

REPORT ON VISIT TO BIA NATIONAL PARK

SEPTEMBER 20 - OCTOBER 1 1976

BY

J.B. HALL, DR. SWAINE AND DR. LOCK

DEPARTMENT OF GAME & WILDLIFE

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A C C R A

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Personnel - Mr. J.B. Hall, Dr. H.D. Swaine, Dr. J.M. Lock, Mr.D.K. Abbiv, Mr. R. Amponsah, Mr. E. Hansen.

Route, Sept. 20. Legon to Asempaneye via Kumasi, Bibiani and Asawinso for night in the Game and Wildlife bungalow occupied by Dr. Claud Martin, warden of the Park.

Sept. 21. To the edge of the Park at Chimp camp, where luggage was discharged from the Landrover. Camp staff then carried luggage along the  $3\frac{1}{2}$  mile path to Camp 1 towards the centre of the Park, while we made our way there more slowly, looking at vegetation, and recording observed plant species on the Park check-list. We all stayed in the capacious single-roomed, wooden, stilted bungalow recently built by the Game and Wildlife Department in a small clearing in the forest near the Camp.

Sept. 22 - 29. Work in the forest within about  $1\frac{1}{2}$  miles of the bungalow, with Miss Dana Olson.

Sept. 30. - Return to Asempaneye.

Oct. 1. - Return to Legon,

#### INTRODUCTION

The major purpose of the expedition was to provide a botanical description of the forest in which Miss Olson and her assistants have been studying the feeding and other behaviour of three groups of black-and-white colobus monkeys. Two of the groups occur sympatrically in one area, and the other group occupies a different area. For ease of movement by observers, a grid of cut lines has been laid out in each area. Any tree in which the monkeys are seen to feed is identified, given a code number, and plotted on a map. Miss Olson, and her predecessor Mr. Rucks, have between them mapped about a thousand trees in the two areas. Miss Olson suspected that the two areas might differ significantly in forest composition, and that seasonal movements by monkeys from one part of an area to another might depend on local concentrations of favoured tree species of different phenology.

Summary of work accomplished during our visit

(a) Three enumeration

Our first task was to test the suggestion that the two areas differed floristically. 50 strips measuring 20m by 50m (0.1ha) were chosen at random, and all trees of 50cm girth were girthed, identified and listed. Black-and-white colobus is a canopy-dweller, and it was considered unlikely that it would normally visit trees with a girth below 50cm.

A total of 1031 trees of 114 species were enumerated in these strips; no evidence was found that the two areas differ significantly in their overall composition, though certain species seemed more abundant in one area than in the other.

(b) Map of tree distribution

To obtain a more complete picture of species dispersion, the positions of all trees with girth 50cm occurring in a continuous block of forest measuring 100 m x 200 m (2 ha) were plotted on a map. Girths, and vertical projection of the canopies of trees with girth 200cm were also recorded. The area chosen lay on a gentle slope stretching from near the top of the catena down into a Raphia swamp. The map includes 443 trees of 83 species. Contours at 2m intervals, and major soil types, are also shown on the map.

(c) Study of Pterygota forest

Although there seems to be an overall difference between the two colobus areas, part of one area is very distinct in its high concentration of the large tree species Pterygota macrocarpa and Pterygota bequaertii. In other parts of the forest, P. macrocarpa occurs as scattered individuals, but P. bequaertii (in general a much rarer species) was not seen at all. In the Pterygota forest, however, these two species virtually exclude other species from the canopy. Studies here included:-

- (i) a map with positions of all Pterygota spp. on a strip measuring 30m x 200m (0.6ha);
- (ii) enumeration of all established regeneration in random transects of the same strip;
- (iii) a profile diagram of a strip, - 8m x 60m (.036 ha);

(iv) soil studies.

It is known that Pterygota macrocarpa is strongly associated with nutrient - rich soils, and that the richness of soils in old village sites may persist long after the remains of the village have disappeared. Traces of charcoal were common in the Pterygota forest soils (but not in soils in the other mapped area). There is a possibility, therefore, that the Pterygota forest may occupy the site of former habitations - the results of soil analyses should provide further clues.

