

► Sampling Design Field Protocol for NFI in Liberia

May 2018

Forestry Development Authority of Liberia
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1. Introduction

This manual is being prepared to support the future implementation of a National Forest Inventory (NFI) in Liberia as part of the Technical Assistance (TA) Agreement entitled “**The Design and Implementation of a MRV Framework for REDD+ and Development of FREL/FRL for REDD+ in Liberia**”; which will be implemented by the Forestry Development Authority (FDA) with technical assistance from FAO. In particular, **Output 1** of the TA concerns the implementation of a national forest inventory, to provide Liberia with emission factors estimates for REDD+ reporting and also information to support sustainable forest management and/or to improve forest management.

An NFI is a key component of a Measurement, Reporting and Verification (MRV) system which is a requirement of the United Nations Framework Convention on Climate Change (UNFCCC) for a national forest monitoring system in order to assess anthropogenic forest-related greenhouse gas emissions by sources and removals by sinks. The results of the NFI will be used to support national institutions to address issues of REDD+ and Green House Gas (GHG) international reporting obligations; as well as review policy processes to support sustainable forest management at national and provincial levels.

Ideally, NFI designs for REDD+ purposes should cover all 5 carbon pools as required by UNFCCC (Above ground, below ground, deadwood, litter and soil organic matter), the proposed inventory will cover only the main carbon pools (due to constraints of cost and time). Additional carbon pools could be included progressively.

The purpose of this field manual is to provide field inventory staff with structured information on the inventory techniques that will lead to the achievement of the intended outputs. This manual includes description of the sampling design and fieldwork instructions used in the data collection of biophysical attributes on sample plots. The manual also covers the measurement practices, list of equipment, field forms and data collection procedures; and is based on experiences of forest inventories conducted in Liberia in the past, while taking into account experiences from other NFI projects supported by FAO.

2. Brief Review of Past Inventory Designs used in Liberia

2.1. NFI in 1968 (Sachtler, 1968)

The sampling technique

The sampling technique implemented used blocks of 8 sq.km and within each of them two tracts (or transects) were selected at random. Each tract consisted of 40 circular nested sample plots which were arranged sequentially one behind the other, separated by a distance of 40 m, and either in a straight line (transect) or in a square (tract). The two

nested circular¹ plots were considered as recording units: the first had a radius of 12.63 m (area of 500 m²) within which trees 40 cm dbh and above were measured; and a second or nested plot had radius of 5.64m (area of 100 m²), in which trees of diameters between 10 cm and 39.9 cm were measured. Each tree within the plot was identified, its diameter at breast height (1.3 m above ground level) or at a point 40 cm above the buttress was measured with a tape or with calipers, and the number of usable or unusable 5 m logs estimated.

Sampling Unit: The Tract/cluster

The tract comprised an enumeration area of 40 x 500 m² = 2 hectares. In the block tract design it corresponded to an optimum daily work load of one enumerator/crew team. The side of the square tract was of length 10 x 40 = 400 m (Fig. 1). The square form had the advantage that at the end of his work the enumerator was back to the starting point, thus saving walking time. This was an important factor under the difficult working conditions. Additionally, the four changes of working direction avoids the false representation of certain strata which might arise because of topographical trends.

Two procedures were used to distribute tracts within the blocks:

a) The camp-unit system used particularly in the Grebo National Forest (8 and 9 tracts in Gio and Gbi National Forests). The sampling fraction 6 tracts were arranged in a narrow circle forming a camp. The distance between the tracts was small (maximum 2 km), but between the camps there was a distance of 5 km (see map below). With this design

the variation between the camps was much greater than that between the tracts within one camp. Therefore only the camp (but not the tracts) counted as a statistical unit.

b) In the block-tract system the whole area was divided in blocks of equal size and within each of these blocks 2 tracts were selected at random. It is a restricted random distribution of transects with equal sampling fraction in all blocks. Such a uniform distribution indicates best the stand differences. Also, by analysis of variance, the variation within blocks can be considerably reduced.

The work efficiency was 1.5 tracts per day for the camp-unit system, and 1.2 tracts per day for the block-tract system.

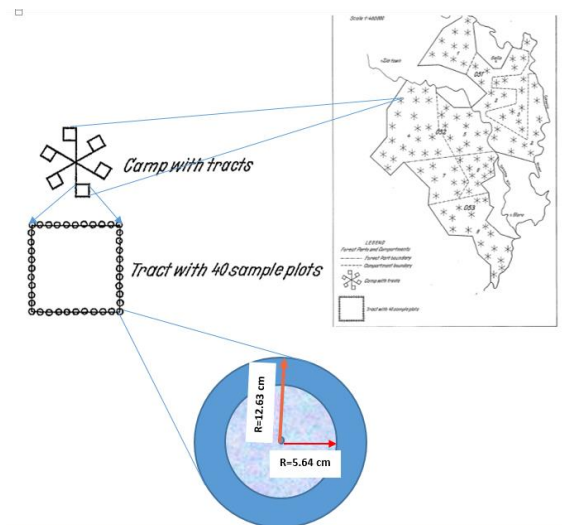


Figure 1: Sketch diagram showing plot arrangement within tracts and tracts within camps (Camp unit system) in the 1968 NFI.

2.2. Methodology of the Forest Inventory of the Indigenous Forests in Liberia (Hess, 2006)

¹ The circular plot has the following merits: - exact definition of the centre, exact and easy definition of the border trees, and easy correction of the radius on slopes (radius extension). The 500 sq.m size of the circular sample plot with a radius of 12.63 m proved

very successful, in particular it was easy to keep the control over the plot even in dense stands, which is not the case with larger plots.

The sampling methodology used a 10km x 10km grid (UTM 29 grid) on the 2004 forest cover map with 5 strata: Agricultural area with small forest presence, Mixed agricultural and forest area, Agriculture degraded forests, Open dense forests, and Closed dense forests.

Sampling Unit: The Cluster/tract

Each field sampling unit consisted of a **cluster** of three circular plots in a T arrangement (Fig. 2): one plot to the south (at the point of intersection of the grid), and the other two located at about 112 m to the north west and north east respectively of the first, and at 100 m from each other (see sketch diagram below).

Each circular plot consisted of a main plot of radius 12 m and 3 nested sub-plots of 6 m, 3 m, and 1 m radii respectively (see Fig. 3).

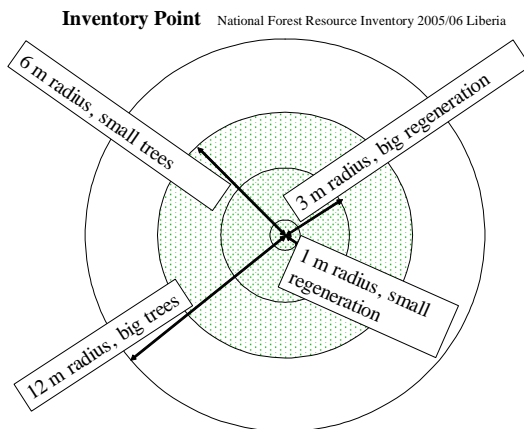


Figure 2: Subplot arrangement within cluster primary units (PSU's) (Camp unit system) in the 2006 Forest Inventory of the Indigenous Forests in Liberia.

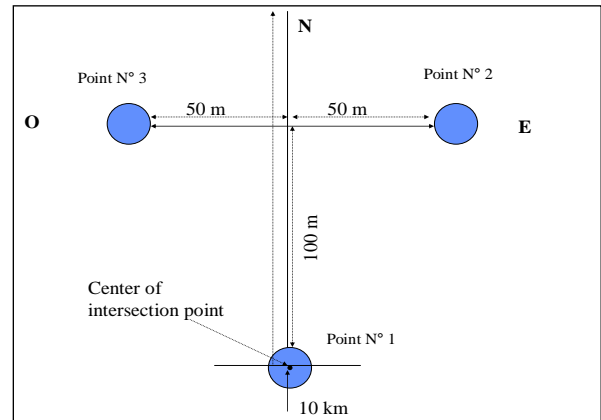


Figure 3: Subplots arrangement as a secondary sampling unit (SSU) within a cluster plot (Camp unit system) in the 2006 Forest Inventory of the Indigenous Forests in Liberia.

Within the main sub-plot (radius=12 m) all trees with dbh > 40 cm (Big trees) were measured; while trees with diameters between 10 cm and 39.9 cm were measured within the 6 m radius. Regeneration was assessed on a 1 m radius (Small regeneration) and the 3 m radius sub-plot (Big regeneration). For the measurement of diameter at breast height (1.3 m above ground level or by trees with buttress 40cm above the buttress) a diameter tape, and for the total height, stem height and the slope a Suunto clinometer were used, respectively.

Measurements within subplots, then, were taken as follows (see Table 1):

- Small regeneration of 50 to 130 cm height:
- Big regeneration of 130 cm height to 9.9 cm DBH
- Small trees of DBH 10 to 39.9 cm.
- Big trees of DBH 40 cm and above.

The sampling intensity was planned with the assumption of a coefficient of variation of 90% for stocking log volume, with a standard error of of $\pm 10\%$ ($t=1$); giving a total of 81 clusters (sampling units) per stratum ($n=(90/10)^2 = 81$) or 405 clusters

in the 5 strata. However due to inaccessibility, damaged roads, damaged bridges or in many cases no roads at all, only 167 sampling clusters could be sampled in the planned period, and distributed as below. Results of mean volume estimates and standard deviations are shown in the table below.

Table 1: Number of clusters, mean aboveground biomass and its standard deviation for the main strata in Hess (2006).

Code	Stratum	Number of clusters	Mean (m ³ /ha)	Standard Deviation (m ³ /ha)
2.2	Agricultural area with small forest presence	24	45.0	36.
2.3	Mixed agricultural and forest area	16	83.0	79.
2	All Agricultural Areas with Forest	40	60.0	59.
3.1	Agriculture degraded forests	18	157.0	155.
3.2	Open dense forests	42	206.0	90.
3.3	Closed dense forests	67	213.0	106.
3	All Forest Dominated Strata	127	203.0	111.
Total		167	169.0	118.

3. Objectives of Current National Forest Inventory

3.1 Objectives

The main purpose of the National Forest Inventory is to continuously provide information about the state of forests.

The targeted outputs of the National Forest Inventory are as listed:

- i. Stems per hectare and total number of stems
- ii. Basal area per hectare and total Basal area.
- iii. Volume per hectare and total volume
- iv. Biomass per hectare and total biomass
- v. Carbon per hectare and total above ground carbon
- vi. Regeneration
- vii. Forest stand structure
- viii. Distribution of plant species
- ix. Biological diversity (using indicators like species richness indices, species diversity indices, ecological similarity/dissimilarity indices)
- x. Coarse and fine woody debris (CWD, FWD) per hectare and total CWD

- xi. Extent and types of forest disturbance
- xii. Land use information
- xiii. Health of forests (pests and diseases)
- xiv. Tree Canopy Cover percent, Forest Cover, Forest Type.
- xv. Forest use.

These data will be referred for monitoring the trends of change in forests over time.

The data collected can answer questions about the status and trend of forest ecosystems, distribution of plant species and their relationship to the environment, changes in forest structure and productivity resulting from disturbance, and improved prediction of forest growth and development on different sites and in response to management.

Such information and data will assist the government and policy makers in developing appropriate policy-decisions aimed at managing the forest resources sustainably. It can be used by natural resource managers and organizations for developing strategic implementation plans. Scientific community, researchers, and academia will also benefit from such data and information.

3.2. Units of measurement

The National Forest Inventory of Liberia will use Metric System of units for measurements and estimation.

4. Sampling design of current NFI

4.1. Sampling design

An optimization to minimize costs (in units of time) took place to achieve an assumable allowable error while keeping the field plot activities to a minimum.

Due to the stratified nature of previous inventories and the lack of a stable stratification, per ha. Above ground biomass data from Avitabile et al. (2016) were used to infer standard deviations in biomass per ha for the country. Most parameters for unit costs of time were taken from a previous study in tropical forests of Central Africa (Sylla and Picard, 2005), like walking speeds, delineation and measurement times. Others, such a driving speed and community awareness were inferred. Overall the optimization process provided an optimal number of cluster plots to measure (285), the number of subplots per cluster plot (5), the radius of the subplot (18 m), and the overall time spent in the field campaign by 6 teams (22.5 weeks) (Fig. 4).

The resulting number of cluster plots for the National Forest Inventory will use a systematic sampling design. The total of 285 sampling cluster plots will be laid on a hexagonal grid at 0.179 degrees distance (approx. 19.9 km). The sampling plots are not limited to forest area but will cover the whole country (Fig. 5). In the previous 2006 rapid inventory, inaccessibility of cluster plots reached 59%. In this exercise, a maximum of around 30% inaccessibility will be considered. Hence, the final design will incorporate a safe number for the number of cluster plots (285), while maintaining 5 subplots each of 18m radius. The NFI will constitute a land inventory with specific concentration on forestry but also have considerable information about agricultural allied parameters. This is also to allow monitoring of changes over time.

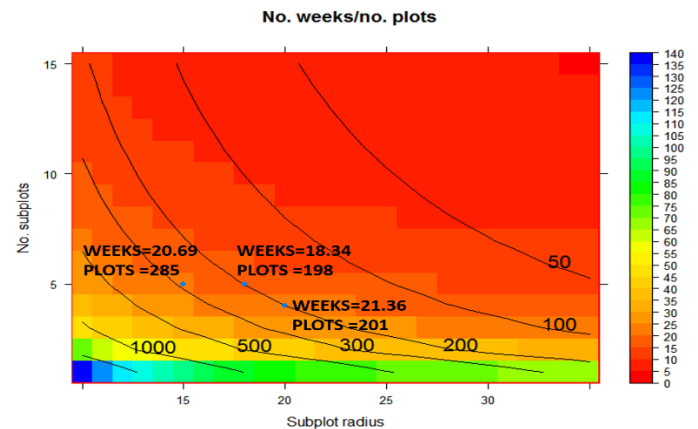


Figure 5: Sampling design optimization. A total of 285 cluster plots with five 18 m radius circular subplots to be sampled in around 22.5 weeks have been selected. Color gradient depicts cost (weeks for a total crew of 6 teams, around 5-6 persons per team). Contour plots indicate number of cluster plots.

This design yields sampling intensity of 0.001 % at 10 percent Margin of Error at 90 percent Confidence Interval.

4.2. Inventory sampling intensity: a paneled approach

The cluster plot arrangement will be laid systematically across a hexagonal grid showing equal distances of 19.8 km between the 6 neighboring cluster plots (Fig. 6).

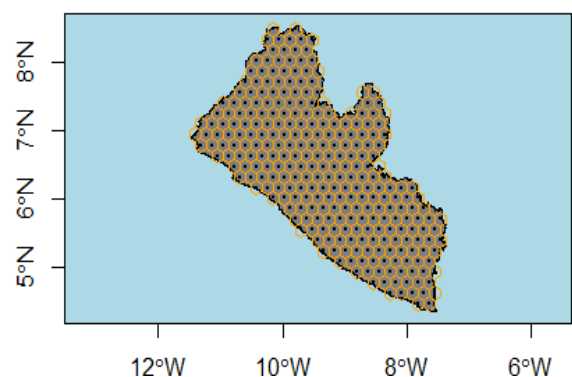


Figure 6: Hexagonal grid showing the locations of the 285 cluster plot centers over Liberia.

Given the time constraints, associated to the presence of the wet season in the middle of the year, a two-panel approach was proposed. The first panel, starting from the northernmost, westernmost cluster plot, will be done during the months of April-May-first half of June to avoid the early rains in the southeast. Once this is finished, crews will continue towards the center and south-east following a strategic, rainfall-avoiding survey approach for the second panel, from the second half of October until the end of December. The division in two panels ensures that preliminary data from the first panel will be ready to be analyzed in the summer in order to review and potentially modify the design if necessary.

In any case, the NFI coordinator shall strategically play with the timings as regard to road access and plot complexity (i.e., usually forest plots are more complex to measure than crop land). A combination of the paneled approach with an approach based on tree cover (or land use) would be sensible, and modifiable week by week, according to accessibility and predicted rainfall season. A good tree cover map was provided previously by Geoville (2015), and is shown in Fig. 7.

4.3. Cluster plot design

Each inventory plot (primary sampling unit) consists of a cluster of 5 circular plots on a backwards L-shaped transect spaced at 60 m (distance taken from the literature on tropical forest plots, to ensure relative independence between subplots while avoiding topographic or climatic correlations typical appearing at larger distances) apart (Fig. 7).

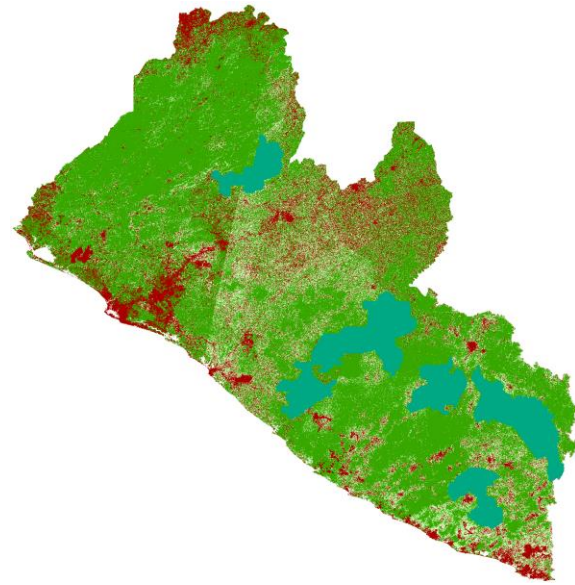


Figure 7: Geoville's 2015 forest cover map, overlapped with a forest management concession map.

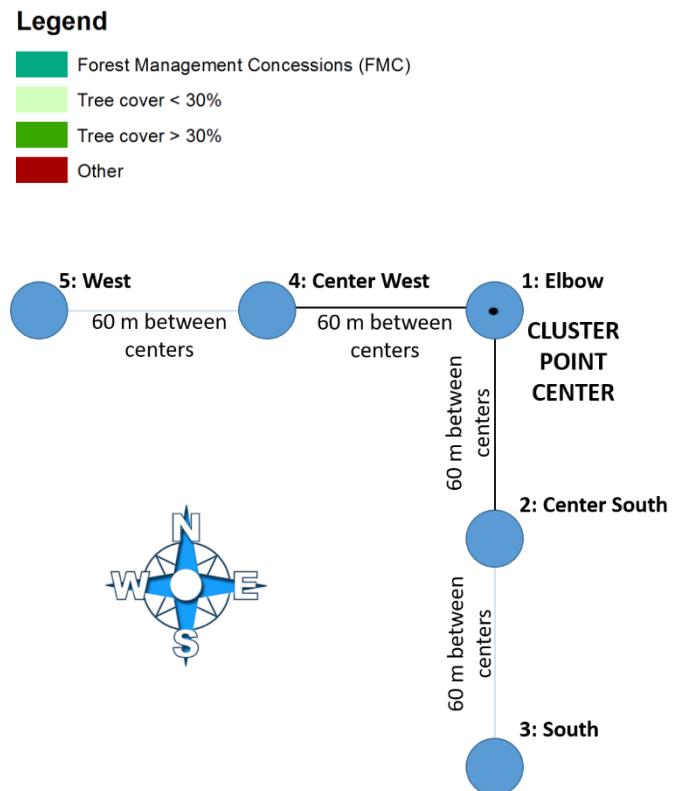


Figure 8: Plot (SSU) arrangement within a cluster plot (PSU). Plots are separated 60 m from each other.

Crews will start on plot no. 1 (where the cluster point center is located) and continue in numerical order: first southwards to 2 and 3. Then back to no.

1 and then westwards to 4 and 5, always measuring 60 m from the cluster center to any of the plots.

Within each circular plot, three nested circular subplots will be located. These will configure the sampling of trees according to their diameters. The external 18 m radius subplot will be used to collecting data from trees with dbh ≥ 40 cm (Fig. 9). The middle 6 m radius circle will measure those trees larger or equal than 10 and less or equal than 39.9 cm dbh. Finally, a 2 m radius inner circle will be used to measure with dbh larger or equal than 2 and less or equal than 9.9 cm, as well as shrub stems larger or equal than 2 cm dbh (Fig. 9). Regeneration of trees < 1.3 m height will also be counted within this 2 m. radius nested circle. In an East direction a 5 m transect (from 2 to 7 m from the center of the plot) will be used to measure fine woody debris (diameters of intersection between 2 and 9.9 cm) and the eastwards radius of 18 m or coarse woody debris (any dead wood piece larger or equal to 10 cm).

Measurement per sampling unit level are summarized in Table 2.

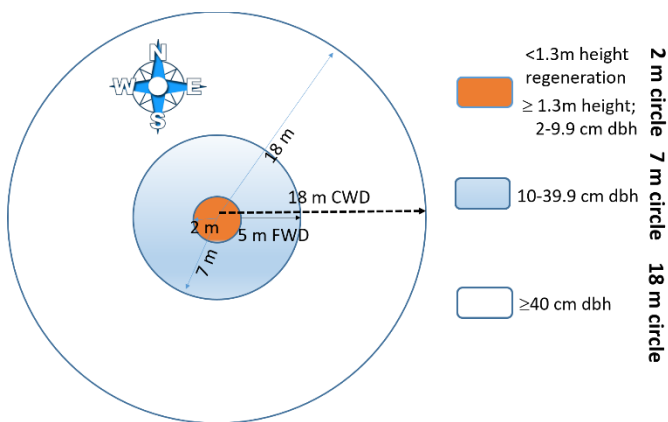


Figure 9: Nested subplot (SSU) configuration and tree measurements taken in each nested circle.

Table 2: Measures in each sampling unit and its subdivisions

Unit	Shape	Size	Number	Tree/shrub/ piece size	Field form
PSU (cluster plot)	Backward "L"		1	NA	F1
SSU(plot)	Circle	18 m radius	5/PSU	40 cm \leq dbh	F2-F9,F13
Nest 1	Circle	7 m radius	1/SSU	10 cm \leq dbh < 39.9 cm	F13
Nest 2	Circle	2 m radius	1/SSU	2 cm \leq dbh \leq 9.9 cm	F13
Regeneration	Circle	2 m radius	1/SSU	<1.3 m height	F12
CWD transect	Line	18 m	1/SSU	10 cm \leq d. intersection	F11
FWD transect	Line	5 m	1/SSU	2 cm \leq d. intersection \leq 9.9 cm	F10

5. Quality assurance and quality control (QA/QC)

5.1. QA/QC for data entry and archiving

QA/QC is necessary to ensure that data is collected in accordance with standard field protocols or operations procedures and are scientifically sound and reliable. The Forest Development Authority/REDD+ Coordination Unit will ensure this by undertaking training of the inventory field crews on the use of field protocols, proper use of field equipment and data recording. Continuous technical backstopping will also be provided to the NFI crews to improve the quality of data. The control team will undertake cross checking of **at least 10 to 15 percent** (approx. 15 cluster plots) of the total sample plots enumerated by the field crews, in order to ensure uniform and consistent interpretation and application of field instructions

among the field crews. Continuous improvement of the inventory process will be achieved by identifying and documenting errors and sources of the variability that could be detrimental to the quality of inventory results. The QA/QC team will be composed of experienced forest inventory staff/scientists and will be independent from field crew staff.

