiversity Strategy and Action Plan-Version II- Ministry of Environment, Protection of Nature and Sustainable Development (MINEPDED).p. 146.
- Sainge, M.N. 2012. Systematics and Ecology of Thismiaceae of Cameroon, Master of Science Thesis, University of Buea, Cameroon. p. 110.
- Sainge, M.N. 2016. Patterns of distribution and endemism of plants in the Camern Mountains: A case study of protected areas in Cameroon: Rumpi Hills Forest Reserve (RHFR) and the Kimbi Fungom National Park (KFNP). Tropical Plant Exploration Group (TroPEG), Cameroon. Report o Rufford Small Grant Foundation. p. 171.
- Stuart, S.N. (ed.) 1986. Conservation of Cameroon montane forests. Cambridge, UK. International Council for Bird Preservation.

- Suchel J. B. 1972. La répartition des pluies et les régimes pluviométriques du Cameroun. Travaux et Documents de Géographie Tropicale, Centre d'Etude de Géographie Tropicale—*Centre National de la Recherche Scientifique*5: 1–287.
- Tchiengué, B. 2004. Etude Ecologique et Floristique de la végétation d'un massif de la ligne du Cameroun: Le Mont Koupe. Thèse, Maitre és Sciences, Université de Yaounde 1. p. 235.
- Tchouto, P., & Ebwekoh, M.O. 1999. A participatory Rapid Biodiversity Survey of the Muanemguba Mountain Forest. Final report to Centre for Environment and Rural Transformation (CERUT), Limbe, Cameroon. p. 54.
- Valet, S. 1985. Notice explicative des cartes du climat des paysages agrogéologiques de l'Ouest-Cameroun au 1/200,000. IRAT/DEVE st Clément/Rivière).

# Annexes

## Annex 1. The field team at the Bakossi National Park, Cameroon

Name	Affiliation	Role
Saingé Nsanyi Moses	TroPEG Cameroon	Principal Investigator, Project Coordinator, and Botanist
Ngoh Michael Lyonga	TroPEG Cameroon	Field Manager, and Botanist-Conservationist
Benedicta Jailughe	TroPEG Cameroon	Financial Manager
Mambo Peter Ekole	TroPEG Cameroon	Herbarium Manager, and Para Taxonomist
Okere Fredrick Eleli	Hire	Project Field Cook
Ebinza Wilfred Nkalle	Hire	Field Assistant, Enumeration team
Nwese Joseph Mulango	Hire	Field Assistant, Transect cutting team
Njoh Agwetang Lazarus	Hire	GPS technician, Plot establishment team
Bangsi Oliver Agham	Hire	Para Taxonomist
Motia Alloysius Etapo-Esay	Hire	Field Assistant, Enumeration team
Azeh Roy Awasung	Student	Field assistant, Enumeration team
Douandji Douandji Franck Mathaus	Student	Field assistant, Botany team
Enongene Ebontane Elvis	Community Member	Field Assistant, Plot establishment team
Sumbele Celestine Ewanoge	Community Member	Field Assistant, Transect cutting team
Ngeme Ivo Ngwese	Community Member	Field Assistant, Transect cutting team
Ndong Neville Agumtong	Community Member	Field Assistant, Plot establishment team
Ndode Claudine Muke	Community Member	Assistant field cook
Njikang Felix Ntoko	Community Member	Field Assistant, Transect cutting team
Ekume Samuel Njikang	Community Member	Field Assistant, Enumeration team
Ntungwe Albert Kwogge	Community Member	Field Assistant, Plot establishment team
Ekane Samuel Ngide	Community Member	Field Assistant, Enumeration team
Mbine Festus Ewane	Community Member	Field Assistant, tree climber, Botany team
Ajang Elvis Ngome	Community Member	Field Assistant, tree climber, Botany team
Ngome Samuel Njenge	Community Member	Field Assistant, Plot establishment team
Charles Nkede Edie	Community Member	Field Assistant, Plot establishment team
Mbwoge Romeo	Community Member	Porter

Epie Erna Ebude	Community Member	Village logistician at Muandelengoh village
Ntoko Pamela	Community Member	Village logistician at Enyandong village
Njikang Vivian	Community Member	Village logistician at Enyandong village
Mr. Ekwoge Epie Felix	Buea	Driver
Mr. Ekane Henry	Mundemba	Driver
Mr. Edgar Jean Paul	Buea	Driver