(d) Check - list of vascular plants of Bia National Park

The draft check-list taken to the Park was based on a plot enumerated by ourselves on a previous visit, and on plants brought to Legon for identification by Mr. & Mrs. Rucks and Miss Olson. During the present visit the length of the list was almost tripled and must now be almost complete for the area in which we worked. It is likely that many further records would result from an equally thorough study of the southern end of the Park.

The total recorded flora of 580 species is broken down by life form and habitat in the following table:

	Closed- canopy forest	Broken and secondary forest	Swamp forest	Total
Trees 8m high	153	7	5	165
Shrubs and small trees 8m high	80	10	1	91
Large climbers reaching the forest canopy	76	2	5	83
Slender climbers in forest understorey	47	31	4	82
Epiphytes and hemi-epiphytes	45	1	0	46
Parasites	2	0	0	2
Free-living ground herbs	52	48	11	111
Total	455	99	26	580

(e) Identification of forest type

Hall & Swaine (J. Ecol. 64 NO 3 (1976) have classified the forest zone of Ghana into seven main types, defined by areas on a two-dimensional ordination diagram. It is possible to identify a forest stand from the mean species loadings on the axes used in the ordination. Using this method, a 25m x 25m plot near Camp III was identified as Moist Evergreen type, a 10m x 10m plot near Camp I in Miss Olson's colobus feeding area I proved to be Moist Semi-deciduous, though near the border with Moist Evergreen, and a plot at Chimp Camp was also Moist Semi-deciduous, and slightly 'drier' than Camp I.

E. Phytogeographical interest of the flora

Bia National Park straddles the transition zone between Moist Evergreen and Moist Semi-deciduous forest types, and thus contains species of a wide range of ecological preference.

Outlying populations of a few species typical of well-drained soils in wet evergreen forest were found at Bia in moist sites near streams: Lophira alata and Scaphopetalum anoenun are the best examples.

During the Hall and Swaine survey, Angylocalyx oligophyllus was found to be a good indicator of moist evergreen forest. At Bia it was found in the plot near Camp III, but not near Camp I.

Of special interest are the species typical of drier forest: one of the colobus feeding trees is a large Azelia africana, a tree which grows in savanna and in forest near the forest/savanna boundary, and whose occurrence at Bia was therefore quite unexpected. Near it, in Feeding Area I, are found two other 'dry' tree species - Christiana africana and Holoptelea grandis. Strychnos spinosa was found in Feeding Area 2.

The mystery was partly explained when we visited Apaketewa, a low dome of outcropping granite situated less than 2 miles from Camp I. In the shallow soil around the outcrop were several species typical of dry forest. Besides two large specimens of Azelia africana these included the trees Dennettia tripetala, Diospyros abyssinica, Elaeophorbia drupifera, Holarrhena floribunda and Markhania

tormentosa., the herbs Eulophidium maculatum, Haemanthus multiflorus, Mariscus dubius, Pellaea doniana, and the climbers Abrus pulchellus Grewia carpinifolia, Strophanthus hispidus and Vigna gracilis. From the species present this area of forest was identified as 'Southern Marginal type.

#### F. Notes on the Park

We were greatly impressed by the beauty, diversity and integrity of the Park vegetation, and feel that the Department of Game and Wildlife is to be greatly congratulated for their success in securing for posterity a forest of such outstanding value and interest.

The most immediate attraction for tourists would be Chimp Camp. We were much intrigued by the friendliness of the young animals and by the violent temper of the old male. The abundant traces of elephant showed that these animals must be common in the neighbourhood, though we were not fortunate enough to see any. We were shown the 'elephant pool' near Camp I, and it is clear that elephants must make frequent visits here, that might be observed in safety if a platform could be erected in a nearby tree. Another good place for observing elephants would be Apaketewa. A tree platform could command a good view over the low vegetation on the outcrop, and elephants clearly enjoy browsing on the soft herbs.

The need to maintain adequate gene pools is one of the strongest arguments for conservation. Timber companies will tend to remove preferentially the best - grown specimens of timber species, thus perhaps preventing the use of the best stocks in genetic improvement programmes. Thus a National Park which is well-stocked with commercial timber species may, in time to come, be an invaluable source of good genes to the forest industry. Of the 26 Class I and Class II timber species, all but 6 have been recorded from Bia National Park.