Quality assurance and control will be ensured through the following measures:

1. By Ensuing Reliable Field Measurements

- a) All the staff must have completed Field Inventory training program prior to field data collection.
- b) All field measurements shall be checked by a qualified person (the Field Team Leader) in cooperation with the field team and correct any errors in techniques.

2. By Verification of Collected Field Data

- a) At least **5 to 10%** (15-29) of the cluster plots shall be independently re-measured by the QA/QC measurement team.
- b) Compare the new field data collected with the original data. Any errors discovered shall be expressed as an estimate of measurement error.

3. Through Proper Data Entry and Archiving

Proper data entry into the data management system (e.g. Excel spreadsheets or Access database) is an important prerequisite for reliable carbon estimates. The use of Open Foris Collect and OF Collect Mobile (FAO-hosted tools) can almost eliminate this procedure. However, the use of paper forms is not only feasible, but often

recommendable. In case paper forms are used, the following measures should be adhered to:

- a) Hand over the data collected at the end for each day's work to the person in charge of data management.
- b) Enter the data into the appropriate spreadsheet/database, so that it can be checked for any errors and rectified, in time (immediately).
- c) At least **5 to 10%** of the datasheets should be reviewed and checked for data input accuracy, and necessary corrections made.
 - If more than 10% of entries are incorrectly inputted into the spreadsheet/database then all datasheets should be checked.
- d) The raw data sheets should be scanned and filed.

However, if OF Collect and OF Collect Mobile are used, errors should be checked directly through OF Collect. Support with the tool should be facilitated for some specialized FDA technicians, through proper capacity development. Other tools, such as those for the detection of outliers, should also be facilitated through capacity building.

5.2. Field Checks

In addition to the abovementioned measures, two types of field checks should be implemented: **hot checks** to correct errors in techniques and **blind checks** to estimate the field measurement error.

Hot Checks

During '*hot checks*', the QC team should observe field team members during data collection on a number of field plots to verify measurement processes. Hot checks permit the correction of errors in techniques, and should/must be undertaken soon after training is complete, and at

the onset of field work in order to address some errors that could be repeated during the field work that could invalidate the final results. The lead investigator must follow the team and observe measurement techniques of all team members. Any errors detected or misunderstandings raised should be explained and corrected. Hot checks should then be repeated throughout the field measurement campaign to make sure incorrect measurement techniques are not occurring.

During hot checks errors encountered are immediately corrected in the field and do not require any analysis.

Blind Checks

'Blind checks', are used to quantify measurement errors, and require a complete re-measurement of a sub-sample of plots by the QC team. This auditing crew should be experienced in forest measurement and highly attentive to detail. At least **5 to 10%** of the plots (preferably at the cluster plot level) should be randomly chosen to be re-measured. Except for the team leader, field crews taking measurements should not be aware of which plots will be re-measured whenever possible. Blind check re-measurements will be used to compare biomass estimates to the data collected by the inventory team. Any errors discovered should be expressed as a percentage of all plots that have been rechecked to provide an estimate of the measurement error. This error level should be included in the forest carbon inventory report.

6. Organizational structure and responsibilities

6.1. Organisational chart

The Forest Development Authority (FDA), has the mandate to undertake/coordinate national forest

inventories in Liberia. The National REDD+ Coordination Unit, within FDA will host a National Forest Inventory Coordinator for the inventory. A Project Task Force (PTF) will consist of members drawn from participating National Institutions, and will oversee the execution and monitoring of project activities (Fig. 10). The PTF is supervised by the Project Steering Committee (PSC) whose mandate is to oversee the NFI activities. Field teams will work under the coordination of the PTF to undertake field data collection. One quality control (QC) team will undertake field verification on a random sample of **at least 5%** of plots to assess the quality of the inventory work undertaken by the field teams.

The **Project Task Force** (PTF) coordinates, executes and monitors the conduct of the NFI at national level. This is done through:

- Analysis and adaptation, if needed, of NFI sampling design, inventoried variables and definitions;
- Conducting training and hands-on training for Field Teams;
- Setting up the Field Teams;
- Mobilisation of resources, and preparation of necessary resources and equipment such as vehicles, allocation of sampling units (SUs) among field teams; ensuring that all project requirements are procured timely for the project to be executed smoothly;
- Planning, organisation and coordination of fieldwork among districts and field teams;
- Monitoring and backstopping fieldwork, including technical and logistic support to field teams as well as field report checks, in order to ensure data quality and homogeneity among field teams;
- Control and validation of field forms;
- Data control and quality evaluation;
- Compilation of databases;
- Data processing and analysis;

- Report progressed to National Steering Committee; and
- Reporting and dissemination of results.

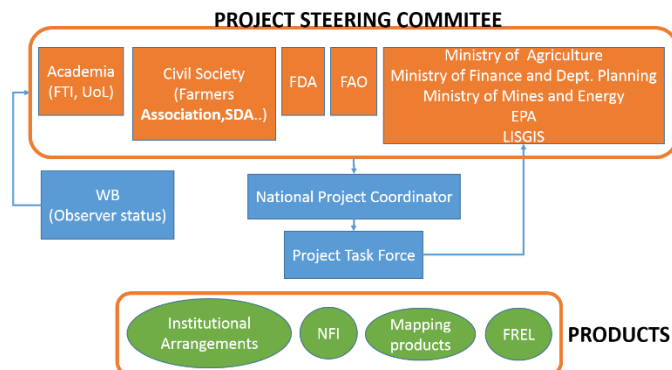


Figure 10: Project organizational chart.

The PTF should ensure that there are mechanisms for effective participation of all key institutions that have direct valuable input in the NFI design and implementation. The PTU should also develop collaboration with relevant national projects involved in assessment and monitoring to enhance networking, coordination and use of findings.

Field Teams are responsible for collection and recording of data in the field and its transmission to the Project Technical Unit; and data management (if possible).

1. In addition to the field teams, the REDD+ Implementation Unit will formalise a Supervision Team which will undertake sensitisation activities in the counties prior to the field inventory activities. This team will meet with local and regional authorities to introduce the project as well as the proposed work plan activities. The supervision team will also make ad-hoc trips into the field to help with coordination and in some cases quality assurance activities including both hot and cold checks described elsewhere in this document.

Field team composition

The composition of a NFI field team can vary from 5 to 6 members, depending on the amount of information in the field. At least one or two members of the field teams (e.g. temporary assistants) shall be hired locally, and shall act as guides/interpreters in the field. The team should also include at least one person specialized in each of the relevant key disciplines, depending on the type of information to be collected (e.g. including, forestry, botany/taxonomist, sociology, wildlife, crop, livestock, soil, fishery, water, etc.).

It's also important that one team member has good interviewing skills (if key informant and/or focus group interviews are needed), and preference to a female, especially if focus groups will be gender separated.

In addition, the inclusion of a student in an appropriate discipline (forestry, agriculture, environment, ecology) is strongly recommended for capacity building. Additional persons may be included to improve performance of the field teams when conditions require greater resources.

In general team members must be experienced in tree, shrub and herbaceous species identification (using local and/or scientific names). It is also recommended that some of the team members speak the local language.

The tasks and responsibilities of the team members must be clearly defined, and include the following:

- The **team leader** is responsible for organizing all the phases of the fieldwork, from the preparation to data collection. He/she has the responsibility of contacting and maintaining good relationships with the community and the informants and monitoring and ensuring timely progress in the fieldwork. He/she will specifically:

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- Prepare the fieldwork: ensures that all bibliographic research is undertaken and all secondary data, field forms and maps (at appropriate scales) are assembled into field packs;
 - Plan the work for the team;
 - Following sensitisation activities undertaken by the supervisory team, the team leader will establish contact local authorities, local technical officers (forestry, agriculture, land, community development), and share with them the proposed inventory activities planned for their areas;
 - Administer the location and access of SUs and plots;
 - Take care of team logistics: obtain information and organise accommodation facilities and food (meals; cooking facilities);
 - Plan/organise the interviews together with those team members assigned to undertake interviews;
 - Ensure accurate completion/filling of field forms and taking notes and applying cross-checking procedures to insure reliable data;
 - Organize daily meetings after fieldwork in order to sum up the day's activities and plan the next day;
 - Make a report of the SU summarizing the data collection process;
 - Take necessary measurements and observations and carry out interviews;
 - Enter the data in the tablet;
 - Organize and ensure fieldwork safety (first aid kit, support of local authority/armed guards if required, reduce risk from wildlife);
 - Maintain good team spirit.
 - The **assistant of the team leader** will:
 - Help the team leader to carry out his/her tasks;
 - Ensure easy access to the SU with a guide very familiar with the area;
 - Take necessary measurements and observations and carry out interviews;
 - Make sure that the equipment of the team is always complete and operational;
 - Supervise and orientate the temporary assistants;
 - Assist the team leader in the making of the SU report;
 - Take over if the team leader falls sick.
 - The **technical field team members / enumerators** will carry out the field measurements and interviews. Each team must have a taxonomist for tree species identification.
 - The **temporary assistants, who are recruited locally, should be** assigned the following tasks, according to their skills and knowledge of local species, language and practices:
 - Help to measure distances;
 - Provide the common/local name of tree, plants, and wildlife species;
 - Inform about access to the SU;
 - Open ways to facilitate access and visibility to technicians;
 - Provide information about the various natural resources uses and management (forest, soil, water, crop, livestock...);

Field teams will receive theoretical and practical training on inventory methodology prior to the commencement of the fieldwork, through **an initial pilot test**; during which techniques of different forest/land measurements, data tallying and interview techniques (if socio-economic assessment is to be done).

6.3. The names and addresses of the team leaders must be inserted in Collect Mobile (field Form F1). Logistic arrangements

Logistic arrangement forms an important aspect of NFI field work. While it is the responsibility of FDA to coordinate and oversee NFI field work, it is the responsibility of the NFI crew to arrange for porters and ponies required during camp shifting. However, vehicles required for transportation will be arranged by FDA. The travel itinerary and day-to day program will assist FDA in deciding the number of vehicles to be used duration of vehicle use.

FDA will also provide tents, camping equipment and cooking utensils but the food items and rations will have to be managed by the crew themselves.

6.4. Safety measures

Safety of the Crew must be ensured always and most of the preparation and planning components discussed earlier should be observed diligently not just for avoiding wasteful journeys but also as safety measures. The Inventory Crew must also observe the listed measures for ensuring personal safety and safety of the crew:

- The Inventory Crew, specifically the Team Leader will always report to FDA contact point, of their whereabouts during the field work.
- For facilitating communication, the Inventory Crew will carry personal cell phones. Change in

phone numbers must be conveyed to FDA for record and access whenever necessary.

- The Inventory Crew will also be provided with a government issued cellular telephone which will be used for communications while the team is working on the clusters.
- All Inventory Crews will carry the National Forest Inventory Crew Information booklet for easy access to phone numbers, in times of emergency or to enquire on field-work related queries.
- For the purpose of National Forest Inventory, the Inventory Crew will observe the command of the Team leaders and perform the assigned responsibilities.
- The Inventory Crew will at all time walk in groups while they are in the field.
- While moving into the field from the base camp, everyone must carry the following items of survival kit to prepare for any emergency situation:
 - i. Water bottle/water
 - ii. Match box or lighter
 - iii. Headlamp
 - iv. Knife
 - v. Emergency sleeping bag
 - vi. First aid kits
 - vii. Any other item that will help surviving during emergency situation (e.g packaged food items).

It is to be noted that though it is the responsibility of the Team Leaders to ensure that their crew members maintain decorum in the camp, every individual is expected to carry themselves in a manner appropriate of a civil servant.

6.5. Inspection of equipment

It is very important that the Inventory Crew inspect and check the equipment for faults beforehand. The first inspection should be done prior to moving to the field. Should they find any faults, they must rectify and correct the equipment or have it replaced from FDA before moving to field.

Once in the field, the crew must ensure that their equipment which required power supply are fully charged (especially GPS, and hypsometer) to avoid any possible disruption of works in the field. Charging of equipment should be done preferably a day-before or the night before plot visit. All extra batteries should be fully charged. Final inspection of equipment should be done in the morning ensuring that all the necessary equipment are being carried and all the equipment is in working conditions.

Failure to check and rectify faulty equipment will lead to undesirable disruption of work, which otherwise could be avoided.

The Team Leader must ensure that the equipment is properly stored away from excessive heat (from sun, fire etc), rain, water and other liquid items and from damage by trampling or crushing.

7. Fieldwork procedure

7.1. Overview of data collection process

Data are collected by the field teams for PSUs (cluster plots), subplots, nested subplots and transects, measurement points, land use/cover class (LUCC) and interviewees. The main information sources for the assessment are:

- Field measurements and observations (Biophysical Data).
- Socio-economic studies, involving interviews of key informants, focus groups and individuals and randomly selected

households.

Those two main sources of information imply the use of different methods and approaches that complement and triangulate each other. Depending on the data to be collected and on the field conditions, one of the sources might dominate (e.g. high populated areas versus low populated). Additionally, field observations made by the field teams should be applied to confirm the information obtained from interviews from key informants.

The process for data collection is summarized in Fig. 11.

7.2. Preparation for the fieldwork

Bibliographic research

Secondary information is necessary to prepare the field survey and/or carry out the interviews. Existing reports on natural resources and forest inventory, species, biodiversity, farming systems, national policy and community management issues, local people, customs and livelihoods and socioeconomic context, etc. must be examined to enable team members to understand and to build better knowledge on the local realities.

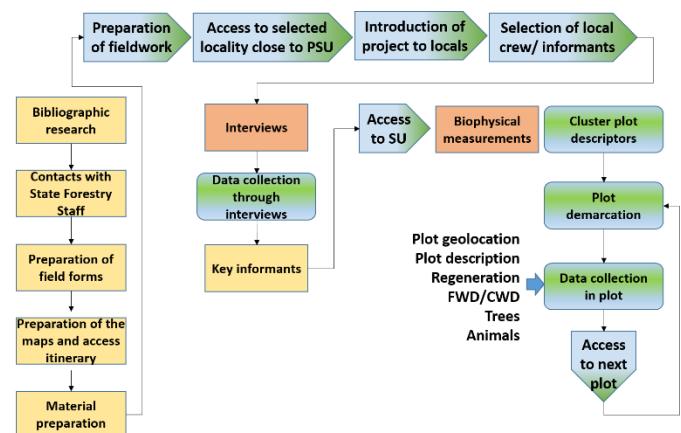


Figure 11: Steps on NFI data collection.

The field team leader is responsible for obtaining this data, in collaboration with State Forest Service authorities to compile and make available

information required for NFI, such as:

- Demographics/population census;
- Crop, livestock, forest, range, soil and water resources and production data;
- Tree species list and other biodiversity data;
- Socioeconomic data (markets; infrastructure, health, etc.); and
- Policy and legislation application, especially local byelaws, etc.

Contacts with communities and relevant local government departments

Each field team should, through its leader, start its work by contacting relevant State staff who is involved in local/community based development in the area where the sampling units (SU) are located. These local staff will help contacting the authorities, community leaders and land owners to introduce the field team and its programme of work in the area. The local staff may also provide information about access conditions to the sample unit locations and about the people who can be locally recruited as field guides or key informants on relevant aspects (land use practices, forest use, etc.).

An official letter should be written by the Forest Development Authority (FDA) to the relevant government departments at the State/local level, asking for support and assistance to field team members to facilitate issues during the work.

Preparation of the field forms

The Team Leader and Project Task Force (PTF) must ensure that enough forms are prepared, and are available to carry out the planned field data collection. Some sections of the forms should be completed prior to field work (e.g. sections for identification of the SU and plots, general information related to SU location, coordinates of the starting point of the plot, names of field team members, population data, information on

distances to infrastructure etc.), but must be verified once on arrival in the field. In the case where Open Foris Collect is used with Tablets or mobile devices, the process must be developed well in advance (i.e., Collect database survey design preparation).

Preparation of the field maps and GPS set up

The use of secondary data sources, particularly maps, are necessary to provide information on names of administrative centres, ecological and agro-ecological zones, and orientation in the field. These may be enlarged and reproduced at the appropriate scale, if necessary. These could include topographic (1:50,000 scale, if possible), administrative (1:250,000) and land cover maps (1:250,000), or high resolution satellite imagery (if available); on which the SU and plot limits will be demarcated on.

Prior to the field visit, each team must plan the easiest and least time-consuming itinerary to access the SU. Advice of local informants (local forestry and extension staff, for example) should be sought and plot location should be demarcated on topographic maps or high resolution satellite imagery if available. The starting points of the plots within each cluster have already been introduced in the tablet as in decimal degree coordinates. The GPS will be set up accordingly by specifying the format in decimal degrees. Each team will introduce the decimal degree coordinates of the sampling units into the GPS prior to embarking on the field mission. The coordinates of the starting point of the plots must be entered into the GPS receiver as waypoints. The point name will be given in the following way: (cluster plot number) + “_” + (subplot position), where the subplot position is, following Fig. 8:

- Elbow for the elbow plot (EP)
- Center South for the elbow south plot (CSP)
- South for the south plot (SP)
- Center West for the elbow west plot (CWP)
- West for the west plot (WP)

e.g. for cluster plot, or BG_CP_143, subplot 3:
BG_CP_143_SP

An enlarged section of the map corresponding to the area surrounding the SU will also be prepared (photocopy or printed copy) and used to trace the access route to the first subplot.

Reference objects or landmarks (roads, rivers, houses) that facilitate easy and better orientation of the team in the field should be identified.

Field equipment per team

To conduct the data collection in the field, each field team must carry the equipment that is listed in Table 1.

Table 1. Equipment required for each field team.

Summarized list of equipment and number of items

Requirement (Item Description)	Number (per team)
Topographic maps	1
Clinometers	1
Diameter measuring tape	2
Clipboard	2
Range finder	1
Boots	5-6 pairs
Leather Gloves	2 pairs
First aid kit	1
Rain coat heavy duty-free size	5-6
Machete	2
Colored Flag Tape or spray	At least 3 colors
Compass	1-2
Binoculars	1-2
Tents for 6-8 persons	-
Sleeping Bags	1 per person
Mattresses	1 per person
Camp stove	1-2
Camping Kitchen Utensils	-
Cooking utensils	-
Camp table	1
Camp chairs	-
Mobile phones	1

VHF Mobile Transceiver	1
Mobile batteries	
Mobile unit charger	1
Ice chests	1
Spherical densitometer	1-2
Memory cards for phones and/or camera	1
Backpacks for field crew	18
Water proof note books	16
Measuring tape	8
30-50cm galvanized metal bars for plot marking	1600
Files	1
Flashlight and batteries	1
Knives	1
Hammer	1
caps	6
tshirt	6
GPS receiver (Geographic Positioning System) and extra batteries + charger	1
4x4 vehicles landcruisers	1
Motorbikes	1
field forms water proof	TBD
spade	12
hand calculator	8
pens and markers	8

Introduction of the project to the local Community

If the sampling unit/cluster is located near a local community, the inventory team/crew must arrange for a contact meeting with the local people/authorities, village representative, and closest government authority in the administrative area. The owner of the land (State, private etc..) must be known and efforts made to meet with the owners, in order to inform them about the presence of the team, the aim of the visit and to request permission to access the land/property. An introductory meeting must be organized to briefly and clearly introduce and explain the aim of the field work and avoid misunderstandings and/or false expectations from the population.

A map or an aerial photograph, showing the limits of the SU, will be very useful to ensure that both the local community and the field team understand which area will be visited. Cooperation and support from the community are essential to carry out the fieldwork; hence the first impression is good. Nevertheless, **it must be stressed that the fieldwork intends to collect data for use by decision makers at national levels and not for a community development project.** Care must therefore be taken to ensure that no commitments are made during discussions and interviews.

Besides the presentation of the purpose of the NFI, this initial meeting also aims at resolving logistical matters. After the general introduction, issues related to access to the land, especially to forest and protected areas, fieldwork and interview schedule, as well as food and accommodation should be discussed. This meeting should also provide an opportunity to start collection of secondary data and to identify key informants and user groups for focus group interviews, if detail socio-economic studies have to be made.

Yet, a specific small team of 3-4 people will cover socio-economic interviews to key informants in the villages nearest to the cluster plot locations. Details of the socio-economic interviews are given in the annex to this document

8. Plot measurements

Access to plot

For each sampling unit, the plots will be located with the help of the metric coordinates (Universal Transverse Mercator Zone 32N) and topographic maps (and aerial photographs/satellite images, if available), on which the plots have been delineated (field maps, see section). Some reference points or landmarks that facilitate the orientation in the field (e.g. roads, rivers...) will also be identified and noted on the field maps, along the access path as the crew progresses towards the first plot location. It is also important to hire a local guide who can provide useful information on how to access the plots more easily.

The order in which the plots are sampled (usually already decided during the planning phase) depends on the accessibility but the plot code (Elbow, Center-South, South, Center-West and West) and orientation must be respected (and the data collection process must start at the cluster plot, or primary sampling unit, starting point: the elbow plot).

Navigation from the access point to the elbow plot will be insured with the help of a GPS where the starting points of each plot have been pre-registered as waypoints, using the "GOTO" function (see GPS guide for details). The GPS normally indicates the straight distance and bearing to the active GOTO waypoint. But in some cases, the path to the waypoint requires meandering around topographic obstacles (Fig. 11) or following as far as possible roads or existing paths.

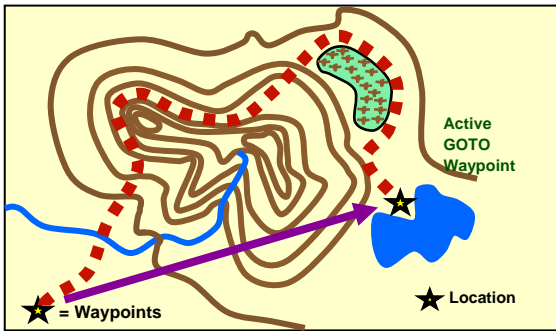


Figure 11: Example of a path to a waypoint using a GPS GOTO function.

While accessing the elbow plot, **Form F1, Access route**, must be completed. This form is already incorporated in an Open Foris Collect survey developed for the tablet, but paper forms will be carried along in case of accident with the tablet. The coordinates of the departure location on foot towards the first plot (usually from the vehicle) must be read from the GPS (or on the map, if the GPS does not capture a signal); and start time and date noted (see Form F1).

During the access to the plot, photographs will also be taken for relevant features/landmarks (such as road/path junctions, settlements) to facilitate future relocation of the sampling unit. For these reference points to access path, the coordinates (taken *from the tablet GPS*), bearing and a brief description must be recorded in the **Access route** table of **Form F1** (Fig. 12).

Access route					
Description	Coordinates SRS	GPS Y	GPS X	Access photo code	Bearing
<input type="text"/>	EPSG:4326	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	EPSG:4326	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Figure 12. Access route table for waypoints and significant turns during the access route to the cluster plot.

