Biodiversity Assessment and Conservation Status of Plants in the Mbembe Forest Reserve of Donga Mantung Division in the North West Region (NWR) of Cameroon.

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Biodiversity Assessment and Conservation Status of Plants in the Mbembe Forest Reserve of Donga Mantung Division in the North West Region of Cameroon

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a) Hired car

b) Camping tents

c) Bike transporting equipments

d) Field layout

e) Plant pressing

f) Tree data collection

g) Herb data collection

h) Tree diameter measurement

i) Drinking water at Buku-up

j) Grassland savanna plot

k) Canopy view savanna

l) Grassland savanna

m) Acacia dealbara

n) Sainge in forest Plot

o) Forestry 550 for Tree height

p) Tacca leontopetaloides (L.) Kuntze.

q) Carpolubia alba

r) Tree data collection

s) Pericopsis laxiflora

t) Annona senegalensis

u) Piliostigma thonningii

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EXECUTIVE SUMMARY

This report is the first elaborate piece of work on the vegetation of the Mbembe forest Reserve (MFS) since its creation in 1934 and first boundary demarcation and map production in 1949 and 1950 respectively. The second demarcation was carried out in 1953. Prior to this survey, nobody particularly from our team knew the actual boundary of the reserve. But thanks to this work, we can now have some relics of the reserve from the 1949 (fig. 5) and the 1953 map (fig. 6).

This report summaries the activities and scientific findings of the area supported by the Rufford Small grant Foundation and implemented by Tropical Plant Exploration Group (TroPEG) Cameroon. One of TroPEG's ideas was to establish a series of one hectare plots on different vegetation type (Forest, woodland and grassland savannah) in the Mbembe Forest Reserve area to study the Biodiversity and forest structure of the vegetation, carbon stock and the plant usage and livelihood of the entire landscape in a sustainable manner.

During this two months field survey (April & May 2012); four one hectare plots were establish: 2 plots in woodland savannah, 1 plot in grassland savannah and 1 plot in the forest. Different life forms were studied ranging from herbs, shrubs, lianas and trees. The diameter of all shrubs, lianas and trees in the various plots were measure at ≥ 10 mm (1 cm) at breast height (1.3 m). Herbs were sampled at point counts. Since this forest is very important to the local people as they used the forest product for medicine, food (Non-timber forest Product), fuel wood, and building materials we employed two traditional practitioners during this survey to document all these aspects.

A total of 6,679 individual plants (lianas and trees) were tagged in the four plots for tree diversity giving about 208 species in 50 families. 2508 individual stems of herbs (Seedling, Sapling and real herb) were recorded in about 190 species in 54 families. About 61 species of this total are used for medicine, food, fuel wood and building.

With these preliminary results, we therefore recommend that a more extensive survey be carried out in the north-western part of Ndaka and Abbafum, the north-eastern part of Akwese and Assa and in part of the Ako central area of the reserve. This will give a better assessment of the biodiversity potential and medicinal value of the reserve.

Although the Mbembe forest reserve falls within the Guinea-Congolian woodland and grassland savannah with patches of semi-deciduous lowland forest, it still remains isolated from the main Guinea-Congolian forest block. This isolation leads to some challenges and threats facing the conservation and sustainable development of this landscape.

By Sainge Nsanyi Mose

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Abbreviations

asl	Above sea level
BA	Basal Area
CBCS	Cameroon Biodiversity Conservation Society
IVI	Importance Value Index
Km^2	Square Kilometer
MFR	Mbembe Forest Reserve
MINFOF	Ministry of Forestry and Wildlife
MINRESI	Ministry of Scientific Research and Innovation
MO	Missouri Botanical Garden Herbarium
NGOs	Non-Governmental Organizations
NWR	Northwest Region
Rel. BA	Relative Basal Area
TroPEG	Tropical Plant Exploration Group
YA	National Herbarium of Cameroon in Yaounde

1.0. Introduction

Cameroon is one of the most diverse country in Africa in terms of plant biodiversity hosting over 7850 plant species (Onana, 2011) with 815 species been threatened (Onana *et al*. 2011) in different vegetation type: the Biafra forest with high rainfall, the Congolese forest, and the semi-deciduous forest with low rain fall (Letouzey, 1985). The vegetation of Cameroon ranges from lowland evergreen rainforest, semi-deciduous, deciduous, savanna woodland, and savanna grassland forest, at different altitudinal gradient of lowland, sub-montane, alpine and montane forest (Letouzey, 1985; Achoundong, 2007) and form part of the Guineo-Congolian region of endemism (White, 1979).

This makes Cameroon the top country in tropical Africa for plant species diversity per degree square (Barthlott *et al.* 1996) with more than 5000 species per degree square in parts of South west Region and closed to 500 tree species (Thomas *et al.* 2003) and over 250 liana species in a 50 ha plot in central Korup National Park.

In 1994, Davis *et al.*, suggested that the forest of the cross-border region of Cameroon and Nigeria are highly diverse with a high degree of endemism.

This report presents the findings of a preliminary vegetation survey carried out at the Mbembe forest Reserve (MFR) in the Northwest Region of Cameroon and to the border of South-eastern Nigeria.

This area stems as far back as 1926 (Pollock, 1926). In 1934, the Mbembe Native Authority forest Reserve was created, and demarcated as a reserve in 1949 (Hussey, 1949). The second demarcation of this reserve was carried out in 1953 (Lightbody, 1953). Till date, no detail conservation and management strategy plan has been put in place by the Government of Cameroon. This keeps us with very little knowledge or nothing on the biodiversity potentials of this reserve (Taku, 2004). However, the government of Cameroon is putting in place majors and strategy to study and evaluate this area through NGOs such as the Cameroon Biodiversity Conservation Society (CBCS) that studied Birds and Reptiles in 2004 and the Tropical Plant Exploration Group (TroPEG) to study the vegetation and forest structure of the area. This study is the first detail study on the plant diversity of this area, however in 1974, Rene Letouzey who

is known to be the father of Cameroon Botany collected plants specimens from this area (Nkambe, Ako, Abuenshie to Abong) with his team (Satabie, Paul Mezili, and G. Achondong). All these will help Government Institutions such as the Ministry of Forestry and Wildlife (MINFOF), Ministry of Scientific Research and Innovation (MINRESI) through the National Herbarium of Cameroon, and Ministry of Environmental and Nature Protection together with national and International NGOs to assess the biodiversity potentials and develop a proper management strategy plan for this rich ecosystem. Reserves and National Parks in Cameroon including Mbembe Forest Reserve are presented in this report (fig. 1). Forest reserves that were created in Cameroon under the United Kingdom trusteeship between 1934 and 1949 are also presented in this report (fig. 4). The complete checklist of trees and herbs of the sample plots and environ are given on table 19 and 20.

1.1. Objectives

The overall objective of this project was to assess the Biodiversity and Conservation status of plants in the Mbembe, Fungom and Kimbi forest area with emphases on the forest around Dumbu, Kwei, Gimbeu and Mayo Binka. The reconnaissance survey carried out was the first systematic survey on the vegetation and forest structure in the Mbembe Forest Reserve area through forest inventory, and this will in the future help the government in decision-making towards conservation, sustainable development and biodiversity policy. The specific objectives were:

- To conduct a botanical survey through forest inventory.
- To identify plants with high conservation, sustainable and medicinal value.
- To produce a preliminary checklist of plants of this area.
- To produce a vegetation report of plants of the project area, and publish new species if any.

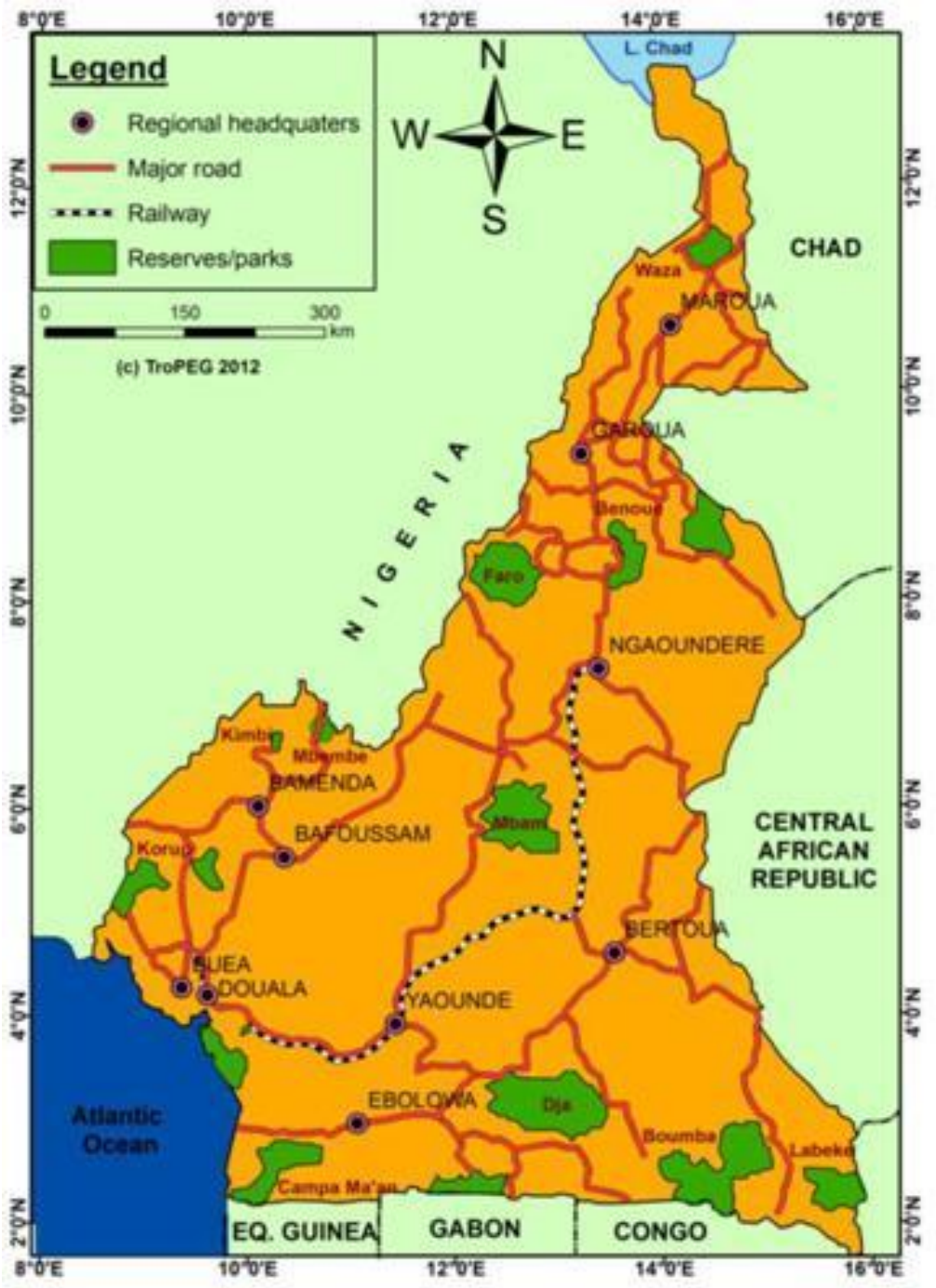

Figure 1: Reserves and National Parks in Cameroon (Modified after Tchindjang, 2000)

1.2. Brief History of Mbembe Area

Documented records of Mbembe started as far back as 1926 as the Mbembe Native Authority in the Bamenda division (Pollock, 1926). This area was known to be the "palm oil Country" due to its vast number of natural palm trees. This area was composed of 16 villages (The Mbembe Native Authority Area): Ako, Akoja (Akwaja), Berabe, Mbandi (Mbande), Andi (Ande), Jevi,

Mbiribwa, Bogu (Buku), Ndaka, Assa, Akonko (Akwenko), Abonkwa (Abwenkpa), Abbafum, Akwonse (Akwesse), Abonse (Abuenshie) and Amba, and covers an area of 667 square miles (1727.52 km2) (Newton, 1935) with a population of 5163 inhabitants. At that time, the population density stood at 7.7 per square mile i.e. 7.7 people per 2.6 km2.

The Mbembe forest reserve was created in 1934 (Newton, 1935). The population of this area increased to 8434 inhabitants with a population density of 12.6 per square mile (12.6 per 2.6 km2). With steep and isolated hills, the highest village was Bebe-ketti (Bebe-kette) at 4500 feet (1372 m, asl) and the lowest is a quarter in Abonse (Abuenshie) at 850 feet (259.08 m asl) (Newton, 1935).

The flora is variable from open grassland through stunted orchards growth to high forest (Pollock, 1926). The valleys, slopes of hills and high ravines are forested particularly between Ako, Abonkwa and Ndaka. The plains are mostly with orchard bush of the northern type, with vast number of palm trees which makes this area to be known as the "palm oil Country" (Newton, 1935). During one of the consultative meetings in Bogu (Buku) Fon Zirimba Eku and others were elected as Buku councillors. In May 1952, a conference to discuss the future of Mbembe reserve was held at Bamenda and was attended by the Director of Agriculture (Mr. M. Park) and the Conservator of Forest (Mr. PC Randell). After the meeting, the Assistant Conservator of Forest (Mr. JBIG Ayewoh) took an extensive tour of the Mbembe Reserve, and proposed a revised boundary to exist about 30 square miles (78 km2) for the benefit of the neighbouring inhabitants. It was then agreed by the provincial Forest Officer in Bamenda to map and demarcate the reserve boundaries in great detail again. By March 1953, 109.25 square miles (36 sq. miles of high forest and 73.25 sq. miles of savannah): 282.96 km2 (93.24 km2 of high forest and 189.72 km2 of savannah) was demarcated (Lightbody, 1953). Hence, our bench mark regarding the boundary remains that of the 1949 (fig. 5) and 1953 map (fig. 6). The 1953 map is the current usable map (fig. 6).

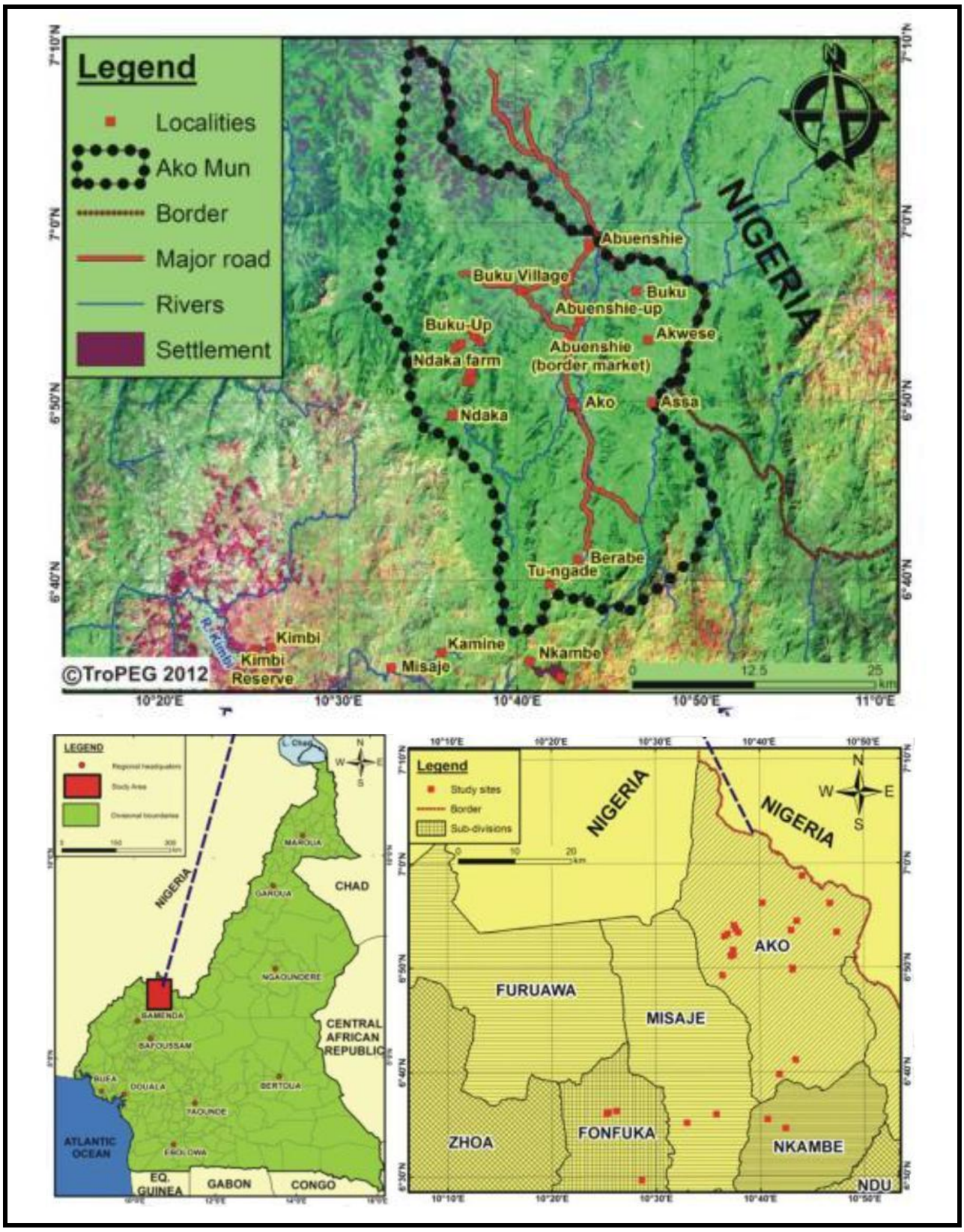

Figure 2: Some localities within the Ako Municipality. Inset: Cameroon Map showing the Study Area, Sub-Divisional map with these localities.

2.0. Location and Description of the Study Area

The Mbembe area consist of streams, rivers, hills and mountains that stretches to river Donga in Abuenshie. It covers an area of 1727.52 km2 (172752 ha) and consist of 16 villages (Pollock, 1926). It is bounded to the North and east by the river Donga, to the south by Nkambe area and to the West by Misaje. Generally the Mbembe area is bounded to the North and East by Nigeria, West by Misaje, and South by Nkambe (fig. 2).

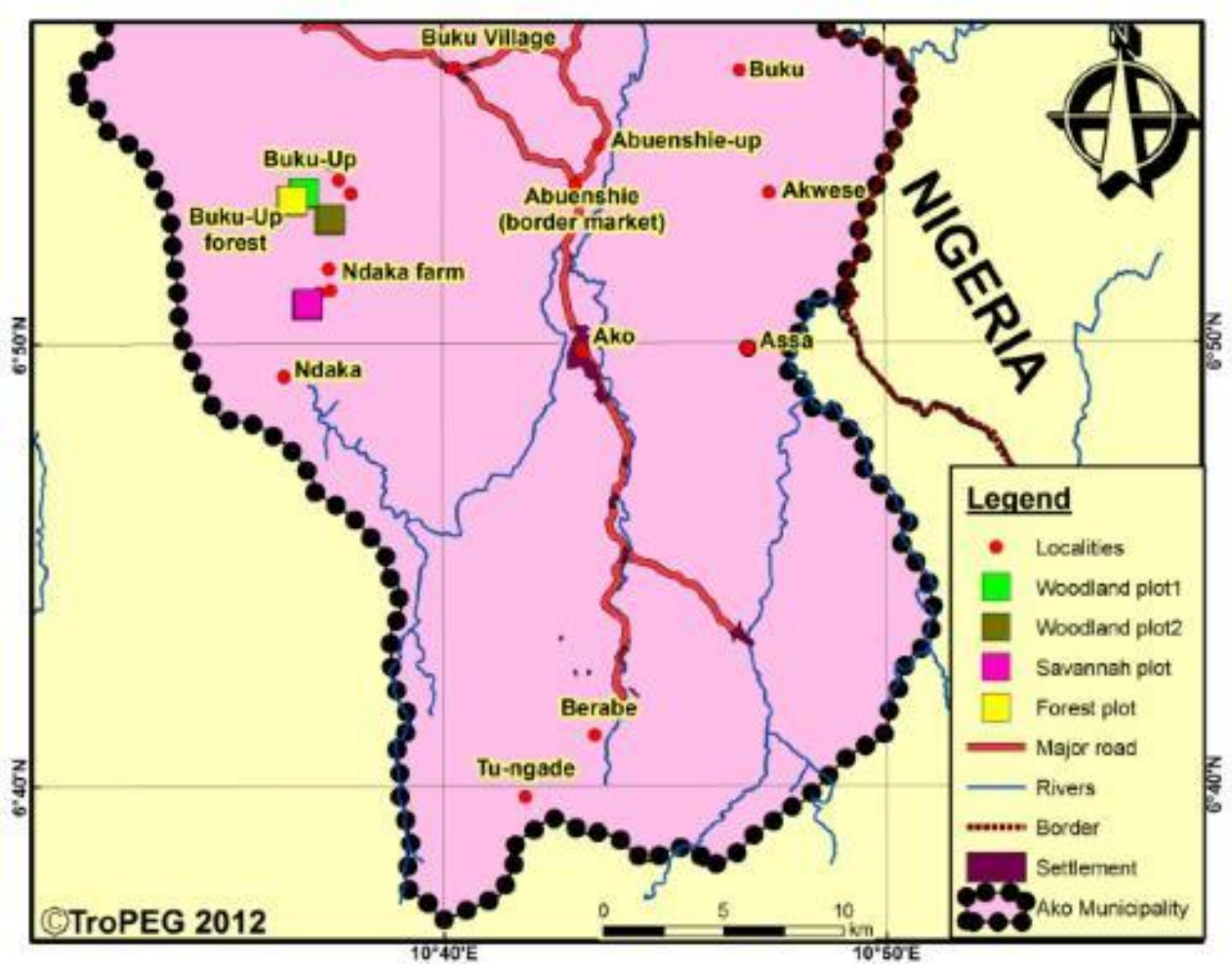

Figure 3: Map Showing the Study Sites

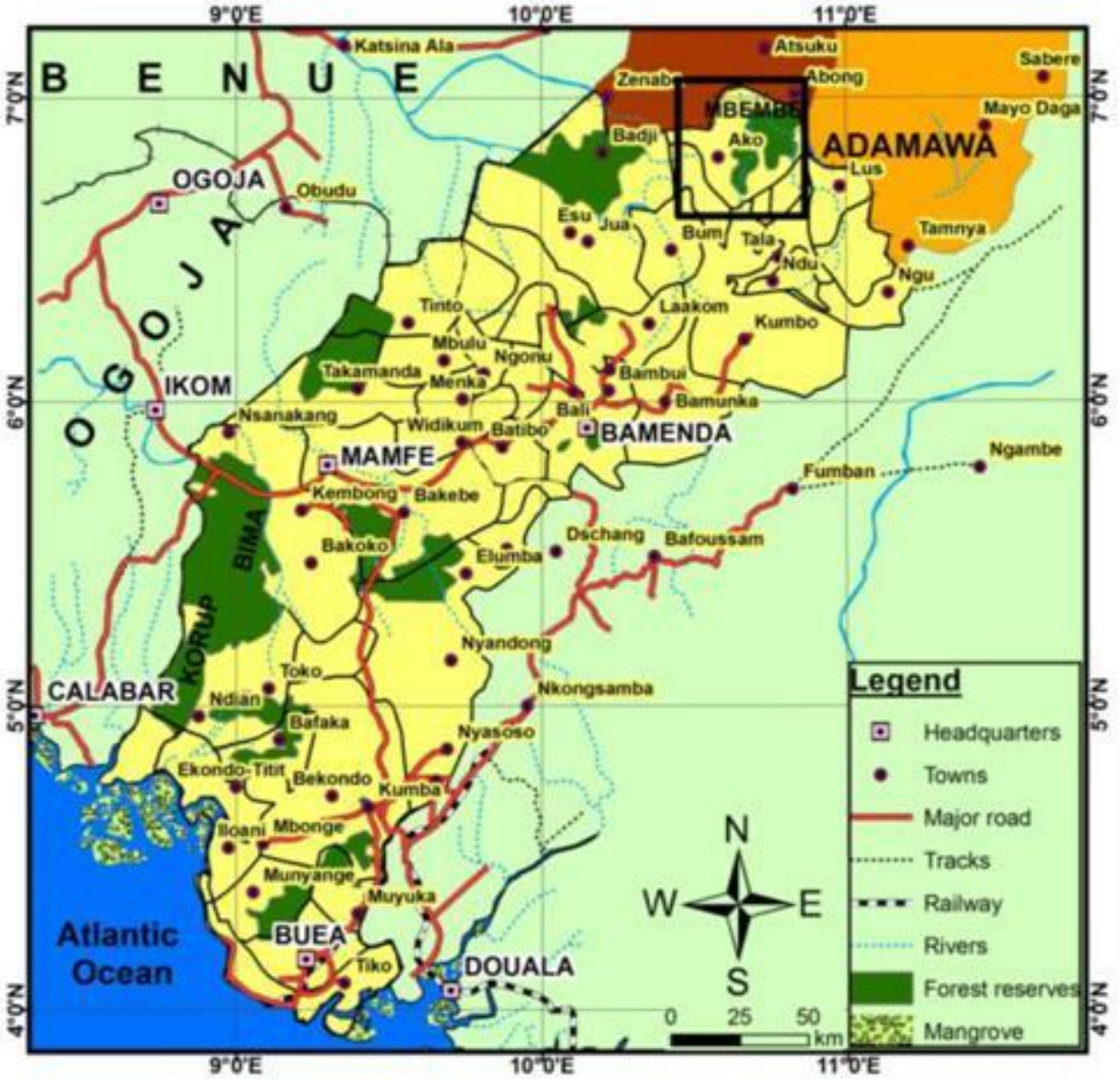

Figure 4: Forest Reserves in Cameroon under United Kingdom Trusteeship, showing Mbembe Reserve in 1949. (Digitized by TroPEG)