The Entandrophragma utile at Bia is especially fine and abundant.

We had a long discussion with Dr. Martin as to whether it would be desirable to link Camp I Chimy Camp by landrover track. We feel that a visitor with limited time to spare would find more value and enjoyment walking into the forest from Camp I than in walking along the linking path as he must now do. Dr. Martin feels that any benefit provided by a road desirable visitors would be more than offset by easier access for poachers and smugglers.

CHECK - LIST OF THE PLANTS OF BIA NATIONAL PARK  
PREPARED BY J. B. HALL UNIVERSITY OF GENEVA OCTOBER 1976.

ABBREVIATIONS

- M - trees 8m high  
N - shrubs and small trees  
8m high  
C - slender climber in understory  
L - large liane reaching canopy  
E - epiphyte or hemi - epiphyte  
P - parasite  
H - free-living ground herb  
F - primary closed-canopy forest  
B - broken secondary forest  
S - swamp forest

Names as in Flora of West Tropical Africa, or given in italics where name has changed.

FERRIDOPHYTES

- E F *Asplenium africanum*  
H F *A. variabile*

ADIANTHACEAE (7)

- H F *Adiantum vogelii*  
H S *Ceratopteris cornuta*  
H F *Pollaea doniana*  
H B *Pityrogramma Calomelanos*  
H F *Pteris acanthoneura*  
H F *P. atrovirens*  
H F *P. burtoni*

DAVALLIACEAE (5)

- E F *Arthropteris orientalis*  
C F *A. palisoti*  
E B *Nephrolepis biserrata*  
E F *N. undulata*  
E F *Oleandra distenta*

ASPIDIACEAE (5)

- H F *Ctenitis jenseniae*  
H F *C. pilosissima*  
H F *C. protensa*  
H F *Lastreopsis nigritiana*  
(*Ctenitis nigritiana*)  
H F *Tectaria angelicifolia*

DEENSTAEDETIACEAE (1)

- H S *Lonchitis reducta*

HYMENOPHYLLACEAE (2)

- E F *Trichomanes liberienne*  
E F *T. nettenii*

ASPLENIACEAE (2)



LOIARIOPSISIDACEAE (4)

- H F Bolbitis auriculata
- H F B. gemmifera
- C F Lonariopsis guineensis
- C F L. rossii

POLYPODIACEAE (5)

- E F Microgramma ovariensis
- E F Microsorium punctatum
- E F Phymatodes scolopendria
- E F Platycerium elephantotis
- E F P. stenaria

SCHIZAEACEAE (1)

- C B Lygodium smithianum

SELAGINELLACEAE (1)

- H S Selaginella molliceps

THELYPTERIDACEAE (2)

- H F Christella hilsenbergii  
(Cyclosorus quadrangularis)
- H B Pneumatopteris afra  
(Cyclosorus afer)

DICOTYLEDONS

ACANTHACEAE (9)

- H S Elytraria marginata
- H F Lankesteria brevior
- H S Lepidagathis hyscopifolia  
(L. alopecuroides p.p.)
- H B Phaulopsis ciliata  
(P. falcisepala)

- H F Pseuderanthemum tunicatum

- H S Ruellia primuloides  
(Endosiphon primuloides)

- H F Rungia guineensis  
(R. grandis p.p.)

- H S Staurogyne capitata

- H B Thunbergia cynanchifolia

ANTHURACEAE (5)

- H B Cyathula achyrantheoides

- H F C. pedicellata

- H B C. prostrata

ANACARDIACEAE (2)

- H F Antrocaryon micraster

- H F Lannea welwitschii

ANNONACEAE (20)

- C F Antabotrys oliganthus

- H F Cleistopholis patens

- H F Dennettia tripetala

- H F Enantia polycarpa

- H F Greenwayodendron oliveri  
(Polyalthia oliveri)

- H F Hexalobus crispiflorus

- N F Isolona dewevrei

- C F Monanthotaxis Laurentii  
(Popewia congensis)

- M S Monodora brevipes

- H F M. tenuifolia

- N F Neostenanthera gabonensis

- M F Pachypodanthium staudtii

- L F Uvaria anenoides

- M F Uvariastrum pierreanum

- N F Uvariedendron calophyllum

N F Uvariopsis globiflora  
C F Xylopia acutiflora  
H F X. ~~elliottii~~  
M F X. quintasii  
M F X. villosa