A sketch representing the itinerary covered will be drawn on the site map (to be attached to the field form, as in **Form F1A**), with indications of the reference objects that will facilitate relocation of the plot (see example given in **Error! Reference source**

not found.13). The coordinates of each reference point are read from the GPS and recorded on the form and reference photos may also be taken and their codes specified on the form. If required, coloured flagging tape will be placed along the access path, on trees, visible enough to facilitate easy return from the sampling unit.

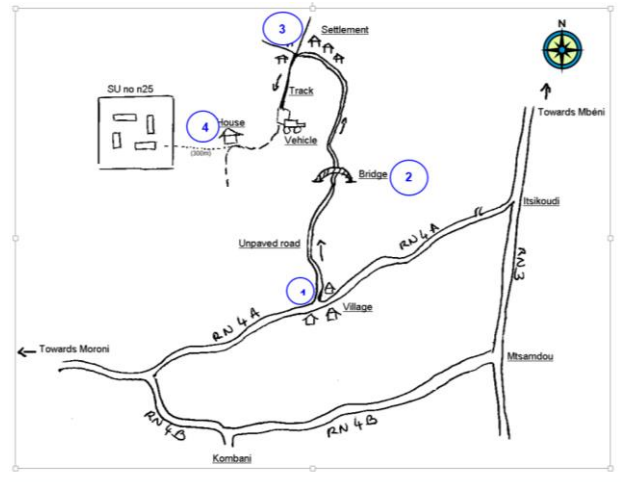


Figure 13. Access to sampling unit sketch.

Table 2. Example of Access route enumeration (Form F1, Access route) for the sketch map in Fig. 13.

Reference points of access path (Route sketch to be attached)					
35. ID	36. Description	37a. X (m)	37b. Y (m)	36b. Photo #	36d. Bearing
1	Road crossing between the RN4A and a unpaved road, at a village	0174162	1657172	1	28°
2	River bridge	0174024	1657351	2	54°
3	Settlement at the end of the unpaved road and crossing with tracks	0174001	1657123	3	85°
4	House	0174162	1657172	4	28°

On arrival at the elbow plot, the GPS reading of plot starting point, the starting date and time of work in the plot must be recorded in **Form F2**. If the GPS signal is lost or weak at the starting point of the plot, the team can stop and wait the signal to be established again or move to a location with a clear view of the sky (dense foliage or buildings can block the signal) to get the coordinates, and from there navigate using a compass and measuring tapes, calculating distances to the plot starting point for the East-West and the North-South axes (see below).

When the team is close to the starting point the GPS (about 10 metres distance), reading will not be stabilised. At this moment, to establish a well-defined starting point without subjectivity, the team:

1. Stops and get the position coordinates using the “average position” function of the GPS;
2. Calculate the difference between the actual position coordinates and the plot starting point coordinates (northing and easting);
3. Move to the East or West for a horizontal distance corresponding to the difference between the easting (= X coordinates), using the measuring tape and compass (bearing 270° or 90°):

if the easting of the actual position is lower than the easting of the plot starting point position, then the team will move to the East (bearing 90°);

on the contrary, if it is higher, then the team will move to the West (bearing 270°);

4. Move to the North or South for a horizontal distance corresponding to the difference between the northing (= Y coordinates) using the measuring tape and compass (bearing 0° or 180°):

if the northing of the actual position is lower than the northing of the plot starting point position, then the team will move to the North (0°);

on the contrary, if it is higher, then the team will move to the South (180°).

Sample Plot Establishment

In the Liberian inventory, a fraction of the cluster plots will be defined as part of a current network of permanent sampling plots. In these cluster plot, the position of the starting points of **all** plots within the cluster plot must be precisely located, and marked with a permanent marker (e.g. galvanized metal tube/PVC) when the elbow plot is finalized and properly referenced together with starting point

description to enable their easy relocation in the future. This shall be done by drilling in a galvanized metal tube into the ground at the exact position of the starting point of the plot. Marker location data must be recorded on the field form (F2).

On arrival the cluster plot type will be identified as one of the five possible: all in order, from elbow, to center south, south, center west and west. Their respective codes are EP, CSP, SP, CWP, WP. Before actually moving into the center the teams should be able to measure the slope. Preferably measure it always looking upwards to the reference person, as in Fig. 14. Select two sticks of the same length and look from the tip of the stick of the person with the clinometer to the tip of the stick of the reference person. The slope should be relatively constant (avoid extreme concavities or convexities between the two people). The degrees should be measured with the left scale of the clinometer.

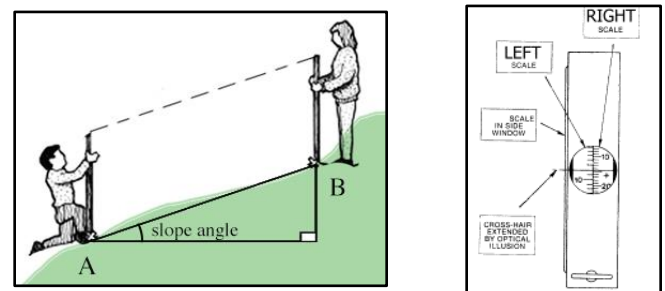


Figure 14. Measuring slope in plot and depiction of the two existing scales in a SUUNTO clinometer. Readings should be made from the left scale.

The coordinates of the marker position are determined using the GPS (average position).

In cases where obstacles (e.g. tree, rock, river, house, etc.), obstruct or prevent such exact location, the marker should be placed as close as possible to the starting point of the plot. The distance and compass bearing (in degrees) of the plot starting point should be measured from the marker location.

In addition, two prominent reference objects (rock, largest tree, houses, top of mountain, etc.) should/must be identified and the direction (compass bearing in degrees starting from the marker location) and distance from the marker

measured or estimated. A photo from the marker should be taken for each reference and coded (running photo number within SU **BG_CP_143_SP_2** e.g. 2nd photo taken in BG_CP_143 on the Southern Plot).

A brief description of the reference points will also be provided in a table (the columns containing the bearing and the distance from the marker position may be filled in according to the sketch indications after the fieldwork) (see Figure 14. Access to sampling unit sketch (**Form F2. Reference Point Form**)).

Table 5. Example Reference Point Prominent Structures Table (**Form F2, Reference Point Form**)

Reference points surrounding Marker position				
44 - ID	45. Description	46. Bearing* (°)	47. Distance* (m)	36c ID Photo
1	South West corner of the House of the Mr X family.	300	85	5
2	Summit of mountain "AA".	110	225	6
3	Inner curve of river "BB".	230	100	7

and **Error! Reference source not found.14).**

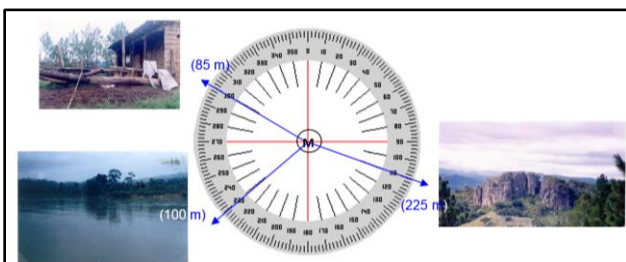


Figure 14. Access to sampling unit sketch (**Form F2. Reference Point Form**).

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2	Summit of mountain "AA".	110	225	6
3	Inner curve of river "BB".	230	100	7

Wildlife biodiversity enumeration

It is important to record signs of presence of species of birds, mammals, reptiles and amphibians before

engaging into a full enumeration of trees, to avoid scaring the wildlife out of the area as much as possible. Hence, the teams should try to record visual contacts, or else signs of presence of birds, mammals, reptiles and amphibians slightly before arrival to the plot (up to 50 m before arrival) and immediately after measuring the slope. Preliminary lists of available animal species are available at Annexes.

Information to enumerate regarding wildlife can be seen in **Forms F3-F6**. Records for species name require the knowledge of the scientific name. If for some reason, the species scientific name is known but not listed in the current lists (Annexes ????-???) or else the dropdown menu in the Collect Mobile survey), the code to be used in the "Code" box is "Unlisted sp.". In that case users will be able to input the species name under the "Species Name". If the species is unknown they should mark it as "Unknown sp.". At all moments the crew will be able to add a vernacular name and the local language that name belongs to.

The box "Species identity" will allow to define whether the crews are certain or doubtful about the identification. Finally in the box "Evidence" the crew will enumerate which signals led to believe in the presence of that species in or around the plot (Fig.

15).

Bird evidence		Mammal evidence	
<input type="radio"/> BE1 - Direct Sighting	<input type="radio"/> BE2 - Sound/Calls	<input type="radio"/> ME1 - Direct Sighting	<input type="radio"/> ME2 - Sound
<input type="radio"/> BE3 - Droppings	<input type="radio"/> BE4 - Eggs	<input type="radio"/> ME3 - Dung/Pellets/Scats	<input type="radio"/> ME4 - Skeleton/Corpse
<input type="radio"/> BE5 - Skeleton/Corpse	<input type="radio"/> BE6 - Feathers	<input type="radio"/> ME5 - Horns/Antlers	<input type="radio"/> ME6 - Footprints
<input type="radio"/> BE7 - Footprints	<input type="radio"/> BE8 - Tracks/Paths	<input type="radio"/> ME7 - Tracks/Paths	<input type="radio"/> ME8 - Burrows/Den
<input type="radio"/> BE9 - Nest/Burrows	<input type="radio"/> BE10 - Not relevant	<input type="radio"/> ME9 - Browsing	<input type="radio"/> ME10 - Debarking
		<input type="radio"/> ME11 - Fraying	<input type="radio"/> ME12 - Digging
		<input type="radio"/> ME13 - Not relevant	

Reptile evidence		Amphibian evidence	
<input type="radio"/> RE1 - Direct Sighting	<input type="radio"/> RE2 - Sound	<input type="radio"/> AM1 - Direct Sighting	<input type="radio"/> AM2 - Sound
<input type="radio"/> RE3 - Eggs	<input type="radio"/> RE4 - Skeleton/Corpse	<input type="radio"/> AM3 - Eggs	<input type="radio"/> AM4 - Skeleton/Corpse
<input type="radio"/> RE5 - Skin	<input type="radio"/> RE6 - Tracks/Paths	<input type="radio"/> AM5 - Footprints	<input type="radio"/> AM6 - Tracks/Paths
<input type="radio"/> RE7 - Nests/Burrows	<input type="radio"/> RE8 - Not Relevant	<input type="radio"/> AM7 - Nest/Burrows	<input type="radio"/> AM8 - Not relevant

Figure 15. Wildlife evidence codes to determine signals of wildlife presence, for all four wildlife groups in the NFI. to sampling unit sketch (Forms F3-F6).

Plot Description Form

After completing the wildlife enumeration, the crew can proceed to focus on the plot itself (Form F7-F9). After having located the peg in the center of the plot, its coordinates (readings from the GPS, not the table device), both Y (latitude) and X (longitude) will be enumerated. Currently two different coordinate systems are possible. If the UTM projection is used (EPSG: 32632) is used, coordinates will be entered as they appear in the GPS. If, however, geographical coordinates are used (EPSG: 4326), then longitude should be written preceded with a negative sign (for example, if the GPS shows 6.4823 N and 9.4129 W, then GPS Y is 6.4823 and GPS X is -9.4129).

Next the topographic position of the plot is to be recorded. Possibilities are depicted in Fig. 16 (Form

F7).

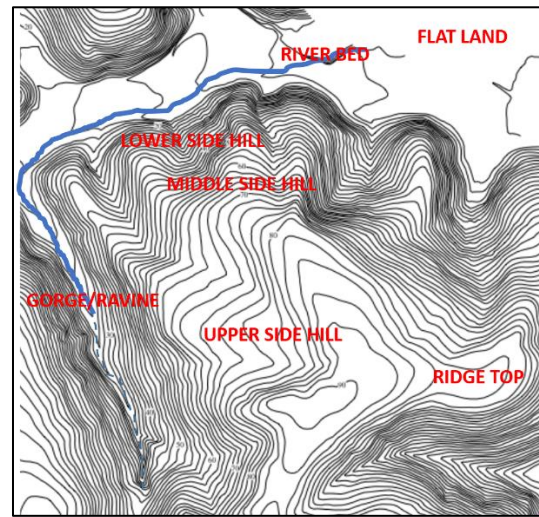


Figure 16. Possible topographic positions for plots (Form F7).

Next, the aspect (compass orientation of the plot, looking downhill from plot center if in a slope) is recorded. If the terrain is flat, “No aspect” will be chosen. Otherwise one must follow Fig. 17, where positions “N”, “NE”, “E”, “SE”, “S”, “SW”, “W” and “NW” will be the options. The limits in angles between these positions are depicted in Fig. 17.

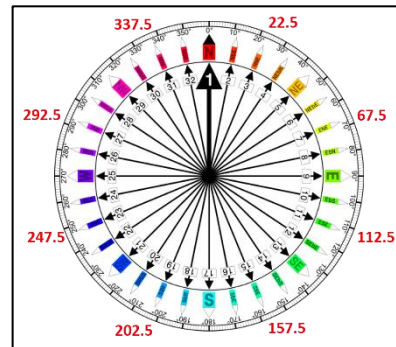


Figure 16. Possible aspect positions for plots (Form F7).

Elevation (in m.) will be entered from the GPS information.

Forest Resources

Next the crews will walk around the plot identifying potential Non-Timber Forest Products, with the help of the local guides/informants. Only presence and their use will be recorded and written.

Number of snags (standing dead trees) and fallen trees in the plot will be recorded in categories (1-5,

5-10, more than 10 or no trees).

Stand description, main understory types and Disturbances

In Form F8, more information to describe the plot will be enumerated. As part of the overall stand description, land ownership should be included when possible (Table 6).

Table 6. Land ownership categories (Form F8, Stand Description).

Land ownership Private Protected Communal Sacred Don't know

Very important is the characterization of land use classes. The categories are described in Table 7.

Table 7. Land use class categories (Form F8, Stand Description).

Land Use class Forest Cropland Wetland Grassland Settlement Shrubland/Woodland Water Rocky outcrop Other land

In case the plot has been classified as "Forest" or "Cropland", subdivisions will appear, respectively, as in Table 8 (Forest) and Table 9 (Cropland). In the case of Forest, extra information on the successional status and forest type is to be added.

Table 8. Land use class Forest subdivision, successional status and forest type categories (Form F8, Stand Description).

Land Use subdivision Forest protected area Forest/Timber extraction Community forest Mangroves Forest plantation Forest (fallow)

Successional status

P - Primary forest (old growth) SY - Secondary forest young SO - Secondary forest old

Forest type Not sure Savannah Mangrove Mountain Plantation Semideciduous Evergreen

These classifications are extremely important.

Particularly in the case of fallow land. If the forest was classified as "Forest (fallow)", then the successional status should be classified as "Secondary forest young", which describes forests that are less than 20 years old. In any other forest land categorization, successional status can be any of the three possibilities in that category. In the case of Cropland, however, one other subclassification appears (Table 9).

Table 9. Land use class Cropland subdivision (Form F8, Stand Description).

Land Use subdivision Cropland rubber Cropland oil palm Cropland cocoa Cropland coffee Cropland annual Cropland mixed Cropland unknown

Under "Main Understorey Type" (Form F8, Stand Description), multiple choices can be taken per plot. One must check one or several categories if appropriate (Table 10).

Table 10. Main understorey categories (Form F8, Stand Description).

Main understorey type

Moss

Grass

Herbs

Bamboo

Shrubs

Lianas

Palms

Others

If other understorey, specify

Table 11. Main disturbance categories (Form F8, Disturbance).

Disturbance

Forest fire extent Heavy Fire Moderate Fire Light Fire

Fire type Surface Crown Not Sure No fire sign

Grazing evidence

Grazing incidence Slight Moderate Severe None

Timber extraction Yes, Clear Cutting Yes, Selective Felling

Mining Yes, Surface Collection Yes Quarry No

Finally, disturbance signs in the plot will be covered by filling up the different categories in the variables depicted in Table 11.

Forest health, and duff litter and fuelbed (**Form F9**) should also be recorded, as much as possible, given the likely presence of rock immediately below the surface in many of the plots. Categories are depicted in Table 12. If special health issues, other than pests and disease, are found, they should be reported under the "Other forest health issues" box. For duff, litter and fuelbed, overall gross estimates of depth values (in centimeters) or bare soil cover (in percentage) should be enumerated. Crews should have a shovel or similar material to be able to estimate depths.

Table 12. Forest health; duff, litter and fuelbed (**Form F9, Forest health and Duff, litter and fuelbed**).

Forest Health	
Pest and disease evidence	<input type="checkbox"/>
Other forest health issues	<input type="text"/>
Duff, litter and fuelbed	
Litter depth value	<input type="text"/> cm
Humus depth value	<input type="text"/> cm
Fuelbed depth value	<input type="text"/> cm
Bare soil cover percent	<input type="text"/> %

Finally, soil characteristics should also be enumerated, together with water bodies' presence (Table 13) **Table 13.** Soil characteristics attributes (**Form F9, Soil**)

Soil	
Stoniness	<input type="radio"/> None <input type="radio"/> Rare >10% <input type="radio"/> Few, 10-20% <input type="radio"/> Common, 20-
Soil Drainage	<input type="radio"/> Poorly Drained <input type="radio"/> Moderately Drained <input type="radio"/> Well Drained
Top soil colour	<input type="radio"/> Dark <input type="radio"/> Reddish <input type="radio"/> Yellowish <input type="radio"/> Others
Top soil texture	<input type="radio"/> Sand <input type="radio"/> Loam <input type="radio"/> Silt <input type="radio"/> Clay <input type="radio"/> Others
Evidence gully	<input type="checkbox"/>
Evidence erosion	<input type="checkbox"/>
Water bodies	<input type="radio"/> Stream/River <input type="radio"/> Wetland/marshy area <input type="radio"/> Lake <input type="radio"/> Pond

During the process of description of the plot, the other crew members will have been locating pegs at different concentric points over the plots and measuring fine and coarse woody debris (see the following section). By the time the previous categorizations have been finished, one other

member of the crew should be able to support the enumeration of canopy cover by making different measurements in the four main compass directions (N,E, S, and W) immediately outside a 7 m circle around the plot (Fig. 17, blue stars). They will use a densiometer (Fig. 18), which contains 24 squares. The field crew member in charge of the densiometer should first use the bubble level in the densiometer to try maintaining the densiometer as horizontal as possible (Fig. 18) and then proceed to count the number of squares, out those 24, which are mostly shaded (i.e., not receiving direct light). That is, for each square the crew member should grossly estimate whether more than 50% of the square is under shade, in which case it will be counted. The sum of those mostly shaded squares will be the final number to be inputted for each of the four canopy cover locations in the plot. Table 14 shows the form to fill up.

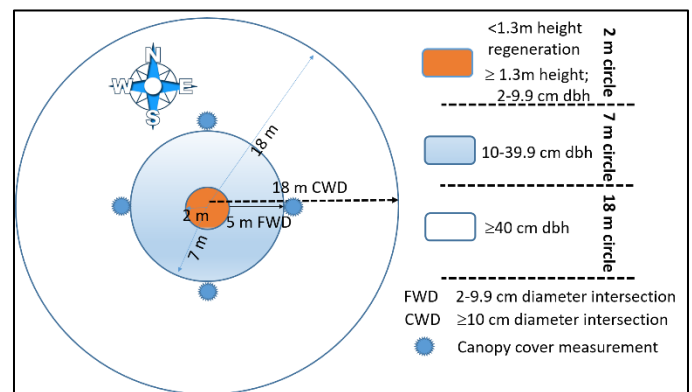


Figure 17. Plot configuration and position of canopy cover measurements (blue stars).



Figure 18. Densiometer illustrating the 24 available squares to be counted for canopy cover measurements. The bubble level is shown in the lower right corner.

Table 13. Canopy cover form (Form F9, Canopy cover).

Canopy cover

Canopy cover measurement position	Number of shaded squares
1. <input type="text"/>	<input type="text"/>
2. <input type="text"/>	<input type="text"/>
3. <input type="text"/>	<input type="text"/>
4. <input type="text"/>	<input type="text"/>

Canopy cover

N - North
 E - East
 S - South
 W - West

Fine woody debris (Form F10)

Following Fig. 17, a 5 m. long transect, located immediately over the floor, will be located between 2 and 7 m. in the east direction from the plot center. This exercise should be strategically timed following the procedures outlined in the final section of this manual. To increase efficiency a rope of 5 m. should be previously prepared to align it directly on the floor.

Along the transect, the diameter at the intersection (in cm.) of every woody debris piece between 2 and 9.9 cm intersecting the transect should be recorded. The diameter is defined as in Fig. 19.

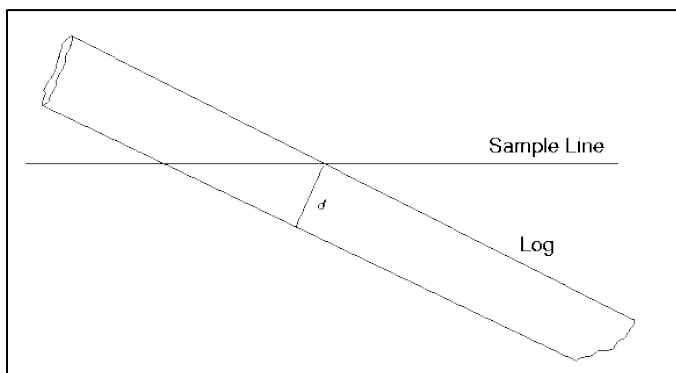


Figure 19. Line intersection method: how the diameter at

intersection is defined for a piece of woody debris

Special cases will exist, both in the measurements of both coarse and fine woody debris, where woody debris pieces may incorporate two line-intersecting branches out of the same piece. In these cases, both branches should be recorded as two individual pieces. In the case of fine woody debris, this means including the diameters of intersection of each of two branches (Fig. 20). If a piece is curved and crosses twice or three times the sample line or transect, then each of the diameters at intersection should be enumerated.

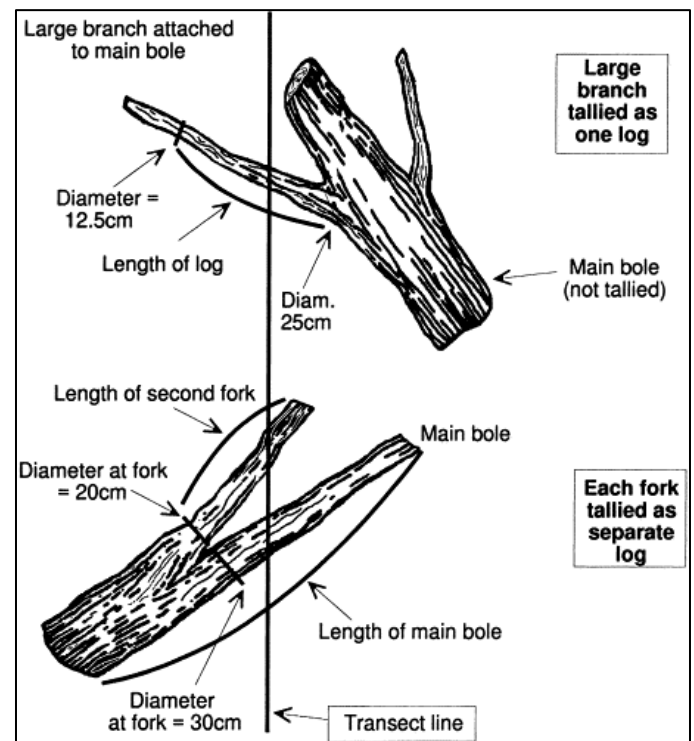


Figure 20. Examples of special cases where bifurcated branches cross the line sample (transect) line. Although this example is mostly drawn for coarse woody debris sampling, in fine woody debris sampling, both diameters at intersection of the branches of the bifurcation should be enumerated.