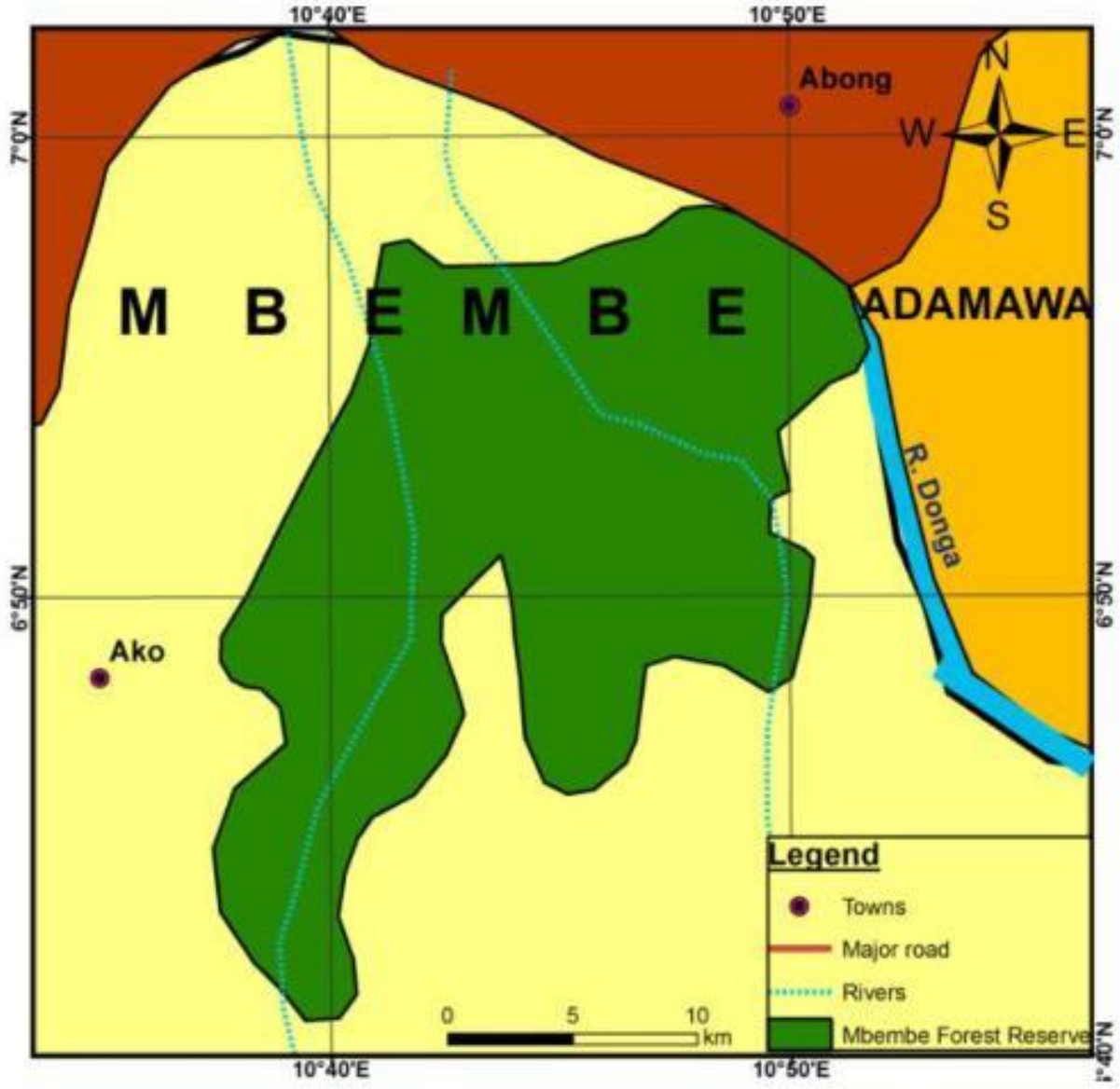

Figure 5: Situation of Mbembe Forest Reserve as in 1949. (Digitized by TroPEG)

The Mbembe Forest Reserve (MFR) is situated in the Northwest Region of Cameroon between latitude 06075' North and longitude 010074' East (Fig. 6) covering a surface area of about 285.75 km2 (28,575 ha) (Google earth; Fig. 6). Although, the 1953 demarcation gave a surface area of 282.96 km2 (28,296 ha). Its northern border is Abuenshie which is the last Cameroon village to Nigeria closed to river Donga, while its southern border is Nkambe. It's bounded to the east by river Donga, to the northeast by Nigeria and to the west by Ndaka. But due to population increase, they lay a big controversy as to where the exact boundary of the reserve is. This set us into different school of thoughts, with one of these schools saying that the Mbembe Forest Reserve covers Ako, Ndaka and Abuenkpba (Abonkwa) (personal communication). The

other school, says in 1929; the people of Buku fondom which is made up of six quarters: Buku Central (Public), Buku-up, Ayieh, Ekimi, MMra and Akwancha ask the government to remove them out of the reserve and to that effect, a text of application was put in place which no body has a copy at the moment. This school of thought claims that in 1978, the text of application was granted for Buku fondom through Fon Zirimba Eku removing Buku from the reserve. This was to enable them use this piece of land for development and farming (personal communication). The inhabitants of Buku-up which is one of the quarters that makes up the Buku fondom says the reserve covers Ako, Ndaka and Abbafum. However, Ako sub-division which is commonly divided into the lower and upper Mbembe, covers five main villages in lower Mbembe: Buku with six quarters : (Buku Central (Public), Buku-up, Ayieh, Ekimi, MMra and Akwachia), Ndaka with 5 quarters: (Ndaka central, Ekepio, Ngidanjukum, Baraki and Mpentaba; which is a disputed land between Ndaka and Abafum), Abbafum with four quarters (Abbafum central, Sabungida, Abutu, and Tutuwata), Ako and Abuenshie and the upper Mbembe villages are Berabe, Assa, Akwese and Abuenkpba. Administratively, the MFR is located in Ako sub division with headquarters in Ako. This preliminary study was carried out in the forest between Buku-up and Ndaka (fig. 6).

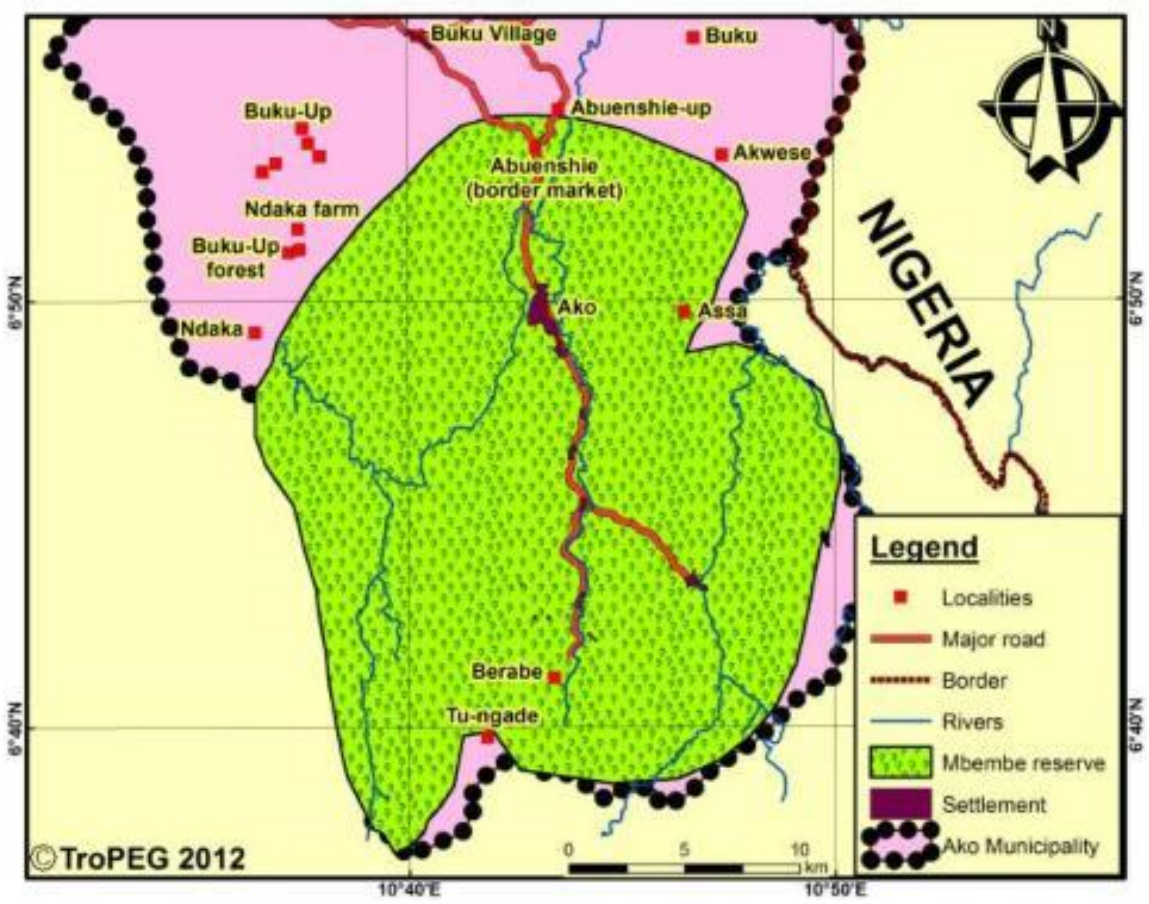

Figure 6: Mbembe Forest Reserve

2.1. Climate

The climate of the MFR is that of the equatorial Cameroon type which is hot and humid with two distinct seasons: dry and rainy seasons. The dry season range from November to March, with peaks in January and February, while the rainy season runs from April to October with peaks in July and August. At the beginning and end of the rainy season (April and October), there are usually very strong monsoon winds accompanied by thunder storms. The temperature of this area varies from 12.80C to 36.70C (Pollock, 1926), and rainfall about 3027.172 mm (Cordy, 1957). Rainfall data that we received from the Ako weather station shows an annual distribution of 1128 mm.

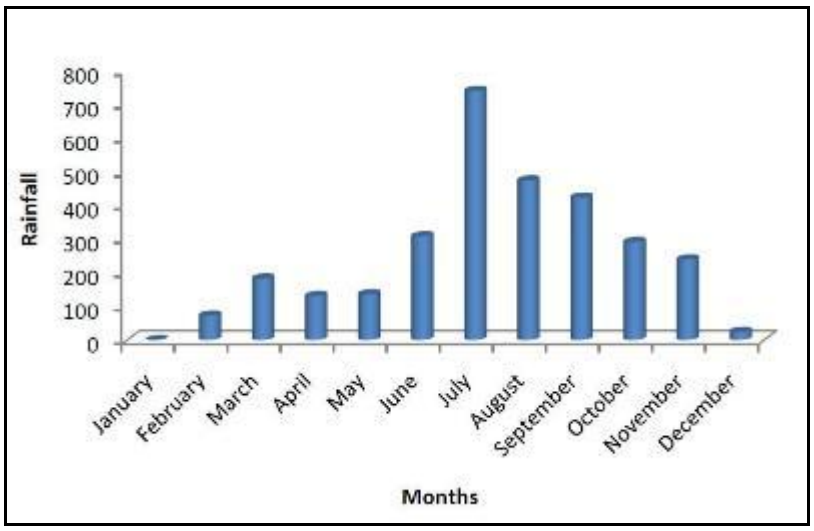

Figure 7: Monthly Rainfall records (mm) from the Nkambe Government Station, 1956. (Source: Cordy, 1957)

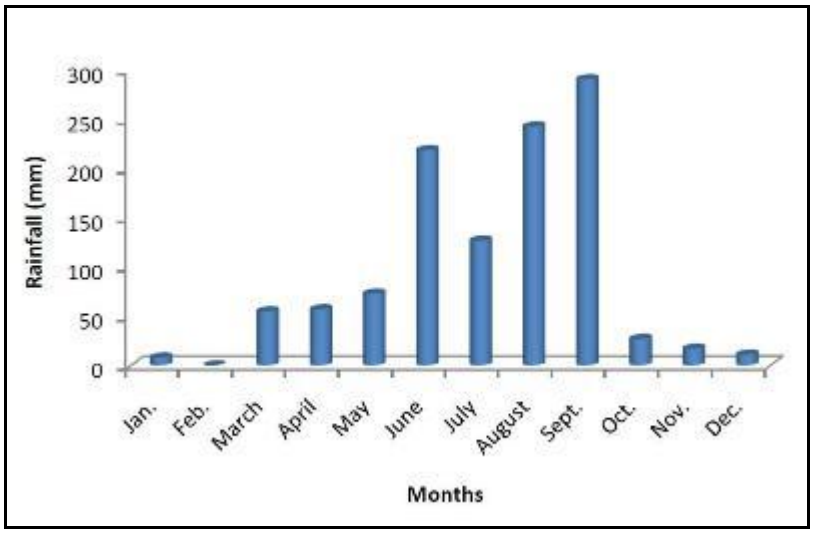

Figure 8: Month Rainfall records (mm) for MFR from the Ako Weather Station, 2011.

Table 1: Annual Rainfall distribution (mm) for the Area

		Amount of Rainfall (mm)												
Locations	**Year**	**J**	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	**Total**
Nkambe	1956	0	73	183	131	136	309	741	475	424	292	240	24	**3028**
Ako	2011	8	0	55	57	73	219	127	243	291	27	17	11	**1128**

2.2. Topography

The topography of MFR can be described as bowl shape. This is because from Nkambe at an altitude of about 1800 m above sea level (asl), there is a steep descend through hills to Berabe at about 800 m asl which marks the beginning of the Mbembe forest area (Ako sub division) to Ako at less than 300 m asl. To the north towards Abuenshie is fairly flat (259 m), the centre Buku and Buku-up is relatively ± 350 m. To the east toward Assa and Akwese, the altitude is increased and to the west toward Ndaka and Northwest toward Abbafum, the altitude increases to about 1372 m asl on some hills and mountains with harsh dry season. Hence, the altitude of the area ranges from 259 m – 1372 m asl.

2.3. Hydrography

The MFR has a series of seasonal streams and a few all round streams and rivers that meander through the reserve and empty into river Donga which is located to the north, separating Cameroon and Nigeria. At the peak of the dry season (January to April) when the streams are dried out, the populations are left with pools of dirty water that they share with Fulani cattle's for drinking and bathing. At times they scoop seasonal sand dunes to get fairly clean water for drinking. This happens particularly in Buku-up village where my team and I spend one month during our inventory before moving to Ndaka.

River Ako and River Akong are found between Buku and Ako town a distance of about 30 km apart. A series of streams and river Ngolo and Nako are found between Abbafum to Buku which is about 20 km. Many seasonal streams are found between Buku and Ndaka.

2.4. Fauna

A detail survey of the fauna of Mbembe Forest Reserve is necessary. However, preliminary survey on the Birds and Reptiles of this area has been carried out (Taku & Njie 2004, Diffo & LeBreton 2004). In accordance with Taku & Njie 2004, The Nile Crocodile (*Crocodylus niloticus*), Bell's Hinged Back Tortoise (*Kinixys belliana), Kinixys nogueyi*, Rock Python (*Python sebae*), Royal Python (*Python regius*), Slender or Graceful Chameleon (*Chamaeleo gracilis*), Nile Monitor lizard (*Varanus niloticus*), forest monitor lizard (*Varanus ornatus*) are threatened according to CITES MINEF Cameroon exist in this area.

There is high pressure of poaching in the area with the used of local rifles. An interview with

one of our guides (Mr. Adamu John Gadima) at Ndaka farms testified to the presence of Porcupine (Chuku-chuku), Pangolin, Antelope, Chimpanzee, Baboon, White nose monkeys, red nose monkeys, Bush pig, red deer, blue deer, Rock Rabbit, Buffalos, Bush Jaka (like Buffalos), Leopard, Guinea pig, Squirrel, Bush dog, water dog, Crocodile, Alligator and different species of Chameleon in the area. However, during our two months stay in the area we recorded species of fauna in the forest such as snakes, red and blue deer, pangolin, bats, some species of Monkeys, Bush baby (*Potto sp*), squirrel, porcupines and many species of insects such as termites, black flies, and ants. The various streams and rivers maybe home for many species of amphibians. According to Pollock1926, Anthelope, hart hog, wild pig, bush cow (Buffalo), Hippopotamus, wild duck, geese, bush fowl and Guinea fowl are found in the area.

2.5. Vegetation

The vegetation of the Mbembe FR area is that of the lowland and sub-montane forest from open grassland savannah, woodland and semi-deciduous palm tree forest with three vegetation types. The evergreen lowland and sub-montane forest, with the forest structure ranging from dense herbaceous vegetation, understory species such as *Diospyrus mombuttensis*, *Napoleona sp*, canopy species like *Cola caricaefolia*, *Anthonotha macrophylla*, *Millettia excelsa*, *Pterygota mildbraedii*, to emergent species like *Ceiba pentrandra* that grows to a height of about 30 – 40 m. Lianas of the genera *Landolphia*, *Strychnos*, and *Dictyophyleba* are also common. The woodland savanna is open in areas of seasonal bush burning and thick with bushes of *Chromolana odorata* in areas where bush burning is not frequent with common species been *Nauclea latifolia*, *Crossopteryx febrifuga*, *Hymenocardia acida*, *Annona senegalensis*, *Lannea schimperi*, and in the grassland savanna at high elevation species of herb such as *Tacca* are common with over 100 individuals counted in 1-ha, *Imperata cylindricum*, and trees like *Daniella oliveri*, *Terminilia glaucescens*, *Lophora lanceolata*, *Allophyllus africana*, and *Cussonia barteri* occurring. Liana diversity is poor in both woodland and grassland savanna with only species such as *Mucuna flagellipes*, *Adenia cissampeloides*, *Tetracera alpinia*, and *Cissus sp* occurring. Epiphytic *Ficus* are more diverse in the woodland than forest and grassland savanna, also with species of orchids. This area is very diverse in its usage of plant parts as medicine and food This survey is the first systematic survey on the vegetation that has been carried out in the MFR on three vegetation type: lowland dry forest, woodland and grassland savanna based on herbs, lianas, trees and plant uses. In the Mbembe forest area which covers the lower and upper Mbembe, a rare type of vegetation exists. In this area, groves of palm trees

(*Elaies guineensis* Jacq.) stands grow naturally in the forest within forest stands. When we ask the inhabitants, they said this has been going on for over a century from the time of their fore fathers. Fruits from these palm stands are dispersed by animals and birds to new locations which germinate to new stands, replacing the old stands when they die and nobody owns them. The first inhabitant who sees the ripe fruit has the right to harvest.

2.6. Vegetation Survey of the Area

The first botanical survey of this area was done by Rene Letouzey in 1965, 1968 and 1974. Letouzey and his team: Satabie, Mezili and Achoundong collected less than 200 plant samples from this area from Ndu, Nkambe, Berabe, Ako, and Abuenshie to the banks of River Donga (Onana, 2011). This was until in the late 1980's that Cheek, Pollard, and Onana took a detail study of the vegetation of the Kilum-Ijim forest reserve in Kom and Oku, The Bali Ngemba and Bafut Ngemba reserve.