APOCYNACEAE (24)

L F Alafia barteri  
M F Alstonia boonei  
C F Baissea breviloba  
C F B. multiflora  
L F Farquharia elliptica  
M F Funtumia africana  
M F F. ~~elastica~~  
M F Holarrhena floribunda  
N F Hunteria cf. eburnea  
L F Landolphia calabarica  
L F L. dulcis  
L F L. sp.  
L F Motandra guineensis  
L F Oncinotis glabrata  
L F O. pontyi  
N F Picralina nitida  
N B Rauvolfia vomitoria  
L F Strophanthus gratus  
L F S. hispidus  
L F S. preussii  
N F Tabernaemontana chippii  
M F T. pachysiphon  
L F Vahadenia caillei  
H B Voacanga africana

ASCLEPIADACEAE (4)

(incl. PERIPLOCACEAE)

C B Dregea crinita  
C B Gongronema latifolium  
C B Parquetina nigrescens  
C B Secamone afzelii

BALANITACEAE (1)

M F Balanites wilsoniana

BALANOPHORACEAE (1)

P F Thonningia sanguinea

BIGNONIACEAE (2)

N F Markhamia tomentosa  
M F Stereospermum acuminatissimum

BOMBACACEAE (3)

M F Bombax brevicuspe  
M F B. buonopozense  
M F Ceiba pentandra

BORAGINACEAE (1)

M F Cordia platythyrsa

BURSERACEAE (2)

M F Canarium schweinfurthii  
M F Dacryodes klaineana

CACTACEAE (1)

E F Rhipsalis baccifera

CAESALPINIACEAE (18)

- M F Afzelia africana  
 M F A. bella  
 M F Amphimas pterocarpoides  
 M F Anthonotha fragrans  
 M F Berlinia tomentella  
 M F Bussea occidentalis  
 H B Cassia obtusifolia  
 N B C. podocarpa  
 M F Copaifera salikomda  
 M F Daniellia ogea  
 M F Dialium aubrevillei  
 M F D. dinklagei  
 M F Distemonanthus benthamianus  
 M F Erythrophleum ivorense  
 M F Gilbertiodendron limba  
 L F Griffonia simplicifolia  
 M F Guibourtia ehie  
 C B Mezoneuron benthamianum

CAPPARACEAE (3)

- M F Buchholzia coriacea  
 N F Euadenia eminens  
 C F Ritchiea capparoides

CELASTRACEAE (15)

- L F Campylostemon angolense  
 L F Hippocratea africana  
 L F H. dewildemaniana  
 L F H. pallens  
 L F H. macrophylla  
 L F H. mucronata  
 L F H. unguiculata  
 L F H. vignei  
 L F Salacia cornifolia  
 (S. erecta p.p.)

- L F S. erecta  
 C F S. howesii  
 L F S. ituriensis  
 (S. fimbrisepala)  
 L F S. pyriformis  
 L F S. togoica  
 N F S. uregaensis  
 (S. cf. lconensis)

CHRYSOBALANACEAE (2)

(ROSACEAE p. p.)

- M F Maranthes glabra  
 (Parinari glabra)  
 M F Parinari excelsa

COMBRETACEAE (5)

- L F Combretum bipindense  
 C F C. dolichopetalum  
 L F C. homalioides  
 C F C. mucronatum  
 (C. snoothmannii)  
 M F Terminalia superba

COMPOSITAE (7)

- H S Adenostemma perrottetii  
 H B Bidens pilosa  
 H B Cenyzia sumatrensis  
 (Erigeron floribundus)  
 H B Eupatorium microstenon  
 C S Mikania cordata  
 H B Spilanthes filicaulis  
 H B Synedrella nodiflora

CONNARACEAE (9)

- L F *Agelaea pilosa*  
 L F *A. trifolia*  
 L F *Byrsocarpus coccineus*  
 L F *Castanola paradoxa*  
 C F *Cnestis ferruginea*  
 L F *Connarus africanus*  
 L F *Jaundea pinnata*  
 L F *Manotes longiflora*  
 L F *Santaloides afzelii*

CONVOLVULACEAE (7)