Using the machete test method, one of three wood decomposition classes must be assigned per each

piece, namely very decomposed, half decomposed and not decomposed.

The machete test method is defined as follows:

- Strike each piece of dead wood with the back of a machete;
- If the blade bounces back, then the piece is classified as *not decomposed*
- if it sinks partly with some wood loss then it is classified as *half decomposed*
- if the blade sinks into the wood and it crumbles then it is classified as *very decomposed*.

Coarse woody debris (Form F11)

Following Fig. 17, a line transect for coarse woody debris enumeration will be located similarly to the case of fine woody debris, but in this case, it will cover the eastward radius of 18 m. To increase efficiency a rope of 10 m. should be previously prepared to align it directly on the floor.

Along the transect, this time both diameters at the small end and at the large end of the piece (in cm.) will be enumerated, *based on the condition* that the diameter at intersection is larger or equal than 10 cm. (Fig. 17). The total length of the piece (in meters) will also be recorded.

Special case, as in the case of woody debris, exist. Whenever a bifurcation exists, the length of the piece will be total length of the piece when enumerating the branch with the largest diameter at intersection, while it will be the length of the branch (from its tip to its base, where the branch joins the largest piece) if enumerating branches that do not present the largest diameter at intersection. If a bifurcation is present but only a smaller branch is tallied (i.e., only a smaller branch intersects the line), then, again, the length of the piece will *ONLY* be the length of that branch, from the tip to its base.

If a piece is curved and crosses several times the transect line, once again, it will be enumerated as many times as crosses with the transect.

For tallying the pieces, Fig. 21 shows that the piece will be tallied (i.e., enumerated) only when the transect line crosses through at least 50 per cent of the diameter of the piece.

Once again, the machete method will be used to determine its decomposition status.

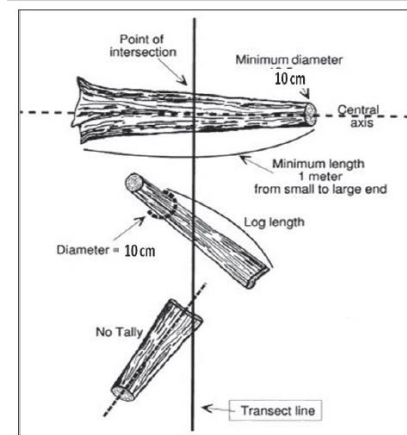


Plate 5: Conditions for tally of CWD for measurement

Figure 21. Examples for tallying (enumerating) woody debris pieces along the transect line. Observe that the lower piece will NOT be enumerated.

Regeneration (Form F12)

Within the previously pegged circle of 2 m radius around the center plot (Fig. 17), one crew member will count all recruits, and record that count. Recruits are identified as any tree, or sapling with the capacity to become a tree, that is less than 1.3 m. in height.

Tree measurements (Form F13)

The basic framework behind the measurement of trees in the plot is based on Fig. 17. Three concentric circles of 2, 7, and 18 m will be used to delimit which trees are to be enumerated in the plot. During the enumeration process, measurements will start from the 2 m. radius circle, to continue with the 7 m. radius and finally the 18 m. radius one.

Any tree or stump is susceptible to be tallied. And every time enumeration starts along one of these concentric circles or subplots, one person will be located on the plot center with a compass, to sweep

over the circle in a clockwise direction starting from the North. It is here very important to systematize tree enumeration.

Immediately after having counted regeneration, the steps for tree measurement and enumeration will be:

1. Start enumerating all trees larger than 1.3 m height and between 2 and 9.9 cm diameter existing within the 2m. radius plot. Starting always from the North direction and turning clockwise the order of enumeration will follow according to the angle from the North. REMEMBER: *Any tree within 2 m. from the plot center that is larger than 9.9 cm diameter will not YET be enumerated.*
2. When a complete circle, clockwise, has been completed for the 2 m. radius subplot, always looking northwards, a new circle, now of 7 m. will start the tree enumeration process. This time, only trees between 10 and 39.9 cm diameter will be *tallied within the WHOLE circle* formed by the 7 m. radius. This means that trees of this size at less than 2 m. distance will ALSO be enumerated. However, trees larger than 39.9 cm. will YET not be enumerated. Trees smaller than 10 cm. diameter will NOT be tallied (this size was already tallied before in the 2 m. radius circle).
3. When a complete circle, clockwise, has been completed for the 7 m. radius subplot, always looking northwards, a new circle, now of 18 m. will start the tree enumeration process. This time, only trees larger than 39.9 cm. diameter will be *tallied within the WHOLE circle* formed by the 18 m. radius. This means that trees of this size at less than 2 m. or 7 m. distance will ALSO be enumerated. Trees smaller than 40 cm. diameter will NOT be tallied (this size was already tallied before in the 2 m. and 7 m. radius circles).

An example is seen in Fig. 22. Starting with the smaller (2 m. radius) subplot, small (in green) tree no. 1 is enumerated. There is another medium (blue) tree within the 2 m. radius but it will be later enumerated, once we go into the 7 m. radius subplot.

Next, enumeration of the 7 m. subplot starts, starting from the northwards direction. Medium (blue) trees no. 2, 3 and 4 are enumerated (observe that no. 4 is within 2 m. but it is tallied when recording corresponds to its assigned subplot - 7 m. radius for medium trees). There is a small (green) tree in the 7 m. radius subplot, but it will not be recorded, since small trees are NOT to be measured in subplots larger than 2 m. radius.

Finally, enumeration of the 18 m. subplot starts, again starting from the northwards direction. Now, big (red) trees no. 5, 6 and 7 will be recorded (observe that no. 7 is within 7 m. but it is tallied when recording corresponds to its assigned subplot - 18 m. radius for big trees). There is a medium (blue) and a small (green) tree in the 18 m. radius subplot, but they will not be recorded, since small and medium trees are NOT to be measured in subplots larger than 2 m., and 7 m radius, respectively.

The ordering of enumeration is extremely important and it does depend on the diameter of the tree (that is, the subplot circle to which the tree is assigned) and the angle from the North direction. However, it is not necessary to record that angle. But for each tree, the distance (in m.) for the tree to the plot center will be recorded. This distance can be measured with the laser rangefinder directly, or else with a tape in the case where visibility or obstacles do not allow the use of the laser range finder. As in the case of slope measurement (Fig. 14), distance will be measured pointing the laser finder towards the same height along the tree as the height one locates the laser rangefinder along his/her body.

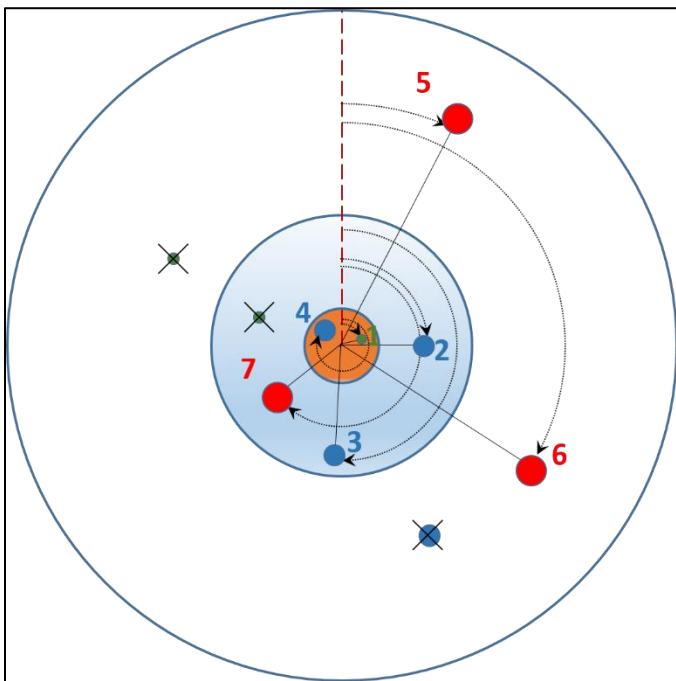


Figure 22. Example of enumeration of small (green), medium (blue) and big (red) trees in a plot, starting from the 2m. radius subplot (in orange) for small trees, to continue with the 7m. (in blue) subplot for medium trees and finalizing with the 18 m. (in white) subplot for big trees. Trees marked with an “X” will not be tallied.

Tallying of trees located in plot/subplot borders will proceed as follows: if the center of the tree trunk is closer than the threshold distance for that subplot (2, 7 or 18 m.), then the tree is tallied (enumerated). If it is farther, it is not tallied. When tree trunk centers are exactly at that distance, then one out of every two trees in such a condition will be tallied (that is, one tree will be tallied, the next will not, the third will, etc...).

Very important for future accounting is the tree condition or tree health status. This condition will determine, among others, whether the canopy position is to be enumerated, or which tree height, if any, is to be measured. 5 different classes will be considered for a tree: “Live”, “Dead” (i.e., a tree that has lost just the leaves when it is an evergreen species or a deciduous species during the time of full leaf exposure), “clean” (a tree that has lost most of its branches), “decomposed” (i.e., a snag or trunk in some stage of decomposition but taller than 1.3 m. height), and “stump” (i.e., any snag/stump less than 1.3 m. tall) (Fig. 23).

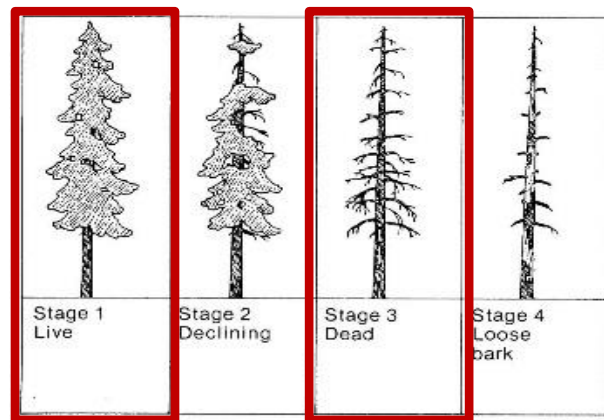


Figure 23. Tree condition classes to be enumerated. Only the five categories enclosed in red rectangles are considered for the Liberian NFI. See Annex 1 for full graphic

If the tree is alive, the tablet device will allow the booker or crew member to record the canopy position of the tree. The four possibilities will be: “Dominant” (above canopy), “Codominant” (along the canopy top), “Intermediate” (receiving still some light, but not along the canopy top), and “Suppressed” (below the canopy) (Fig. 24).

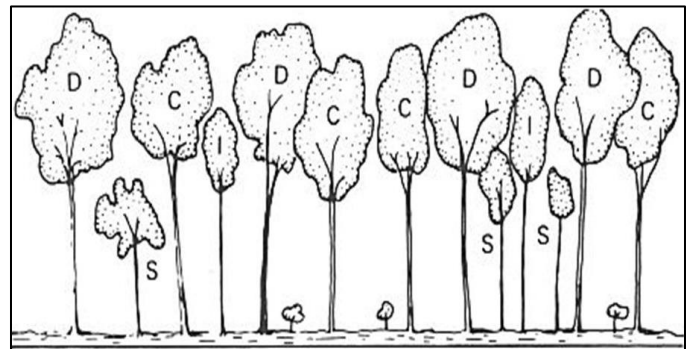


Figure 24. Dominant (D), codominant (C), intermediate (I) and suppressed (S) trees according their position in the forest canopy.

As in the case of wildlife animals, the species name needs also to be recorded, whenever a diameter is to be enumerated. A current list of scientific species names is available in the annex of this document. As in the case of wildlife species name enumeration, there are possibilities to code a species as “Unlisted sp.” when the name is known but not currently available in the list (then one can write the name

itself in an adjacent box), or else as “Unknown sp.” If this is the case, a box will allow to enter, besides the vernacular name and dialect (a possibility existing for all individuals recorded), the name of the plant sample that will need to be taken to the laboratory for identification. The name of the sample will be enumerated in the tablet or paper form simply starting the numbers for every plot (i.e., if one is starting the Center-South plot then the name of the first sample taken to the laboratory should be 1, etc.. When starting in the South plot enumeration should start again). However, the name to be written in the actual physical sample collected and carried to the laboratory should be a tag with the name of the cluster plot, followed by an underscore, the code of the plot, underscore, and the number of the sample for that plot. I.e., if the cluster plot is BG_CP_158 and we are in the Center South Plot, tagging our second plant in that plot, then the code to be tagged in the physical plant sample should be “BG_CP_158_CS_2”.

The assurance, whether “certain” or “doubtful” in our species identification is also to be recorded.

Measurement of diameter should be made with diameter tape whenever possible and it should ALWAYS be recorded *in centimeters*. Diameter tapes are calibrated to directly measure diameter on one side (circumference / π) and often have standard length (equals to the circumference) on the other side of the tape. The DBH tape must be used properly to ensure consistency of measurement. All field crews must know how to use it. Diameter should be measured where 1.3 m is on their body or use a 1.3 m long staff to identify the correct height to measure the diameter of every tree.

Exceptions apply in certain cases (Fig. 25):

- If the tree is on a slope, always measure on the uphill side. If the tree is leaning, the DBH tape must be wrapped to be perpendicular to the main axis of the trunk (not parallel to the ground). If the tree is

forked below 1.3 m, measure the forks as separate trees. If the tree forks above 1.3 m, measure DBH of the main stem (unless there is an unusual bulge right at 1.3m).

- Always place pole and measure diameter on the *upslope/uphill* side of the tree
- Always measure height of measurement (1.3 m) parallel with the tree, *not* perpendicular to the ground. Therefore, if the tree is leaning, measure from the upslope (uphill) side of the lean, parallel with angle of tree.

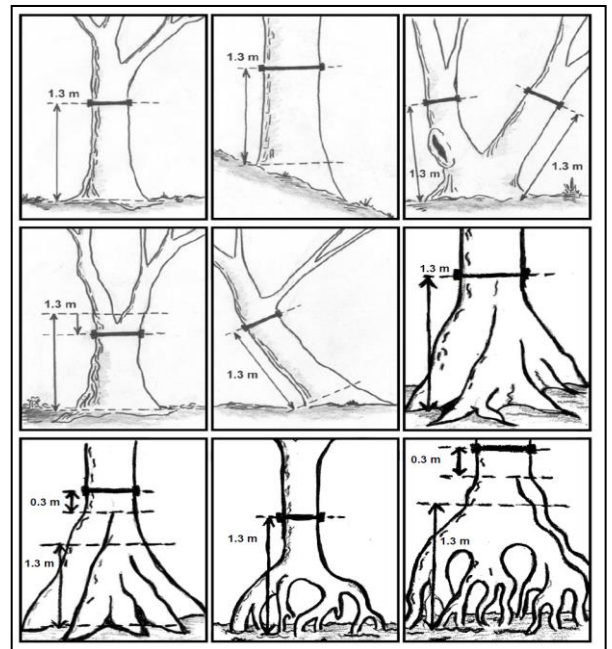


Figure 25. Correct placement of DBH tape in different growth scenarios

- If the tree has buttresses and the buttress is higher than the measurement height (e.g. 1.3 m), measure the diameter at 30 cm from top of buttress as shown in Figure 5. If the buttress is lower than the measurement height (e.g. 1.3 m), then measure diameter at the standard height (see Figure 5).
- If the tree is forked at point of measurement (POM: e.g. 1.3 m), measure the diameter just below the fork. Record as if it were one tree on the data sheet, but with a note that the diameter is below the fork.

- If the tree is forked below at POM (e.g. 1.3 m), measure the diameter at each fork and record as two trees on the data sheet, but with a note that it is a forked tree.
- If the tree is a stump (e. g., <1.3 m tall), then diameter should be measured as close as possible to 1.3 m. height.
- If using a standard diameter tape, the diameter tape has a hook on the end. Push the hook into the bark of the tree and pull the tape to the right. The diameter tape should always start left and be pulled right around the tree, even if the person taking the measurement is left-handed. As you wrap the tape around the tree and return it to the hook the tape should be above the hook, and should not be upside down; the numbers must be right side up.
- If a liana or vine is growing around the tree to be measured, pull it away (do not cut the liana: except as last resort) to clear the POM, and run tape underneath. If the liana is too big to pull away from the trunk, estimate the diameter of the liana and subtract it from total tree diameter. The same standard should be followed for any other type of natural organisms (mushrooms, epiphytes, fungal growths, termite nests, etc.) that are found on the tree.
- Place chalk mark or flagging on the tree to indicate to other crew members that the tree has been measured.

Height measurements will take place in one out of every 3 trees in a systematic manner. Thus, for the whole subplot, only trees no. 3, 6, 9, ... will require height enumeration. Two different height measurements will be required: total height and bole (i.e., commercial) height. Total height will be recorded in all height-tallied trees (that is, no. 3, 6, 9,..) while bole height is necessary only in those height-tallied trees that present their tree condition as "Live". Bole height is often equated in Liberia with *first-branch height* for commercial purposes.

Tree height will be measured using the Suunto clinometer. Since the Suunto clinometer available

only offers angle in degrees (reading the left scale in the lens of the clinometer), then two different data records will be needed to have an estimation of the height: distance to tree from point of height observation, and angle in degrees (from the left scale of the Suunto lens). Since most of the trees will require both total and bole height, a total of two readings of distance (very often the same point of height observation will be used to point towards the tip of the tree and the height of the first branch, so the distance to the tree will be the same in both cases), and two for the angle reading.

To facilitate recording of height, the clinometer user will locate him/herself at a distance to the tree from which he/she has good visual projection of the height to measure (either total or bole), a distance which will be recorded (Fig. 26). His/her feet will have to be located at the same horizontal elevation as the tree base. With the left scale of the clinometer (Fig. 27), he/she will record the angle to the POM. Height will be either automatically calculated (if enumeration takes place with the tablet) or else calculated a-posteriori during the analysis phase of the NFI.

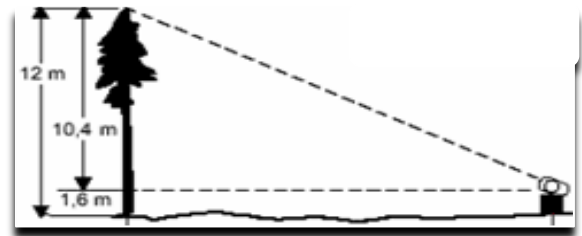


Figure 26. Example of a measurement of total height in a tree. For the NFI, as in the figure, the feet of the enumerator will be at the same elevation as the base of the tree.

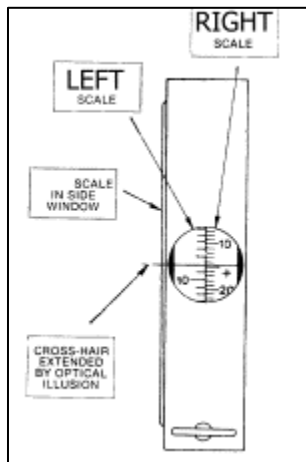


Figure 27. Scales seen through the lens of a Suunto degrees clinometer. The left scale is in degrees and the right scale in percentage. During the NFI only the left scale will be used to enumerate angles.

the field inventory in the SU should be compiled.

The field forms should be well-organised, filed and thoroughly checked by the field team leader, to ensure that all fields are duly completed and that there are no inconsistencies. Then they should be handed over to the supervision team for review and quality control. If they have to be sent by mail/courier, they should first be scanned (or photographed) and/or photocopied.

When the field team has access to a computer, the photographs should be uploaded.

End of data collection in the plot

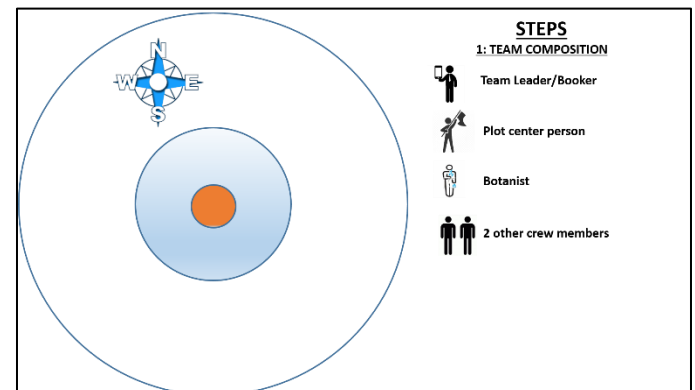
Once the work in the first plot is completed, the time is recorded and the team need to access the second plot. It may be possible to directly access the plot with the help of the GPS. Otherwise, for example in dense forest, it may be assured by using the compass bearing and measuring horizontal distance along the central line of the previous plot. If the starting point of the next plot to be reached is not accessible on a straight line, the obstacle must be bypassed using auxiliary methods that allow finding the original line.