Not until recently that the Tropical Plant Exploration Group (TroPEG) has established a 4 ha plot as preliminary data for a long term study of the Mbembe forest reserve (MFR). Before now, there has been a considerable lack of data and knowledge on the vegetative composition, structure and the exact positions and boundaries of the Mbembe forest reserve. Hence, this preliminary data will broaden our knowledge on the land used changes, sustainable development, and a detail vegetation map of the area. As part of this preliminary study, a checklist of trees, herbs, and medicinal plants has been produced and a current vegetation map of the area.

2.7. Soil

The soils of the area vary from red clay to light sandy loam in the Donga valley, and heavily manure with leaves mould in the low valleys. Soils of the hill sides are poor, with the only mineral of value being the mica (Pollock, 1926).

3.0. Methodology

The above mentioned objectives were achieved through forest inventory and the identification of plant specimens in different herbaria: National Herbarium of Cameroon (YA). This study was carried out in the forest between Buku-up and Ndaka farms (fig. 3).

3.1. Field surveys

Field surveys were done following Condit (1998) and TEAM (2010) methodology. Four hectares of (100 x 100 m each) was established at different landscapes, and vegetation type of the project area, with 1-ha plot established in the forest, 1-ha in the grassland savanna and 2-ha in the woodland savanna. Plots were selected base on physical and human factors like climate, altitude, slopes, and degree of forest used. Plot data was replicated independently and randomly using quadrants. Woody plants of ≥ 1 cm (10 mm) diameter at breast height (1.3 m) were measured using a diameter tape and calliper and identified by a Botanist. All possible liana species of the same diameter were also measured and tagged with the aid of a metal wire and aluminium nails. This was to keep the tags in place after bush burning. The xy coordinate and height of each census individual was also taken for the two woodland plots with the aid of measuring tapes and Forestry 550 laser range finder. While in the forest and savanna plots, xy-coordinate was not taken, only the height and diameter were taken after tagging. All herbs (Seedling, Sapling and real herbs) in a 2 x 2 m quadrate at the centre of each 20 x 20 m quadrate were sampled by point count. This 2 x 2 m quadrate were sub divided into 4 sub quadrates that were coded as: 1,1; 2,1; 2,2; and 1,2 to ease data collection. In each sub quadrate, when an herb is encountered, it is given a number and the abundance of that particular species in the sub quadrate is counted and recorded. These numbers are continuous from 1 to infinity in each plot. General collections of epiphytes especially Orchids and other flowering and fruiting plant species were carried out.

Plant uses (Ethnobotany) were done intensively on the woodland and grassland plots. This was because in the forest plot, the two traditional practitioners whom we employed were not with us. However, we also got data on the uses for some few forest species.

The four corners of each plot (100 x 100 m) were demarcated with a permanent iron rod 10 mm in diameter of 50 cm long painted red at the top and the GPS points of all four post taken with

the aid of a Garmin, 60 Cxmap as follows: 00,00; 00, 100, 100, 00 and 100, 100 (fig. 9). Temporal posts were used to separate the 20 x 20 m quadrate with orange ribbons tied at their top for visibility. All plots were established northward (facing the north). All data were recorded in data sheets in the field and entered in excel software prior to analysis.

3.2. Plant identification

Voucher specimens of all or most sampled species were collected, described, pressed, dried and sorted into families, genus and morphospecies before taking to the herbarium (National Herbarium of Cameroon in Yaounde (YA)) for proper identification. Duplicates were shipped to Missouri Botanical Garden Herbarium (MO) for thorough identification. Photographs of most fertile, high Conservation value and medicinal plants were taken.

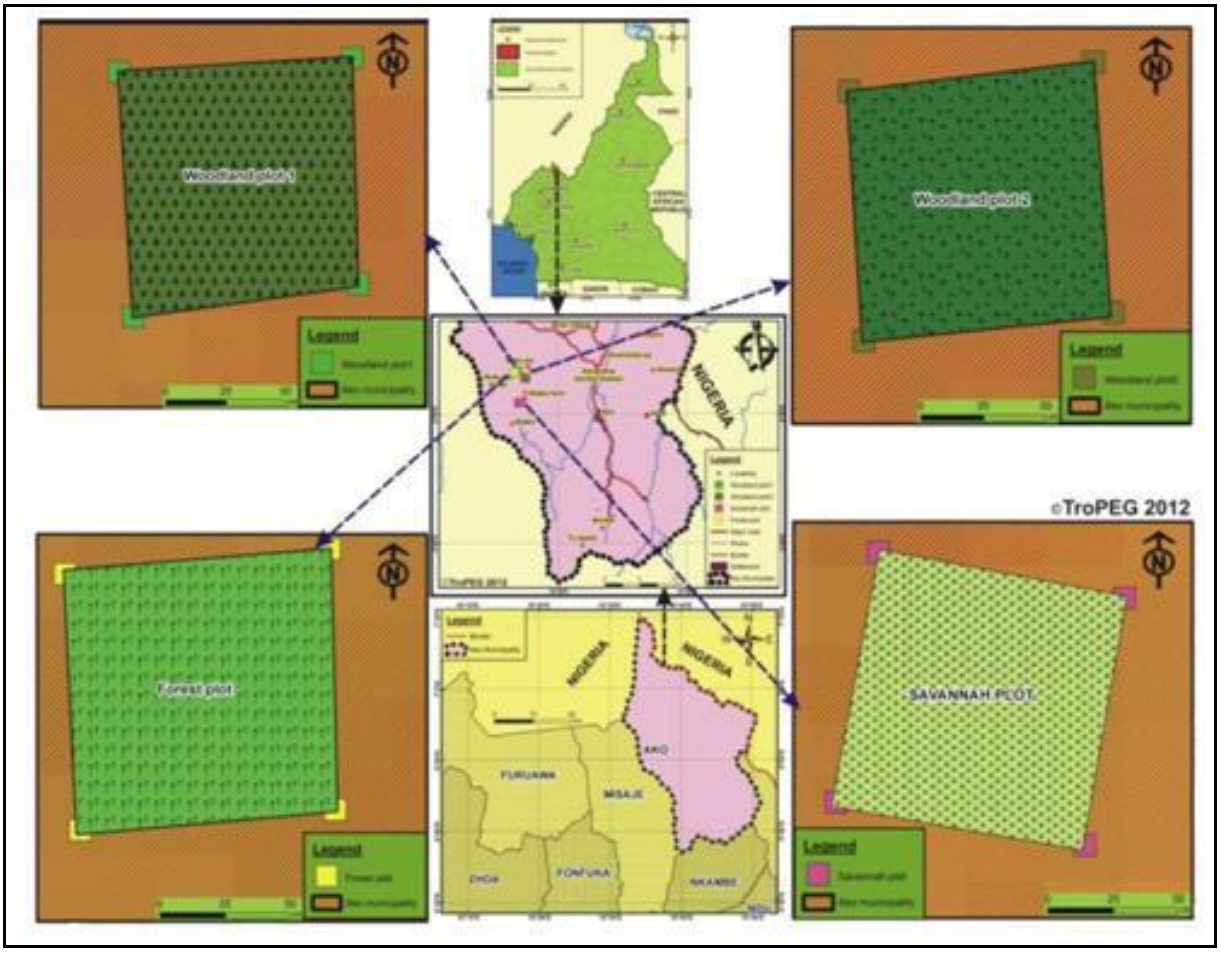

Figure 9: Map showing the four plots from where samples were collected

3.3. Data Analysis

Both qualitative and quantitative methods were used to calculate basal area, Relative basal area, relative density, relative frequency and the Important Value Index (IVI) using Microsoft Excel, and word software packages.

Dallmeier, 1992 formulae for calculating Basal Area (BA), Relative basal area, Relative density, Relative frequency and the Important Value Index (IVI) were used:

Basal Area (BA) = Area occupied by plant at breast height

$$\text{Basal Area (BA)} = \frac{(\text{pi dbh } 2)}{4}$$

$$\text{Relative basal area} = \frac{\text{Basal area of individuals of species}}{\text{Sum of all basal area of species}} \times 100$$

$$\text{Relative density} = \frac{\text{Number of individuals of the species}}{\text{Total number of individuals}} \times 100$$

Or

$$\text{Relative density} = \frac{\text{Density of the species}}{\text{Total densities of individuals}} \times 100$$

$$\text{Relative frequency} = \frac{\text{Frequency of a species}}{\text{Sum of all species}} \times 100$$

Important Value Index (IVI) = Relative Basal Area + Relative Density + Relative Frequency

Species with high IVI are the most important species in their specific plots.

Using Margalef's index (D) = (S-1)/ln N, as a measure of species richness,

where, S = No. of species and N= No. of trees

The Shannon-Weiner Index (H') which is the most appropriate measure of diversity was used.

Shannon diversity index (H') = - Σ pi ln pi

Where Pi = ni/N, ni = number of individuals of Species,

N = total number of individuals, and ln = log basen

Pielos diversity (J')

$J' = H'/H'max. = H'/lnN$

4.0. RESULTS AND DISCUSSION

4.1. GPS Location of Plots

4.1.1. Woodland Plot 1

	Latitude	Longitude	Elevation (m)
00, 00	06° 53’ 22.1” N	010° 36’ 50.9” E	301
00, 100	06° 53’ 25.4” N	010° 36’ 50.8” E	309
100, 00	06° 53’ 22.6” N	010° 36’ 54.0” E	300
100, 100	06° 53’ 25.6” N	010° 36’ 54.0” E	297

4.1.2. Woodland Plot 2

	Latitude	Longitude	Elevation (m)
00, 00	06° 52’ 46.5” N	010° 37’ 26.7” E	297
00, 100	06° 52’ 49.7” N	010° 37’ 26.5” E	297
100, 00	06° 52’ 46.8” N	010° 37’ 29.9” E	295
100, 100	06° 52’ 50.1” N	010° 37’ 29.7” E	297

4.1.3. Grassland Plot 3

	Latitude	Longitude	Elevation (m)
00, 00	06° 50’ 51.8” N	010° 36’ 55.1” E	812
00, 100	06° 50’ 54.9” N	010° 36’ 56” E	824
100, 00	06° 50’ 51.2” N	010° 36’ 58.6” E	821
100, 100	06° 50’ 54.3” N	010° 36’ 59.1” E	841

4.1.4. Forest Plot 4

	Latitude	Longitude	Elevation (m)
00, 00	06° 53’ 11.8” N	010° 36’ 35.1” E	322
00, 100	06° 53’ 15.0” N	010° 36’ 35.0” E	312
100, 00	06° 53’ 12.1” N	010° 36’ 38.4” E	313
100, 100	06° 53’ 15.3” N	010° 36’ 38” E	303

4.2. Species Diversity and Distribution

A total of 6,679 individual plants with 7893 individual stems were recorded for trees giving about 208 species in 50 families. Five species were not identified to family level. 2508

individual stems of herbs (Seedling, Sapling and real herb) were recorded in about 190 species in 54 families in 4 ha. After sorting out about 39 doubtful codes, we were left with about 151 species. We further sorted out all the seedling and sapling from the herbaceous data (62 species). This left us to about 89 species of real herb of which 44 species were properly identified to genus and species level (Table 11). Base on our study, about 45 species of trees and 14 species of herbs were used as medicine in this locality. Annex 1, 2 and 3 shows a checklist of all these.

This number show high species richness for the area considering that only 4 ha were sampled. Hence the species number will increase when more plots are set up.

4.2.1. Tree Diversity

Table 2: Tree Diversity per Hectare

Parameters	**Plot 1 (1 ha)**	**Plot 2 (1 ha)**	**Plot 3 (1 ha)**	**Plot 4 (1 ha)**
Number of Individual trees	1099	382	236	4963
Number of Stems	1577	553	301	5462
Number of Families	28	15	15	49
Number of Genus	58	24	25	109
Number of Species	73	32	29	141
Total BA (m)	**1683.6**	**888.96**	**151.11**	**2674.91**

Table 3: Tree Diversity per Vegetation type

Parameters	**Woodland (2ha)**	**Savanna (1ha)**	**Forest (1ha)**
Number of Individual trees	1480	236	4963
Number of Stems	2130	301	5462
Number of Families	29	15	49
Number of Genus	64	25	106
Number of Species	82	29	141

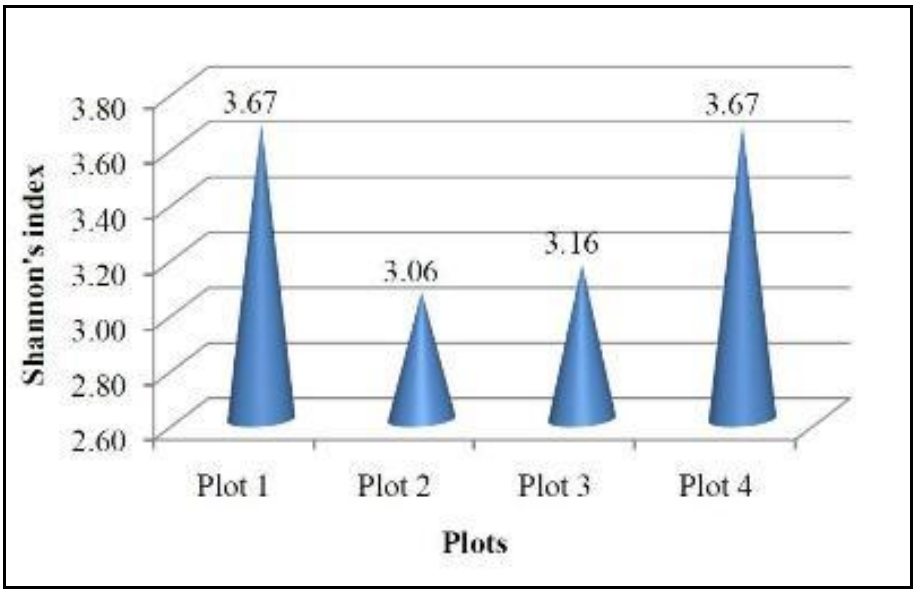

Figure 10: Comparison of Species diversity across Plots

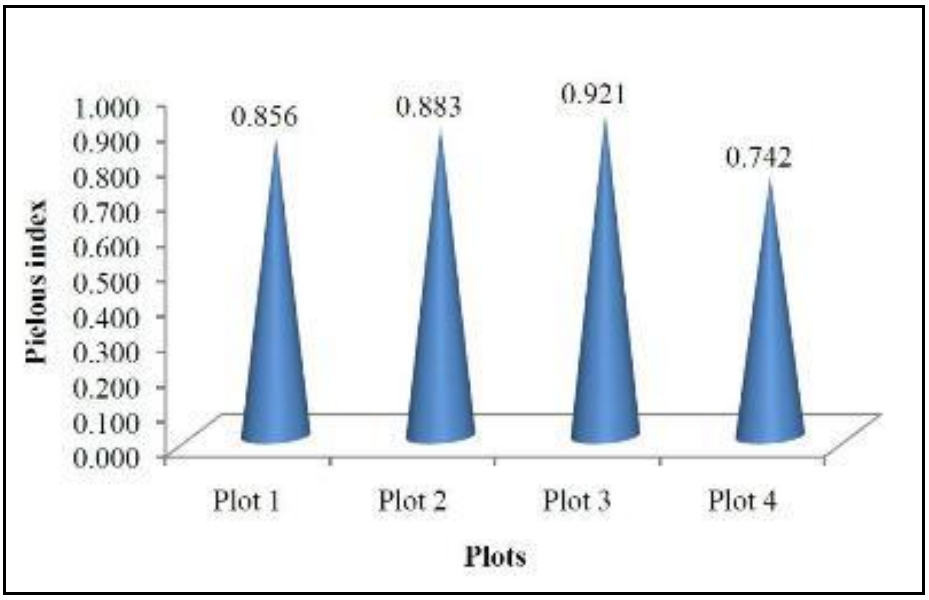

Figure 11: Comparison of evenness of Species distribution across Plots

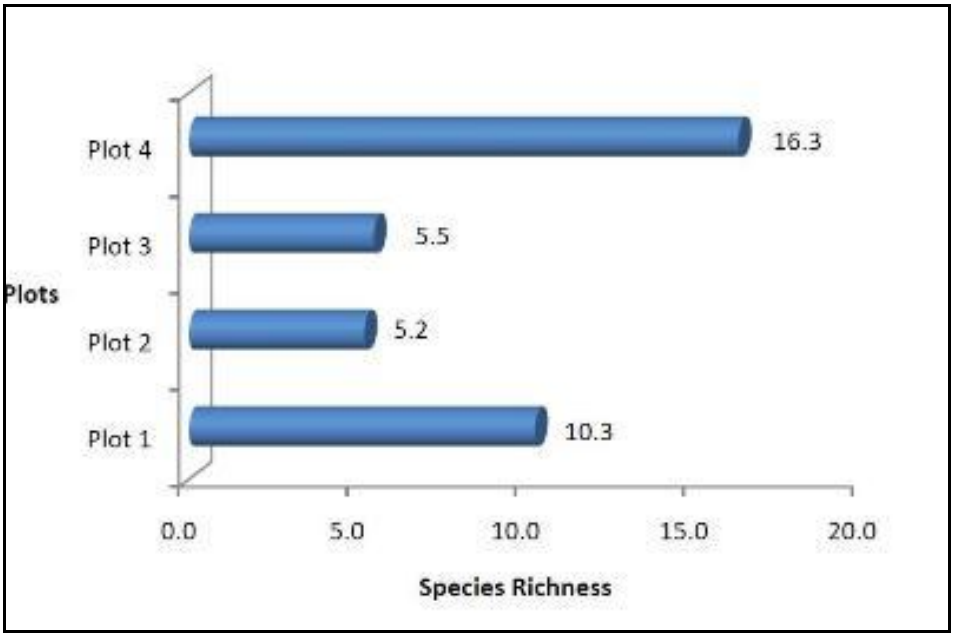

Figure 12: Comparison of Species richness across Plots

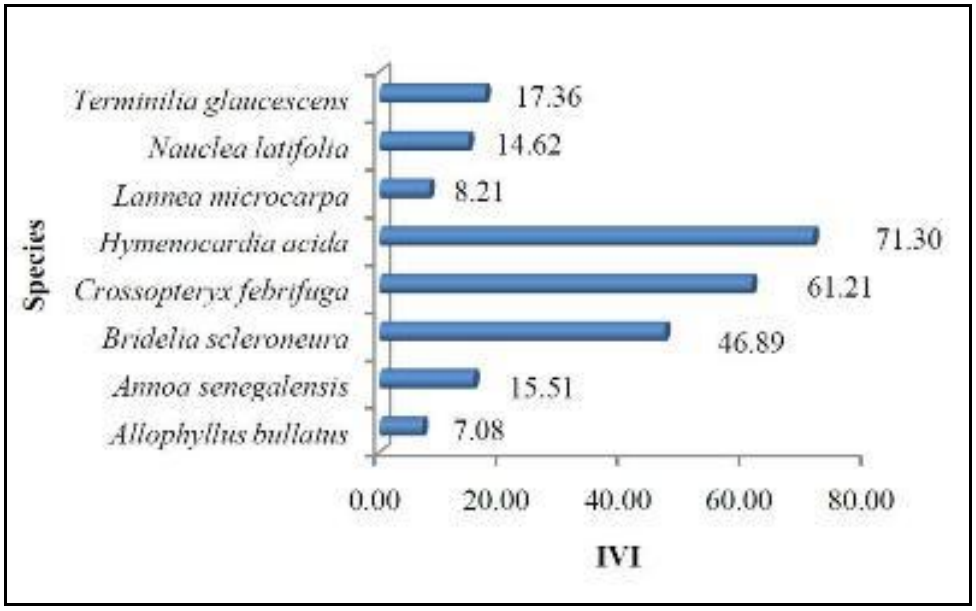

Figure 13: Dominant Species by IVI in Plot 1 (All trees ≥ 1 cm)

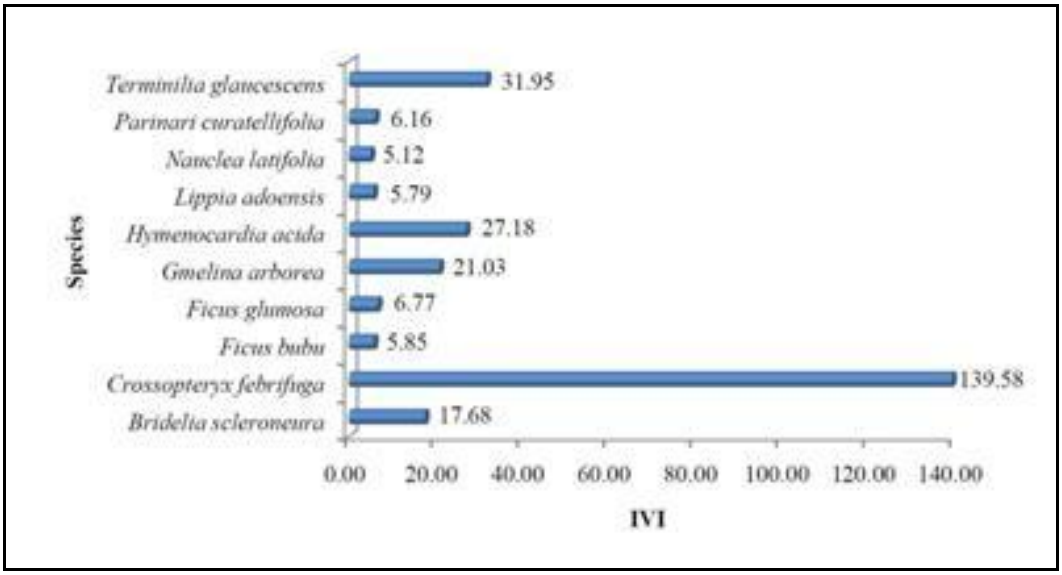

Figure 14: Dominant Species by IVI in Plot 2 (All trees ≥1 cm)