- L F *Calycobolus africanus*  
 L F *C. heudelotii*  
 C B *Ipomoea mauritiana*  
 C B *I. ochracea*  
 L F *Neuropeltis acuminata*  
 L F *N. prevosteoides*  
 C F *N. velutina*

CUCURBITACEAE (8)

- C B *Coccinia barteri*  
 C B *C. keayana*  
 C S *Lagenaria breviflora*  
 C S *Momordica angustisepala*  
 C F *M. cabraei*  
 C F *Raphidiocystis chrysocoma*  
 C S *Zehneria capillacea*  
 C B *Z. keayana*

DICHAPETALACEAE (4)

- L F *Dichapetalum crassifolium*  
 L F *D. heudelotii*  
 C F *D. pallidum*  
 C F *D. toxicarium*

EBENACEAE (9)

- M F *Diospyros abyssinica*  
 M F *D. cooperi*  
 M F *D. ferrea*  
 M F *D. heudelotii*  
 M F *D. kamerunensis*  
 M F *D. mannii*  
 N F *D. monbuttensis*  
 N F *D. soubreana*  
 M F *D. viridicans*

ERYTHROXYLACEAE (1)

- M F *Erythroxylum mannii*

EUPHORBIACEAE (25)

- N F *Antidesma laciniatum*  
 N B *Bridelia atroviridis*  
 M S *B. grandis*  
 N B *B. micrantha*  
 N B *Claoxylon hexandrum*  
 M F *Discoglycrema caloneura*  
 M F *Drypetes aylmeri*  
 N F *D. chevalieri*  
 N F *D. gilgiana*  
 M F *Elaeophorbia drupifera*  
 N F *Erythrocoeca anomala*  
 M B *Macaranga barteri*  
 M B *M. spinosa*  
 N F *Maesobotrya barteri*  
 N F *Mallotus oppositifolius*  
 L F *Manniophyton fulvum*  
 N F *Mareya micrantha*  
 M B *Phyllanthus discoideus*  
 H B *P. urinaria*  
 M f *Ricinodendron heudelotii*

- M S Spondianthus preussii
- N B Tetrorchidium dilyrostenos
- C F Tragia cf. mildbraediana
- M F Uapaca esculenta
- M F U. guineensis

IRVINGIACEAE (2)

- M F Irvingia gabonensis
- M F Klainedoxa gabonensis

IRONIACEAE (1)

- M F Ochthocosmus africanus

FLACOURTIACEAE (7)

(incl. SAMYDACEAE)

- M F Casearia cf. barteri
- M F Doryalis zenkeri
- M F Homalium letestui
- M F H. stipulaceum  
(H. neurophyllum)
- N F Lindackeria dentata
- M F Ophiobotrys zenkeri
- M F Scottellia klaineana

LABIATAE (2)

- H B Platostema africanum
- H B Solenostemon monstachyus

LAURACEAE (1)

- M F Beilschmiedia mannii

LECYTHIDACEAE (1)

- M F Napoleona leonensis

(incl. S. chevalieri and Lecyniacea)

GUTTIFERAE (2)

(incl. HYPERICACEAE)

- M F Garcinia kola
- M F Marmecia africana

LEEACEAE (1)

- N F Leea guineensis

LINACEAE (2)

- L F Hugonia planchonii
- L F H. rufipilis

HERNANDIACEAE (1)

- L F Illigona pentaphylla

ICACINACEAE (7)

- C F Chlanydocarya macrocarpa
- C F C. thomsoniana
- C F Icacinia mannii
- C F Pyrenacantha acuminata
- C F P. klaineana
- C F P. vogeliana
- L F Rhabdophora preussii

LOGANIACEAE (10)

- M B Anthocleista djalonensis
- L F Strychnos aculeata
- L F S. afzelii
- L F S. asterantha
- L F S. floribunda
- L F S. johnsonii
- L F S. soubrensis  
(S. ngouniensis p.p.)

N F *S. spinosa*  
L F *S. splendens*  
L F *S. aff. usambarensis*

LORANTHACEAE (1)

P F *Tapinanthus* sp.