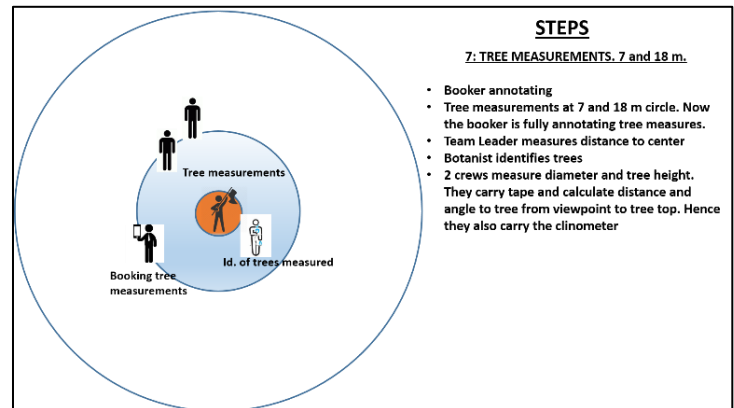
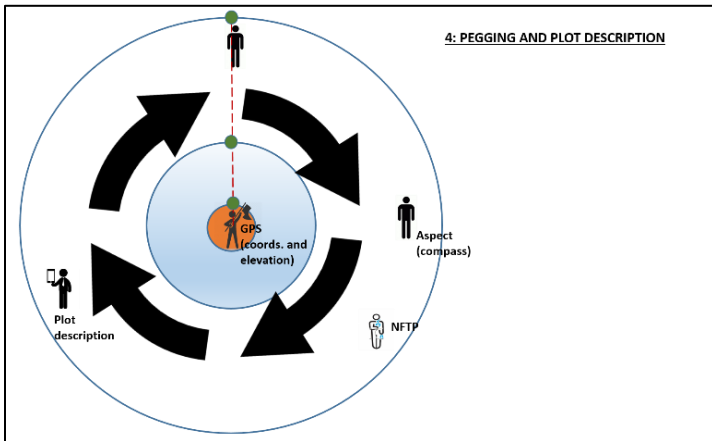
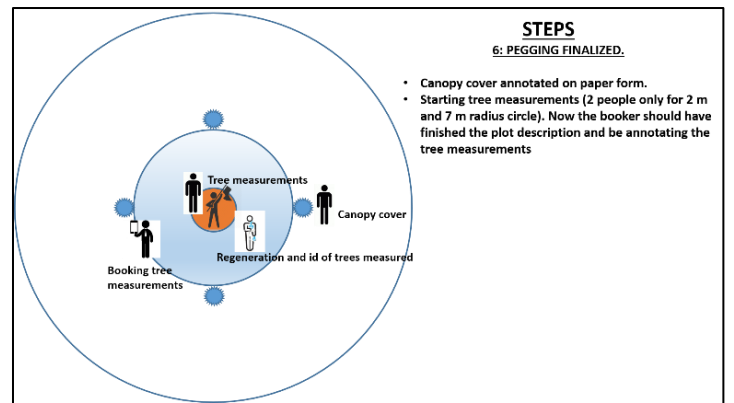
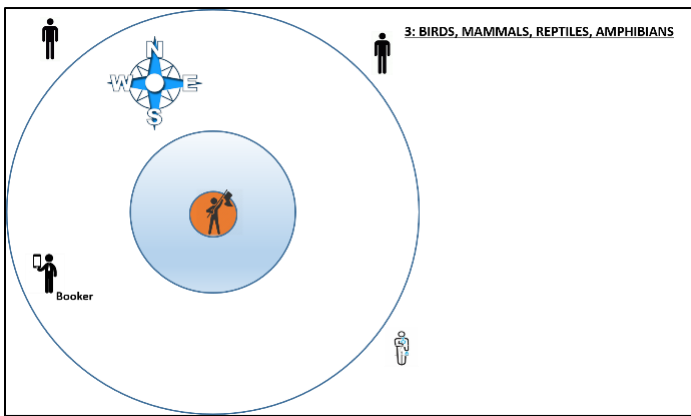
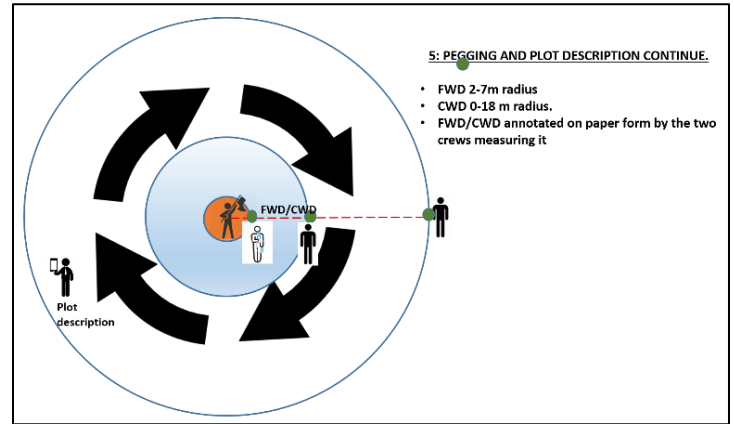
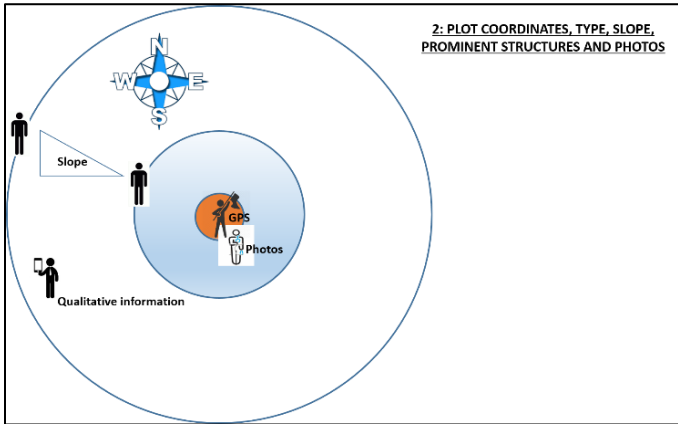
End of data collection in the cluster plot

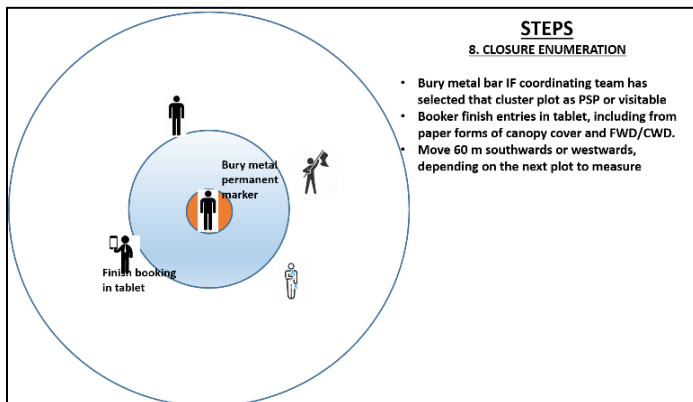
When the work in the Sampling Unit is completed, the field team registers on **Form F1** the date when leaving the SU, to go either to the next SU or to base. Summary notes on the work carried out in the SU, including difficulties encountered while carrying out

7.3. Team Steps for plot measurements

Efficiency during plot enumeration will depend on a well-designed and practised team strategy to adequately distribute the roles of each person. The following are proposed steps for plot enumeration in a team of 5 people:







References

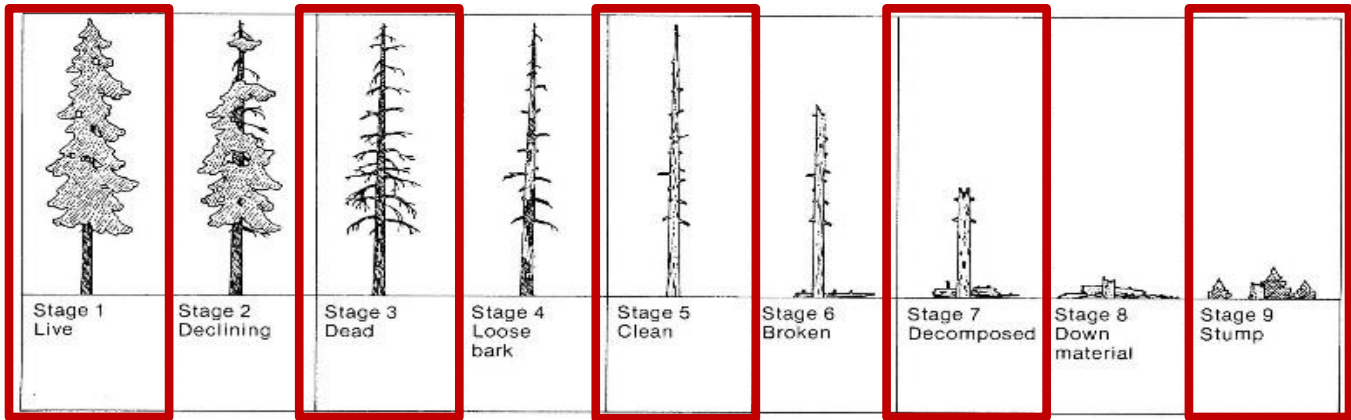
Avitabile, V., Herold, M., Heuvelink, G. B. M., Lewis, S. L., Phillips, O. L., Asner, G. P., Armston, J., Ashton, P. S., Banin, L., Bayol, N., Berry, N. J., Boeckx, P., de Jong, B. H. J., DeVries, B., Girardin, C. A. J., Kearsley, E., Lindsell, J. A., Lopez-Gonzalez, G., Lucas, R., Malhi, Y., Morel, A., Mitchard, E. T. A., Nagy, L., Qie, L., Quinones, M. J., Ryan, C. M., Ferry, S. J. W., Sunderland, T., Laurin, G. V., Gatti, R. C., Valentini, R., Verbeeck, H., Wijaya, A. and Willcock, S. (2016), An integrated pan-tropical biomass map using multiple reference datasets. *Glob Change Biol*, 22: 1406–1420. doi:10.1111/gcb.13139

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Sachtler, M. (1968). General Report on National Forest Inventory in Liberia. Technical Report No. 1 of the Germany Forestry Mission to Liberia. Department of Agriculture. Republic of Liberia.

Sylla, M. and Picard, N. (2005). Guide méthodologique des évaluations rapides de bois

Annex 1 Tree Condition Graphic



ANNEX 2 – Field Forms

Form F1. Access to cluster plot

Cluster Plot Form
Plot

1. Cluster Plot number

Start access date / /

Start access time :

End access date / /

End access time :

Team

Team number 1 2 3 4 5 6

Team Leader

Cluster Plot description

Cluster Plot remarks

Settlement

District

Access route

Description	Coordinates SRS	GPS Y	GPS X	Access photo code	Bearing
<input type="text"/>	EPSG:4326	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	EPSG:4326	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	EPSG:4326	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	EPSG:4326	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	EPSG:4326	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	EPSG:4326	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	EPSG:4326	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	EPSG:4326	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	EPSG:4326	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	EPSG:4326	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Add

Form F1A. Sketch for access to cluster plot

Cluster Plot Form

Plot

1. Cluster Plot number



Form F2. Plot identification and Plot Reference Point

Cluster Plot Form

Plot



Plot



Plot type

Elbow Plot
 Center South Plot
 South Plot
 Center West Plot
 West Plot

3. Plot enumeration date

 / /


4. Plot enumeration time

 :

Accessible

Yes
 No

Slope

Slope measure [?](#)

 deg

Reference Point Form

Bird

Mammal

Reptile/Amphibian

Plot Description Form

FWD/CWD

Regeneration

Trees

Prominent structure

Prominent structure name	Distance (m)	Azimuth (deg)	Description
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Plot Photos [?](#)

	Photo code	Photo bearing (deg)
1.	<input type="text"/>	<input type="text"/>
2.	<input type="text"/>	<input type="text"/>

Form F3. Bird identification

Reference Point Form

Bird

Mammal

Reptile/Amphibian

Plot Description Form

FWD/CWD

Regeneration

Trees

Birds

Species

Species Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
				Bird evidence	Specific remarks		
				<input type="text"/>	<input type="text"/>		

Species identity

- C - Certain
- D - Doubtful

Species

Species Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
				Bird evidence	Specific remarks		
				<input type="text"/>	<input type="text"/>		

Bird evidence

- BE1 - Direct Sighting
- BE2 - Sound/Calls
- BE3 - Droppings
- BE4 - Eggs
- BE5 - Skeleton/Corpse
- BE6 - Feathers
- BE7 - Footprints
- BE8 - Tracks/Paths
- BE9 - Nest/Burrows
- BE10 - Not relevant

Species

Species Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
				Bird evidence	Specific remarks		
				<input type="text"/>	<input type="text"/>		

Form F4. Mammal identification

Reference Point Form	Bird	Mammal	Reptile/Amphibian	Plot Description Form	FWD/CWD	Regeneration	Trees
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Wildlife Mammal

Species

Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> <input type="checkbox"/>	<input type="text"/>
				Mammal evidence	Specific remarks		
				<input type="text"/> <input type="checkbox"/>	<input type="text"/>		

Species identity

- C - Certain
- D - Doubtful

Species

Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> <input type="checkbox"/>	<input type="text"/>
				Mammal evidence	Specific remarks		
				<input type="text"/> <input type="checkbox"/>	<input type="text"/>		

Mammal evidence

- ME1 - Direct Sighting
- ME2 - Sound
- ME3 - Dung/Pellets/Scats
- ME4 - Skeleton/Corpse
- ME5 - Horns/Antlers
- ME6 - Footprints
- ME7 - Tracks/Paths
- ME8 - Burrows/Den
- ME9 - Browsing
- ME10 - Debarking
- ME11 - Fraying
- ME12 - Digging
- ME13 - Not relevant

Species

Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> <input type="checkbox"/>	<input type="text"/>
				Mammal evidence	Specific remarks		
				<input type="text"/> <input type="checkbox"/>	<input type="text"/>		

Form F5. Reptile identification

Reference Point Form

Bird

Mammal

Reptile/Amphibian

Plot Description Form

FWD/CWD

Regeneration

Trees

Wildlife Reptiles

Species

Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> <input type="checkbox"/>	<input type="text"/>
				Reptile evidence	Specific remarks		
				<input type="text"/> <input type="checkbox"/>	<input type="text"/>		

Species identity

- C - Certain
 D - Doubtful

Species

Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> <input type="checkbox"/>	<input type="text"/>
				Reptile evidence	Specific remarks		
				<input type="text"/> <input type="checkbox"/>	<input type="text"/>		

Reptile evidence

- RE1 - Direct Sighting
 RE2 - Sound
 RE3 - Eggs
 RE4 - Skeleton/Corpse
 RE5 - Skin
 RE6 - Tracks/Paths
 RE7 - Nests/Burrows
 RE8 - Not Relevant

Species

Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> <input type="checkbox"/>	<input type="text"/>
				Reptile evidence	Specific remarks		
				<input type="text"/> <input type="checkbox"/>	<input type="text"/>		

Form F6. Amphibian identification

Reference Point Form	Bird	Mammal	Reptile/Amphibian	Plot Description Form	FWD/CWD	Regeneration	Trees
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Amphibian

Amphibian Species

Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Amphibian evidence

Specific remarks

Species identity

- C - Certain
- D - Doubtful

Amphibian Species

Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Amphibian evidence

Specific remarks

Amphibian evidence

- AM1 - Direct Sighting
- AM2 - Sound
- AM3 - Eggs
- AM4 - Skeleton/Corpse
- AM5 - Footprints
- AM6 - Tracks/Paths
- AM7 - Nest/Burrows
- AM8 - Not relevant

Amphibian Species

Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Amphibian evidence

Specific remarks

Form F7. Plot Description. Forest Resources

Reference Point Form

Bird

Mammal

Reptile/Amphibian

Plot Description Form

FWD/CWD

Regeneration

Trees

Plot location

SRS

EPSG:4326

GPS Y

GPS X

Topographic position

Ridge Top Upper Side Hill Middle Side Hill Lower Side Hill Flat Land River Bed Gorge/Ravine

Aspect

Northern North-Eastern Eastern South-Eastern Southern South-Western Western North-Western No aspect

Elevation [?](#)

m

Forest Resources

Non Timber Forest Products (NTFP)

NTFP name

NTFP name

NTFP name

Snag

1-5 snags 5-10 snags More than 10 No Snags

Fallen Trees [?](#)

1-5 Trees 5-10 Trees More than 10 No fallen tree

Form F8. Plot Description. Stand description, main understory type and disturbances

Stand description

Land ownership Private Protected Communal Sacred Don't know

Land ownership note

Land Use class Forest Cropland Wetland Grassland Settlement Shrubland/Woodland Water Rocky outcrop Other land

If Forest

Land Use subdivision ⓘ Forest protected area Forest/Timber extraction Community forest Mangroves Forest plantation

Successional status Primary forest (old growth) Secondary forest young ⓘ Secondary forest old ⓘ

Forest type Not sure Savannah Mangrove Mountain Plantation Semideciduous Evergreen

If Cropland

Land Use subdivision ⓘ Cropland rubber Cropland oil palm Cropland cocoa Cropland coffee Cropland annual Cropland fallow Cropland mixed ⓘ Cropland unknown

Main understory type

Moss

Grass

Herbs

Bamboo

Shrubs

Lianas

Palms

Others

If other understory, specify

Disturbance

Forest fire extent Heavy Fire Moderate Fire Light Fire No Fire

Fire type Surface Crown Not Sure No fire signs

Grazing evidence

Grazing incidence Slight Moderate Severe None

Timber extraction Yes, Clear Cutting Yes, Selective Felling Yes, Group Felling Others No Felling

Mining Yes, Surface Collection Yes Quarry No

Form F9. Plot Description. Health, litter/fuelbed, soil and canopy cover

Forest Health

Pest and disease evidence

Other forest health issues ⓘ

Duff, litter and fuelbed

Litter depth value ⓘ cm

Humus depth value ⓘ cm

Fuelbed depth value ⓘ cm

Bare soil cover percent ⓘ %

Soil

Stoniness None Rare >10% Few, 10-20% Common, 20-30% Many, 30-60% Abundant, >60%

Soil Drainage Poorly Drained Moderately Drained Well Drained

Top soil colour Dark Reddish Yellowish Others

Top soil texture Sand Loam Silt Clay Others

Evidence gully

Evidence erosion

Water bodies Stream/River Wetland/marshy area Lake Pond No Water bodies

Canopy cover

	Canopy cover measurement position	Number of shaded squares
1.	<input type="text"/> ⓘ	<input type="text"/>
2.	<input type="text"/> ⓘ	<input type="text"/>
3.	<input type="text"/> ⓘ	<input type="text"/>
4.	<input type="text"/> ⓘ	<input type="text"/>

Canopy cover

- N - North
 E - East
 S - South
 W - West

Form F10. FWD/CWD. Fine woody debris

Reference Point Form Bird Mammal Reptile/Amphibian Plot Description Form **FWD/CWD** Regeneration Trees

Fine woody debris ⓘ

Diameter at intersection (cm)	FWD decomposition status	Diameter at intersection (cm)	FWD decomposition status	Diameter at intersection (cm)	FWD decomposition status	Diameter at intersection (cm)	FWD decomposition status	Diameter at intersection (cm)	FWD decomposition status
<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ
<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ
<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ
<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ	<input type="text"/>	<input type="text"/> ⓘ

FWD general plot remarks

FWD decomposition status

- V - Very decomposed
- H - Half decomposed
- N - Not decomposed

Form F11. FWD/CWD. Coarse woody debris

Reference Point Form	Bird	Mammal	Reptile/Amphibian	Plot Description Form	FWD/CWD	Regeneration	Trees
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Coarse woody debris [?](#)

Diameter large end (cm)	Diameter small end (cm)	CWD length (m)	CWD decomposition status	Remarks
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

FWD decomposition status

- V - Very decomposed
- H - Half decomposed
- N - Not decomposed

Form F12. FWD/CWD. Regeneration

Reference Point Form

Bird

Mammal

Reptile/Amphibian


Plot Description Form

FWD/CWD

Regeneration

Trees

Regeneration

Number of recruits 

Regeneration remarks

Form F13. Tree measurements

Reference Point Form

Bird

Mammal

Reptile/Amphibian

Plot Description Form

FWD/CWD

Regeneration

Trees

Condition of tree

- L - Live
- Dea - Dead
- C - Clean
- Dec - Decomposed
- S - Stump

Tree number	Distance from plot centre (m)	Canopy position	Condition of tree	Species Code	Scientific name	Vernacular name	Language	Dialect	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
Name if unlisted species	Species identity	Species sample code	DBH	Diameter if stump (cm)	Distance to tree for tree height measurement (m)	Total height angle (deg)	Distance to tree for bole height measurement (m)	Bole height angle (deg)	Remarks
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Tree number	Distance from plot centre (m)	Canopy position	Condition of tree	Species Code	Scientific name	Vernacular name	Language	Dialect	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
Name if unlisted species	Species identity	Species sample code	DBH	Diameter if stump (cm)	Distance to tree for tree height measurement (m)	Total height angle (deg)	Distance to tree for bole height measurement (m)	Bole height angle (deg)	Remarks
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Canopy position

- S - Supressed
- I - Intermediate (some light)
- C - Codominant (canopy top)
- D - Dominant (above canopy)

Tree number	Distance from plot centre (m)	Canopy position	Condition of tree	Species Code	Scientific name	Vernacular name	Language	Dialect	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
Name if unlisted species	Species identity	Species sample code	DBH	Diameter if stump (cm)	Distance to tree for tree height measurement (m)	Total height angle (deg)	Distance to tree for bole height measurement (m)	Bole height angle (deg)	Remarks
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Species identity

- C - Certain
- D - Doubtful

ANNEX 2 Birds Species List

Code	Scientific name		
ACCIPITE_BADIUS	Accipiter badius	ARDEOLA_RALLOID	Ardeola ralloides
ACCIPITE_CASTANI	Accipiter castanius	ARENARIA_INTERPR	Arenaria interpres
ACCIPITE_ERYTHRO	Accipiter erythropus	ARTOMYIA_USSHERI	Artomyias ussheri
ACCIPITE_MELANOL	Accipiter melanoleucus	ATIMASTI_FLAVICO	Atimastillas flavicollis
ACCIPITE_TACHIRO	Accipiter tachiro	AVICEDA_CUCULOI	Aviceda cuculoides
ACCIPITE_TOUSSEN	Accipiter toussenelii	BAEOPOGO_INDICAT	Baeopogon indicator
ACROCEPH_ARUNDIN	Acrocephalus arundinaceus	BATHMOCE_CERVINI	Bathmocercus cerviniventris
ACROCEPH_PALUDIC	Acrocephalus paludicola	BATIS_POENSIS	Batis poensis
ACROCEPH_SCHOENO	Acrocephalus schoenobaenus	BATIS_SENEGAL	Batis senegalensis
ACROCEPH_SCIRPAC	Acrocephalus scirpaceus	BIAS_MUSICUS	Bias musicus
ACTITIS_HYPOLEU	Actitis hypoleucos	BLEDA_CANICAP	Bleda canicapillus
ACTOPHIL_AFRICAN	Actophilornis africanus	BLEDA_EXIMIUS	Bleda eximius
AGAPORNI_PULLARI	Agapornis pullarius	BLEDA_SYNDACT	Bleda syndactylus
AGAPORNI_SWINDER	Agapornis swindernianus	BOCAGIA_MINUTA	Bocagia minuta
AGELASTE_MELEAGR	Agelastes meleagrides	BOSTRYCH_HAGEDAS	Bostrychia hagedash
ALCEDO_CRISTAT	Alcedo cristata	BOSTRYCH_OLIVACE	Bostrychia olivacea
ALCEDO_LEUCOGA	Alcedo leucogaster	BOSTRYCH_RARA	Bostrychia rara
ALCEDO_QUADRIB	Alcedo quadribrachys	BRADORNI_COMITAT	Bradornis comitatus
ALETHE_DIADEMA	Alethe diademata	BRADORNI_USSHERI	Bradornis ussheri
AMAURORN_FLAVIRO	Amaurornis flavirostra	BUBO_CINERAS	Bubo cinerascens
AMAZONA_AUROPAL	Amazona auropalliata	BUBO_LEUCOST	Bubo leucostictus
AMBLYOSP_ALBIFRO	Amblyospiza albifrons	BUBULCUS_IBIS	Bubulcus ibis
ANABATHM_REICHEN	Anabathmis reichenbachii	BUCCANOD_DUCHAIL	Buccanodon duchailui
ANHINGA_RUFA	Anhinga rufa	BUTASTUR_RUFIPEN	Butastur rufipennis
ANTHREPT_GABONIC	Anthreptes gabonicus	BUTEO_AUGURAL	Buteo auguralis
ANTHREPT_RECTIRO	Anthreptes rectirostris	BUTORIDE_STRIATA	Butorides striata
ANTHREPT_SEIMUND	Anthreptes seimundi	BYCANIST_BUCINAT	Bycanistes bucinator
ANTHUS_GOULDII	Anthus gouldii	BYCANIST_CYLINDR	Bycanistes cylindricus
ANTHUS_LEUCOPH	Anthus leucophrys	BYCANIST_FISTULA	Bycanistes fistulator
ANTHUS_NOVAESE	Anthus novaeseelandiae	CALIDRIS_ALBA	Calidris alba
ANTHUS_SIMILIS	Anthus similis	CALIDRIS_FERRUGI	Calidris ferruginea
ANTHUS_TRIVIAL	Anthus trivialis	CALIDRIS_MINUTA	Calidris minuta
APALIS_NIGRICE	Apalis nigriceps	CALONECT_DIOMEDE	Calonectris diomedea
APALIS_SHARPII	Apalis sharpii	CALYPTOC_SERINUS	Calyptocichla serinus
APALODER_NARINA	Apaloderma narina	CAMAROPT_BRACHYU	Camaroptera brachyura
APUS_AFFINIS	Apus affinis	CAMAROPT_BREVIC	Camaroptera brevicaudata
APUS_APUS	Apus apus	CAMAROPT_CHLORON	Camaroptera chloronota
APUS_BATESI	Apus batesi	CAMAROPT_SUPERCI	Camaroptera superciliaris
APUS_CAFFER	Apus caffer	CAMPEPHA_PHOENIC	Campephaga phoenicea
APUS_MELBA	Apus melba	CAMPEPHA_QUISCAL	Campephaga quiscalina
AQUILA_AFRICAN	Aquila africana	CAMPETHE_CAROLI	Campethera caroli
ARDEA_ALBA	Ardea alba	CAMPETHE_MACULOS	Campethera maculosa
ARDEA_CINEREA	Ardea cinerea	CAMPETHE_NIVOSA	Campethera nivosa
ARDEA_MELANOC	Ardea melanocephala	CANIRALL_OCULEUS	Canirallus oculeus
ARDEA_PURPURE	Ardea purpurea	CAPRIMUL_CLIMACU	Caprimulgus climacurus
		CAPRIMUL_INORNAT	Caprimulgus inornatus
		CAPRIMUL_NATALEN	Caprimulgus natalensis