---

## Annex 2. The field team at Mt Nlonako, Cameroon

Name	Affiliation	Role
Sainge Nsanyi Moses	TroPEG Cameroon	Principal Investigator, Project Coordinator, and Botanist
Ngoh Michael Lyonga	TroPEG Cameroon	Field Manager, and Botanist-Conservationist
Benedicta Jailughe	TroPEG Cameroon	Financial Manager
Mambo Peter Ekole	TroPEG Cameroon	Herbarium Manager, and Para-Taxonomist
Okere Fredrick Eleli	Hire	Project Field Cook
Ebinza Wilfred Nkalle	Hire	Field Assistant, Enumeration team
Nwese Joseph Mulango	Hire	Field Assistant, Transect cutting team
Njoh Agwetang Lazarus	Hire	GPS Technician, Plot establishment team
Bangsi Oliver Agham	Hire	Para-Taxonomist
Motia Alloysius Etapo-Esay	Hire	Field Assistant, Enumeration team
Dr. Mabel Nechia Wantim	University of Buea	Thematic Topographic and vegetation maps development
Momene Manfred Mero	Student	Field assistant, Enumeration team
Douandji Douandji Franck Mathaus	Student	Field assistant, Botany team
Osang Kwelle Anamani	Student	Field Assistant, Enumeration team
Motto Moses Nekena	Student	Field Assistant, Enumeration team
Nkomba Philippe	Community Member	Field Assistant, Plot establishment team
Etame Etame Ruben	Community Member	Field Assistant, Transect cutting team
Ekanbo Emmanuel Premier	Community Member	Field Assistant, Transect cutting team
Mbanga Ebwelle Phillipe	Community Member	Field Assistant, Plot establishment team
Felix Mbanja	Community Member	Field Assistant, Transect cutting team
Ngoh-ngo Raymond	Community Member	Field Assistant, Enumeration team
Begna Thomas	Community Member	Field Assistant, Plot establishment team
Mongo Mpah Leonard	Community Member	Field Assistant, Enumeration team
Mbine Festus Ewane	Community Member	Field Assistant, tree climber, Botany team
Elong Essoh Moise	Community Member	Field Assistant, tree climber, Botany team
Françoise Ekoumelon	Community Member	Field Assistant, Plot establishment team
	Community Member	Field Assistant, Plot establishment team
Edjoh Ekando	Community Member	Porter



	Community Member	Village logistician at Muandelengoh village
	Community Member	Village logistician at Enyandong village
	Community Member	Village logistician at Enyandong village
Mr. Emmanuel Ako	Buea	Driver
Mr. Andore Kemeyou	Nkongsamba	Driver
Mr. Jude Sevidzem	Buea	Driver

---

# Permits


REPUBLIQUE DU CAMEROUN  
Paix-Travail-Patrie

MINISTÈRE DE LA RECHERCHE SCIENTIFIQUE ET DE L'INNOVATION  
SECRETARIAT GENERAL

DIVISION DES POLITIQUES SCIENTIFIQUES ET DE LA PLANIFICATION  
CELLULE DE LA PROGRAMMATION ET DE LA PLANIFICATION

B.P : 1457 Yaoundé – Cameroun  
Tél : (237) 22 22 13 34 ou 22 22 52 02

N° /MINRESI/B00/C00/C10/C14



The Minister  
of Scientific Research and Innovation

REPUBLIC OF CAMEROON  
Peace-Work-Fatherland

MINISTRY OF SCIENTIFIC RESEARCH AND INNOVATION  
GENERAL SECRETARIAT

SCIENTIFIC POLICY AND PLANNING  
PROGRAMMING AND PLANNING UNIT

PO Box 1457 Yaoundé- Cameroon  
Tél : (237) 22 22 13 34 or 22 22 52 02

03 MAI 2016

Yaoundé, le \_\_\_\_\_

## AUTORISATION DE RECHERCHE

### RESEARCH PERMIT

**Vu la Constitution ;**  
*Mindful constitution ;*

**Vu le décret n°2011/408 du 09 décembre 2011 portant organisation du Gouvernement ;**  
*Mindful of decree n°2011/408 of 09 December 2011 organizing the Government;*