MALPIGHIACEAE (2)

L F *Acridocarpus smeatmannii*  
L F *Flabellaria paniculata*

MALVACEAE (3)

H B *Hibiscus surattensis*  
H B *Urena lobata*  
H B *Wissadula amplissima*

MEDUSANDRACEAE (1)

M F *Soyauxia velutina*

MELASTOMATACEAE (6)

H B *Dissotis rotundifolia*  
N F *Memecylon afzelii*  
M F *M. lateriflorum*  
N F *M. membranifolium*  
M F *M. normandii*  
H B *Tristerma coronatum*

MELIACEAE (14)

M F *Carapa procera*  
M F *Entandrophragma angolense*  
M F *E. candollei*

M F *E. cylindricum*  
M F *E. utile*  
M F *Guarea cedrata*  
M F *Khaya anthotheca*  
M F *K. ivorensis*  
M F *Lovoa trichilioides*  
M F *Trichilia martineaui*  
M F *T. negalantha*  
M F *T. monadelpha*  
M F *T. prieureana*  
M F *T. tessmannii (T. lanata)*

MELIANTHACEAE (1)

N F *Bersana abyssinica*

MENISPERMACEAE (6)

C B *Dioscoreophyllum cumminsii*  
C B *Rhigiocarya racenifera*  
N F *Sphenocentrum jollyanum*  
C F *Stephania dinklagei*  
L F *Tiliacora dinklagei*  
C F *Triclisia patens*

MIMOSACEAE (15)

L F *Acacia kamerunensis*  
(*A. pennata* p.p.)  
L F *A. pentagona*  
(*A. pennata* p.p.)  
M F *Albizia adianthifolia*  
M F *A. ferruginea*  
M F *A. glaberrima*  
M F *A. zygia*

M F Aubrevillea platycarpa  
M F Calpocalyx brevibracteatus  
L F Entada scelerata  
M F Parkia bicolor  
M F Pentaclethra macrophylla  
M F Piptadeniastrum africanum  
M F Samanea dinklagei  
M F Tetrapleura tetraptera  
H F Xylia evansii

MORACEAE (16)

M F Antiaris africana  
M F A. welwitschii  
M F Chlorophora excelsa  
M F C. regia  
E F Ficus conraui  
E F F. eriobotryoides  
N B F. exasperata  
M F F. goliath  
E F F. lyrata  
M F F. macrocarpa  
E F F. sagittifolia  
E F F. umbellata  
M F Morus mesozygia  
M B Musanga cecropioides  
M F Myrianthus arboreus  
M F M. libericus

MYRISTICACEAE (1)

M F Pycnanthus angolensis

MYRTACEAE (1)

N F Eugenia obanensis

OCCURRANCES (1)

H F Lophira alata

OLACACEAE (4)

N F Heisteria parvifolia  
N F Olax garibecola  
M F Ongokea gore  
M F Strombosia glaucescens

PANDACEAE (2)

N F Microdesmis puberula  
M F Panda oleosa

PAPILIONACEAE (23)

C B Abrus pulchellus  
N F Aganope leucobotrya  
(Ostryoderris leucobotrya)  
L F Airyrantha schweinfurthii  
(Baphiastrum confusum)  
N F Angylocalyx oligophyllus  
N F Baphia nitida  
M F B. pubescens  
L F Bowringia mildbraedii  
L F Dalbergia afzeliana  
L F D. oblongifolia  
L F D. saxatilis  
L F Dalbergiella welwitschii  
H B Desmodium adscendens  
H F Erythrina cf. vogelii  
L F Leptoderris brachyptera  
L F L. fasciculata  
L S Millettia chrysophylla  
N F M. rhodantha  
N B M. zehiana

N S *Ornocarpum megalophyllum*  
L F *Platysepalum hirsutum*  
C F *Rhynchosia brunnea*  
C B *Vigna gracilis*  
C B *V. multiflora*

PASSIFLORACEAE (3)

L B *Adenia cissampeloides*  
C B *A. nannii*  
(*A. tenuispira*)  
C F *Crossostemma laurifolium*

PIPERACEAE (2)

C F *Piper guineense*  
H B *P. umbellatum*

POLYGALACAE (1)

N F *Carpolobia lutea*

POLYGONACEAE (1)

C F *Afrobrunnichia erecta*

RHAMNACEAE (2)