CECROPIS_ABYSSIN	<i>Cecropis abyssinica</i>	CLAMATOR_LEVAILL	<i>Clamator levillantii</i>
CECROPIS_DAUERICA	<i>Cecropis daurica</i>	COLUMBA_IRIDITO	<i>Columba iriditorques</i>
CECROPIS_SEMIRUF	<i>Cecropis semirufa</i>	COLUMBA_LARVATA	<i>Columba larvata</i>
CENTROPU_EPOMIDI	<i>Centropus epomidis</i>	COLUMBA_LIVIA	<i>Columba livia</i>
CENTROPU_GRILLII	<i>Centropus grillii</i>	COLUMBA_MALHERB	<i>Columba malherbii</i>
CENTROPU_LEUCOGA	<i>Centropus leucogaster</i>	COLUMBA_UNICINC	<i>Columba unicincta</i>
CENTROPU_SENEGAL	<i>Centropus senegalensis</i>	CORACIAS_ABYSSIN	<i>Coracias abyssinicus</i>
CERATOGY_ATRATA	<i>Ceratogymna atrata</i>	CORACINA_AZUREA	<i>Coracina azurea</i>
CERATOGY_ELATA	<i>Ceratogymna elata</i>	CORVUS_ALBUS	<i>Corvus albus</i>
CERCOCOC_MECHOWI	<i>Cercococcyx mechowi</i>	CORYTHAE_CRISTAT	<i>Corythaeola cristata</i>
CERCOCOC_OLIVINU	<i>Cercococcyx olivinus</i>	COSSYPHA_CYANOCA	<i>Cossypha cyanocampter</i>
CERYLE_RUDIS	<i>Ceryle rudis</i>	COSSYPHA_NIVEICA	<i>Cossypha niveicapilla</i>
CEUTHMOC_AEREUS	<i>Ceuthmochares aereus</i>	CREX_EGREGIA	<i>Crex egregia</i>
CEYX_LECONTE	<i>Ceyx lecontei</i>	CRINIFER_PISCATO	<i>Crinifer piscator</i>
CEYX_PICTUS	<i>Ceyx pictus</i>	CRINIGER_BARBATU	<i>Criniger barbatus</i>
CHALCOMI_ADELBER	<i>Chalcomitra adelberti</i>	CRINIGER_CALURUS	<i>Criniger calurus</i>
CHALCOMI_FULIGIN	<i>Chalcomitra fuliginosa</i>	CRINIGER_OLIVACE	<i>Criniger olivaceus</i>
CHARADRI_DUBIUS	<i>Charadrius dubius</i>	CRINIGER_SIMPLEX	<i>Criniger simplex</i>
CHARADRI_FORBESI	<i>Charadrius forbesi</i>	CRITHAGR_MOZAMBI	<i>Crithagra mozambica</i>
CHARADRI_HIATICU	<i>Charadrius hiaticula</i>	CUCULUS_CANORUS	<i>Cuculus canorus</i>
CHARADRI_TRICOLL	<i>Charadrius tricoloris</i>	CUCULUS_CLAMOSU	<i>Cuculus clamosus</i>
CHLIDONI_LEUCOPT	<i>Chlidonias leucopterus</i>	CUCULUS_SOLITAR	<i>Cuculus solitarius</i>
CHLIDONI_NIGER	<i>Chlidonias niger</i>	CYANISTE_CYANUS	<i>Cyanistes cyanus</i>
CHLOROCI_SIMPLEX	<i>Chlorocichla simplex</i>	CYANOGRA_AZUREUS	<i>Cyanograucalus azureus</i>
CHLOROPH_SULFURE	<i>Chlorophoneus sulfureopectus</i>	CYANOMIT_CYANOLA	<i>Cyanomitra cyanolaema</i>
CHRYSOCO_CAPRIUS	<i>Chrysococcyx caprius</i>	CYANOMIT_OBSCURA	<i>Cyanomitra obscura</i>
CHRYSOCO_CUPREUS	<i>Chrysococcyx cupreus</i>	CYANOMIT_OLIVACE	<i>Cyanomitra olivacea</i>
CHRYSOCO_FLAVIGU	<i>Chrysococcyx flavularis</i>	CYANOMIT_VERTICALI	<i>Cyanomitra verticalis</i>
CHRYSOCO_KLAAS	<i>Chrysococcyx klaas</i>	CYPSIURU_PARVUS	<i>Cypsiurus parvus</i>
CICONIA_EPISCOP	<i>Ciconia episcopus</i>	DELEORNI_FRASERI	<i>Deleornis fraseri</i>
CINNYRIC_LEUCOGA	<i>Cinnyricinclus leucogaster</i>	DELICHON_URBICUM	<i>Delichon urbicum</i>
CINNYRIS_CHLOROP	<i>Cinnyris chloropygius</i>	DENDROCY_VIDUATA	<i>Dendrocycna viduata</i>
CINNYRIS_COCCINI	<i>Cinnyris coccinigastrus</i>	DENDRONA_INDICUS	<i>Dendronanthus indicus</i>
CINNYRIS_CUPREUS	<i>Cinnyris cupreus</i>	DENDROPI_FUSCESC	<i>Dendropicos fuscescens</i>
CINNYRIS_JOHANNA	<i>Cinnyris johanna</i>	DENDROPI_GABONEN	<i>Dendropicos gabonensis</i>
CINNYRIS_MINULLU	<i>Cinnyris minullus</i>	DENDROPI_GOERTAE	<i>Dendropicos goertae</i>
CINNYRIS_SUPERBU	<i>Cinnyris superbus</i>	DENDROPI_PYRRHOG	<i>Dendropicos pyrrhogaster</i>
CINNYRIS_VENUSTU	<i>Cinnyris venustus</i>	DICRURUS_ADSIMIL	<i>Dicrurus adsimilis</i>
CIRCAETU_CINEREU	<i>Circaetus cinereus</i>	DICRURUS_ATRIPEN	<i>Dicrurus atripennis</i>
CIRCUS_AERUGIN	<i>Circus aeruginosus</i>	DICRURUS_LUDWIGI	<i>Dicrurus ludwigii</i>
CIRCUS_MACROUR	<i>Circus macrourus</i>	DICRURUS_MODESTU	<i>Dicrurus modestus</i>
CISTICOL_BRACHYP	<i>Cisticola brachypterus</i>	DRYMOICA_LATERAL	<i>Drymoica lateralis</i>
CISTICOL_CANTANS	<i>Cisticola cantans</i>	DRYOSCOPI_GAMBENS	<i>Dryoscopus gambensis</i>
CISTICOL_ERYTHRO	<i>Cisticola erythrops</i>	DRYOSCOPI_SABINI	<i>Dryoscopus sabini</i>
CISTICOL_GALACTO	<i>Cisticola galactotes</i>	DRYOTRIO_SPECTAB	<i>Dryotriorchis spectabilis</i>
CISTICOL_LATERAL	<i>Cisticola lateralis</i>	EGRETTE_ARDESIA	<i>Egretta ardesiaca</i>
CISTICOL_RUFUS	<i>Cisticola rufus</i>	EGRETTE_GARZETT	<i>Egretta garzetta</i>

EGRETTA_GULARIS	<i>Egretta gularis</i>	HALCYON_LEUOCOCE	<i>Halcyon leucocephala</i>
EGRETTA_INTERME	<i>Egretta intermedia</i>	HALCYON_MALIMBI	<i>Halcyon malimbica</i>
ELANUS_CAERULE	<i>Elanus caeruleus</i>	HALCYON_SENEGAL	<i>Halcyon senegalensis</i>
ELMINIA_NIGROMI	<i>Elminia nigromitrata</i>	HALIAEET_VOCIFER	<i>Haliaeetus vocifer</i>
EREMOMEL_BADICEP	<i>Eremomela badiceps</i>	HEDYDIPN_COLLARI	<i>Hedydipna collaris</i>
ERYTHROC_MCCALLI	<i>Erythrocerus mcallii</i>	HIERAAET_AYRESII	<i>Hieraaetus ayresii</i>
ERYTHROP_LEUCOST	<i>Erythropteria leucosticta</i>	HIERAAET_WAHLBER	<i>Hieraaetus wahlbergi</i>
ESTRILDA_ASTRILD	<i>Estrilda astrild</i>	HIMANTOP_HIMANTO	<i>Himantopus himantopus</i>
ESTRILDA_CAERULE	<i>Estrilda caerulescens</i>	HIMANTOR_HAEMATO	<i>Himantornis haematopus</i>
ESTRILDA_MELPODA	<i>Estrilda melpoda</i>	HIPPOLAI_POLYGLO	<i>Hippolais polyglotta</i>
ESTRILDA_TROGLOD	<i>Estrilda troglodytes</i>	HIRUNDO_AETHIOP	<i>Hirundo aethiopica</i>
EUPLECTE_ARDENS	<i>Euplectes ardens</i>	HIRUNDO_NIGRITA	<i>Hirundo nigrita</i>
EUPLECTE_HORDEAC	<i>Euplectes hordeaceus</i>	HIRUNDO_RUSTICA	<i>Hirundo rustica</i>
EUPLECTE_MACROUR	<i>Euplectes macroura</i>	HORIZOCE_HARTLAU	<i>Horizocerus hartlaubi</i>
EURILLAS_ANSORGE	<i>Eurillas ansorgei</i>	HYDROBAT_PELAGIC	<i>Hydrobates pelagicus</i>
EURILLAS_CURVIRO	<i>Eurillas curvirostris</i>	HYLIA_PRASINA	<i>Hylia prasina</i>
EURILLAS_GRACILI	<i>Eurillas gracilis</i>	HYLIOTA_VIOLACE	<i>Hyliota violacea</i>
EURILLAS_LATIROS	<i>Eurillas latirostris</i>	HYLOPSAR_CUPREOC	<i>Hylopsar cupreocauda</i>
EURILLAS_VIRENS	<i>Eurillas virens</i>	HYPERGER_ATRICEP	<i>Hypergerus atriceps</i>
EURYSTOM_AFER	<i>Eurystomus afer</i>	IDUNA_PALLIDA	<i>Iduna pallida</i>
EURYSTOM_GLAUCUR	<i>Eurystomus glaucurus</i>	ILLADOPS_CLEAVER	<i>Illadopsis cleaveri</i>
EURYSTOM_GULARIS	<i>Eurystomus gularis</i>	ILLADOPS_FULVESC	<i>Illadopsis fulvescens</i>
FALCO_ARDOSIA	<i>Falco ardosiaceus</i>	ILLADOPS_PUVELI	<i>Illadopsis puveli</i>
FALCO_CUVIERI	<i>Falco cuvierii</i>	ILLADOPS_RUFESCE	<i>Illadopsis rufescens</i>
FALCO_PEREGRINI	<i>Falco peregrinus</i>	ILLADOPS_RUFIPEN	<i>Illadopsis rufipennis</i>
FALCO_TINNUNC	<i>Falco tinnunculus</i>	INDICATO_CONIROSI	<i>Indicator conirostris</i>
FICEDULA_HYPOLEU	<i>Ficedula hypoleuca</i>	INDICATO_EXILIS	<i>Indicator exilis</i>
FRANCOLI_AHANTEN	<i>Francolinus achantensis</i>	INDICATO_MACULAT	<i>Indicator maculatus</i>
FRANCOLI_BICALCA	<i>Francolinus bicalcaratus</i>	INDICATO_MINOR	<i>Indicator minor</i>
FRANCOLI_LATHAMI	<i>Francolinus lathami</i>	INDICATO_VARIEGA	<i>Indicator variegatus</i>
FRASERIA_CAERULE	<i>Fraseria caerulescens</i>	INDICATO_WILLCOCK	<i>Indicator willcocksi</i>
FRASERIA_CINERAS	<i>Fraseria cinerascens</i>	IXOBRYCH_MINUTUS	<i>Ixobrychus minutus</i>
FRASERIA_OCREATA	<i>Fraseria ocreata</i>	IXOBRYCH_STURMII	<i>Ixobrychus sturmii</i>
FRASERIA_TESSMAN	<i>Fraseria tessmanni</i>	IXONOTUS_GUTTATU	<i>Ixonotus guttatus</i>
GALLINAG_GALLINA	<i>Gallinago gallinago</i>	JUBULA_LETTII	<i>Jubula lettii</i>
GALLINUL_CHLOROP	<i>Gallinula chloropus</i>	JYNX_TORQUIL	<i>Jynx torquilla</i>
GEOKICHL_PRINCEI	<i>Geokichla princei</i>	KAUPIFAL_MONOGRAM	<i>Kaupifalco monogrammicus</i>
GLAREOLA_NUCHALI	<i>Glareola nuchalis</i>	LAGONOST_NITIDUL	<i>Lagonosticta nitidula</i>
GLAREOLA_PRATINC	<i>Glareola pratincola</i>	LAGONOST_RARA	<i>Lagonosticta rara</i>
GLAUCIDI_TEPHRON	<i>Glaucidium tephronotum</i>	LAGONOST_RUBRICA	<i>Lagonosticta rubricata</i>
GORSACHI_LEUCONO	<i>Gorsachius leuconotus</i>	LAGONOST_RUFOPIC	<i>Lagonosticta rufopicta</i>
GUTTERA_PUCHERA	<i>Guttera pucherani</i>	LAGONOST_SENEGAL	<i>Lagonosticta senegalensis</i>
GYMNOBUC_CALVUS	<i>Gymnobucco calvus</i>	LAMPROTO_CAUDATU	<i>Lamprotornis caudatus</i>
GYPOHIER_ANGOLEN	<i>Gypohierax angolensis</i>	LAMPROTO_CHLOROP	<i>Lamprotornis chloropterus</i>
HALCYON_BADIA	<i>Halcyon badia</i>	LAMPROTO_SPLENDI	<i>Lamprotornis splendidus</i>

LANIARIU_LEUCORH	Laniarius leucorhynchus	MOTACILL_CLARA	Motacilla clara
LANIARIU_MAJOR	Laniarius major	MOTACILL_FLAVA	Motacilla flava
LANIUS_COLLARI	Lanius collaris	MUSCICAP_CASSINI	Muscicapa cassini
LANIUS_HUMERAL	Lanius humeralis	MUSCICAP_COMITAT	Muscicapa comitata
LARUS_FUSCUS	Larus fuscus	MUSCICAP_EPULATA	Muscicapa epulata
LARUS_RIDIBUN	Larus ridibundus	MUSCICAP_OLIVASC	Muscicapa olivascens
LOBOTOS_LOBATUS	Lobotos lobatus	MUSCICAP_USSHERI	Muscicapa ussheri
LONCHURA_BICOLOR	Lonchura bicolor	MUSOPHAG_VIOLACE	Musophaga violacea
LONCHURA_CUCULLA	Lonchura cucullata	MYIOPARU_GRISEIG	Myioparus griseigularis
LONCHURA_FRINGIL	Lonchura fringilloides	MYIOPARU_PLUMBEU	Myioparus plumbeus
LUSCINIA_MEGARHY	Luscinia megarhynchos	NEAFRAPU_CASSINI	Neafrapus cassini
LYBIUS_BIDENTA	Lybius bidentatus	NECROSYR_MONACHU	Necrosyrtes monachus
LYBIUS_DUBIUS	Lybius dubius	NEOCOSSY_POENSIS	Neocossyphus poensis
LYBIUS_VIEILLO	Lybius vieilloti	NETTAPUS_AURITUS	Nettapus auritus
MACHEIRA_ALCINUS	Macheiramphus alcinus	NICATOR_CHLORIS	Nicator chloris
MACRODIP_LONGIPE	Macrodipteryx longipennis	NIGRITA_BICOLOR	Nigrita bicolor
MACRONYX_CROCEUS	Macronyx croceus	NIGRITA_CANICAP	Nigrita canicapillus
MACROSPH_CONCOLO	Macrosphenus concolor	NIGRITA_EMILIAE	Nigrita emiliae
MACROSPH_FLAVICA	Macrosphenus flavicans	NIGRITA_FUSCONO	Nigrita fusconotus
MACROSPH_KEMPI	Macrosphenus kempi	NUMENIUS_PHAEOPU	Numenius phaeopus
MALACONO_CRUENTU	Malaconotus cruentus	NYCTICOR_NYCTICO	Nycticorax nycticorax
MALACONO_LAGDENI	Malaconotus lagdeni	OCEANITE_OCEANIC	Oceanites oceanicus
MALIMBUS_BALLMAN	Malimbus ballmani	OCEANODR_LEUCORH	Oceanodroma leucorhoa
MALIMBUS_MALIMBI	Malimbus malimbicus	ONYCHOGN_FULGIDU	Onychognathus fulgidus
MALIMBUS_NITENS	Malimbus nitens	ONYCHOGN_HARTLAU	Onychognathus hartlaubii
MALIMBUS_RUBRICO	Malimbus rubricollis	ORIOLOUS_BRACHYR	Oriolus brachyrhynchus
MALIMBUS_SCUTATU	Malimbus scutatus	ORIOLOUS_MONACHA	Oriolus monacha
MEGABYAS_FLAMMUL	Megabyas flammulatus	ORIOLOUS_NIGRIPE	Oriolus nigripennis
MEGACERY_MAXIMA	Megaceryle maxima	ORTHOLOP_FINSCHI	Ortholophus finschi
MELAENOR_ANNAMAR	Melaenornis annamarulae	ORTYGOSP_ATTRICOL	Ortygospiza atricollis
MELAENOR_EDOLIOI	Melaenornis edolioides	OTUS_ICTEROR	Otus icterorhynchus
MELICHNE_ROBUSTU	Melichneutes robustus	PANDION_HALIAET	Pandion haliaetus
MELIGNOM_EISENTR	Melignomon eisentrauti	PARMOPTI_RUBRIFR	Parmoptila rubrifrons
MELOCICH_MENTALI	Melocichla mentalis	PARMOPTI_WOODHOU	Parmoptila woodhousei
MEROPS_ALBICOL	Merops albicollis	PARUS_FUNEREU	Parus funereus
MEROPS_APIASTE	Merops apiaster	PASSER_DOMESTI	Passer domesticus
MEROPS_GULARIS	Merops gularis	PASSER_GRISEUS	Passer griseus
MEROPS_MUELLER	Merops muelleri	PERNIS_APIVORU	Pernis apivorus
MEROPS_NUBICUS	Merops nubicus	PETROCHE_PREUSSI	Petrochelidon preussi
MEROPS_PERSICU	Merops persicus	PHILOMAC_PUGNAX	Philomachus pugnax
MEROPS_PUSILLU	Merops pusillus	PHOENICU_CASTANE	Phoeniculus castaneiceps
MEROPS_SUPERCI	Merops superciliosus	PHOLIDOR_RUSHIAE	Pholidornis rushiae
MICROCAR_AFRICAN	Microcarbo africanus	PHYLLANT_ATTRIPEN	Phyllanthus atripennis
MICRONIS_GABAR	Micronisus gabar	PHYLLAST_BAUMANN	Phyllastrephus baumanni
MILVUS_MIGRANS	Milvus migrans	PHYLLAST_ICTERIN	Phyllastrephus icterinus
MOTACILL_AGUIMP	Motacilla aguimp	PHYLLAST_SCANDEN	Phyllastrephus scandens
MOTACILL_ALBA	Motacilla alba	PHYLLOSC_SIBILLA	Phylloscopus sibilatrix