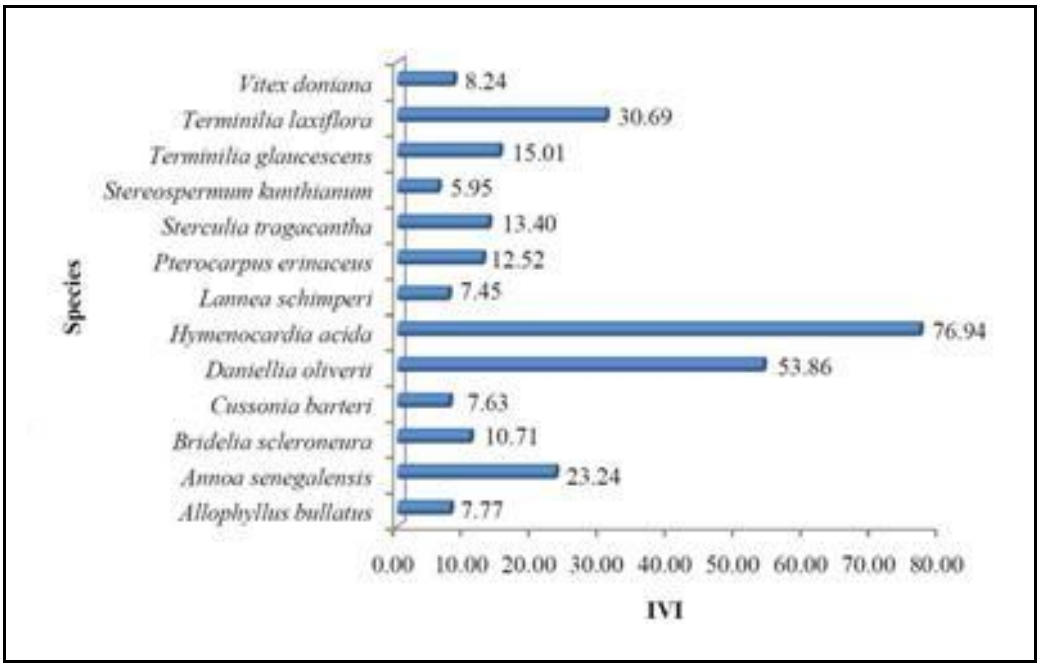

Figure 15: Dominant Species by IVI in Plot 3 (All tree ≥ 1 cm)

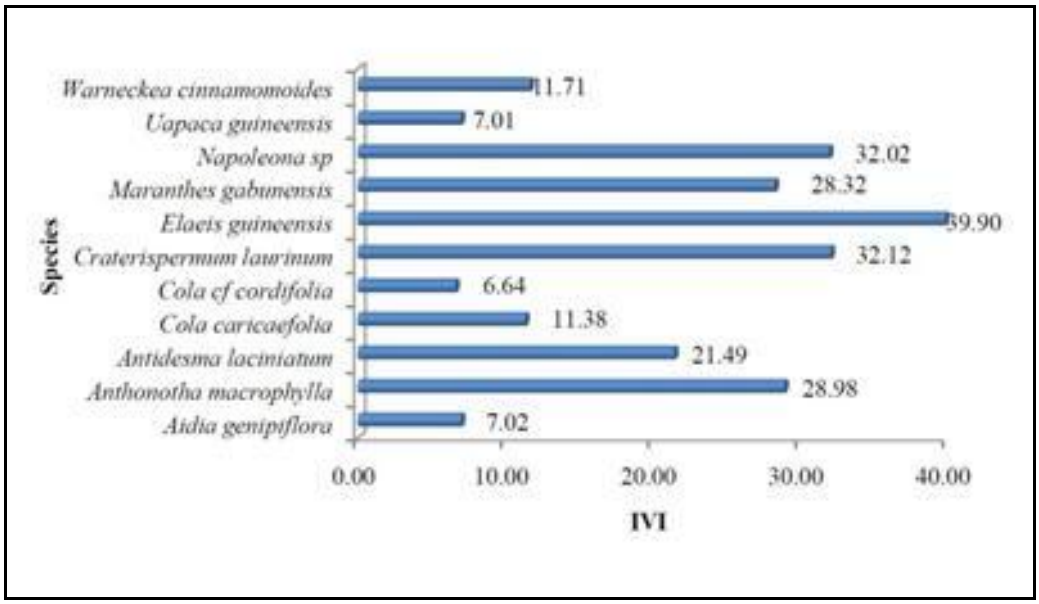

Figure 16: Dominant Species by IVI in Plot 4 (All tree ≥ 1 cm)

Table 4: Family in Study Area showing Basal Area and Relative Basal Area comprising 50 families and 5 unknown families

Family	Woodland		Woodland		Savanna		Forest	
	BA	Rel. BA	BA	Rel. BA	BA	Rel. BA	BA	Rel. BA
?	0.00	0.00	0.00	0.00	0.00	0.00	2.77	0.07
Anacardiaceae	6.43	0.32	0.59	0.06	3.23	1.33	68.88	1.73
Annonaceae	33.03	1.65	0.59	0.06	3.35	1.39	4.26	0.11
Apiaceae	0.00	0.00	0.00	0.00	2.49	1.03	0.00	0.00
Apocynaceae	0.08	0.00	0.00	0.00	0.00	0.00	13.81	0.35
Araliaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Arecaceae	0.00	0.00	0.00	0.00	0.00	0.00	967.35*	24.25**
Asteraceae	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bignoniaceae	0.00	0.00	0.05	0.01	2.13	0.88	0.01	0.00
Bombacaceae	0.01	0.00	0.00	0.00	0.00	0.00	13.04	0.33
Burseraceae	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cecropiaceae	0.00	0.00	0.00	0.00	0.00	0.00	10.40	0.26
Chrysobalanaceae	0.05	0.00	9.74	1.03	0.00	0.00	225.35*	5.65**
Clusiaceae	0.00	0.00	0.00	0.00	0.00	0.00	7.48	0.19
Combretaceae	122.50*	6.13**	129.72*	13.76**	32.73	13.53	0.03	0.00
Commelinaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Connaraceae	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.01

Dichapetalaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dilleniaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Dioscoreaceae	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ebenaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Euphorbiaceae	6.11	0.31	0.38	0.04	0.00	0.00	13.15	0.33
Fabaceae	45.88	2.29	6.15	0.65	138.84*	57.40**	606.59*	15.20**
Hymenocardiaceae	613.24*	30.67**	51.94	5.51	42.97	17.77	0.00	0.00
Hypericaceae	7.84	0.39	0.00	0.00	0.06	0.03	0.00	0.00
Icacinaceae	0.00	0.00	0.00	0.00	0.00	0.00	15.90	0.40
Irvingiaceae	0.00	0.00	0.00	0.00	0.00	0.00	2.15	0.05
Ixonanthaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
Lauraceae	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00
Lecythidaceae	0.00	0.00	0.00	0.00	0.00	0.00	260.94*	6.54**
Loganiaceae	0.11	0.01	0.00	0.00	0.00	0.00	6.84	0.17
Malvaceae	0.00	0.00	0.00	0.00	5.42	2.24	353.98*	8.87**
Melastomataceae	0.00	0.00	0.00	0.00	0.00	0.00	22.22	0.56
Meliaceae	0.00	0.00	0.00	0.00	0.00	0.00	2.91	0.07
Moraceae	9.69	0.48	16.97	1.80	2.52	1.04	52.71	1.32
Myristicaceae	0.00	0.00	0.00	0.00	0.00	0.00	19.37	0.49
Myrtaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Ochnaceae	0.02	0.00	0.00	0.00	0.19	0.08	0.26	0.01
Oleaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.01
Pandanaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00
Passifloraceae	0.01	0.00	0.00	0.00	0.00	0.00	16.35	0.41
Phyllanthaceae	273.98*	13.70**	16.17	1.72	2.80	1.16	289.62*	7.26**
Polygalaceae	0.00	0.00	0.00	0.00	0.00	0.00	6.84	0.17
Rubiaceae	874.56*	43.73**	702.22*	74.48**	0.02	0.01	996.95*	24.99**
Rutaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Salicaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.02
Sapindaceae	1.75	0.09	0.01	0.00	0.70	0.29	6.65	0.17
Sapotaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00
Ulmaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
UNK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNKL	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
UNKL2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNKP9	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00
Verbenaceae	4.44	0.22	8.26	0.88	4.42	1.83	0.84	0.02
Vitaceae	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**1999.78**	**100.00**	**942.79**	**100.00**	**241.88**	**100.00**	**3989.63**	**100.00**

*Families with high Basal Area, **Families with high relative basal Area

Table 5: Summary of Family, Species and Species Abundance of trees and lianas in the Study Area

Family	Total No of Species	Species Name	Total
?	1	?	1
	1	??	16
		? **Total**	**17**
Anacardiaceae	5	*Lannea microcarpa*	73
		Lannea schimperi	16
		Pseudospondias microcarpa	80
		Sorindeia grandifolia	66
		Sorindeia zenkeri	2
		Total Individuals	**237**
Annonaceae	8	? ?	5
		Annoa senegalensis	150
		Cleistophyllus staudtii	13
		Monanthotaxis sp	6
		Monodora sp	1
		Monodora zenkeri	32
		Toussaintia hallei	2
		Uvaria sp	3
		Annonaceae Total	**212**
Apiaceae	1	*Cussonia barteri*	9
		Apiaceae Total	**9**
Apocynaceae	10	*Dictyophleba cf setosa*	8
		Funtumia elastica	32
		Holarrhena floribunda	12
		Landolphia owariensis	21
		Landolphia sp2	14
		Landolphia sp3	5
		Motandra guineensis	4
		Oncinotis glabrata	3
		Rauvolfia sp	8
		Rauvolfia vomitoria	5
		Apocynaceae Total	**112**
Araliaceae	1	*Polysia fulvum*	3
		Araliaceae Total	**3**

Arecaceae	1	*Elaeis guineensis*	102
		Arecaceae Total	**102**
Asteraceae		*Chromolana odorata*	1
		Asteraceae Total	**1**
Bignoniaceae	5	*Kigellia africana*	5
		Markhamia tomentosa	1
		Newbouldia laevis	2
		Stereospermum kunthianum	10
		Stereospermum kunthianum var. dentatum	1
		Bignoniaceae Total	**19**
Bombacaceae	1	*Ceiba pentandra*	9
		Bombacaceae Total	**9**
Burseraceae	1	*Dacryodes klaineana*	1
		Burseraceae Total	**1**
Cecropiaceae	2	*Musanga cecropioides*	5
		Myrianthus arborea	56
		Cecropiaceae Total	**61**
Chrysobalanaceae	3	*Maranthes gabunensis*	547
		Parinari curatellifolia	14
		Parinari excelsa	1
		Chrysobalanaceae Total	**5**
Clusiaceae	2	*Mammea africana*	3
		Symphonia globulifelia	78
		Clusiaceae Total	**81**
Combretaceae	4	*Cleriodendron sp*	7
		Combretum hispidum	1
		Terminilia glaucescens	145
		Terminilia laxiflora	36
		Combretaceae Total	**189**
Commelinaceae	1	*Palisota ambigua*	3
		Commelinaceae Total	**3**
Connaraceae	9	*Agelaea obliqua*	1
		Agelaea paradoxa	7
		Cnestis cf corniculata	1
		Cnestis sp	1
		Connarus griffonianus	20
		Connarus sp	1
		Jaundea pinnata	2
		Rourea sp	6

		Rourea thomsonii	1
		Connaraceae Total	**40**
Dichapetalaceae	1	*Dichapetalium sp*	2
		Dichapetalaceae Total	
Dilleniaceae	1	*Tetracera alnifolia*	4
		Dilleniaceae Total	**4**
Dioscoreaceae	1	*Dioscorea sp*	1
		Dioscoreaceae Total	**1**
Ebenaceae	1	*Diospyros mumbuttensis*	1
		Ebenaceae Total	**1**
Euphorbiaceae	7	*Alchonea cordifolia*	50
		Erythrococca sp	1
		Macaranga monandra	21
		Maprounea membrenacea	1
		Margariteria discoidea	37
		Spondianthus preussii	77
		Tetrochidium dydimonstemon	4
		Euphorbiaceae Total	**191**
Fabaceae	28	? ?	1
		Acacia dealbara	1
		Afzelia africana	10
		Albizia adianthifolia	7
		Albizia ferruginea	3
		Albizia glaberrima	1
		Albizia gummifera	1
		Albizia zygia	2
		Anthonotha macrophylla	520
		Dalbergia cf saxatilis	1
		Dalbergia melanoxylon	12
		Dalbergia sp	4
		Daniellia oliverii	22
		Dialium pachyphyllum	29
		Entada abyssinica	3
		Erythrophleom suavolens	10
		Hylodendron gabunense	51
		Leptoderris ledermannii	1
		Mucuna flagellipes	45
		Newtonia sp	35
		Parkia africana	2

		Parkia biglobosa	6
		Parkia filicoidea	18
		Pericopsis laxiflora	13
		Piliostigma thonningii	29
		Pterocarpus erinaceus	11
		Pterocarpus mildbraedii	1
		Pterocarpus osun	7
		Fabaceae Total	**846**
Hymenocardiaceae	1	*Hymenocardia acida*	407
		Hymenocardiaceae Total	**407**
Hypericaceae	4	*Harungana madagascariensis*	74
		Psorospermum corymbiferum	1
		Psorospermum febrifugum	11
		Psorospermum tenuifolium	1
		Hypericaceae Total	**87**
Icacinaceae	2	*Leptaulus sp*	77
		Rhaphostylis beniniansis	9
		Icacinaceae Total	**8**
Irvingiaceae	3	*Irvingia gabonensis*	1
		Irvingia grandifolia	20
		Klaineadoxa gabonensis	2
		Irvingiaceae Total	**23**
Ixonanthaceae	1	*Phyllocosmus africanus*	2
		Ixonanthaceae Total	**2**
Lauraceae	4	*Beilschmiedia anacardioides*	4
		Beilschmiedia mannii	6
		Beilschmiedia sp	1
		Beilschmiedia zenkeri	5
		Lauraceae Total	**16**
Lecythidaceae	1	*Napoleona sp*	608
		Lecythidaceae Total	**608**
Loganiaceae	7	*Anthocleista djalonensis*	4
		Anthocleista schweinfurthii	8
		Anthocleista sp	3
		Strychnos asterantha	17
		Strychnos johnsonii	10
		Strychnos staudtii	14
		Strychnos tricalysioides	23
		Loganiaceae Total	**7**

Malvaceae	4	*Cola caricaefolia*	242
		Cola cf cordifolia	95
		Pterygota mildbraedii	1
		Sterculia tragacantha	28
		Malvaceae Total	**366**
Melastomataceae	2	*Dissotis bamendae*	3
		Warneckea cinnamomoides	297
		Melastomataceae Total	**300**
Meliaceae	4	*Entandrophragma angolensis*	16
		Trichillia cf megalantha	8
		Trichillia prieureana	2
		Trichillia tessmannii	21
		Meliaceae Total	**47**
Moraceae	13	*Antiaris africana*	4
		Ficus abutilifolia	1
		Ficus bubu	28
		Ficus glumosa	34
		Ficus kamerunensis	1
		Ficus mucuso	5
		Ficus natalensis	4
		Ficus ovata	4
		Ficus sur	9
		Ficus thonningii	8
		Ficus vogeliana	1
		Millesia excelsa	4
		Trilepisium madagascariense	75
		Moraceae Total	**178**
Myristicaceae	1	*Pycnanthus angolensis*	92
		Myristicaceae Total	**92**
Myrtaceae	1	*Eugenia sp*	6
		Myrtaceae Total	**6**
Ochnaceae	4	*Lophira lanceolata*	1
		Ochna afzelii	5
		Ochna kibbiensis	1
		Rhabdophyllum affine	32
		Ochnaceae Total	**39**
Oleaceae	1	*Linoceira lingelscheimiana*	26
		Oleaceae Total	**26**
Pandanaceae	1	*Pandanus candelabrum*	2

		Pandanaceae Total	**2**
Passifloraceae	5	*Adenia cissampeloides*	1
		Adenia gracilis	2
		Adenia sp	2
		Barteria fistulosa	86
		Deidamia sp	3
		Passifloraceae Total	**94**
Phyllanthaceae	8	*Antidesma laciniatum*	468
		Antidesma venosum	9
		Antidesma vogelianum	2
		Bridelia cf grandis	5
		Bridelia ferruginea	1
		Bridelia scleroneura	304
		Uapaca acuminata	19
		Uapaca guineensis	172
		Phyllanthaceae Total	**980**
Polygalaceae	2	*Atroxima afzeliana*	53
		Carpolobia alba	82
		Polygalaceae Total	**135**
Rubiaceae	22	*? ?*	3
		Aidia genipiflora	126
		Aidia micrantha	67
		Craterispermum laurinum	506
		Crossopteryx febrifuga	381
		Ixora foliosa	37
		Leptactina anoldiana	3
		Morinda morindioides	5
		Multidentia sp	1
		Nauclea latifolia	118
		Oxyanthus cf setosus	4
		Oxyanthus palidus	2
		Oxyanthus speciosus	4
		Pausinystalia sp	1
		Pavetta bidentata	5
		Pavetta sp	3
		Pavetta staudtii	1
		Psilanthus mannii	20
		Psychotria cf eminiana	1
		Psychotria dorotheae	2

		Rutidea sp	5
		Sabicea sp	9
		Rubiaceae Total	**1304**
Rutaceae	2	*Zanthoxylum sp*	1
		Zanthoxylum rubescens	3
		Rutaceae Total	**4**
Salicaceae	1	*Homalium molle*	8
		Salicaceae Total	**8**
Sapindaceae	5	*Allophyllus africanus*	1
		Allophyllus bullatus	69
		Blighia welwitschii	4
		Eriocaulum sp	3
		Lecaniodiscus cupanioides	93
		Sapindaceae Total	**170**
Sapotaceae	2	*Synsepalum letouzei*	4
		Vincetela sp	2
		Sapotaceae Total	**6**
Ulmaceae	2	*Celtis phillipensis*	1
		Urera sp	2
		Ulmaceae Total	**3**
UNK	1	*UNK*	2
		UNK Total	**2**
UNKL	1	*UNKL*	1
		UNKL Total	**1**
UNKL2	1	*UNKL2*	3
		UNKL2 Total	**3**
UNKP9	1	*UNKP9*	1
		UNKP9 Total	**1**
Verbenaceae	3	*Gmelina arborea*	82
		Lippia adoensis	16
		Vitex doniana	14
		Verbenaceae Total	**112**
Vitaceae	2	*Cissus sp*	2
		Cissus sp2	1
		Vitaceae Total	3
Total	**208**		**7893**

4.2.2 Herb Diversity

Table 6: Herb Diversity per hectare

Parameters	Plot 1 (1 ha)	Plot 2 (1 ha)	Plot 3 (1 ha)	Plot 4 (1 ha)
Number of Individual trees	565	639	668	636
Number of Stems	3935	7872	5132	2022
Number of Families	22	21	22	41
Number of Genus	34	29	29	64
Number of Species	35	31	32	64

Table 7: Herb Diversity per Vegetation type

Parameters	Woodland (2ha)	Savanna (1ha)	Forest (1ha)
Number of Individual trees	1204	668	636
Number of Stems	11808	5132	2022
Number of Families	25	22	41
Number of Genus	41	29	64
Number of Species	43	32	64

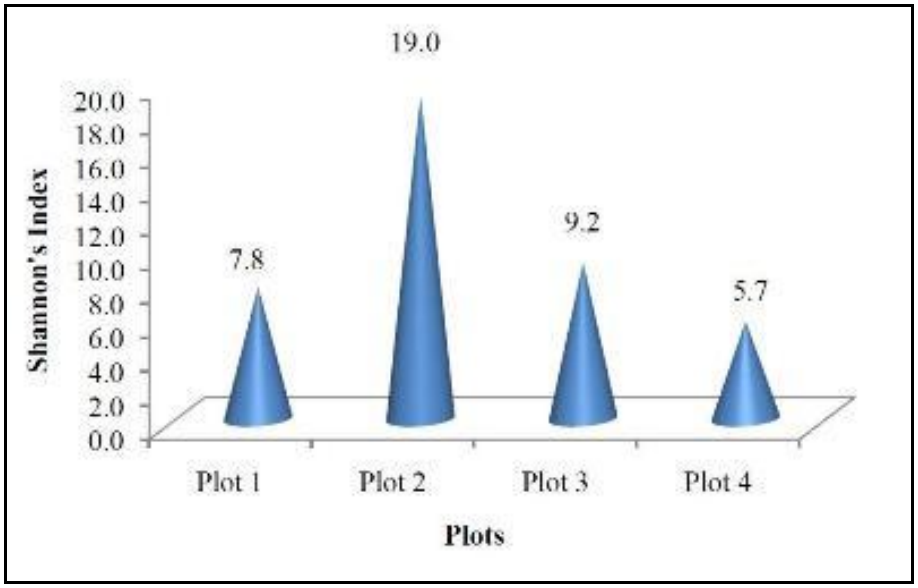

Figure 17: Comparison of Species diversity across Plots

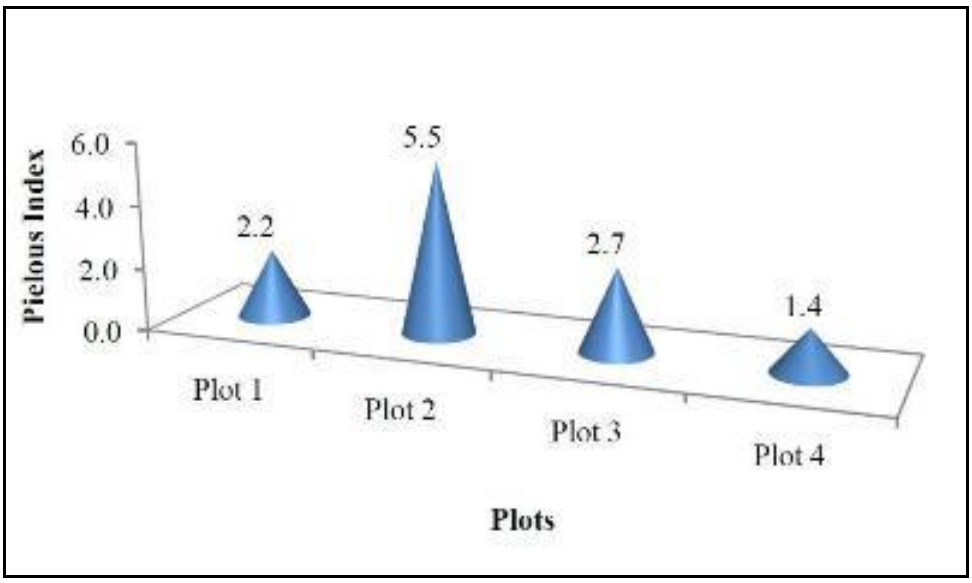

Figure 18: Comparison of evenness of Species distribution across Plots

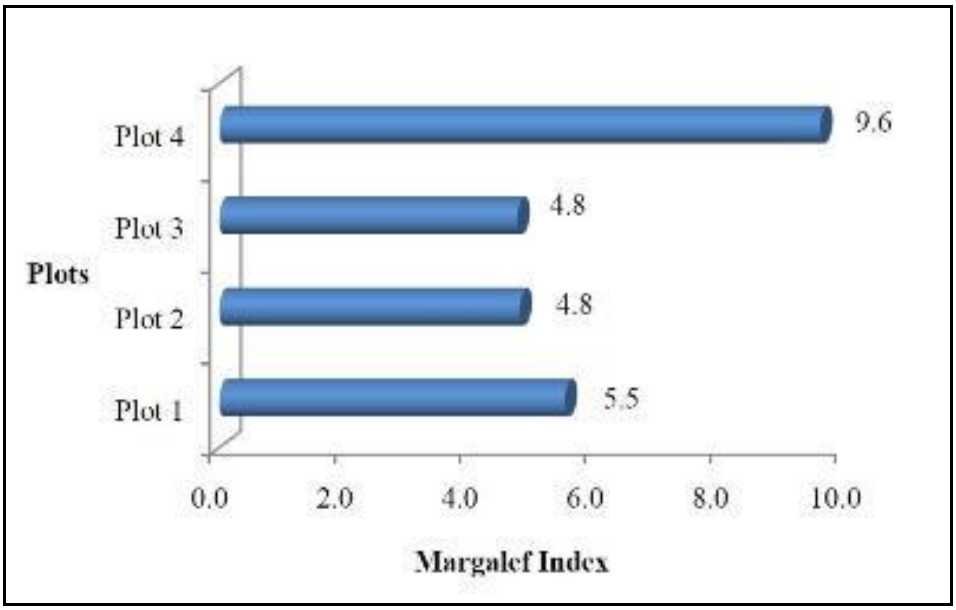

Figure 19: Comparison of Species richness across Plots

Table 8: Summary of Family, Species and Abundance of herbs in Study Sites

Family	Total No of Species	Species Name	Total
?		??	322
		? **Total**	**322**
Acanthaceae	3	*Asythasia gangetica*	84
		Dicliptera laxata	27
		Dicliptera sp	10
		Acanthaceae Total	**121**
Amaranthaceae	1	*Cyathula protrata*	65
		Amaranthaceae Total	**65**
Anacardiaceae	2	*Lannea microcarpa*	1
		Lannea schimperi	2
		Anacardiaceae Total	**3**
Annonaceae	3	*Annona senegalensis*	23
		Monanthotaxis sp	11
		Uvaria sp	3
		Annonaceae Total	**37**
Apocynaceae	4	*? ?*	8
		Baissea axilaria	62
		Holarrhena floribunda	9
		Landolphia sp	143
		Voacanga bracthiata	4
		Apocynaceae Total	**226**
Araceae	1	*Nepthelis poissonii*	4
		Araceae Total	**4**
Arecaceae	1	*Elaeis guineensis*	56
		Arecaceae Total	**56**
Asteraceae	3	*Chromolema odorata*	310
		Vernonia calvoana	341
		Vernonia guineensis	1161
		Asteraceae Total	**1812**
Bombacaceae	1	*Ceiba pentandra*	13
		Bombacaceae Total	**13**
Brommeliaceae	1	*??*	125
		Brommeliaceae Total	**125**
Capparidaceae	1	*Ritchiea albersii*	3
		Capparidaceae Total	**3**
Cecropiaceae	1	*Myrianthus arboreus*	5
		Cecropiaceae Total	**5**
Chrysobalanaceae	1	*Maranthes gabunensis*	3
		Chrysobalanaceae Total	**3**
Clusiaceae	1	*Symphonia globulifera*	11
		Clusiaceae Total	**11**
Combretaceae	1	*Terminilia glaucescens*	32
		Combretaceae Total	**32**
Commelinaceae	3	*Aneilema sp*	7
		Palisota ambiqua	11
		Stanfieldiella brachycarpa	4
		Commelinaceae Total	**22**