C B *Gouania longipetala*  
L F *Ventilago africana*

RHIZOPHORACEAE (1)

M F *Anopyxis klaineana*

RUBIACEAE (53)

M F *Aidia genipiflora*  
N F *Bertiera bracteolata*  
C F *Canthium horizontale*

C F *C. setosum*  
M B *C. subcordatum*  
N F *Cephaelis peduncularis*  
N F *Chassalia corallifera*  
N F *Coffea ebracteolata*  
N F *C. rupestris*  
N F *C. spathicalyx*  
M F *Corynanthe pachyceras*  
N F *Craterispermum caudatum*  
M F *C. cerinanthum*  
L F *Crenaspora triflora*  
N F *Dictyandra argorescens*  
N F *Euclinia longiflora*  
H F *Geophila obvallata*  
H F *G. ropens*  
H F *G. rotundifolia*  
N F *Ixora nimbana*  
C F *Leptactina densiflora*  
N F *Massularia acuminata*  
M S *Nitragyna ciliata*  
L F *Norinda norindoides*  
C B *Hussaenda chippii*  
M F *Nauclea diderrichii*  
H B *Oldenlandia lancifolia*  
N F *Oxyanthus formosus*  
N F *Pavetta owariensis*  
M F *Polysphaeria macrophylla*  
H F *Psychotria kitsoni*  
H F *Psychotria kitsoni*  
N F *P. sciadephora*  
M F *Rothmannia hispida*  
N F *R. longiflora*  
N F *R. whittieldii*  
C F *Rutidea dupuisii*



- C F R. membranacea
- C F R. parviflora
- N F Rytigynia affinis
- C F R. canthioides
- C B Sabicea calycina
- C B S. ferruginea
- C B S. geophiloides
- H F Tarenna cf. laurentii
- N F Tricalysia biafrana
- N F T. discolor
- N F T. elliotii
- N F T. macrophylla
- N F T. pallens
- H F Trichostachys aurea
- L B Uncaria africana
- N F Vanguireopsis sp. aff.  
                  discolor
- H B Virectaria procumbens

RUTACEAE (5)

- N F Aeglopsis chevalieri
- N F Clausena anisata
- C F Fagara mezoneurospinosa

(f. sp. A)

- M f F. parvifoliola
- M F F. tessmannii
- (F. melanorhachis)

AFINDACEAE (9)

- H F Allophylus sp. aff. africanus
- N F Aporrhiza urophylla

- H F Blighia sapida
- H F B. unijugata
- N F Chytanthus atrovioleaceus
- H F C. carnosus (C. villiger)
- H F Lecaniodiscus cupanioides
- H F Majidea fosteri
- N F Pancovia sessiliflora

SAPOTACEAE (7)

- H F Aningeria robusta
- M F Brevice leptosperma
- H F Chrysophyllum beguei
- H F C. giganteum
- H F C. pruniforme
- H F C. subnudum
- H F Tieghenella heckelii

SCROPHULARIACEAE (2)

- H B Lindernia diffusa
- H B Torenia thoursii

SCYTOPETALACEAE (1)

- M F Scytopetalum tieghenii

CHIMBORUBACEAE (1)

- M F Hannoa kleiniana

STERCULIACEAE (14)

- H F Cola caricifolia
- M F C. gigantea
- H F C. lateritia

- M F C. nitida
- M F Mansonia altissima
- H B Melochia melissifolia
- M F Nesogordonia papaverifera
- M F Pterygota bequaertii
- M F P. macrocarpa
- N F Scaphopetalum anoenum
- M F Sterculia oblonga
- M F S. rhinopetala
- M F S. tragacantha
- M F Triplochiton scleroxylon

THYMELAEACEAE (2)

- C F Craterosiphon scandens
- N F Dicranolepis persei

TILIACEAE (3)

- N F Christian africana
- N F Desplatsia chrysochloa
- M F D. douvrei
- M F D. subcarypa
- N F Glyphaea brevis
- L F Grewia cordifolia
- L F G. hookerana
- L F G. malaccocarpa

ULMACEAE (5)

- M F Celtis adolfi-friderici
- H F C. mildbraedii
- M F C. zenkeri
- M F Holoptelea grandis
- N B Trema orientalis  
(T. occidentalis)