PHYLLOSC_TROCHIL	Phylloscopus trochilus	PSITTACU_TIMNEH	Psittacus timneh
PICATHAR_GYMNOCE	Picathartes gymnocephalus	PTERONET_HARTLAU	Pteronetta hartlaubii
PITTA_ANGOLEN	Pitta angolensis	PTILOPSI_LEUCOTI	Ptilopsis leucotis
PLATYSTE_BLISETT	Platysteira blissetti	PTYONOPR_FULIGUL	Ptyonoprogne fuligula
PLATYSTE_CASTANE	Platysteira castanea	PUFFINUS_GRISEUS	Puffinus griseus
PLATYSTE_CONCRET	Platysteira concreta	PYCNONOT_BARBATU	Pycnonotus barbatus
PLATYSTE_CYANEA	Platysteira cyanea	PYCNONOT_VIRENS	Pycnonotus virens
PLATYSTE_HORMOPH	Platysteira hormophora	PYRENEST_OSTRINU	Pyrenestes ostrinus
PLATYSTE_LEUCOPY	Platysteira leucopygialis	PYRENEST_SANGUIN	Pyrenestes sanguineus
PLECTROP_GAMBENS	Plectropterus gambensis	PYILIA_HYPOGRA	Pytilia hypogrammica
PLOCEUS_ALBINUC	Ploceus albinucha	QUELEA_ERYTHRO	Quelea erythroptis
PLOCEUS_AURANTI	Ploceus aurantius	QUELEA_QUELEA	Quelea quelea
PLOCEUS_CUCULLA	Ploceus cucullatus	RHAPHIDU_SABINI	Rhaphidura sabini
PLOCEUS_MELANOC	Ploceus melanocephalus	RHODOSTE_ROSEA	Rhodostethia rosea
PLOCEUS_NIGERRI	Ploceus nigerrimus	ROSTRATU_BENGHAL	Rostratula benghalensis
PLOCEUS_NIGRICO	Ploceus nigricollis	RYNCHOPS_FLAVIRO	Rynchops flavirostris
PLOCEUS_PELZELN	Ploceus pelzelni	SAROTHRU_PULCHRA	Sarothrura pulchra
PLOCEUS_PREUSSI	Ploceus preussi	SAXICOLA_RUBETRA	Saxicola rubetra
PLOCEUS_SUPERCI	Ploceus superciliosus	SAXICOLA_TORQUAT	Saxicola torquatus
PLOCEUS_TRICOLO	Ploceus tricolor	SCHISTOL_LEONTIC	Schistolais leontica
PLUVIALI_SQUATAR	Pluvialis squatarola	SCOTOPEL_BOUVIER	Scotopelia bouvieri
PODICA_SENEGAL	Podica senegalensis	SCOTOPEL_PELI	Scotopelia peli
POEOPTER_LUGUBRI	Poeoptera lugubris	SCOTOPEL_USSHERI	Scotopelia ussheri
POGONIUL_ATROFLA	Pogoniulus atroflavus	SCOTORNI_CLIMACU	Scotornis climacurus
POGONIUL_BILINEA	Pogoniulus bilineatus	SETOPHAG_STRIATA	Setophaga striata
POGONIUL_CHRYSOC	Pogoniulus chrysoconus	SHEPPARD_CYORNIT	Sheppardia cyornithopsis
POGONIUL_DUCHAIL	Pogoniulus duchailui	SMITHORN_RUFOLAT	Smithornis rufolateralis
POGONIUL_SCOLOPA	Pogoniulus scolopaceus	SPERMEST_BICOLOR	Spermestes bicolor
POGONIUL_SUBSULP	Pogoniulus subsulphureus	SPERMEST_CUCULLA	Spermestes cucullata
POICEPHA_GULIELM	Poicephalus gulielmi	SPERMEST_FRINGIL	Spermestes fringilloides
POICEPHA_SENEGAL	Poicephalus senegalus	SPERMOPH_HAEMATI	Spermophaga haematina
POLYBORO_TYPUS	Polyboroides typus	STELGIDI_GRACILI	Stelgidillas gracilirostris
PORPHYRI_ALLENI	Porphyrio alleni	STEPHANO_CORONAT	Stephanoaetus coronatus
PRINIA_ERYTHRO	Prinia erythroptera	STERCORA_PARASIT	Stercorarius parasiticus
PRINIA_MYSTACE	Prinia mystacea	STERCORA_POMARIN	Stercorarius pomarinus
PRINIA_SUBFLAV	Prinia subflava	STERNA_DOUGALL	Sterna dougallii
PRIONOPS_CANICEP	Prionops caniceps	STERNA_HIRUNDO	Sterna hirundo
PRIONOPS_PLUMATU	Prionops plumatus	STERNA_MAXIMA	Sterna maxima
PRODOTIS_INSIGNI	Prodotiscus insignis	STERNA_NILOTIC	Sterna nilotica
PSALIDOP_NITENS	Psalidoprocne nitens	STERNA_PARADIS	Sterna paradisaea
PSALIDOP_OBSCURA	Psalidoprocne obscura	STIPHOROR_ERYTHRO	Stiphornis erythrothorax
PSALIDOP_PRISTOP	Psalidoprocne pristoptera	STIZORHI_FINSCHI	Stizorhina finschi
PSEUDALE_POLIOCE	Pseudalethe poliocephala	STIZORHI_FRASERI	Stizorhina fraseri
PSITTACU_ERITHAC	Psittacus erithacus	STREPTOP_SEMITOR	Streptopelia semitorquata
PSITTACU_KRAMERI	Psittacula krameri	STREPTOP_SENEGAL	Streptopelia senegalensis

STREPTOP_VINACEA	<i>Streptopelia vinacea</i>	UROTRIOR_MACROUR	<i>Urotriorchis macrourus</i>
STRIX_WOODFOR	<i>Strix woodfordii</i>	VANELLUS_ALBICEP	<i>Vanellus albiceps</i>
SYLVIA_BORIN	<i>Sylvia borin</i>	VANELLUS_LUGUBRI	<i>Vanellus lugubris</i>
SYLVIETT_DENTI	<i>Sylvietta denti</i>	VELES_BINOTAT	<i>Veles binotatus</i>
SYLVIETT_VIRENS	<i>Sylvietta virens</i>	VIDUA_MACROUR	<i>Vidua macroura</i>
TACHYBAP_RUFICOL	<i>Tachybaptus ruficollis</i>	ZAPORNIA_FLAVIRO	<i>Zapornia flavirostra</i>
TAURACO_CORYTHA	<i>Tauraco corythaix</i>	ZOSTEROP_SENEGAL	<i>Zosterops senegalensis</i>
TAURACO_MACRORH	<i>Tauraco macrorhynchus</i>		
TAURACO_PERSA	<i>Tauraco persa</i>		
TCHAGRA_AUSTRAL	<i>Tchagra australis</i>		
TCHAGRA_SENEGAL	<i>Tchagra senegalus</i>		
TELACANT_USSHERI	<i>Telacanthura ussheri</i>		
TELOPHOR_CRUENTU	<i>Telophorus cruentus</i>		
TERPSIPH_RUFIVEN	<i>Terpsiphone rufiventer</i>		
TERPSIPH_SMITHII	<i>Terpsiphone smithii</i>		
THALASSE_SANDVIC	<i>Thalasseus sandvicensis</i>		
THESELO_LEUCOPL	<i>Thescelocichla leucopleura</i>		
TIGRIORN_LEUCOLO	<i>Tigriornis leucolopha</i>		
TOCKUS_CAMURUS	<i>Tockus camurus</i>		
TOCKUS_FASCIAT	<i>Tockus fasciatus</i>		
TOCKUS_HARTLAU	<i>Tockus hartlaubi</i>		
TRACHYLA_PURPURA	<i>Trachylaemus purpuratus</i>		
TRERON_CALVUS	<i>Treron calvus</i>		
TRICHAST_FULVESC	<i>Trichastoma fulvescens</i>		
TRICHAST_RUFIPEN	<i>Trichastoma rufipenne</i>		
TRICHOLA_HIRSUTA	<i>Tricholaema hirsuta</i>		
TRINGA_GLAREOL	<i>Tringa glareola</i>		
TRINGA_NEBULAR	<i>Tringa nebularia</i>		
TRINGA_OCHROPU	<i>Tringa ochropus</i>		
TRINGA_STAGNAT	<i>Tringa stagnatilis</i>		
TRINGA_TOTANUS	<i>Tringa totanus</i>		
TROCHOCE_NITENS	<i>Trochocercus nitens</i>		
TROPICRA_ALBOCRI	<i>Tropicranus albocristatus</i>		
TURDOIDE_ATRIPEN	<i>Turdoides atripennis</i>		
TURDOIDE_REINWAR	<i>Turdoides reinwardtii</i>		
TURDUS_LIBONYA	<i>Turdus libonyana</i>		
TURDUS_OLIVACE	<i>Turdus olivaceus</i>		
TURDUS_PELIOS	<i>Turdus pelios</i>		
TURDUS_PILARIS	<i>Turdus pilaris</i>		
TURDUS_TORQUAT	<i>Turdus torquatus</i>		
TURTUR_AFER	<i>Turtur afer</i>		
TURTUR_BREHMER	<i>Turtur brehmeri</i>		
TURTUR_TYMPANI	<i>Turtur tympanistria</i>		
TYTO_ALBA	<i>Tyto alba</i>		
UNKNOWN	Unknown sp.		
UNLIST	Unlisted sp.		
UPUPA_EPOPS	<i>Upupa epops</i>		

Annex 3 Mammals Species List

Code	Scientific name		
ANOMALUR_BEECROF	Anomalurus beecrofti	CROCIDUR_GRANDIC	Crocidura grandiceps
ANOMALUR_DERBIAN	Anomalurus derbianus	CROCIDUR_JOUVENE	Crocidura jouvenetae
ANOMALUR_PUSILLU	Anomalurus pusillus	CROCIDUR_MURICAU	Crocidura muricauda
AONYX_CAPENSI	Aonyx capensis	CROCIDUR_NIGERIA	Crocidura nigeriae
ARVICANT_ANSORGE	Arvicanthis ansorgei	CROCIDUR_NIGRICA	Crocidura nigricans
ARVICANT_BLICKI	Arvicanthis blicki	CROCIDUR_NIMBAE	Crocidura nimbae
ATHERURU_AFRICAN	Atherurus africanus	CROCIDUR_OBSCURI	Crocidura obscurior
ATILAX_PALUDIN	Atilax paludinosus	CROCIDUR_OCCIDEN	Crocidura occidentalis
BOS_TAURUS	Bos taurus	CROCIDUR_OLIVIER	Crocidura olivieri
CANIS_LUPUS	Canis lupus	CROCIDUR_POENSIS	Crocidura poensis
CASINYCT_OPHIODO	Casinycyteris ophiodon	CROCIDUR_THERESA	Crocidura theresae
CEPHALOP_BROOKEI	Cephalophus brookei	CROSSARC_OBSCURU	Crossarchus obscurus
CEPHALOP_DORSALI	Cephalophus dorsalis	DASYMYS_INCOMTU	Dasymys incomtus
CEPHALOP_JENTINK	Cephalophus jentinki	DASYMYS_RUFULUS	Dasymys rufulus
CEPHALOP_NIGER	Cephalophus niger	DENDROHY_DORSALI	Dendrohyrax dorsalis
CEPHALOP_OGILBYI	Cephalophus ogilbyi	DEOMYS_FERRUGI	Deomys ferrugineus
CEPHALOP_SILVICU	Cephalophus silvicultor	DEPHOMYS_DEFUA	Dephomyes defua
CEPHALOP_ZEBRA	Cephalophus zebra	DEPHOMYS_EBURNEA	Dephomyes eburneae
CERCOCEB_ATYS	Cercocebus atys	EIDOLON_HELVUM	Eidolon helvum
CERCOCEB_TORQUAT	Cercocebus torquatus	EPIXERUS_EBII	Epixerus ebii
CERCOPIT_CAMPBEL	Cercopithecus campbelli	EPOMOPHO_GAMBIAN	Epomophorus gambianus
CERCOPIT_DIANA	Cercopithecus diana	EPOMOPS_BUETTIIK	Epomops buettikoferi
CERCOPIT_LOWEI	Cercopithecus lowei	EPOMOPS_FRANQUE	Epomops franqueti
CERCOPIT_MONA	Cercopithecus mona	FELIS_AURATA	Felis aurata
CERCOPIT_NICTITA	Cercopithecus nictitans	FUNISCIU_PYRROPU	Funisciurus pyrropus
CERCOPIT_PETAURI	Cercopithecus petaurista	GALAGOID_DEMIDOF	Galagoides demidoff
CHAEREPH_BEMMELE	Chaerephon bemmeleni	GALERELL_SANGUIN	Galerella sanguinea
CHAEREPH_MAJOR	Chaerephon major	GENETTA_GENETTA	Genetta genetta
CHAEREPH_PUMILUS	Chaerephon pumilus	GENETTA_JOHNSTO	Genetta johnstoni
CHLOROCE_AETHIOP	Chlorocebus aethiops	GENETTA_MACULAT	Genetta maculata
CHLOROCE_SABAEUS	Chlorocebus sabaeus	GENETTA_PARDINA	Genetta pardina
CIVETTIC_CIVETTA	Civettictis civetta	GENETTA_POENSIS	Genetta poensis
COLOBUS_GUEREZA	Colobus guereza	GENETTA_TIGRINA	Genetta tigrina
COLOBUS_POLYKOM	Colobus polykomos	GERBILLI_KEMPII	Gerbilliscus kempii
CRICETOM_EMINI	Cricetomys emini	GLAUCONY_POENSIS	Glauconycteris poensis
CRICETOM_GAMBIAN	Cricetomys gambianus	GRAMMOMY_BUNTING	Grammomys buntingi
CROCIDUR_BUETTIIK	Crocidura buettikoferi	GRAMMOMY_MACMILL	Grammomys macmillani
CROCIDUR_CROSSEI	Crocidura crossei	GRAPHIUR_CRASSIC	Graphiurus crassicaudatus
CROCIDUR_DOLICHU	Crocidura dolichura	GRAPHIUR_LORRAIN	Graphiurus lorrainus
CROCIDUR_DOUCETI	Crocidura douceti	GRAPHIUR_MURINUS	Graphiurus murinus
CROCIDUR_FLAVESC	Crocidura flavescens	GRAPHIUR_NAGTGCLA	Graphiurus nagtglasii
CROCIDUR_FOXI	Crocidura foxi	HELIOSCI_GAMBIAN	Heliosciurus gambianus
		HELIOSCI_PUNCTAT	Heliosciurus punctatus
		HELIOSCI_RUFOBRA	Heliosciurus rufobrachium
		HEXAPROT_LIBERIE	Hexaprotodon liberiensis

HIPPOSID_BEATUS	Hipposideros beatus	MOPS_THERSIT	Mops thersites
HIPPOSID_CAFFER	Hipposideros caffer	MUS_MINUTOI	Mus minutoides
HIPPOSID_CYCLOPS	Hipposideros cyclops	MUS_MUSCULO	Mus musculoides
HIPPOSID_FULIGIN	Hipposideros fuliginosus	MUS_SETULOS	Mus setulosus
HIPPOSID_GIGAS	Hipposideros gigas	MYONYCTE_TORQUAT	Myonycteris torquata
HIPPOSID_JONESI	Hipposideros jonesi	MYOTIS_BOCAGII	Myotis bocagii
HIPPOSID_LAMOTTE	Hipposideros lamottei	MYOTIS_TRICOLO	Myotis tricolor
HIPPOSID_MARISAE	Hipposideros marisae	NANDINIA_BINOTAT	Nandinia binotata
HIPPOSID_RUBER	Hipposideros ruber	NANONYCT_VELDKAM	Nanonycteris veldkampii
HYBOMYS_PLANIFR	Hybomys planifrons	NEOROMIC_BRUNNEA	Neoromicia brunnea
HYBOMYS_TRIVIRG	Hybomys trivirgatus	NEOROMIC_CAPENSI	Neoromicia capensis
HYBOMYS_UNIVITT	Hybomys univittatus	NEOROMIC_GUINEEN	Neoromicia guineensis
HYDRICTI_MACULIC	Hydrictis maculicollis	NEOROMIC_NANA	Neoromicia nana
HYEMOSCH_AQUATIC	Hyemoschus aquaticus	NEOROMIC_TENUIPI	Neoromicia tenuipinnis
HYLOMYSC_ALLENI	Hylomyscus alleni	NEOTRAGU_PYGMAEU	Neotragus pygmaeus
HYPSIGNA_MONSTRO	Hypsignathus monstrosus	NYCTERIS_ARGE	Nycteris arge
HYPUGO_CRASSUL	Hypugo crassulus	NYCTERIS_GRANDIS	Nycteris grandis
HYSTRIX_CRISTAT	Hystrix cristata	NYCTERIS_HISPIDA	Nycteris hispida
KERIVOUL_CUPROSA	Kerivoula cuprosa	NYCTERIS_INTERME	Nycteris intermedia
KERIVOUL_PHALAEN	Kerivoula phalaena	NYCTERIS_MACROTI	Nycteris macrotis
LEMNISCO_BELLIER	Lemniscomys bellieri	NYCTERIS_MAJOR	Nycteris major
LEMNISCO_STRIATU	Lemniscomys striatus	OENOMYS_ORNATUS	Oenomys ornatus
LEPTAILU_SERVAL	Leptailurus serval	OVIS_ARIES	Ovis aries
LIBERIIC_KUHNI	Liberiictis kuhni	PAN_TROGLOD	Pan troglodytes
LISSONYC_ANGOLEN	Lissonycteris angolensis	PANTHERA_PARDUS	Panthera pardus
LOPHUROM_SIKAPUS	Lophuromys sikapusi	PARAXERU_POENSIS	Paraxerus poensis
LOXODONT_AFRICAN	Loxodonta africana	PERODICT_POTTO	Perodicticus potto
LOXODONT_CYCLOTI	Loxodonta cyclotis	PHILANTO_MAXWELL	Philantomba maxwellii
MALACOMY_CANSDAL	Malacomys cansdalei	PHYSETER_MACROCE	Physeter macrocephalus
MALACOMY_EDWARDSI	Malacomys edwardsi	PILIOCOL_BADIUS	Piliocolobus badius
MALACOMY_LONGIPE	Malacomys longipes	PIPISTRE_BRUNNEU	Pipistrellus brunneus
MANIS_GIGANTE	Manis gigantea	PIPISTRE_NANULUS	Pipistrellus nanulus
MANIS_TETRADA	Manis tetradactyla	POIANA_LEIGHTO	Poiana leightoni
MANIS_TRICUSP	Manis tricuspis	POTAMOCH_PORCUS	Potamochoerus porcus
MASTOMYS_COUCHA	Mastomys coucha	PRAOMYS_DALTONI	Praomys daltoni
MASTOMYS_ERYTHRO	Mastomys erythroleucus	PRAOMYS_MORIO	Praomys morio
MASTOMYS_NATALEN	Mastomys natalensis	PRAOMYS_ROSTRAT	Praomys rostratus
MEGALOGL_WOERMAN	Megaloglossus woermanni	PRAOMYS_TULLBER	Praomys tullbergi
MELLIVOR_CAPENSI	Mellivora capensis	PROCOLOB_VERUS	Procolobus verus
MICROPOT_LAMOTTE	Micropotamogale lamottei	PROFELIS_AURATA	Profelis aurata
MICROPTTE_PUSILLU	Micropteropus pusillus	PROTOXER_AUBINNI	Protoxerus aubinnii
MIMETILL_MOLONEY	Mimetillus moloneyi	PROTOXER_STANGER	Protoxerus stangeri
MINIOPTTE_INFLATU	Miniopterus inflatus	RATTUS_RATTUS	Rattus rattus
MINIOPTTE_SCHREIB	Miniopterus schreibersii	RHINOLOP_ALCYONE	Rhinolophus alcyone
MOPS_CONDYLU	Mops condylurus	RHINOLOP_GUINEEN	Rhinolophus guineensis
MOPS_NANULUS	Mops nanulus	RHINOLOP_HILLORU	Rhinolophus hillorum
MOPS_SPURREL	Mops spurrelli	ROUSETTU_AEGYPTI	Rousettus aegyptiacus

SACCOLAI_PELI	Saccolaimus peli
SCOTONYC_ZENKERI	Scotonycteris zenkeri
SCOTOPHI_NUX	Scotophilus nux
STENELLA_LONGIRO	Stenella longirostris
SUNCUS_MEGALUR	Suncus megalura
SYNCERUS_CAFFER	Syncerus caffer
THRYONOM_SWINDER	Thryonomys swinderianus
TRAGELAP_EURYCER	Tragelaphus eurycerus
TRAGELAP_SCRIPTU	Tragelaphus scriptus
TRICHECH_SENEGAL	Trichechus senegalensis
TURSIOPS_TRUNCAT	Tursiops truncatus
UNLIST	Unlisted sp.
VIVERRA_CIVETTI	Viverra civettina
XERUS_ERYTHRO	Xerus erythropus
XERUS_INAURIS	Xerus inauris

Annex 4: Reptiles Species List

code	scientific_name		
AFRONATR_ANOSCOPI	Afronatrix anoscopus	DASYPELT_SCABRA	Dasypeltis scabra
AFROTYPH_LIBERIE	Afrotrophlops liberiensis	DENDROAS_VIRIDIS	Dendroaspis viridis
AFROTYPH_MANNI	Afrotrophlops manni	DERMOCHE_CORIACE	Dermochelys coriacea
AFROTYPH_PUNCTAT	Afrotrophlops punctatus	DIPSADOB_BREVIRO	Dipsadoboa brevirostris
AFROTYPH_SCHLEGE	Afrotrophlops schlegelii	DIPSADOB_UNDERWO	Dipsadoboa underwoodi
AGAMA_AFRICAN	Agama africana	DIPSADOB_UNICOLO	Dipsadoboa unicolor
AGAMA_AGAMA	Agama agama	ERETMOCH_IMBRICA	Eretmochelys imbricata
AGAMA_PARAGAM	Agama paragama	FEYLINIA_ELEGANS	Feylinia elegans
AGAMA_PLANICE	Agama planiceps	GASTROPH_ECHINAT	Gastropholis echinata
APARALLA_LINEATU	Aparallactus lineatus	GONIONOT_CAPENSI	Gonionotophis capensis
APARALLA_MODESTU	Aparallactus modestus	GONIONOT_GRANTII	Gonionotophis grantii
APARALLA_NIGER	Aparallactus niger	GONIONOT_GUIRALI	Gonionotophis guirali
ATHERIS_CHLOREC	Atheris chlorechis	GONIONOT_KLINGI	Gonionotophis klingi
ATRACTAS_ATERRIM	Atractaspis aterrima	GONIONOT_POENSIS	Gonionotophis poensis
ATRACTAS_CORPULE	Atractaspis corpulenta	GRAYIA_SMITHII	Grayia smithii
ATRACTAS_DAHOMEY	Atractaspis dahomeyensis	HAPSIDOP_LINEATU	Hapsidophrys lineatus
ATRACTAS_IRREGUL	Atractaspis irregularis	HAPSIDOP_SMARAGD	Hapsidophrys smaragdinus
BITIS_ARIETAN	Bitis arietans	HEMIDACT_BROOKII	Hemidactylus brookii
BITIS_GABONIC	Bitis gabonica	HEMIDACT_FASCIAT	Hemidactylus fasciatus
BITIS_NASICOR	Bitis nasicornis	HEMIDACT_LONGICE	Hemidactylus longicephalus
BOAEDON_FULIGIN	Boaedon fuliginosus	HEMIDACT_MABOUIA	Hemidactylus mabouia
BOAEDON_LINEATU	Boaedon lineatus	HEMIDACT_MURICEU	Hemidactylus muriceus
BOAEDON_OLIVACE	Boaedon olivaceus	HEMITHEC_CAUDICI	Hemithelyconyx caudicinctus
BOAEDON_VIRGATU	Boaedon virgatus	HOLASPIS_GUENTHE	Holaspis guentheri
BOTHROPH_LINEATU	Bothrophthalmus lineatus	HORMONOT_MODESTU	Hormonotus modestus
CAIMAN_CROCODI	Caiman crocodilus	HYDROPHI_BROOKII	Hydrophis brookii
CALABARI_REINHAR	Calabaria reinhardtii	KINIXYS_EROSA	Kinixys erosa
CALOTES_VERSICO	Calotes versicolor	KINIXYS_HOMEANA	Kinixys homeana
CAUSUS_LICHTEN	Causus lichtensteinii	LEPIDOCH_KEMPII	Lepidochelys kempii
CAUSUS_MACULAT	Causus maculatus	LEPIDOCH_OLIVACE	Lepidochelys olivacea
CAUSUS_RHOMBEA	Causus rhombeatus	LEPIDOTH_FERNAND	Lepidothyris fernandi
CHALCIDE_VIRIDAN	Chalcides viridanus	LEPIDOTH_STRIATU	Lepidothyris striatus
CHAMAELE_DILEPIS	Chamaeleo dilepis	LETHEOBI_LEUCOST	Letheobia leucosticta
CHAMAELE_GRACILI	Chamaeleo gracilis	LETHEOBI_PALLIDA	Letheobia pallida
CHAMAELE_SENEGAL	Chamaeleo senegalensis	LYCOPHID_IRRORAT	Lycophidion irroratum
CHAMAELE_FASCIAT	Chamaeleo fasciatus	LYCOPHID_NIGROMA	Lycophidion nigromaculatum
COPHOSCI_DURUS	Cophoscincopus durus	LYCOPHID_SEMICIN	Lycophidion semicinctum
COPHOSCI_GREERI	Cophoscincopus greeri	LYGODACT_CONRAUI	Lygodactylus conraui
COPHOSCI_SIMULAN	Cophoscincopus simulans	LYGODACT_STRONGI	Lygodactylus strongi
CORONELL_AUSTRIA	Coronella austriaca	LYGODACT_THOMENS	Lygodactylus thomensis
CROCODYL_NILOTIC	Crocodylus niloticus	MACROPRO_CUCULLA	Macroprotodon cucullatus
CROTAPHO_HIPPOCR	Crotaphopeltis hippocrepis	MECISTOP_CATAPHR	Mecistops cataphractus
CROTAPHO_HOTAMBO	Crotaphopeltis hotamboeia	MEIZODON_CORONAT	Meizodon coronatus
CYNISCA_LIBERIE	Cynisca liberiensis	MEIZODON_REGULAR	Meizodon regularis
DASYPELT_FASCIAT	Dasypeltis fasciata	MOCHLUS_GUINEEN	Mochlus guineensis
		MONOPELT_GALEATA	Monopeltis galeata
		NAJA_MELANOL	Naja melanoleuca
		NAJA_NIGRICO	Naja nigricollis