Connaraceae	1	*Agelaea sp*	38
		Connaraceae Total	**38**
Convulvolaceae	3	*? ?*	2
		Impomea involucrata	32
		Impomea sp	2
		Convulvolaceae Total	**36**
Cyperaceae	2	*Cyperus digitatus*	157
		Mariscus alternifolius	4705
		Cyperaceae Total	**4862**
Dioscoreaceae	3	*Dioscorea abyssinica*	42
		Dioscorea dumetorum	11
		Dioscorea preussii	27
		Dioscoreaceae Total	**80**
Dracaenaceae	1	*Dracaena oubryana*	259
		Dracaenaceae Total	**259**
Euphorbiaceae	2	*Mallotus oppositifolius*	2
		Margareteria discodea	6
		Euphorbiaceae Total	**8**
Fabaceae	17	*? ?*	296
		Abrus precatorius	14
		Albizia zygia	3
		Anthonotha macrophylla	15
		Bowringia mildbraedii	6
		Dalbergia erinateus	1
		Dalbergia sp	160
		Danielia oliverii	22
		Desmodium adsendens	348
		Desmodium velutinum	64
		Dialium pachyphyllium	6
		Dichrostachys cinocia	1
		Eriosema montanum	11
		Hylodendron gabunense	42
		Mucuna flagellipes	209
		Pericopsis laxiflora	3
		Piliostigma thoninngii	3
		Uraria picta	1
		Fabaceae Total	**1205**
Fern	2	*Pteris togoensis*	17
		Selaginala sp	498
		Fern Total	**515**
Hymenocardiaceae	1	*Hymenocardia acida*	39
		Hymenocardiaceae Total	**39**
Hypericaceae	1	*Harungana madagascariensis*	11
		Hypericaceae Total	**11**
Hypoxidaceae	1	*Curculigo pilosa*	30
		Hypoxidaceae Total	**30**
Lecythidaceae	1	*Napoleona sp*	3
		lecythidaceae Total	**3**
Loganiaceae	3	*Mostruea batesii*	6
		Strychnos sp	48
		Strychnos tricalysioides	23
		Loganiaceae Total	**77**
Malvaceae	4	*Cola caricaefolia*	14

		Cola cf cordifolia	36
		Sida rhombifolia	280
		Urena lobata	26
		Malvaceae Total	**356**
Maranthaceae	2	*Hypselodelphys poggeana*	7
		Thalia welwitschii	28
		Maranthaceae Total	**3**
Melastomataceae	2	*Dissotis sp*	155
		Warneckea cinnamomoides	112
		Melastomataceae Total	**267**
Meliaceae	1	*Turraea cf leonensis*	20
		Meliaceae Total	**20**
Moraceae	1	*Trilepisium madagascariense*	25
		Moraceae Total	**25**
Musaceae	1	*Ensete livingstonianum*	1
		Musaceae Total	**1**
Myristicaceae	1	*Pycnanthus angolensis*	5
		Myristicaceae Total	**5**
Myrtaceae	1	*Zyzagium sp*	25
		Myrtaceae Total	**25**
Ochnaceae	2	*Campylospermum sp*	2
		Rhabdophyllum affinis	8
		Ochnaceae Total	**10**
Olacaceae	1	*Olax subscopioides*	2
		Olacaceae Total	**2**
Oleaceae	1	*Linociera lingelscheimiana*	2
		Oleaceae Total	**2**
Orchidaceae	3	*Habenaria malacophylla*	19
		Nervilia reniformis	3
		Plectrelminthus caudatus	3
		Orchidaceae Total	**25**
Phyllanthaceae	2	*Antidesma laciniatum*	3
		Bridelia scleroneura	48
		Phyllanthaceae Total	**51**
Piperaceae	1	*Piper guineensis*	61
		Piperaceae Total	**61**
Poaceae	4	*? ?*	106
		Brachiaria brizantha	4573
		Imperatha cylindricum	2527
		Leptaspis zeylanica	7
		Oplismenus burmannii	3
		Poaceae Total	**7216**
Polygalaceae	1	*Carpolobia alba*	13
		?	37
		Polygalaceae Total	**50**
Ranucaulaceae	1	*Clematis simensis*	25
		Ranucaulaceae Total	**25**
Rhamnaceae	1	*Ventilago africana*	4
		Rhamnaceae Total	**4**
Rubiaceae	7	*? ?*	45
		Craterispermum laurinum	62
		Crossoptyrex febrifuga	3
		Geophila sp	22
		Ixora foliosa	2

		Mussaenda sp	3
		Psychotria sp	64
		Tricalysia sp	1
		Rubiaceae Total	**202**
Sapindaceae	4	*Allophyllus africanus*	42
		Allophyllus bullatus	26
		Lecaniodiscus cupanioides	8
		Paullinia pinnata	1
		Sapindaceae Total	**77**
Taccaceae	1	*Tacca leontopetaloides*	112
		Taccaceae Total	**112**
Ulmaceae	1	*Celtis philippensis*	2
		Ulmaceae Total	**2**
Verbenaceae	1	*Lippia adoensis*	45
		Verbenaceae Total	**45**
Vitaceae	2	*Cissus barbeyana*	18
		Cissus sp	4
		Vitaceae Total	**22**
Zingeberaceae	**1**	*Curcuma longa*	293
		Zingeberaceae Total	**293**
Total	**113**		**18956**

Table 9: Total Species list of Herbaceous Plants in 4 Study Plots

No.	Species	Life form	Plot 1	Plot 2	Plot 3	Plot 4	Total
1	? ?		31	41	116	33	221
2	*Abrus precatorius*	H	2				2
3	*Agelaea sp*	L				13	13
4	*Albizia zygia*	T			1	1	2
5	*Allophyllus africanus*	T			3		3
6	*Allophyllus bullatus*	T	9	6	3		18
7	*Aneilema sp*	H				5	5
8	*Annona senegalensis*	T	7	7	1		15
9	*Anthonotha macrophylla*	T				8	8
10	*Antidesma laciniatum*	T				2	2
11	*Asythasia gangetica*	H	6	8			14
12	*Baissea axilaria*	H				22	22
13	*Bowringia mildbraedii*	L				5	5
14	*Brachiaria brizantha*	H	140	170	33		343
15	*Bridelia scleroneura*	T	22	9	3		34
16	*Campylospermum sp*	T				1	1
17	*Carpolobia alba*	T				1	1
18	*Carpolubia alba*	T				7	7
19	*Ceiba Pentandra*	T			3	4	7
20	*Celtis philippensis*	T				1	1
21	*Chromolema odorata*	H	37	19	12		68

22	*Cissus barbeyana*	L				10	10
23	*Cissus sp*	L	3				3
24	*Clematis simensis*	H			11		11
25	*Cola caricaefolia*	T				8	8
26	*Cola cf cordifolia*	T				22	22
27	*Craterispermum laurinum*	T				19	19
28	*Crossoptyrex febrifuga*	T	3				3
29	*Curculigo pilosa*	H	15	4	1		20
30	*Curcuma longa*	H	34	31	59	4	128
31	*Cyathula protrata*	H		2	20		22
32	*Cyperus digitatus*	H	12	29	6		47
33	*Dalbergia erinateus*	T			1		1
34	*Dalbergia sp*	L		27			27
35	*Danielia oliverii*	T			17		17
36	*Desmodium adsendens*	H	39	8	4	5	56
37	*Desmodium velutinum*	H	5	24			29
38	*Dialium pachyphyllium*	T		1		3	4
39	*Dichrostachys cinocia*	H	1				1
40	*Dicliptera laxata*	H				3	3
41	*Dicliptera sp*	H	3				3
42	*Dioscorea abyssinica*	L			28		28
43	*Dioscorea dumetorum*	L			11		11
44	*Dioscorea preussii*	L			6		6
45	*Dissotis sp*	H	8	2	18		28
46	*Dracaena oubryana*	T				51	51
47	*Elaeis guineensis*	T				27	27
48	*Eriosema montanum*	H	6	1			7
49	*Geophila sp*	H				9	9
50	*Habenaria malacophylla*	H			1	4	5
51	*Harungana* madagascariensis	T	4				4
52	*Holarrhena floribunda*	T	5				5
53	*Hylodendron gabunense*	T				12	12
54	*Hymenocardia acida*	T	2	3	12		18
55	*Hypselodelphys poggeana*	H				5	5
56	*Imperatha cylindricum*	H	5		88		93
57	*Impomea involucrata*	H			18		18
58	*Impomea sp*	H				2	2
59	*Ixora foliosa*	T				1	1
60	*Landolphia sp*	L				46	46
61	*Lannea microcarpa*	T		1			1
62	*Lannea schimperi*	T		1			1

63	*Lecaniodiscus cupanioides*	T				6	6
64	*Leptaspis zeylanica*	T				3	3
65	*Linociera lingelscheimiana*	T				2	2
66	*Lippia adoensis*	H		15	5		20
67	*Mallotus oppositifolius*	H				2	2
68	*Maranthes gabunensis*	T				2	2
69	*Margareteria discodea*	T	4				4
70	*Mariscus alternifolius*	T	56	83	17		156
71	*Monanthotaxis sp*	L				7	7
72	*Mostruea batesii*	T	2	3	55		60
73	*Mucuna flagellipes*	L			1		1
74	*Ensete livingstonianum*	H				2	2
75	*Mussaenda sp*	L				2	2
76	*Myrianthus arboreus*	T				2	2
77	*Napoleona sp*	T				2	2
78	*Nepthelis poissonii*	H				3	3
79	*Nervilia reniformis*	H				1	1
80	*Olax subscopioides*	T				1	1
81	*Oplismenus burmannii*	H				1	1
82	*Palisota ambiqua*	H				6	6
83	*Paullinia pinnata*	L				1	1
84	*Pericopsis laxiflora*	T	2				2
85	*Piliostigma thoninngii*	T	1	1			2
86	*Piper guineensis*	L				30	30
87	*Plectrelminthus caudatus*	H	2	1			3
88	*Psychotria sp*	T	6			19	25
89	*Pteris togoensis*	H				9	9
90	*Pycnanthus angolensis*	T				4	4
91	*Rhabdophyllum affinis*	T				5	5
92	*Ritchiea albersii*	H				2	2
93	*Selaginala sp*	H				57	57
94	*Sida rhombifolia*	H	1	27			28
95	*Stanfieldiella brachycarpa*	H				2	2
96	*Strychnos sp*	L	8	7		5	20
97	*Strychnos tricalysioides*	L				14	14
98	*Symphonia globulifera*	T				7	7
99	*Tacca involucrata*	H			37		37
100	*Terminilia glaucescens*	T	9	12	2		23
101	*Thalia welwitschii*	H				7	7
102	*Tricalysia sp*	T		1			1
103	*Trilepisium madagascariense*	T				14	14

104	*Turraea cf leonensis*	T				12	12
105	*Uraria picta*	H		1			1
106	*Urena lobata*	H	7	2			9
107	*Uvaria sp*	H	1			1	2
108	*Ventilago africana*	L				2	2
109	*Vernonia calvoana*	L	37	19	6		62
110	*Vernonia guineensis*	H	26	73	68		167
111	*Voacanga bracthiata*	H				2	2
112	*Warneckea cinnamomoides*	T				36	36
113	*Zyzadium sp*	T				12	12
	Grand Total	T	561	639	668	620	2488

- **L = Liana species, T = Tree species, and H = Real herb species**

4.3. Plants and Livelihood of Mbembe Forest Area

Table 10. Trees and Livelihood

No.	Genus	Species	Vernicular Name	Part used	Treatments
1	*Acacia*	*dealbara*	leaves		For traditional protection
2	*Adenia*	*cissampeloides*	Emdroe	Roots	Fish poisoning
3	*Afzelia*	*africana*	Tapa	Stem	Luck and Charm
4	*Agelaea*	*paradoxa*	Ura	Leaves	Sends evil spirit away
5	*Alchonea*	*cordifolia*	Putaba	Leaves	To Treat Toothache
6	*Allophyllus*	*bullatus*	Bonache	Leaves	Fish poisoning and yellow fever treatment
7	*Annona*	*senegalensis*	Viri, Mumo	Bark, roots	Anti-poison, and high malaria
8	*Anthocleistha*	*djalonensis*	Akuche	Bark, leaves and roots	Malaria
9	*Bridelia*	*scleroneura*	Akufu, Shebi	Bark	Fish poisoning and Toothache
10	*Cnestis*	*cf corniculata*	Angorokwa	Leaves	Send away wishcraft and evil spirit
11	*Crossopteryx*	*febrifuga*	Mperi	Roots, bark & Leaves	Stomachache and Yellow fever
12	*Dalbergia*	*melanoxylon*	Shea-agodo	Roots	
13	*Dalbergia*	*sp*		Leaves and bark	Gastric
14	*Daniellia*	*oliverii*	Ava, Neita	Bark	Send away evil spirits.
15	*Dissotis*	*bamendae*	Ge	Leaves, and roots	Yellow fever, TB and Hunting luck
16	*Erythrophleom*	*suavolens*	Egi, Year	Stem, leaves and bark	Very poisonous
17	*Ficus*	*vogeliana*	Etinie	Leaves	Vegetable
18	*Ficus*	*sur*	Ethinie		
19	*Ficus*	*mucuso*	Njei	Leaves	Fever

20	*Ficus*	*sur*		young leaves	Vegetable
21	*Harungana*	*madagascariensis*	Vonza	Leaves and roots	Yellow fever, Gornorrhea and backache.
22	*Harungana*	*madagascariensis*		young leaves	Mixed young leaves for snake protectio
	Annona	*senegalensis*			
23	*Homalium*	*molle*			Miscarriage
24	*Hymenocardia*	*acida*	Kpebiy	Yound leaves	Vegetable
25	*Lannea*	*schimperi*	Peri	Bark	Stomachache
26	*Lannea*	*sp*	Nenaasa	Stem	Dizziness
27	*LEGI*		Egka	Leaves and roots	Dizziness
28	*Lippia*	*adoensis*	Nje	Leaves and roots	Vegetable and Malaria
29	*Macaranga*	*monandra*	Teka-eru	Leaves + Salt	Boils(Alpcells)
30	*Mucuna*	*flagellipes*	Awoh, Karara	Stem and bark	Snake bite, Dizziness and blood shortag
31	*Nauclea*	*latifolia*	Thini, Aguado	Fruits, bark and roots	Edible and Stomachache
32	*Ochna*	*afzelii*		Leaves	Luck
33	*Parinari*	*curatellifolia*	Denye	Fruits	Edible
34	*Parkia*	*biglobosa*		Bark	Malnutrition
35	*Pericopsis*	*laxiflora*		Bark and leaves	Sprain or Broken leg
36	*Phyllanthus*	*sp*		Bark	Anti-poison
37	*Piliostigma*	*thonningii*	Awokekeri	Bark and leaves	Stop blinding and paralize snakes
38	*Psorospermum*	*corymbiferum*	Shembe	Leaves and roots	Court cases and solunt legs
39	*Psorospermum*	*corymbiferum*	Shembe	Leaves and roots	Court cases and solunt legs
40	*Rauvolfia*	*vomitoria*	Adeda	Roots and stem	Vomiting and Apollo
41	*Spondianthus*	*preussii*	Akor	Leaves, bark and stem	Very poisonous
42	*Stereospermum*	*kunthianum*	Aden	Bark	Fever and Malaria
43	*Stereospermum*	*kunthianum*	Aden	Bark	Fever and Malaria
44	*Uapaca*	*guineensis*	Poa, Kokum	Roots	Stomach cleaning
45	*Vitex*	*doniana*	Chea	Young leaves and fruits	Vegetable and Edible

Table 11: Herb and Livelihood

No.	Genus	Species	Vernicular Name	Part used	Treatments
1	*Vernonia*	*calvoana*		Leaves	Navel bite in children
2	*Terminilia*	*glaucescens*		Roots	Dysentary
3	*Dissotis*	*sp*		Leaf tips	Cough
4	*Imperatha*	*cylindricum*	Spine grass	Rhizome	Postrate problem, difficulty urining in male
5	*Cyperus*	*digitatus*		Rhizome	Side pain
6	*Chromolema*	*odorata*		stem and leaves	Scabies
7	*Urena*	*lobata*	Nwunazru	whole plant	Bird flu
8	*Desmodium*	*adsendens*		whole plant	Send away evil spirits
9	*Sida*	*rhombifolia*		Leaves	Wick-low
10	*Curculigo*	*pilosa*		whole plant	Open dog's eyes for hunting.
11	*Asythasia*	*gangetica*		whole plant	Night poison, laxative, vegetable
12	*Asteraceae(AST2)*			Roots & leaves	Pile
13	*Mostruea*	*batesii*		Roots	Strength
14	*Vernonia*	*guineensis*		Rhizome	Prevent STD's

Discussion

The results of the four plots in Mbembe (woodland, Savannah and Forest) shows a high degree in species richness, Evenness, species diversity and the Important Valve Index (IVI) across plots. Species diversity for trees shows that plot 1 and 4 have a high species diversity of both 3.67 while plot 2 and 3 shows 3.06 and 3.16 respectively. Species evenness is more or less uniform ranging from 0.7 to 0.9. While species richness was highest in plot 4 (16.3), plot 1 (10.3) and lowest in plot 2 (5.2) and plot 3 (5.5). The IVI shows that *Hymenocardia acida* (71.30) and *Crossopteryx febrifuga* (61.21) are the most important species in plot 1, while *Crossopteryx febrifuga* (139.58) and *Terminilia glaucescens* (31.95) are the most important species in plot 2, *Hymenocardia acida* (76.94), *Daniellia oliverii* (53.86) in plot 3 and *Elaeis guineensis* (39.90), *Craterispermum laurinum* (32.12) and *Napoleona sp* (32.02) in plot 4.

The Basal Area (BA) and Relative Basal Area (RBA) are high for the following families across plots. Plot 1, Rubiaceae (BA 874.56, RBA 43.73) and Hymenocardiaceae (BA 613.24, RBA 30.67), plot 2, Rubiaceae (BA 702.22, RBA 74.48) and Combretaceae (BA 129.72, RBA 13.76), plot 3, Fabaceae (BA 138.84, RBA 57.40) and Hymenocardiaceae (BA 42.97, RBA 17.77) and

plot 4, Rubiaceae (BA 996.95, RBA 24.99) and Arecaceae (BA 967.35, RBA 24.25).

Herb species diversity, evenness and richness across plots are as follows: Species diversity is highest in plot 2 (19.0), Evenness is also highest in plot 2 (5.5) while Species richness is highest in plot 4 (9.6).

5.0 CONCLUSION AND RECOMMENDATION

The Mbembe forest reserve is exceptionally rich in vegetation occurring in three vegetation types: woodland, savannah, and lowland palm tree forest. This character is rare for forest on this type of landscape as they usually form woodland, savannah, gallery forest and/or lowland dry forest only. Therefore this area is worth studying in great detail to gain International botanical recognitions for the conservation and sustainable development of tropical forest plants and other generic resources which till date, is still poorly known.

At the onset of this research, we did not understand the exert boundaries of this reserve, but from the 1949 boundaries (fig. 5) it shows that Ako (a greater part), Ndaka and Abbafum are out of the reserve, and from the 1953 demarcation (fig. 6), it shows that Buku, Buku-up, Ndaka and Abbafum are out of the reserve. The forest from Buku-up, Ndaka and Abbafum should be protected by including it into the reserve or form community forest in these areas to fully protect its natural resources.