**Vu le décret n°2011/410 du 09 décembre 2011 portant formation du Gouvernement ;**  
*Mindful of decree n°2011/410 of 09 December 2011 appointing the members of the Government;*

**Vu le décret n°2005/091 du 29 mars 2005 portant organisation du Ministère de la Recherche Scientifique et de l'Innovation ;**  
*Mindful of decree n°2005/091 of 29 March 2005 organizing the Ministry of Scientific Research And Innovation;*

**Vu la demande de l'intéressé .**  
*Considering the Applicant's request.*

**Noms et prénoms/Names : SAINGE NSANYI Moses**

**Adresses Permanentes/ Permanent address: Tropical Plant Exploration Group (TroPEG), Cameroon; P.O.Box: 18 Mundemba, Ndian Division, South West/Cameroun; Tél : (+237) 6 77 51 35 99; Email: moses.sainge@gmail.com**

**Adresse au Cameroun/Address in Cameroon: s/c Dr. FOKAM Eric Bertrand, Lecturer, University of Buea, Faculty of Science; P.O.Box: 63 Buea-Cameroun; Tél : (+237) 6 77 92 07 39; Email : efokam@daad-alumni.de**

**Nationalité /Nationality : Cameroonian.**

**Est autorisé (e) à effectuer des travaux de recherche en République du Cameroun dans la ou les Région(s) de: Is hereby autorisé to carry out scientific or technical research in the Republic of Cameroon in the Region of: North West (Kimbri-Fungom National Park and Mont Oku Area), and West.**

**Pour une période de / For a period of: 12 mois du/from : 25/04/2016 au/to 25/04/2017**

**En collaboration avec / In collaboration with: Dr. FOKAM Eric Bertrand, Lecturer, University of Buea, Faculty of Science; P.O.Box: 63 Buea-Cameroun; Tél : (+237) 6 77 92 07 39; Email : efokam@daad-alumni.de**

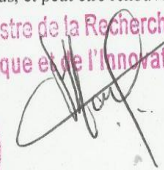
**Objet de la Recherche/Research Title: Baseline Biological inventories in support of a new National Park in Northwestern Cameroon.**

*Cette autorisation de recherche n'est valable que pendant la période de recherche indiquée ci-dessus, et peut être renouvelable*  
*This research permit is valid only for the research period indicated above and it can renewed.*

**AMPLIATION:**

- CAB/MINRESI
- SGPRC
- SGPM
- MINDEF
- DCSN
- DGRE
- CRRI -North West and West.
- SG/MINRESI
- IG/MINRESI
- C/DPSP
- Chrono/Archives

**Le Ministre de la Recherche Scientifique et de l'Innovation**



**Madeleine Tchuinte**

REPUBLIQUE DU CAMEROUN  
Paix - Travail - Patrie

-----  
MINISTERE DES FORETS  
ET DE LA FAUNE

-----  
SECRETARIAT GENERAL

-----  
DIRECTION DES FORETS  
-----



BP 34430  
Yaoundé  
Tél: 222 23 92 28

REPUBLIC OF CAMEROON  
Peace - Work - Fatherland

-----  
MINISTRY OF FORESTRY  
AND WILDLIFE

-----  
SECRETARIAT GENERAL

-----  
DEPARTMENT OF FORESTRY  
-----

1261  
N° \_\_\_\_\_ /L/MINFOF/SG/DF/SDIAF/SISDEF/NMA

Yaoundé, le

22 MARS 2016

**LE MINISTRE DES FORETS ET  
DE LA FAUNE**

**A**

**Monsieur SAINGE NSANYI Moses**

**Tropical Plant Exploration Group  
(TroPEG) Cameroon**

BP: 18 Mundemba

**Objet:** Demande d'une autorisation de recherche

Monsieur,

Comme suite à votre lettre du 15 octobre 2015, relative à l'objet susvisé,

J'ai l'honneur de vous marquer mon accord pour mener vos travaux de recherche sur le thème : « Biodiversity patterns and climate effects in the Cameroon Mountains » dans les sites des Monts Bamboutos, Nlonako, Oku, Bali, Bafut Ngamba, du sanctuaire de faune de Kagwene, du cratère de Mbi et le parc national de Kimbi-Fungom, durant la période d'un an à compter de la date de signature de la présente autorisation.

Veillez agréer, Monsieur, l'expression de ma considération distinguée.



*Ngole Ngwese*