URTIACEAE (4)

- H B Laportea aestuans  
(Fleurya aestuans)
- H B Pouzolzia guineensis
- C B Urera keayi (U. repens p.p.)
- C B U. robusta

VERBENACEAE (4)

- C F Clerodendrum capitatum
- C F C. volubile
- M F Vitex ferruginea
- N F V. grandifolia

VIOLACEAE (2)

- N F Rinorea ilicifolia
- N F R. oblongifolia

VITACEAE (3)

- C B Ampelocissus gracilipes
- C F Cissus aralioides
- C F C. producta

MONOCOTYLEDONS

AGAVACEAE (6)

- N F Dracaena camerooniana
- N F D. elliotii
- N F D. fragrans
- N F D. porrettotii
- M F D. phrynoides
- N F D. surculosa

AMARYLLIDACEAE (2)

- H F Haenanthus longitubus
- H B H. multiflorus

ARACEAE (8)

- H F Amorphophallus johnsonii
- H F Anchomanes difformis
- E F Cercestis afzelii
- E F C. stignaticus
- E F Culcasia angolensis
- E F C. parviflora
- E F C. seandens
- E F C. striolata

COMMELINACEAE (11)

- H B Aneilena beniniense
- H S A. ovato oblongum  
(A. umbrosump.p.)
- H F Coleotrype laurentii
- H F Commelina capitata
- H B C. congesta
- H F Palisota barberi
- H F P. bracteosa
- H B P. hirsuta
- H B Pollia condensata
- H F Polyspatha paniculata
- H F Stanfieldiella imperforata

CYPERACEAE (3)

- H F Hypolytrum sp.
- H B Mariscus dubius
- C B Scleria boivinii

DIOSCOREACEAE (4)

- C B Dioscorea alata
- C B D. minutiflora
- C B D. praehensilis
- C B D. smilacifolia

GRAMINEAE (9)

- H B Centotheca lappacea
- H F Commelinidium gabunense
- H B Isachne buettneri
- H F Leptaspis uchleata
- H F Olyra latifolia
- H B Oplismenus sp.
- H B Panicum laxum
- H B Paspalum conjugatum
- H F Streptogyna crinita

LILIACEAE (3)

- H F Chlorophytum macrophyllum
- H F C. inornatum
- H F C. orchidastrum

MARANTACEAE (10)

- H F Acanidia conferta
- H S Halopegia azurea
- C F Hypselodelphys violacea
- H F Marantochloa congensis
- H B M. cuspidata
- H B M. filipes
- H B M. leucantha
- H F Megaphrynium macrostachyum
- H F Sarcophrynium brachystachys
- H B Thaumtococcus daniellii

ORCHIDACEAE (25)

- E F *Aerangis biloba*  
E F *Ancistrohynchus cephalotes*  
E F *A. clandestinus*  
E F *Angraecum distichum*  
E F *A. subulatum*  
E F *Bolusiella inbricata*  
E F *Bulbophyllum falcatum*  
E F *B. maximum*  
E F *B. phaeopogon*  
E F *B. zenkeranum*  
E F *Calypstrochilum emarginatum*  
H F *Cerynosa*  
E F *Cyrtorchis aschersonii*  
E F *C. nonteiroae*  
E F *Diaphananthe bidens*  
E F *D. curvata*  
E F *D. laxiflora*  
E F *Eulophia gracilis*  
H F *Eulophidium maculatum*  
E F *Genyorchis punila*  
E F *Graphorkis lurida*  
E F *Polystachya golungensis*  
E F *Rangaeris rhipsalisocia*  
C F *Vanilla africana*  
C F *V. ranosa*

PALMAE (6)

- L S *Ancistrophyllum opacum*  
L S *A. secundiflorum*  
L S *Calanus deeratus*  
M B *Elaeis guineensis*

- L S *Erenospatha macrocarpa*  
M S *Raphia Khookeri*

ZINGIBRACEAE (8)

- H B *Afranomonum chrysanthum*  
H F *A. cordifolium*  
H B *A. geocarpum*  
H F *A. nelegueta*  
H F *A. sulcatum*  
H B *Costus afer*  
H F *C. deistelii*  
H F *C. engleranus*

GRAND TOTAL: 580 Species