Anthropogenic pressure regarding forest disturbance such as illegal timber logging, hunting, agricultural encroachment, and cattle rearing were the main factors affecting biological diversity of the area. The dependence of the population on the harvest and usage of non-timber forest Products (NTFP) are high due to lack of health units.

TroPEG and the Ministry concern in Cameroon should try as much as possible to continue the botanical inventory and livelihood survey in the Mbembe forest reserve area.

We also recommend that, apart from continuing further botanical surveys, a documented booklet of all the plant species in the area be produced. This will facilitate the production of a proper management strategy for the reserve and will help the communities understand the importance of the resources they got and how to best manage them.

Constraints

Two M.Sc. students from the University of Buea were supposed to use this work for their Theses but after field work, they found out that their academic objectives were contrary to the data at hand. Lack of good drinking water in the dry season, many black flies, and insects in the area. Villagers are not used to this type of work since it is new for them. Area is still enclave with lack of good motor able roads. Motor bikes and hiking are the best means of transportation.

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ANNEX

Annex 1

Table 12: Plot 1 Tree Species list

Family	Species
Anacadiaceae	*Lannea microcarpa*
Anacadiaceae	*Lannea schimperi*
Annonaceae	*Annona senegalensis*
Annonaceae	*Cleistophyllus staudtii*
Annonaceae	*Uvaria sp*
Apocynaceae	*Holarrhena floribunda*
Apocynaceae	*Rauvolfia vomitoria*
Araliaceae	*Polysia fulvum*
Asteraceae	*Chromolana odorata*
Bombacaceae	*Ceiba pentandra*
Chrysobalanaceae	*Maranthes gabunensis*
Combretaceae	*Combretum hispidum*
Combretaceae	*Terminilia glaucescens*
Combretaceae	*Terminilia laxiflora*
Connaraceae	*Agelaea paradoxa*
Connaraceae	*Cnestis cf corniculata*
Dioscoreaceae	*Dioscorea sp*
Euphorbiaceae	*Alchonea cordifolia*
Euphorbiaceae	*Macaranga monandra*
Euphorbiaceae	*Maprounea membrenacea*
Euphorbiaceae	*Margaritheria discodea*
Euphorbiaceae	*Spondianthus preussii*
Fabaceae	*Acacia dealbara*
Fabaceae	*Afzelia africana*
Fabaceae	*Albizia adianthifolia*
Fabaceae	*Albizia ferruginea*
Fabaceae	*Albizia zygia*
Fabaceae	*Dalbergia melanoxylon*
Fabaceae	*Erythrophleom suavolens*
Fabaceae	*Mucuna flagellipes*
Fabaceae	*Parkia biglobosa*
Fabaceae	*Pericopsis laxiflora*
Fabaceae	*Piliostigma thonningii*
Fabaceae	*Pterocarpus osun*
Flacoutiaceae	*Homalium molle*
Hymenocardiaceae	*Hymenocardia acida*
Hypericaceae	*Harungana madagascariensis*
Hypericaceae	*Psorospermum corymbiferum*
Hypericaceae	*Psorospermum febrifugum*
Hypericaceae	*Psorospermum tenuifolium*
Loganiaceae	*Anthocleistha djalonensis*
Loganiaceae	*Anthocleistha schweinfurthii*
Melastomataceae	*Dissotis bamendae*
Meliaceae	*Trichilia prieureana*
Moraceae	*Ficus bubu*
Moraceae	*Ficus bullatus*
Moraceae	*Ficus glumosa*
Moraceae	*Ficus kamerunensis*
Moraceae	*Ficus natalensis*
Moraceae	*Ficus ovata*
Moraceae	*Ficus sur*
Moraceae	*Ficus thonningii*

Moraceae	*Ficus vogeliana*
Ochnaceae	*Ochna afzelii*
Passifloraceae	*Adenia cissampeloides*
Passifloraceae	*Barteria fistulosa*
Passifloraceae	*Deidamia sp*
Phyllanthaceae	*Antidesma venosum*
Phyllanthaceae	*Bridelia scleroneura*
Phyllanthaceae	*Uapaca guineensis*
Rubiaceae	*Craterispermum laurinum*
Rubiaceae	*Crossopteryx febrifuga*
Rubiaceae	*Nauclea latifolia*
Rubiaceae	*Oxyanthus speciosus*
Rubiaceae	*Pavetta staudtii*
Rubiaceae	*Psychotria cf eminiana*
Rutaceae	*Zanthoxylum sp*
Sapindaceae	*Allophyllus bullatus*
Sapindaceae	*Kigelia africana*
Ulmaceae	*Urera sp*
Verbenaceae	*Gmelina arborea*
Verbenaceae	*Vitex doniana*
Vitaceae	*Cissus sp*

Table 13: Plot 2 Tree Species list

Family	**Species Name**
Anacardiaceae	*Lannea microcarpa*
Anacardiaceae	*Lannea schimperi*
Annonaceae	*Annona senegalensis*
Apocynaceae	*Holarrhena floribunda*
Bignoniaceae	*Stereospermum kunthianum*
Chrysobalanaceae	*Parinari curatellifolia*
Combretaceae	*Terminilia glaucescens*
Euphorbiaceae	*Alchonea cordifolia*
Euphorbiaceae	*Margaritheria discodea*
Fabaceae	*? ?*
Fabaceae	*Dalbergia sp*
Fabaceae	*Daniellia oliverii*
Fabaceae	*Mucuna flagellipes*
Fabaceae	*Parkia biglobosa*
Fabaceae	*Piliostigma thonningii*
Hymenocardiaceae	*Hymenocardia acida*
Loganiaceae	*Anthocleista djalonensis*
Moraceae	*Ficus abutilifolia*
Moraceae	*Ficus bubu*
Moraceae	*Ficus glumosa*
Moraceae	*Ficus mucuso*
Moraceae	*Ficus natalensis*
Moraceae	*Ficus sur*
Moraceae	*Ficus thonningii*
Phyllanthaceae	*Antidesma venosum*
Phyllanthaceae	*Bridelia scleroneura*
Rubiaceae	*Crossopteryx febrifuga*
Rubiaceae	*Nauclea latifolia*
Rubiaceae	*Oxyanthus speciosus*
Sapindaceae	*Allophyllus bullatus*
Verbenaceae	*Gmelina arborea*
Verbenaceae	*Lippia adoensis*

Table 14: Plot 3 Tree Species list

Family	Species Name
Anacardiaceae	*Lannea schimperi*
Annonaceae	*Annona senegalensis*
Annonaceae	*Toussaintia hallei*
Apiaceae	*Cussonia barteri*
Bignoniaceae	*Kigellia africana*
Bignoniaceae	*Stereospermum kunthianum*
Clusiaceae	*Psorospermum febrifugum*
Combretaceae	*Terminilia glaucescens*
Combretaceae	*Terminilia laxiflora*
Fabaceae	*Albizia zygia*
Fabaceae	*Daniellia oliverii*
Fabaceae	*Entada abyssinica*
Fabaceae	*Erythrophleom suavolens*
Fabaceae	*Parkia africana*
Fabaceae	*Pterocarpus erinaceus*
Hymenocardiaceae	*Hymenocardia acida*
Malvaceae	*Cola caricaefolia*
Malvaceae	*Cola cf cordifolia*
Malvaceae	*Sterculia trigacantha*
Moraceae	*Ficus bubu*
Moraceae	*Ficus sur*
Moraceae	*Ficus thonningii*
Ochnaceae	*Lophira lanceolata*
Ochnaceae	*Ochna kibbiensis*
Phyllanthaceae	*Antidesma venosum*
Phyllanthaceae	*Bridelia scleroneura*
Rubiaceae	*Rutidea sp*
Sapindaceae	*Allophylus bullatus*
Verbenaceae	*Vitex doniana*

Table 15: Plot 4 Tree Species list

Family	Species Name
?	*? ?*
?	*? ?*
?	*? ?*
?	*? ?*
?	*? ?*
?	*? ?*
?	*? ?*
?	*? ?*
?	*? ?*
?	*?*
?	*? ?*
?	*? ?*
?	*? ?*
?	*? ?*
Anacardiaceae	*Lannea microcarpa*
Anacardiaceae	*Pseudospondias microcarpa*
Anacardiaceae	*Sorindeia grandifolia*
Anacardiaceae	*Sorindeia zenkeri*
Annonaceae	*? ?*
Annonaceae	*? ?*
Annonaceae	*? ?*
Annonaceae	*? ?*
Annonaceae	*? ?*

Annonaceae	*Cleistophyllus staudtii*
Annonaceae	*Monanthotaxis sp*
Annonaceae	*Monodora zenkeri*
Annonaceae	*Monodora sp*
Apocynaceae	*Dictyophleba cf setosa*
Apocynaceae	*Funtumia elastica*
Apocynaceae	*Holarrhena floribunda*
Apocynaceae	*Landolphia owariensis*
Apocynaceae	*Landolphia sp2*
Apocynaceae	*Landolphia sp3*
Apocynaceae	*Motandra guineensis*
Apocynaceae	*Oncinotis glabrata*
Apocynaceae	*Rauvolfia vomitoria*
Apocynaceae	*Rauvolfia sp*
Araliaceae	*Polysia fulvum*
Arecaceae	*Elaeis guineensis*
Bignoniaceae	*Kigellia africana*
Bignoniaceae	*Markhamia tomentosa*
Bignoniaceae	*Newbouldia laevis*
Bombacaceae	*Ceiba pentandra*
Burseraceae	*Dacryodes klaineana*
Cecropiaceae	*Musanga cecropioides*
Cecropiaceae	*Myrianthus arborea*
Chrysobalanaceae	*Maranthes gabunensis*
Chrysobalanaceae	*Parinari excelsa*
Clusiaceae	*Mammea africana*
Clusiaceae	*Symphonia globulifelia*
Commelinaceae	*Palisota ambigua*
Connaraceae	*Agelaea obliqua*
Connaraceae	*Agelaea paradoxa*
Connaraceae	*Cnestis sp*
Connaraceae	*Connarus griffonianus*
Connaraceae	*Connarus sp*
Connaraceae	*Jaundea pinnata*
Connaraceae	*Rourea thomsonii*
Connaraceae	*Rourea sp*
Dichapetalaceae	*Dichapetalium sp*
Dilleniaceae	*Tetracera alnifolia*
Ebenaceae	*Diospyros mumbuttensis*
Euphorbiaceae	*Erythrococca sp*
Euphorbiaceae	*Macaranga monandra*
Euphorbiaceae	*Spondianthus preussii*
Euphorbiaceae	*Tetrochidium dydimonstemon*
Fabaceae	*Afzelia africana*
Fabaceae	*Albizia ferruginea*
Fabaceae	*Albizia gummifera*
Fabaceae	*Albizia zygia*
Fabaceae	*Anthonotha macrophylla*
Fabaceae	*Dalbergia cf saxatilis*
Fabaceae	*Dialium pachyphyllum*
Fabaceae	*Hylodendron gabunense*
Fabaceae	*Leptoderris ledermannii*
Fabaceae	*Newtonia sp*
Fabaceae	*Parkia filicoidea*
Fabaceae	*Pterocarpus osun*
Fabaceae	*Pterocarpus mildbraedii*
Icacinaceae	*Leptaulus sp*
Icacinaceae	*Rhaphostylis beniniansis*
Irvingiaceae	*Irvingia gabonensis*
Irvingiaceae	*Irvingia grandifolia*
Irvingiaceae	*Klaineadoxa gabonensis*
Ixonanthaceae	*Phyllocosmus africanus*

Lauraceae	*Beilschmiedia zenkeri*
Lauraceae	*Beilschmiedia mannii*
Lauraceae	*Beilschmiedia anacardioides*
Lauraceae	*Beilschmiedia sp*
Lecythidaceae	*Napoleona sp*
Loganiaceae	*Anthocleista sp*
Loganiaceae	*Strychnos staudtii*
Loganiaceae	*Strychnos tricalysioides*
Loganiaceae	*Strychnos asterantha*
Loganiaceae	*Strychnos johnsonii*
Malvaceae	*Cola caricaefolia*
Malvaceae	*Cola cf cordifolia*
Malvaceae	*Pterygota mildbraedii*
Malvaceae	*Sterculia tragacantha*
Melastomataceae	*Warneckea cinnamomoides*
Meliaceae	*Entandrophragma angolensis*
Meliaceae	*Trichillia cf megalantha*
Meliaceae	*Trichillia tessmannii*
Moraceae	*Antiaris africana*
Moraceae	*Ficus sur*
Moraceae	*Ficus mucuso*
Moraceae	*Millesia excelsa*
Moraceae	*Trilepisium madagascariense*
Myristicaceae	*Pycnanthus angolensis*
Myrtaceae	*Eugenia sp*
Ochnaceae	*Rhabdophyllum affine*
Oleaceae	*Linoceira lingelscheimiana*
Pandanaceae	*Pandanus candelabrum*
Passifloraceae	*Adenia sp*
Passifloraceae	*Adenia gracilis*
Passifloraceae	*Barteria fistulosa*
Phyllanthaceae	*Antidesma laciniatum*
Phyllanthaceae	*Antidesma vogelianum*
Phyllanthaceae	*Bridelia cf grandis*
Phyllanthaceae	*Uapaca acuminata*
Phyllanthaceae	*Uapaca guineensis*
Polygalaceae	*Atroxima afzeliana*
Polygalaceae	*Carpolobia alba*
Rubiaceae	*? ?*
Rubiaceae	*? ?*
Rubiaceae	*? ?*
Rubiaceae	*Aidia genipiflora*
Rubiaceae	*Aidia micrantha*
Rubiaceae	*Craterispermum laurinum*
Rubiaceae	*Ixora foliosa*
Rubiaceae	*Leptactina anoldiana*
Rubiaceae	*Morinda morindioides*
Rubiaceae	*Multidentia sp*
Rubiaceae	*Oxyanthus palidus*
Rubiaceae	*Oxyanthus cf setosus*
Rubiaceae	*Oxyanthus palidus*
Rubiaceae	*Pausinystalia sp*
Rubiaceae	*Pavetta bidentata*
Rubiaceae	*Pavetta sp*
Rubiaceae	*Psilanthus mannii*
Rubiaceae	*Psychotria dorotheae*
Rubiaceae	*Rutidea sp*
Rubiaceae	*Sabicea sp*
Rutaceae	*Zanthoxylum rubescens*
Salicaceae	*Homalium molle*
Sapindaceae	*Allophyllus africanus*
Sapindaceae	*Blighia welwitschii*

Sapindaceae	*Eriocaulum sp*
Sapindaceae	*Lecaniodiscus cupanioides*
Sapotaceae	*Synsepalum letouzei*
Sapotaceae	*Vincetela sp*
Ulmaceae	*Celtis phillipensis*
UNK	*UNK*
UNKL	*UNKL*
UNKP9	*UNKP9*
Verbenaceae	*Vitex doniana*
Vitaceae	*Cissus sp*
Vitaceae	*Cissus sp2*

Table 16: Total Species list of trees and lianas in 4 study plots

Species	P1	P2	P3	P4	Total
?				1	1
??	3	1		21	25
Acacia dealbara	1				1
Adenia cissampeloides	1				1
Adenia gracilis				2	2
Adenia sp				2	2
Afzelia africana	4			6	10
Agelaea obliqua				1	1
Agelaea paradoxa	1			6	7
Aidia genipiflora				126	126
Aidia micrantha				67	67
Albizia adianthifolia	7				7
Albizia ferruginea	1			2	3
Albizia glaberrima			1		1
Albizia gummifera				1	1
Albizia zygia	1			1	2
Alchonea cordifolia	37	13			50
Allophyllus africanus				1	1
Allophyllus bullatus	55	3	11		69
Annoa senegalensis	108	10	32		150
Anthocleista djalonensis	3	1			4
Anthocleista schweinfurthii	8				8
Anthocleista sp				3	3
Anthonotha macrophylla				520	520
Antiaris africana				4	4
Antidesma laciniatum				468	468
Antidesma venosum	4	3	2		9
Antidesma vogelianum	1			1	2
Atroxima afzeliana				53	53
Barteria fistulosa	1			85	86
Beilschmiedia anacardioides				4	4
Beilschmiedia mannii				6	6
Beilschmiedia sp				1	1
Beilschmiedia zenkeri				5	5
Blighia welwitschii				4	4
Bridelia cf grandis				5	5
Bridelia ferruginea			1		1
Bridelia scleroneura	246	44	14		304
Carpolobia alba				82	82
Ceiba pentandra	3			6	9
Celtis phillipensis					1
Chromolana odorata	1				1
Cissus sp	1			1	2
Cissus sp2				1	1
Cleistophyllus staudtii	7			6	13
Cleriodendron sp				7	7

Cnestis cf corniculata	1				1
Cnestis sp				1	1
Cola caricaefolia			2	240	242
Cola cf cordifolia			2	93	95
Combretum hispidum	1				1
Connarus griffonianus				20	20
Connarus sp				1	1
Craterispermum laurinum	5			501	506
Crossopteryx febrifuga	202	179			381
Cussonia barteri			9		9
Dacryodes klaineana				1	1
Dalbergia cf saxatilis				1	1
Dalbergia melanoxylon	12				12
Dalbergia sp		4			4
Daniellia oliverii		2	20		22
Deidamia sp	3				3
Dialium pachyphyllum				29	29
Dichapetalium sp				2	2
Dictyophleba cf setosa				8	8
Dioscorea sp	1				1
Diospyros mumbuttensis				1	1
Dissotis bamendae	3				3
Elaeis guineensis				102	102
Entada abyssinica			3		3
Entandrophragma angolensis				16	16
Eriocaulum sp				3	3
Erythrococca sp				1	1
Erythrophleom suavolens	9		1		10
Eugenia sp				6	6
Ficus abutilifolia		1			1
Ficus bubu	12	15	1		28
Ficus glumosa	16	18			34
Ficus kamerunensis	1				1
Ficus mucuso		4		1	5
Ficus natalensis	3	1			4
Ficus ovata	4				4
Ficus sur	2	3	3	1	9
Ficus thonningii		2	6		8
Ficus vogeliana	1				1
Funtumia elastica				32	32
Gmelina arborea	26	56			82
Harungana madagascariensis	74				74
Holarrhena floribunda	8	2		2	12
Homalium molle	1			7	8
Hylodendron gabunense				51	51
Hymenocardia acida	275	59	73		407
Irvingia gabonensis				1	1
Irvingia grandifolia				20	20
Ixora foliosa				37	37
Jaundea pinnata				2	2
Kigellia africana	1		3	1	5
Klaineadoxa gabonensis				2	2
Landolphia owariensis				21	21
Landolphia sp2				14	14
Landolphia sp3				5	5
Lannea microcarpa	62	9		2	73
Lannea schimperi	6	2	8		16
Lecaniodiscus cupanioides				93	93
Leptactina anoldiana				3	3
Leptaulus sp				77	77
Leptoderris ledermannii				1	1
Linoceira lingelscheimiana				26	26

Lippia adoensis		16			16
Lophira lanceolata			1		1
Macaranga monandra	19			2	21
Mammea africana				3	3
Maprounea membrenacea	1				1
Maranthes gabunensis	2			545	547
Margariteria discoidea	34	3			37
Markhamia tomentosa				1	1
Millesia excelsa				4	4
Monanthotaxis sp				6	6
Monodora sp				1	1
Monodora zenkeri				32	32
Morinda morindioides				5	5
Motandra guineensis				4	4
Mucuna flagellipes	32	13			45
Multidentia sp				1	1
Musanga cecropioides				5	5
Myrianthus arborea				56	56
Napoleona sp				608	608
Nauclea latifolia	104	14			118
Newbouldia laevis				2	2
Newtonia sp				35	35
Ochna afzelii	5				5
Ochna kibbiensis			1		1
Oncinotis glabrata				3	3
Oxyanthus cf setosus				4	4
Oxyanthus palidus				2	2
Oxyanthus speciosus	3	1			4
Palisota ambigua				3	3
Pandanus candelabrum				2	2
Parinari curatellifolia		14			14
Parinari excelsa				1	1
Parkia africana			2		2
Parkia biglobosa	5	1			6
Parkia filicoidea				18	18
Pausinystalia sp				1	1
Pavetta bidentata				5	5
Pavetta sp				3	3
Pavetta staudtii	1				1
Pericopsis laxiflora	13				13
Phyllocosmus africanus				2	2
Piliostigma thonningii	20	9			29
Polysia fulvum	2			1	3
Pseudospondias microcarpa				80	80
Psilanthus mannii				20	20
Psorospermum corymbiferum	1				1
Psorospermum febrifugum	8		3		11
Psorospermum tenuifolium	1				1
Psychotria cf eminiana	1				1
Psychotria dorotheae				2	2
Pterocarpus erinaceus			11		11
Pterocarpus mildbraedii				1	1
Pterocarpus osun	1			6	7
Pterygota mildbraedii				1	1
Pycnanthus angolensis				92	92
Rauvolfia sp				8	8
Rauvolfia vomitoria	1			4	5
Rhabdophyllum affine				32	32
Rhaphostylis beniniansis				9	9
Rourea sp				6	6
Rourea thomsonii				1	1
Rutidea sp			3	2	5

Sabicea sp				9	9
Sorindeia grandifolia				66	66
Sorindeia zenkeri				2	2
Spondianthus preussii	1			76	77
Sterculia tragacantha			17	11	28
Stereospermum kunthianum		2	8		10
Stereospermum kunthianum var. dentatum			1		1
Strychnos asterantha				17	17
Strychnos johnsonii				10	10
Strychnos staudtii				14	14
Strychnos tricalysioides				23	23
Symphonia globulifelia				78	78
Synsepalum letouzei				4	4
Terminilia glaucescens	80	48	17		145
Terminilia laxiflora	1		35		36
Tetracera alnifolia				4	4
Tetrochidium dydimonstemon				4	4
Toussaintia hallei			2		2
Trichillia cf megalantha				8	8
Trichillia prieureana	1			1	2
Trichillia tessmannii				21	21
Trilepisium madagascariense				75	75
Uapaca acuminata				19	19
Uapaca guineensis	8			164	172
UNK				2	2
UNKL				1	1
UNKL2				3	3
UNKP9				1	1
Urera sp	2				2
Uvaria sp	3				3
Vincetela sp				2	2
Vitex doniana	3		8	3	14
Warneckea cinnamomoides				297	297
Zanthoxylum sp	1				1
Zanthoxylum rubescens				3	3
Grand Total	**1577**	**553**	**301**	**5462**	**7893**

Annex 2

Table 17: Species list of Herbs only

Sp-Code	Species
? ?	
ABRPR	*Abrus precatorius*
ANEI	*Aneilema sp*
ASYGA	*Asythasia gangetica*
BAIAX	*Baissea axilaria*
BRABR	*Brachiaria brizantha*
CHROD	*Chromolema odorata*
CLESI	*Clematis simensis*
CURLO	*Curcuma longa*
CURPI	*Curculigo pilosa*
CYAPR	*Cyathula protrata*
CYPDI	*Cyperus digitatus*
DESAD	*Desmodium adsendens*
DESVE	*Desmodium velutinum*
DIC	*Dicliptera sp*
DICCI	*Dichrostachys cinocia*
DICLA	*Dicliptera laxata*
DISI	*Dissotis sp*

ENSEGI	*Ensete gilletii*
ERIMO	*Eriosema montanum*
GEO	*Geophila sp*
HABMA	*Habenaria malacophylla*
HYPPO	*Hypselodelphys poggeana*
IMPCY	*Imperatha cylindricum*
IMPI	*Impomea sp*
IMPIN	*Impomea involucrata*
LIPAD	*Lippia adoensis*
MALOP	*Mallotus oppositifolius*
MARAL	*Mariscus alternifolius*
NEPPO	*Nepthelis poissonii*
NERRE	*Nervilia reniformis*
OPLBU	*Oplismenus burmannii*
PALAM	*Palisota ambiqua*
PLECA	*Plectrelminthus caudatus*
PTETO	*Pteris togoensis*
RITAL	*Ritchiea albersii*
SEL	*Selaginala sp*
SIDRH	*Sida rhombifolia*
STABR	*Stanfieldiella brachycarpa*
TACIN	*Tacca leontopetaloides*
THAWE	*Thalia welwitschii*
TURLE	*Turraea cf leonensis*
URELO	*Urena lobata*
VERCA	*Vernonia calvoana*
VERGU	*Vernonia guineensis*

Annex 3

Table 18: Trees and Herbs of Mbembe for livelihood

No.	Genus	Species	Form	Vernicular Name	Part used	Treatments
1	*Acacia*	*dealbara*	T		leaves	For protection
2	*Adenia*	*cissampeloides*	T	Emdroe	Roots	Fish poisoning
3	*Afzelia*	*africana*	T	Tapa	Stem	Luck and Charm
4	*Agelaea*	*paradoxa*	T	Ura	Leaves	Sends evil spirit away
5	*Alchonea*	*cordifolia*	T	Putaba	Leaves	Toothache
6	*Allophyllus*	*bullatus*	T	Bonache	Leaves	Fish poisoning and yellow fever
7	*Annona*	*senegalensis*	T	Viri, Mumo	Bark, roots	Anti-poison, and high malaria
8	*Annona*	*senegalensis*	T			
9	*Anthocleistha*	*djalonensis*	T	Akuche	Bark, leaves and roots	Malaria
10	*Asteraceae(AST2)*		H		Roots & leaves	Pile
11	*Asythasia*	*gangetica*	H		whole plant	Night poison, laxative, vegetable
12	*Bridelia*	*scleroneura*	T	Akufu, Shebi	Bark	Fish poisoning and Toothache
13	*Chromolema*	*odorata*	H		stem and leaves	Scabies
14	*Cnestis*	*cf corniculata*	T	Angorokwa	Leaves	Send away wishcraft and evil spirit

15	*Crossopteryx*	*febrifuga*	T	Mperi	Roots, bark & Leaves	Stomachache and Yellow fever
16	*Curculigo*	*pilosa*	H		whole plant	Open dog's eyes for hunting.
17	*Cyperus*	*digitatus*	H		Rhizome	Side pain
18	*Dalbergia*	*melanoxylon*	T	Shea-agodo	Roots	
19	*Dalbergia*	*sp*	T		Leaves and bark	Gastric
20	*Daniellia*	*oliverii*	T	Ava, Neita	Bark	Sent away wishes (Evil spirit)
21	*Desmodium*	*adsendens*	H		whole plant	Send away evil spirits
22	*Dissotis*	*bamendae*	T	Ge	Leaves, and roots	Yellow fever, TB and Hunting luck
23	*Dissotis*	*sp*	H		Leaf tips	Cough
24	*Erythrophleom*	*suavolens*	T	Egi, Year	Stem, leaves and bark	Very poisonous
25	*Ficus*	*vogeliana*	T	Etinie	Leaves	Vegetable
26	*Ficus*	*sur*	T	Ethinie		
27	*Ficus*	*mucuso*	T	Njei	Leaves	Fever
28	*Ficus*	*sur*	T		young leaves	Vegetable
29	*Harungana*	*madagascariensis*	T	Vonza	Leaves and roots	Yellow fever, Gornorrhea and backache
30	*Harungana*	*madagascariensis*	T		young leaves	Mixed young leaves for snake protection
31	*Homalium*	*molle*	T			Miscarriage
32	*Hymenocardia*	*acida*	T	Kpebiy	Yound leaves	Vegetable
33	*Imperatha*	*cylindricum*	H	Spine grass	Rhizome	Postrate problem, difficult urining in male
34	*Lannea*	*schimperi*	T	Peri	Bark	Stomachache
35	*Lannea*	*sp*	T	Nenaasa	Stem	Deziness
36	*LEGI*		T	Egka	Leaves and roots	Dizziness
37	*Lippia*	*adoensis*	T	Nje	Leaves and roots	Vegetable and Malaria
38	*Macaranga*	*monandra*	T	Teka-eru	Leaves + Salt	Boils(Alpcells)
39	*Mostruea*	*batesii*	H		Roots	Strength
40	*Mucuna*	*flagellipes*	T	Awoh, Karara	Stem and bark	Snake bite, Dizziness and blood shortage
41	*Nauclea*	*latifolia*	T	Thini, Aguado	Fruits, bark and roots	Edible and Stomachache
42	*Ochna*	*afzelii*	T		Leaves	Luck
43	*Parinari*	*curatellifolia*	T	Denye	Fruits	Edible
44	*Parkia*	*biglobosa*	T		Bark	Malnutrition
45	*Pericopsis*	*laxiflora*	T	Bark and leaves	Sprain or Broken leg	
46	*Phyllanthus*	*sp*	T		Bark	Anti-poison
47	*Piliostigma*	*thonningii*	T	Awokekeri	Bark and leaves	Stop blinding and paralize snakes
48	*Psorospermum*	*corymbiferum*	T	Shembe	Leaves and roots	Court cases and solunt legs
49	*Psychotria*	*cf eminiana*	T	Gebauru	leaves	Joint pains

50	*Rauvolfia*	*vomitoria*	T	Adeda	Roots and stem	Vomiting and Apollo
51	*Scleria*	*boivinia*	H	stem and leaves	*Side pains*	
52	*Sida*	*rhombifolia*	H		Leaves	Wick-low
53	*Spondianthus*	*preussii*	T	Akor	Leaves, bark and stem	Very poisonous
54	*Stereospermum*	*kunthianum*	T	Aden	Bark	Fever and Malaria
55	*Terminilia*	*glaucescens*	T	Foeye	Roots, bark & Leaves	Antipoison, Miscarried and Cough
56	*Terminilia*	*glaucescens*	H		Roots	Dysentary
57	*Uapaca*	*guineensis*	T	Poa, Kokum	Roots	Stomach cleaning
58	*Urena*	*lobata*	H	Nwunazru	whole plant	Bird flu
59	*Vernonia*	*calvoana*	H		Leaves	Navel bite in children
60	*Vernonia*	*guineensis*	H		Rhizome	Prevent STD's
61	*Vitex*	*doniana*	T	Chea	Young leaves and fruits	Vegetable and Edible

Table 19: Tree Species Checklist and their IUCN Conservation Status

Sp-code	Genus	Species	Authority	Family	IUCN Status
RUBH	*?*	*?*	?	?	
UNK	*?*	*?*	?	?	
UNKL	*?*	*?*	?	?	
UNKL2	*?*	*?*	?	?	
UNKP9	*?*	*?*	?	?	
LANMI	*Lannea*	*microcarpa*	Engl. & K. Krauce	Anacardiaceae	LC
LANSC	*Lannea*	*schimperi*	(Hochst. ex A. Rich.) Engl.	Anacardiaceae	LC
PSEMI	*Pseudospondias*	*microcarpa*	(A. Rich.) Engl.	Anacardiaceae	LC
SORGR	*Sorindeia*	*grandifolia*	Engl.	Anacardiaceae	LC
SORZE	*Sorindeia*	*zenkeri*	Engl.	Anacardiaceae	
LAN	*Lannea*	*sp*	(01-673)	Anacardiaceae	
ANN2	*?*	*?*	?	Annonaceae	
ANNL	*?*	*?*	?	Annonaceae	
ANNSE	*Annoa*	*senegalensis*	Pers.	Annonaceae	LC
CLEST	*Annoa*	*senegalensis*	Pers.	Annonaceae	LC
MON	*Monodora*	*sp*		Annonaceae	
MONAI	*Monanthotaxis*	*sp*		Annonaceae	
MONZE	*Monodora*	*zenkeri*	Engl. & Diels	Annonaceae	VU
TOUHA	*Toussaintia*	*hallei*	Le Thomas	Annonaceae	LC
UVAI	*Uvaria*	*sp*		Annonaceae	
DICSE	*Dictyophleba*	*cf setosa*	De Hoogh.	Apocynaceae	VU
FUNEL	*Funtumia*	*elastica*	(Preuss) Stapf	Apocynaceae	LC
HEDBA	*Hedranthera*	*barteri*	(Hook.f.) Pichm.	Apocynaceae	
HOLFL	*Holarrhena*	*floribunda*	(G.Don) Dur. & Schinz.	Apocynaceae	LC
LAN2	*Landolphia*	*sp2*		Apocynaceae	
LAN3	*Landolphia*	*sp3*		Apocynaceae	
LANOW	*Landolphia*	*owariensis*	P. Beauv.	Apocynaceae	LC
MOTGU	*Motandra*	*guineensis*	(Thonning) A. DC.	Apocynaceae	LC
ONCGL	*Oncinotis*	*glabrata*	(Bail.) Stapf. Ex Hiern	Apocynaceae	LC
RAU	*Rauvolfia*	*sp*		Apocynaceae	
RAUVO	*Rauvolfia*	*vomitoria*	Afzel.	Apocynaceae	LC
CUSBA	*Cussonia*	*barteri*		Araliaceae	

POLFU	*Polysia*	*fulvA*	(Hiern) Harms	Araliaceae	NT
ELIGU	*Elaeis*	*guineensis*	Jacq.	Arecaceae	LC
CHROD	*Chromolaena*	*odorata*	(L.) R.M. King & H. Rob. (nat.)	Asteraceae	LC
KIGAF	*Kigellia*	*africana*	(Lam.) Benth.	Bignoniaceae	LC
MARTO	*Markhamia*	*tomentosa*	(Benth.) K. Schum	Bignoniaceae	LC
NEWLA	*Newbouldia*	*laevis*	(Beauv.) Seen. Ex Bur.	Bignoniaceae	LC
STEKD	*Stereospermum*	*kunthianum var. dentatum*	(A. Rich.) Fiori	Bignoniaceae	LC
STEKU	*Stereospermum*	*kunthianum*	Cham	Bignoniaceae	LC
CEIPA	*Ceiba*	*pentandra*	(L.) Gaertn.	Bombacaceae	LC
DACKL	*Dacryodes*	*klainianum*	(Pierre) H.J. Lam	Burseraceae	LC
MUSCE	*Musanga*	*cecropioides*	R. Br. Ex Tedlie	Cecropiaceae	LC
MYRAR	*Myrianthus*	*arboreus*	P. Beauv.	Cecropiaceae	LC
MARGA	*Maranthes*	*gabunensis*	(Engl.) G.T. Prance	Chrysobalanaceae	LC
PARCU	*Parinari*	*curatellifolia*	Planch ex. Benth.	Chrysobalanaceae	
PAREX	*Parinari*	*excelsa*	Sabine	Chrysobalanaceae	LC
MAMAF	*Mammea*	*africana*	Sabine	Clusiaceae	LC
SYMGL	*Symphonia*	*globulifera*	L. f.	Clusiaceae	LC
COMHI	*Combretum*	*hispidum*	Laws	Combretaceae	LC
TERGL	*Terminilia*	*glaucescens*	Planch ex. Benth.	Combretaceae	LC
TERLA	*Terminilia*	*laxiflora*	Engl. et Diels	Combretaceae	LC
PALAM	*Palisota*	*ambigua*	(P. Beauv.) C.B. Clarke	Commelinaceae	LC
AGEOB	*Agelaea*	*obliqua*	(P. Beauv.) Baill.	Connaraceae	LC
AGEPA	*Agelaea*	*paradoxa*	Gilg.	Connaraceae	LC
CNE	*Cnestis*	*sp*		Connaraceae	
CNECO	*Cnestis*	*cf corniculata*	Lam.	Connaraceae	LC
CNEFE	*Cnestis*	*ferruginea*	Vahl. Ex. DC	Connaraceae	LC
CON2	*Connarus*	*sp*		Connaraceae	
CONGR	*Connarus*	*griffonianus*	Baill.	Connaraceae	LC
JAUPI	*Jaundea*	*pinnata*	(P. Beauv.) Schellens.	Connaraceae	
ROUCO	*Rourea*	*coccinea*	(Thonn. Ex. Schum) Benth.	Connaraceae	LC
ROUI	*Rourea*	*sp*	Connaraceae		
ROUTH	*Rourea*	*thomsonii*	(Baker) Jonkind	Connaraceae	LC
DICI	*Dichapetalium*	*sp*	Dichapetalaceae		
TETAL	*Tetracera*	*alnifolia*	Willd.	Dilleniaceae	LC
DIOS	*Dioscorea*	*sp*	Dioscoreaceae		
DIOMU	*Diospyros*	*monbuttensis*	Gürke	Ebenaceae	LC
ALCCO	*Alchornea*	*cordifolia*	(Schum. & Thonn.) Müll. Arg.	Euphorbiaceae	LC
ERY	*Erythrococca*	*sp*		Euphorbiaceae	
GMEAR	*Gmelina*	*arborea*		Euphorbiaceae	LC
MACMO	*Macaranga*	*monandra*	Müll. Arg.	Euphorbiaceae	LC
MAPME	*Maprounea*	*membranacea*	Pax & K. Hoffm.	Euphorbiaceae	LC
SPOPR	*Spondianthus*	*preussii*	Engl.	Euphorbiaceae	LC
TETDY	*Tetrorchidium*	*didymostemon*	(Baill.) Pax & K. Hoffm.	Euphorbiaceae	LC
ACADE	*Acacia*	*dealbara*	Limb	Fabaceae	
AFZAR	*Afzelia*	*africana*	Smith	Fabaceae	VU*
ALBAD	*Albizia*	*adianthifolia*	(Schum.) W.F. Wright	Fabaceae	LC
ALBFE	*Albizia*	*ferruginea*	Benth.	Fabaceae	LC
ALBGL	*Albizia*	*glaberrima*	(Schum. & Thonn.) Benth.	Fabaceae	LC
ALBGU	*Albizia*	*gummifera*	(J.F.Gmel.) C.A. Sm.	Fabaceae	LC
ALBZY	*Albizia*	*zygia*	(DC.) J.F. Macbr.)	Fabaceae	LC
ANTMA	*Anthonotha*	*macrophylla*	P. Beauv.	Fabaceae	LC
BRAEU	*Brachystegia*	*eurycoma*	Harms	Fabaceae	LC
DAL	*Dalbergia*	*sp*		Fabaceae	
DALME	*Dalbergia*	*melanoxylon*	Guill et Perr	Fabaceae	LC
DALSA	*Dalbergia*	*cf saxatilis*	HooK. F.	Fabaceae	LC
DANOL	*Daniellia*	*oliveri*	(Rolfe) Hutch. & Dalziel	Fabaceae	L
DIAPA	*Dialium*	*pachyphyllum*	Harms	Fabaceae	LC
ENTAB	*Entada*	*abyssinica*	Steud. Ex A. Rich	Fabaceae	LC

ERYSU	*Erythrophleum*	*suaveolens*	(Guill. & Perr.) Brenan	Fabaceae	LC
HYLGA	*Hylodendron*	*gabunense*	Taub.	Fabaceae	LC
LEPTL	*Leptoderris*	*ledermannii*	Harms**	Fabaceae	EN*
MUCFL	*Mucuna*	*flagellipes*	Hook. F.	Fabaceae	LC
NEWI	*Newtonia*	*sp*		Fabaceae	
PARAF	*Parkia*	*africana*	R. Br.	Fabaceae	LC
PARBI	*Parkia*	*biglobosa*	Benth.	Fabaceae	L
PARFI	*Parkia*	*filicoidea*	Welw. ex Oliv.	Fabaceae	LC
PERLA	*Pericopsis*	*laxiflora*	(Benth.) Van Meeuwen	Fabaceae	LC
PILTH	*Piliostigma*	*thonningii*	(Schum.) Milne-Redh	Fabaceae	L
PTEER	*Pterocarpus*	*erinaceus*	Poir	Fabaceae	LC
PTEMI	*Pterocarpus*	*mildbraedii*	Harms	Fabaceae	LC
PTEOS	*Pterocarpus*	*osun*	Craib	Fabaceae	LC
HYMAC	*Hymenocardia*	*acida*		Hymenocardiaceae	
HARMA	*Harungana*	*madagascariensis*	Poir	Hypericaceae	LC
PSOCO	*Psorospermum*	*corymbiferum*	Hochr.	Hypericaceae	LC
PSOFE	*Psorospermum*	*febrifugum*	Spach.	Hypericaceae	LC
PSOTE	*Psorospermum*	*tenuifolium*	Hook.F.	Hypericaceae	LC
LEPTI	*Leptaulus*	*sp*		Icacinaceae	
RHABE	*Rhaphiostylis*	*beneniansis*	(Hook ex Planch.) Planch ex Benth.	Icacinaceae	LC
IRVGA	*Irvingia*	*gabonensis*	(A. Lecomte ex O. Rorke) Baill.	Irvingiaceae	LC
IRVGR	*Irvingia*	*grandifolia*	(Engl.) Engl.	Irvingiaceae	LC
KLAGA	*Klainedoxa*	*gabonensis*	Pierre	Irvingiaceae	LC
PHYAF	*Phyllocosmus*	*africanus*	Klotzsch.	Ixonanthaceae	LC
CLEI	*Cleriodendron*	*sp*	Lamiaceae/Labiatae		
VITDO	*Vitex*	*doniana*	Sweet	Lamiaceae/Labiatae	LC
BEIAN	*Beilschmiedia*	*anacardioides*	(Engl. & Krause) Robyns & Wilczeck	Lauraceae	DD
BEII	*Beilschmiedia*	*sp*	Lauraceae		
BEIMA	*Beilschmiedia*	*mannii*	(Meisn.) Benth. & Hook.f.	Lauraceae	LC
BEIZE	*Beilschmiedia*	*zenkeri*	Engl.*	Lauraceae	LC
NAPI	*Napoleona*	*sp*		Lecythidaceae	
ANTDJ	*Anthocleista*	*djalonensis*	A. Chev.	Loganiaceae	LC
ANTH	*Anthocleista*	*sp*		Loganiaceae	
ANTSC	*Anthocleista*	*schweinfurthii*	Gilg.	Loganiaceae	LC
MOSBA	*Mostrua*	*batessii*	Baker	Loganiaceae	LC
MOSBR	*Mostrua*	*cf brunonis*	Didr.	Loganiaceae	LC
STRAS	*Strychnos*	*asterantha*	Leeuwenberg	Loganiaceae	
STRJO	*Strychnos*	*johnsonii*	Hutch. et M.B. Moss	Loganiaceae	LC
STRST	*Strychnos*	*staudtii*	Gilg.	Loganiaceae	VU*
STRTR	*Strychnos*	*tricalysioides*	Hutch. et M.B. Moss*	Loganiaceae	NT*
COLCA	*Cola*	*caricaefolia*	K. Schum	Malvaceae	
COLCO	*Cola*	*cf cordifolia*	(Cav.) R. Br.	Malvaceae	LC
PTE	*Pterygota*	*mildbraedii*	Engl.	Malvaceae	LC
STETR	*Sterculia*	*tragacantha*	Lindl.	Malvaceae	LC
DISBA	*Dissotis*	*bamendae*	Brenan et Keay	Melastomataceae	VU*
WARCI	*Warneckea*	*cinnamomoides*	(G. Don) Jacq.-Felix	Melastomataceae	LC
ENTAN	*Entandrophragma*	*angolense*	(Welw.) C.DC.	Meliaceae	VU*
TRIME	*Trichillia*	*cf megalantha*	Harms	Meliaceae	LC
TRIPR	*Trichillia*	*prieureana*	A. Juss	Meliaceae	LC
TRITE	*Trichillia*	*tessmannii*	Harms	Meliaceae	LC
ANTAF	*Antiaris*	*toxicaria var. africana*	(Engl.) A. Chev.	Moraceae	LC
FICAB	*Ficus*	*abutilifolia*	(Milg.) Mig.	Moraceae	LC
FICBU	*Ficus*	*bubu*	Warb.	Moraceae	LC
FICGL	*Ficus*	*glumosa*	Del.	Moraceae	LC
FICKA	*Ficus*	*kamerunensis*	Mildbr. & Burret	Moraceae	LC
FICMU	*Ficus*	*mucuso*	Welw. ex Ficalho	Moraceae	LC

FICNA	*Ficus*	*natalensis*	Hochst.	Moraceae	LC
FICOV	*Ficus*	*ovata*	Vahl.	Moraceae	LC
FICSU	*Ficus*	*sur*	Forssk.	Moraceae	LC
FICTH	*Ficus*	*thonningii*	Blume	Moraceae	LC
FICVO	*Ficus*	*vogeliana*	(Mig.) Mig.	Moraceae	LC
MILEX	*Millesia*	*excelsa*	(Welw.) C.C. Berg	Moraceae	LC
TRIMA	*Trilepisium*	*madagascariense*	Dc	Moraceae	LC
PYCAN	*Pycnanthus*	*angolensis*	(Welw.) Exell	Myristicaceae	LC
EUGI	*Eugenia*	*sp*	Myrtaceae		
LOPLA	*Lophira*	*lanceolata*	Van Tieghem ex. Keay	Ochnaceae	LC
OCHAF	*Ochna*	*afzelii*	R. Br. Ex Oliv.	Ochnaceae	LC
OCHKI	*Ochna*	*kibbiensis*	Hutch. & Dalziel	Ochnaceae	LC
RHAAF	*Rhabdophyllum*	*affine*	(Hook.f.) Van Tieghem	Ochnaceae	LC
OLA	*Olax*	*subscorpioidea*	Oliv.	Olacaceae	LC
LINLI	*Linociera*	*lingelscheimiana*	Gilg. Et Schellenbs.	Oleaceae	DD**
ANG	*Angraecum*	*sp*	Orchidaceae		
BULBE	*Bulbophyllum*	*bequaertii*	De Wild.	Orchidaceae	
POL	*Polystachya*	*sp*		Orchidaceae	
POLOD	*Polystachya*	*odorata*	Lindl.	Orchidaceae	LC
PANCA	*Pandanus*	*candelabrum*	P. Beauv.	Pandanaceae	LC
ADE2	*Adenia*	*sp*	Passifloraceae		
ADECI	*Adenia*	*cissampeloides*	(Planch. Ex Hook.) Harms	Passifloraceae	LC
ADEGR	*Adenia*	*gracilis*	Harme	Passifloraceae	
BARFI	*Barteria*	*fistulosa*	Mast.	Passifloraceae	LC
DEI	*Deidamia*	*sp*	Passifloraceae		
MARDI	*Margaritaria*	*discoidea*	(Baill.) Webster var. discoidea	Phyllanthaceae	LC
UAPAC	*Uapaca*	*acuminata*	(Hutch.) Pax & K. Hoffm.	Phyllanthaceae	LC
UAPGU	*Uapaca*	*guineensis*	Muell. Arg. Var. guineensis	Phyllanthaceae	LC
ANTLA	*Antidesma*	*laciniatum*	Müll. Arg.	Phyllanthaceae	LC
ANTVE	*Antidesma*	*venosum*	Tul.	Phyllanthaceae	LC
ANTVO	*Antidesma*	*vogelianum*	Müll. Arg.	Phyllanthaceae	LC
BRIFE	*Bridelia*	*ferruginea*	Benth.	Phyllanthaceae	LC
BRIGR	*Bridelia*	*cf grandis*		Phyllanthaceae	
BRISC	*Bridelia*	*scleroneura*	Müll. Arg.	Phyllanthaceae	LC
PHYME	*Phyllanthus*	*muellerianus*	(Kuntze) Exell	Phyllanthaceae	LC
ATRAF	*Atroxima*	*afzeliana*	(Oliv.) Stapf.	Polygalaceae	LC
CARAL	*Carpolobia*	*alba*	G. Don	Polygalaceae	LC
VENAF	*Ventilago*	*africana*	Exell.	Rhamnaceae	LC
AIDGE	*Aidia*	*genipiflora*	(DC) Dandy	Rubiaceae	LC
AIDMI	*Aidia*	*micrantha*	(K. Schum) F. White	Rubiaceae	LC
CRALA	*Craterispermum*	*laurinum*	(Poir) Benth.	Rubiaceae	
CRETR	*Cremaspora*	*cf triflora*	(Thonn.) K. Schum.	Rubiaceae	LC
CROFE	*Crossoptyrex*	*febrifuga*	(Afzel. Ex G. Don) Benth.	Rubiaceae	LC
HYM	*Hymenodictyon*	*sp*		Rubiaceae	
IXOFO	*Ixora*	*foliosa*	Hiern*	Rubiaceae	VU*
LEPAN	*Leptactina*	*mannii subsp. anoldiana*	(De Wilde) Neuba ex Figueiredo	Rubiaceae	LC
MORMO	*Morinda*	*morindioides*	(Baker) Milne-Redh.	Rubiaceae	LC
MULI	*Multidentia*	*sp*	Rubiaceae	DD	
NAULA	*Nauclea*	*latifolia*	SM	Rubiaceae	LC
OXYPA	*Oxyanthus*	*pallidus*	Hiern	Rubiaceae	L
OXYSE	*Oxyanthus*	*cf setosus*	Keay	Rubiaceae	LC
OXYSP	*Oxyanthus*	*speciosus*	DC	Rubiaceae	LC
PAU	*Pausinystalia*	*sp*		Rubiaceae	
PAV	*Pavetta*	*sp*		Rubiaceae	
PAVBI	*Pavetta*	*bidentata*	Hiern	Rubiaceae	LC
PAVST	*Pavetta*	*staudtii*	Hutch & Dalz.	Rubiaceae	LC
PSIMA	*Psilanthus*	*mannii*	Hook.F.	Rubiaceae	LC
PSY2	*Psychotria*	*sp*		Rubiaceae	

PSYDO	*Psychotria*	*dorothae*	Wernham	Rubiaceae	LC
PSYEM	*Psychotria*	*cf eminiana*	(Kuntze) E.M.A. Petit.	Rubiaceae	LC
ROTWH	*Rothmannia*	*whitfieldii*	(Lindl.) Dandy	Rubiaceae	LC
RUTI	*Rutidea*	*sp*		Rubiaceae	
SABI	*Sabicea*	*sp*		Rubiaceae	
TRI	*Tricalysia*	*sp*		Rubiaceae	
ZANI	*Zanthoxylum*	*sp*		Rutaceae	
ZANTE	*Zanthoxylum*	*rubescens*	Planch. ex Kook.f.	Rutaceae	LC
HOMMO	*Homalium*	*molle*		Salicaceae	
ALLAF	*Allophyllus*	*africanus*	P. Beauv.	Sapindaceae	LC
ALLBU	*Allophyllus*	*bullatus*	Radlk.*	Sapindaceae	VU*
BLIWE	*Blighia*	*welwitschii*	(Hiern) Radlk.	Sapindaceae	LC
ERIO	*Eriocaulum*	*sp*		Sapindaceae	
LECCU	*Lecaniodiscus*	*cupanioides*	Planch.	Sapindaceae	LC
SYNLE	*Synsepalum*	*letouzeyi*	Aubr.*	Sapotaceae	EN*
VINI	*Vincetela*	*sp*		Sapotaceae	
PACBR	*Pachystela*	*brevipes*	(Bak.) Engl.	Sapotaceae	
CELPH	*Celtis*	*phillippensis*	Blanco	Ulmaceae	LC
URE	*Urera*	*sp*		Urticaceae	
LIPAD	*Lippia*	*adoensis*	Hochst.	Verbenaceae	
RINI	*Rinorea*	*sp*		Violaceae	
CISS2	*Cissus*	*sp*		Vitaceae	
CISSUS	*Cissus*	*sp*		Vitaceae	

Table 20: Herbaceous Species checklist and their IUCN Conservation Status

Sp-code	Genus	Species	Authority	Family	IUCN Status
ASYGA	*Asythasia*	*gangetica*	(L.) T. Anderson	Acanthaceae	LC
DIC	*Dicliptera*	*sp*		Acanthaceae	
DICLA	*Dicliptera*	*laxata*	C.B. Clarke	Acanthaceae	LC
AMASP	*Amaranthus*	*spenosus*	L.	Amaranthaceae	LC
CYAPR	*Cyathula*	*prostrata*	(L.) Blume	Amaranthaceae	LC
LANMI	*Lannea*	*microcarpa*		Anacardiaceae	
LANSC	*Lannea*	*schimperi*	(Hochst. Ex. A. Rich.) Engl.	Anacardiaceae	LC
MON	*Monanthotaxis*	*sp*		Annonaceae	
UVA	*Uvaria*	*sp*		Annonaceae	
ANNSE	*Annona*	*senegalensis*	Pers.	Annonaceae	LC
HOLFL	*Holarrhena*	*floribunda*	(G. Don) Dur & Schinz	Apocynaceae	LC
BAIAX	*Baissea*	*axilaria*	(Benth.) Hua	Apocynaceae	LC
LAN	*Landolphia*	*sp*		Apocynaceae	
CRYSA	*Cryptolepis*	*sanguinolenta*	(Lindl.) Schltr.	Apocynaceae	
ASCI				Apocynaceae	
LAN2	*Landolphia*	*sp*		Apocynaceae	
VOABR	*Voacanga*	*bracteata*	Stapf	Apocynaceae	LC
CUL	*Culcusa*	*sp*		Araceae	
CULAN	*Culcasia*	*annetii*	Ntepe-Nyame	Araceae	LC
NEPPO	*Nepthelis*	*poissonii*	(Engl.) N.E. Br.	Araceae	LC
ELAGU	*Elaeis*	*guineensis*		Arecaceae	LC
ASPVA	*Asplenium*	*cf variabile*	Hook.f. (Fern)	Aspleniaceae	
VERCA	*Vernonia*	*calvoana*		Asteraceae	
AST2				Asteraceae	
AST3				Asteraceae	
CHROD	*Chromolaema*	*odorata*	(L.) R.M.King & H. Rob.	Asteraceae	LC
VERGU	*Vernonia*	*guineensis*	Benth.	Asteraceae	LC
BEGSE	*Begonia*	*cf semperflorens*		Begoniaceae	
CEIPE	*Ceiba*	*pentandra*	(L.) Gaertn.	Bombacaceae	LC
RITAL	*Ritchiea*	*albersii*	Gilg. & Benedict	Capparaceae	LC
MYRAR	*Myrianthus*	*arboreus*	P. Beauv.	Cecropiaceae	LC
MARGA	*Maranthes*	*gabunensis*	(Engl.) G.T. Prance	Chrysobalanaceae	LC

SYMGL	*Symphonia*	*globulifera*	L.f.	Clusiaceae	LC
TERGL	*Terminilia*	*glaucescens*	Planch ex. Benth.	Combretatceae	LC
CYALO	*Cyanotis*	*longifolia*	Benth.	Commelinaceae	LC
ANEBE	*Aneilema*	*beniniense*	(P. Beauv.) Kunth.	Commelinaceae	LC
ANEI	*Aneilema*	*sp*		Commelinaceae	
COMAF	*Commelina*	*africana*	L.	Commelinaceae	LC
ANEUM	*Aneilema*	*umbrosum*	(Vahl) Kunth.	Commelinaceae	LC
PALAM	*Palisota*	*ambiqua*	(P. Beauv.) C.B.Clarke	Commelinaceae	LC
STABR	*Stanfieldiella*	*brachycarpa*	(Gilg. & Led. Ex Mildbr.	Commelinaceae	LC
AGEI	*Agelaea*	*sp*		Connaraceae	
IMPIN	*Impomea*	*involucrata*	P. Beauv.	Convulvolaceae	LC
DIORP				Convulvolaceae	
IMPI	*Impomea*	*sp*		Convulvolaceae	
MARAL	*Mariscus*	*alternifolius*	Vabl.	Cyperaceae	
CYPDI	*Cyperus*	*digitatus*	Roxb.	Cyperaceae	LC
TETAL	*Tetracera*	*alnifolia*	Willd.	Dilleniaceae	LC
DIODU	*Dioscorea*	*dumetorum*	(Kunth) Pax	Dioscoreaceae	LC
DIOSA	*Dioscorea*	*abyssinica*	Hochst. Ex Kunth	Dioscoreaceae	LC
DIOPR	*Dioscorea*	*preussii*	Pax	Dioscoreaceae	LC
DRAOU	*Dracaena*	*aubryana*	Brongn. ex E. Morren	Dracaenaceae	LC
GMYAR	*Gmylina*	*arborea*		Euphorbiaceae	LC
MACMO	*Macaranga*	*monandra*	Müll. Arg.	Euphorbiaceae	LC
MALOP	*Mallotus*	*oppositifolius*	(Grisel) Mull. Arg.	Euphorbiaceae	LC
ERYMA	*Erythrococca*	*mannii*	(Hook.f.	Euphorbiaceae	
MARDI	*Margaritaria*	*discoidea*	(Baill.) Webster	Euphorbiaceae	LC
DALER	*Dalbergia*	*erinateus*		Fabaceae	
ALBAD	*Albizia*	*adianthifolia*	(Schum.) W.F. Wright	Fabaceae	LC
ALBZY	*Albizia*	*zygia*	(D.C) J.F. Macbr.	Fabaceae	LC
ANTMA	*Anthonotha*	*macrophylla*	P. Beauv.	Fabaceae	LC
DESAD	*Desmodium*	*adsendens*	(SW.) DC	Fabaceae	LC
DESCA	*Desmodium*	*canum*	(J.F. Schin	Fabaceae	
DANOL	*Danielia*	*oliveri*	(Rolfe) Hutch. & Dalzial	Fabaceae	LC
DESVE	*Desmodium*	*velutinum*	(Wild.) DC	Fabaceae	LC
BOWMI	*Bowringia*	*mildbraedii*	Engl.	Fabaceae	
DIAPA	*Dialium*	*pachyphyllium*	Harms	Fabaceae	LC
HYLGA	*Hylodendron*	*gabunense*	Taub.	Fabaceae	LC
DALI	*Dalbergia*	*sp*		Fabaceae	
DICCI	*Dichrostachys*	*cinerea*	(L.) Wright & Arn.	Fabaceae	LC
ABRCA	*Abrus*	*canescens*	Welw. ex. Bak.	Fabaceae	LC
ABRPR	*Abrus*	*precatorius*	L.	Fabaceae	LC
MUCFL	*Mucuna*	*flagellipes*	Hook.f.	Fabaceae	LC
PILTH	*Piliostigma*	*thoninngii*	(Schum.) Milne-Redh.	Fabaceae	LC
ERIMO	*Eriosema*	*montanum*	Baker f.	Fabaceae	LC
PERLA	*Pericopsis*	*laxiflora*	(Benth.) Van Meeuwen	Fabaceae	LC
URAPI	*Uraria*	*picta*	(Jacq.) DC.	Fabaceae	LC
HYMAC	*Hymenocardia*	*acida*		Hymenocardiaceae	
HARMA	*Harungana*	*madagascariensis*	Poir	Hypericaceae	LC
CURPI	*Curculigo*	*pilosa*	(Schum. & Thonn.) Engl.	Hypoxidaceae	LC
NAPI	*Napoleona*	*sp*		Lecythidaceae	
MOSBA	*Mostruea*	*batesii*	Bak.	Loganiaceae	LC
MOSBR	*Mostruea*	*cf brunonis*	Didr.	Loganiaceae	LC
STRY	*Strychnos*	*sp*		Loganiaceae	
STRTR	*Strychnos*	*tricalysioides*	Hutch. & M.B. Moss	Loganiaceae	NT*
COLCO	*Cola*	*cf cordifolia*	(Cav.) R.Br.	Malvaceae	LC
COLCA	*Cola*	*caricaefolia*		Malvaceae	
URELO	*Urena*	*lobata*	Linn.	Malvaceae	LC
SIDUR	*Sida*	*urens*	L	Malvaceae	LC
SIDRH	*Sida*	*rhombifolia*	linn.	Malvaceae	LC
THAWE	*Thalia*	*welwitschii*	Ridl.	Maranthaceae	
HYPPO	*Hypselodelphys*	*poggeana*	(K. Schum.) Milne-Redh.	Maranthaceae	LC
DISI	*Dissotis*	*sp*		Melastomataceae	

WARCI	*Warneckea*	*cinnamomoides*	(G. Don) Jacq. Fél.	Melastomataceae	LC
STEI	*Stephania*	*sp*		Menispermaceae	
TRIMA	*Trilepisium*	*madagascariense*	DC	Moraceae	LC
ENSLI	*Ensete*	*livingstonianum*	(J.Kirk) Cheesman	Musaceae	LC
PYCAN	*Pycnanthus*	*angolensis*	(Welw.) Exell.	Myristicaceae	LC
SYZ	*Syzygium*		*sp*	Myrtaceae	
BOEDI	*Boerhavia*	*diffusa*	L.	Nyctaginaceae	LC
RHAAF	*Rhabdophyllum*	*affinis*	(Hook.f.) Van Tiegh	Ochnaceae	LC
CAMI	*Campylospermum*		*sp*	Ochnaceae	
OLASU	*Olax*	*subscorpioidea*	Oliv.	Olacaceae	LC
LINLI	*Linociera*	*lingelscheimiana*	Gilg. ex Schellenbs	Oleaceae	DD
PLECA	*Plectrelminthus*	*caudatus*	(Lindl.) Summerh.	Orchidaceae	LC
HABMA	*Habenaria*	*malacophylla*	Rchb.f.	Orchidaceae	LC
NERRE	*Nervilia*	*reniformis*	Schltr.	Orchidaceae	
ARGME	*Argemone*	*mexicana*	Linn.	Papavaraceae	
BRISC	*Bridelia*	*scleroneura*	Müll. Arg.	Phyllanthaceae	LC
ANTLA	*Antidesma*	*laciniatum*	Müll. Arg.	Phyllanthaceae	LC
PIPGU	*Piper*	*guineense*	Schum. & Thonn.	Piperaceae	LC
IMPCY	*Imperatha*	*cylindricum*	(l.) Raeuschel	Poaceae	LC
LEPZE	*Leptaspis*	*zeylanica*	Nees	Poaceae	LC
BRABR	*Brachiaria*	*brizantha*	(Hochst. ex A. Rich.) Stapf.	Poaceae	LC
POA4				Poaceae	
OPLBU	*Oplismenus*	*burmannii*	(Retz.) Paliso	Poaceae	LC
ATRAF	*Atroxima*	*afzeliana*	(Oliv.) Stapf.	Polygalaceae	LC
CARAL	*Carpolubia*	*alba*	G. Don	Polygalaceae	LC
PTETO	*Pteris*	*togoensis*	Hiern (Fern)	Pteridaceae	
CLESI	*Clematis*	*simensis*	Fres	Ranucaulaceae	LC
VENAF	*Ventilago*	*africana*	Exell.	Rhamnaceae	LC
CRALA	*Craterispermum*	*laurinum*		Rubiaceae	
IXOFO	*Ixora*	*foliosa*	Hiern	Rubiaceae	vu*
NAULA	*Nauclea*	*latifolia*		Rubiaceae	LC
PSY2	*Psychotria*	*sp*		Rubiaceae	
PSY	*Psychotria*	*sp*		Rubiaceae	
TRII	*Tricalysia*	*sp*		Rubiaceae	
GEO	*Geophila*	*sp*		Rubiaceae	
PSY	*Psychotria*	*sp*		Rubiaceae	
MUSS	*Mussaenda*	*sp*		Rubiaceae	
CROFE	*Crossoptyrex*	*febrifuga*	(Afzel. ex G.Don) Benth.	Rubiaceae	LC
TRI2	*Tricalysia*	*sp*		Rubiaceae	
ALLBU	*Allophyllus*	*bullatus*	Radlk.	Sapindaceae	vu*
ALLAF	*Allophyllus*	*africanus*	P. Beauv.	Sapindaceae	LC
STEKU	*Stereospermum*	*kunthianum*		Sapindaceae	
PAUPI	*Paullinia*	*pinnata*	Linn.	Sapindaceae	LC
SAP32				Sapindaceae	
SAP3L				Sapindaceae	
TURLE	*Turraea*	*leonensis*	Keay	Sapindaceae	LC
LECCU	*Lecaniodiscus*	*cupanioides*	Planch	Sapindaceae	LC
SCODU	*Scoparia*	*dulcis*	L.	Scophularaceae	LC
SEL	*Sellaginella*	*sp*	(Fern)	Sellaginellaceae	
SOLTU	*Solanum*	*turvum*	Sw.	Solanaceae	LC
TACIN	*Tacca*	*leontopetaloides*	(L.) Kuntze	Taccaceae	LC
CELPH	*Celtis*	*philippensis*	Blanco	Ulmaceae	LC
LIPAD	*Lippia*	*adoensis*	Hutchst.	Verbenaceae	
RINI	*Rinorea*	*sp*		Violaceae	
CISSBA	*Cissus*	*barbeyana*	De Wild. & T. Durand	Vitaceae	LC
CISSI	*Cissus*	*sp*		Vitaceae	
CURLO	*Curcuma*	*longa*	Linn.	Zingeberaceae	LC

REFERENCES

Achoundong, G. (2007) "Vegetation," In: N. Houstin and C. Seignobos, Ed., Atlas of Cameroon' *Les éditions Jeune Afrique, Paris*, pp 64-65.

Barthlott, W., Lauer, W. and Placke, A. (1996). Global distribution of Species diversity in vascular plants: towards a world map of phytodiversity. *Erkunde band,* **50:** 317-328 (with supplement and figure).

Condit, R. S. (1998). Tropical Forest Census Plots: Methods and Results from Barro Colorado Island, Panama and a Comparison with Other Plots. Springer

Cordy A.J. (1957). Annual Report for 1956, District Officer Nkambe, 30th January 1957. **Dallmeier, F. (1992**). Long-Term Monitoring of Biological Diversity of Tropical Forest Areas: Methods for the Establishment and Inventory of Permanent Plots. MAB Digest # 11. Paris: UNESCO. 48pp.

Davis, S. D., V.H. Heywood, and A.C. Hamilton. (1994). Centres of Plant Diversity: A Guide and Strategy for their Conservation. Volume 1: Europe, Africa, South West Asia and the Middle East. Cambridge, UK: IUCN Publications Unit. pp.

Diffo, J. L. D. and LeBrteton M. (2004). Reptile of the Nkambe Forest Reseve, Northwest Province, Cameroon. Report for WCS, 31p.

Hussey, T. W. (1949). Touring Notes Nkambe Reserve, Report, 28p.

Letouzey R. (1985). Notice de la carte phytogéographique du Cameroon, Vol.**1-5**. Institut de la Carte Internationale de la Végétation, Toulouse.

Lightbody, J.S. (1953). Annual Report Bamenda Charge 1952 – 1953.

Onana, J.M. (2011). The vascular plants of Cameroon, a Taxonomic checklist with IUCN Assessments, IRAD-National Herbarium of Cameroon, Yaounde. 195 pp.

Onana, J.M., and Cheek, M. (2011). The Red Data Book of the Flowering Plants of Cameroon. *RBG, Kew*. 578 pp

Onana, J.M. (2011). The Vascular Plants of Cameroon. A Taxonomic Checklist with IUCN Assessments. Flore Du Cameroun Volume 39 "Occasional volume".

Pollock, J.H.H. (1926). The Mbembe Assessment Report. Ac. 9. Archives Buea.

Taku A. & Nji F. (2004). Rapid Survey of Birds of the Mbembe Forest Reserved, Northwest Region, Cameroon.

Tchindjang, M., Banga, C. R., Nankam, A., Makak, J. S. (2000). Mapping of Protected areas evolution in Cameroon from the beginning to 2000: Lesson to learn and perspectives

Thomas D. W., Kenfack D., Chuyong G. B., Sainge M. N., Losos E. C., Condit R. S., and Songwe N. (2003). Tree species of southwestern Cameroon: Tree distribution maps, diameter tables, and species documentation of the 50-hectare Korup Forest Dynamic Plot. – Washington, D.C.

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