NATRICIT_VARIEGA	Natriciteres variegata
OCEANODR_CASTRO	Oceanodroma castro
OSTEOLAE_TETRASP	Osteolaemus tetraspis
PANASPIS_TOGOENS	Panaspis togoensis
PELUSIOS_CARINAT	Pelusios carinatus
PELUSIOS_CASTANE	Pelusios castaneus
PELUSIOS_CUPULAT	Pelusios cupulatta
PELUSIOS_GABONEN	Pelusios gabonensis
PELUSIOS_NIGER	Pelusios niger
PHILOTHA_CARINAT	Philothamnus carinatus
PHILOTHA_HETEROD	Philothamnus heterodermus
PHILOTHA_HETEROL	Philothamnus heterolepidotus
PHILOTHA_HOPLOGA	Philothamnus hoplogaster
PHILOTHA_IRREGUL	Philothamnus irregularis
PHILOTHA_NITIDUS	Philothamnus nitidus
POLEMON_ACANTHI	Polemon acanthias
POLEMON_BARTHII	Polemon barthii
PSAMMOPH_ELEGANS	Psammophis elegans
PSAMMOPH_PHILLIP	Psammophis phillipsii
PSAMMOPH_SCHOKAR	Psammophis schokari
PSAMMOPH_SIBILAN	Psammophis sibilans
PSEUDOHA_GOLDII	Pseudohaje goldii
PSEUDOHA_NIGRA	Pseudohaje nigra
PYTHON_REGIUS	Python regius
PYTHON_SABAE	Python sabae
PYTHON_SEBAE	Python sebae
RHAMNOPH_AETHIOP	Rhamnophis aethiopissa
RHAMPHIO_OXYRHYN	Rhamphiophis oxyrhynchus
SINONATR_AEQUIFA	Sinonatrix aequifasciata
SMAUG_GIGANTE	Smaug giganteus
THAMNOPH_ORDINOI	Thamnophis ordinoides
THELOTOR_KIRTLAN	Thelotornis kirtlandii
THRASOPS_FLAVIGU	Thrasops flavigularis
THRASOPS_JACKSON	Thrasops jacksonii
THRASOPS_OCCIDEN	Thrasops occidentalis
TOXICODR_BLANDIN	Toxicodryas blandingii
TOXICODR_PULVERU	Toxicodryas pulverulenta
TRACHYLE_AFFINIS	Trachylepis affinis
TRACHYLE_ALBILAB	Trachylepis albilabris
TRACHYLE_BENSONI	Trachylepis bensonii
TRACHYLE_MACULIL	Trachylepis maculilabris
TRACHYLE_QUINQUE	Trachylepis quinquetaeniata
TRIONYX_TRIUNGU	Trionyx triunguis
UNLIST	Unlisted sp.
VARANUS_EXANTHE	Varanus exanthematicus
VARANUS_NILOTIC	Varanus niloticus

Annex 5 Amphibians Species List

Code	Scientific name		
UNLIST	Unlisted sp.	HYPEROLI_LIBERIE	Hyperolius liberiensis
AFRIXALU_VITTIGE	Afrixalus vittiger	HYPEROLI_NIMBAE	Hyperolius nimbae
AFRIXALU_VIBEKEN	Afrixalus vibekensis	HYPEROLI_OCELLAT	Hyperolius ocellatus
AFRIXALU_DORSALI	Afrixalus dorsalis	HYPEROLI_OESERI	Hyperolius oeseri
AFRIXALU_EQUATOR	Afrixalus equatorialis	HYPEROLI_PICTURA	Hyperolius picturatus
AFRIXALU_FULVOVI	Afrixalus fulvovittatus	HYPEROLI_PLATYCE	Hyperolius platyceps
AFRIXALU_NIGERIE	Afrixalus nigeriensis	HYPEROLI_SYLVATI	Hyperolius sylvaticus
AFRIXALU_OSORIOI	Afrixalus osorioi	HYPEROLI_TRIFASC	Hyperolius trifasciatus
AMIETOPH_CAMERUN	Amietophrynus camerunensis	HYPEROLI_WERMUTH	Hyperolius wermuthi
AMIETOPH_TOGOENS	Amietophrynus togoensis	HYPEROLI_ZONATUS	Hyperolius zonatus
AMIETOPH_SUPERCI	Amietophrynus superciliaris	HYPEROLI_NITIDUL	Hyperolius nitidulus
AMIETOPH_REGULAR	Amietophrynus regularis	KASSINA_COCHRAN	Kassina cochranae
AMIETOPH_MACULAT	Amietophrynus maculatus	KASSINA_MACULAT	Kassina maculata
AMIETOPH_LATIFRO	Amietophrynus latifrons	KASSINA_WEALII	Kassina wealii
AMIETOPH_GRACILI	Amietophrynus gracilipes	KASSINA_LAMOTTE	Kassina lamottei
ARTHROLE_GUTTURO	Arthroleptis gutturosus	LETOPEL_MACROTI	Leptopelis macrotis
ARTHROLE_POECILO	Arthroleptis poecilonotus	LETOPEL_NOTATUS	Leptopelis notatus
ARTHROLE_ADOLFIF	Arthroleptis adolfifriederici	LETOPEL_OCCIDEN	Leptopelis occidentalis
ARTHROLE_DECORAT	Arthroleptis decorata	LETOPEL_VIRIDIS	Leptopelis viridis
ASTYLOST_DIADEMA	Astylosternus diadematus	LETOPEL_BEQUAER	Leptopelis bequaerti
ASTYLOST_OCCIDEN	Astylosternus occidentalis	LETOPEL_AUBRYI	Leptopelis aubryi
AUBRIA_SUBSIGI	Aubria subsigillata	LETOPEL_BOCAGII	Leptopelis bocagii
CARDIOGL_OCCIDEN	Cardioglossa occidentalis	LETOPEL_BOULENG	Leptopelis boulengeri
CARDIOGL_LEUCOMY	Cardioglossa leucomystax	NIMBAPHR_LIBERIE	Nimbaphrynoides liberiensis
CHIROMAN_RUFESCE	Chiromantis rufescens	NIMBAPHR_OCCIDEN	Nimbaphrynoides occidentalis
CONRAUA_CRASSIP	Conraua crassipes	PETROPED_NATATOR	Petropedetes natator
CONRAUA_ALLENI	Conraua alleni	PHLYCTIM_BOULENG	Phlyctimantis boulengeri
GEOTRYPE_PSEUDOEA	Geotrypetes pseudoangeli	PHLYCTIM_LEONARD	Phlyctimantis leonardi
GEOTRYPE_SERAPHI	Geotrypetes seraphini	XENOPUS_LAEVIS	Xenopus laevis
GEOTRYPE_ANGELI	Geotrypetes angeli	PHRYNOBA_VILLIER	Phrynobatrachus villiersi
HEMISUS_MARMORA	Hemisus marmoratus	PHRYNOBA_TOKBA	Phrynobatrachus tokba
HOPLOBAT_OCCIPIT	Hoplobatrachus occipitalis	PHRYNOBA_STEINDA	Phrynobatrachus steindachneri
HYLARANA_OCCIDEN	Hylarana occidentalis	PHRYNOBA_PLICATU	Phrynobatrachus plicatus
HYLARANA_ALBOLAB	Hylarana albolabris	PHRYNOBA_PHYLLOP	Phrynobatrachus phyllophilus
HYPEROLI_ADAMETZ	Hyperolius adametzi	PHRYNOBA_OGOENSI	Phrynobatrachus ogoensis
HYPEROLI_ADEMETZ	Hyperolius ademetsi	PHRYNOBA_NATALEN	Phrynobatrachus natalensis
HYPEROLI_CHLOROS	Hyperolius chlorosteus	PHRYNOBA_MACULIV	Phrynobatrachus maculiventris
HYPEROLI_CONCOLO	Hyperolius concolor	PHRYNOBA_LIBERIE	Phrynobatrachus liberiensis
HYPEROLI_FESTIVU	Hyperolius festivus	PHRYNOBA_LATIFRO	Phrynobatrachus latifrons
HYPEROLI_FUSCIVE	Hyperolius fusciventris	PHRYNOBA_HIEROGL	Phrynobatrachus hieroglyphicus
HYPEROLI_GUTTULA	Hyperolius guttulatus	PHRYNOBA_GUTTURO	Phrynobatrachus gutturosus
HYPEROLI_LAMOTTE	Hyperolius lamottei	PHRYNOBA_GUINEEN	Phrynobatrachus guineensis
		PHRYNOBA_GIORGII	Phrynobatrachus giorgii
		PHRYNOBA_FRATERC	Phrynobatrachus fraterculus
		PHRYNOBA_DECORAT	Phrynobatrachus decoratus

PHRYNOBA_CORNUTU	Phrynobatrachus cornutus
PHRYNOBA_CALCARA	Phrynobatrachus calcaratus
PHRYNOBA_BRONGER	Phrynobatrachus brongersmai
PHRYNOBA_ANNULAT	Phrynobatrachus annulatus
PHRYNOBA_ALLENI	Phrynobatrachus alleni
PHRYNOBA_AFRICAN	Phrynobatrachus africanus
PHRYNOBA_WERNERI	Phrynobatrachus wernerii
PTYCHADE_MASCARE	Ptychadena mascareniensis
PTYCHADE_OXYRHYN	Ptychadena oxyrhynchus
PTYCHADE_PERRETI	Ptychadena perreti
PTYCHADE_PUJOLI	Ptychadena pujoli
PTYCHADE_SUBMASC	Ptychadena submascareniensis
PTYCHADE_SUPERCI	Ptychadena superciliaris
PTYCHADE_TOURNIE	Ptychadena tournieri
PTYCHADE_ARNEI	Ptychadena arnei
PTYCHADE_BIBRONI	Ptychadena bibroni
PTYCHADE_AEQUIPL	Ptychadena aequiplicata
PTYCHADE_HYLAEA	Ptychadena hylaea
PTYCHADE_LONGIRO	Ptychadena longirostris
RANA_ZENKERI	Rana zenkeri
RANA_ALBOLAB	Rana albolabris
RANA_BIBRONI	Rana bibronii
RANA_LONGIRO	Rana longirostris
RANA_MACCART	Rana maccarthyensis
RANA_OCCIPIT	Rana occipitalis
RANA_TOURNIE	Rana tournieri
SILURANA_TROPICA	Silurana tropicalis

Annex 6 Treess Species List

Code	Scientific name		
ACRIDOCA_PLAGIOP	Acridocarpus plagiopterus	ANTIARIS_TOXICAR	Antiaris toxicaria
ADENANTH_PAVONIN	Adenantha pavonina	ANTIDESM_LACINIA	Antidesma laciniatum
AEGLOPSI_CHEVALI	Aeglopsis chevalieri	ANTIDESM_MEMBRAN	Antidesma membranaceum
AFROLICA_ELAEOSP	Afrolicania elaeosperma	ANTIDESM_OBLONGU	Antidesma oblongum
AFZELIA_BELLA	Afzelia bella	ANTIDESM_RUFESCE	Antidesma rufescens
AFZELIA_PARVIFL	Afzelia parviflora	ANTROCAR_MICRAST	Antrocaryon micraster
AGANOPE_LEUCOBO	Aganope leucobotrya	APHANOCA_MARGINI	Aphanocalyx margininervatus
AIDIA_GENIPIF	Aidia genipiflora	APHANOCA_MICROPH	Aphanocalyx microphyllum
ALBIZIA_ADIANTH	Albizia adianthifolia	APHANOCA_PTERIDO	Aphanocalyx pteridophyllum
ALBIZIA_ALTISSI	Albizia altissima	APODISCU_CHEVALI	Apodiscus chevalieri
ALBIZIA_CHEVALI	Albizia chevalieri	APORRHIZ_TALBOTI	Aporrhiza talbotii
ALBIZIA_FERRUGI	Albizia ferruginea	APORRHIZ_UROPHYL	Aporrhiza urophylla
ALBIZIA_GUMMIFE	Albizia gummifera	ARGOCOFF_EKETENS	Argocoffeopsis eketensis
ALBIZIA_LEBBECK	Albizia lebeck	ARGOMUEL_MACROPH	Argomuelleria macrophylla
ALBIZIA_ZYGIA	Albizia zygia	ARTOCARP_ALTILIS	Artocarpus altilis
ALCHORNE_CORDIFO	Alchornea cordifolia	AUBREVIL_PLATYCA	Aubrevillea platycarpa
ALCHORNE_FLORIBU	Alchornea floribunda	AULACOCA_DIVERGE	Aulacocalyx divergens
ALCHORNE_HIRTELL	Alchornea hirtella	AULACOCA_JASMINI	Aulacocalyx jasminiflora
ALLOPHYL_AFRICAN	Allophylus africanus	AVICENNI_GERMINA	Avicennia germinans
ALLOPHYL_HAMATUS	Allophylus hamatus	BAPHIA_NITIDA	Baphia nitida
ALLOPHYL_TALBOTI	Allophylus talbotii	BAPHIA_OBANENS	Baphia obanensis
ALSTONIA_BOONEI	Alstonia boonei	BAPHIA_PUBESCE	Baphia pubescens
AMANOA_BRACTEO	Amanoa bracteosa	BAPHIA_SPATHAC	Baphia spathacea
AMPHIMAS_PTEROCA	Amphimas pterocarpoides	BAUHINIA_MONANDR	Bauhinia monandra
ANACARDI_OCCIDEN	Anacardium occidentale	BEILSCHM_CAUDATA	Beilschmiedia caudata
ANCISTRO_DENSISP	Ancistrocarpus densispinosus	BEILSCHM_CHEVALI	Beilschmiedia chevalieri
ANDROSIP_ADENOST	Androsiphonia adenostegia	BEILSCHM_MANNII	Beilschmiedia mannii
ANGYLOCA_OLIGOPH	Angylocalyx oligophyllum	BELONOPH_COFFEOI	Belonophora coffeoides
ANISOPHY_MENIAUD	Anisophyllea meniaudii	BERLINIA_AURICUL	Berlinia auriculata
ANNICKIA_CHLORAN	Annickia chlorantha	BERLINIA_BRACTEO	Berlinia bracteosa
ANNICKIA_POLYCAR	Annickia polycarpa	BERLINIA_CONFUSA	Berlinia confusa
ANNONA_GLABRA	Annona glabra	BERLINIA_GRANDIF	Berlinia grandiflora
ANNONA_SENEGAL	Annona senegalensis	BERLINIA_OCCIDEN	Berlinia occidentalis
ANONIDIU_MANNII	Anonidium mannii	BERLINIA_TOMENTE	Berlinia tomentella
ANOPYXIS_KLAINEA	Anopyxis klaineana	BERSAMA_ABYSSIN	Bersama abyssinica
ANTHOCLE_NOBILIS	Anthocleista nobilis	BERTIERA_RACEMOS	Bertiera racemosa
ANTHOCLE_VOGELII	Anthocleista vogelii	BERTIERA_RETROFR	Bertiera retrofracta
ANTHONOT_CRASSIF	Anthonotha crassifolia	BERTIERA_SPICATA	Bertiera spicata
ANTHONOT_FRAGRAN	Anthonotha fragrans	BIXA_ORELLAN	Bixa orellana
ANTHONOT_MACROPH	Anthonotha macrophylla	BLIGHIA_SAPIDA	Blighia sapida
ANTHONOT_PYNAERT	Anthonotha pynaertii	BLIGHIA_UNIJUGA	Blighia unijugata
ANTHOSTE_SENEGAL	Anthostema senegalense	BLIGHIA_WELWITS	Blighia welwitschii
		BOMBAX_BUONOPO	Bombax buonopozense
		BRACHYST_LEONENS	Brachystegia leonensis
		BRENANDE_DONIANU	Brenandendron donianum

BRENANDE_FRONDOS	Brenandendron frondosum	CHROMOLA_ODORATA	Chromolaena odorata
BRENANDE_TITANOP	Brenandendron titanophyllum	CHRYSOBA_ICACO	Chrysobalanus icaco
BREYNIA_DISTICH	Breynia disticha	CHRYSOPH_AFRICAN	Chrysophyllum africanum
BRIDELIA_FERRUGI	Bridelia ferruginea	CHRYSOPH_ALBIDUM	Chrysophyllum albidum
BRIDELIA_GRANDIS	Bridelia grandis	CHRYSOPH_GIGANTE	Chrysophyllum giganteum
BRIDELIA_MICRANT	Bridelia micrantha	CHRYSOPH_PERPULC	Chrysophyllum perpulchrum
BRUGMANS_SUAVEOL	Brugmansia suaveolens	CHRYSOPH_SPLENDE	Chrysophyllum splendens
BUCHHOLZ_CORIACE	Buchholzia coriacea	CHRYSOPH_SUBNUDU	Chrysophyllum subnudum
BUSSEA_OCCIDEN	Bussea occidentalis	CHRYSOPH_TAIENSE	Chrysophyllum taiense
BYRSANTH_BROWNII	Byrsanthus brownii	CHYTRANT_ANGUSTI	Chytranthus angustifolius
CAESALPI_PULCHER	Caesalpinia pulcherrima	CHYTRANT_ATROVIO	Chytranthus atrovioleaceus
CALONCOB_BREVIPE	Caloncoba brevipes	CHYTRANT_CARNEUS	Chytranthus carneus
CALONCOB_ECHINAT	Caloncoba echinata	CHYTRANT_CAULIFL	Chytranthus cauliflorus
CALPOCAL_AUBREVI	Calpocalyx aubrevillei	CHYTRANT_SETOSUS	Chytranthus setosus
CALPOCAL_BREVIBR	Calpocalyx brevibracteatus	CINNAMOM_ALTISSI	Cinnamomum altissimum
CAMPYLOS_AMPLECT	Campylospermum amplexans	CINNAMOM_AUREOFU	Cinnamomum aureofulvum
CAMPYLOS_CONGEST	Campylospermum congestum	CINNAMOM_VERUM	Cinnamomum verum
CAMPYLOS_FLAVUM	Campylospermum flavum	CITROPSI_GABUNEN	Citropsis gabunensis
CAMPYLOS_RETICUL	Campylospermum reticulatum	CLAPPERT_FICIFOL	Clappertonia ficifolia
CAMPYLOS_SCHOENL	Campylospermum schoenleinianum	CLEISTAN_LIBERIC	Cleistanthus libericus
CAMPYLOS_SQUAMOS	Campylospermum squamosum	CLEISTAN_POLYSTA	Cleistanthus polystachyus
CAMPYLOS_VOGELII	Campylospermum vogelii	CLEISTOP_PATENS	Cleistopholis patens
CARAPA_PROCERA	Carapa procera	CLERODEN_CAPITAT	Clerodendrum capitatum
CARICA_PAPAYA	Carica papaya	COCHLOSP_VITIFOL	Cochlospermum vitifolium
CARPOLOB_ALBA	Carpolobia alba	COCOS_NUCIFER	Cocos nucifera
CARPOLOB_LUTEA	Carpolobia lutea	COELOCAR_OXYCARP	Coelocaryon oxycarpum
CASCABEL_THEVETI	Cascabela thevetia	COELOCAR_SPHAERO	Coelocaryon sphaerocarpum
CASEARIA_BARTERI	Casearia barteri	COFFEA_LIBERIC	Coffea liberica
CASSIA_FIKIFIK	Cassia fikifiki	COFFEA_MANNII	Coffea mannii
CASSIA_FISTULA	Cassia fistula	COLA_ACUMINA	Cola acuminata
CASSIA_JAVANIC	Cassia javanica	COLA_ANGUSTI	Cola angustifolia
CASSIA_SIEBERI	Cassia sieberiana	COLA_BALDWIN	Cola baldwinii
CASSIPOU_AFZELII	Cassipourea afzelii	COLA_BOXIANA	Cola boxiana
CASSIPOU_BARTERI	Cassipourea barteri	COLA_BUNTING	Cola buntingii
CASSIPOU_CONGOEN	Cassipourea congoensis	COLA_CARICIF	Cola caricifolia
CASSIPOU_FIRESTO	Cassipourea firestoneana	COLA_CHLAMYD	Cola chlamydantha
CASSIPOU_GUMMIFL	Cassipourea gummiflua	COLA_DIGITAT	Cola digitata
CASSIPOU_HIOTOU	Cassipourea hiotou	COLA_GABONEN	Cola gabonensis
CASSIPOU_LESCOTI	Cassipourea lescotiana	COLA_HETEROP	Cola heterophylla
CASSIPOU_NIALATO	Cassipourea nialatou	COLA_HISPIDA	Cola hispida
CASUARIN_EQUISET	Casuarina equisetifolia	COLA_LATERIT	Cola lateritia
CAVACOA_BALDWIN	Cavacoa baldwinii	COLA_NITIDA	Cola nitida
CEIBA_PENTAND	Ceiba pentandra	COLA_RETICUL	Cola reticulata
CELTIS_ADOLFI-	Celtis adolfi-friderici	COLA_SIMIARU	Cola simiarum
CELTIS_MILDBRA	Celtis mildbraedii	COMBRETU_MARGINA	Combretum marginatum
CHIDLOWI_SANGUIN	Chidlowia sanguinea	COMBRETU_PLATYPT	Combretum platypterum
CHRISTIA_AFRICAN	Christiana africana	CONOCARP_ERECTUS	Conocarpus erectus

COPAIFER_SALIKOU	<i>Copaifera salikounda</i>	DIALIUM_DINKLAG	<i>Dialium dinklagei</i>
CORDIA_ALLIODO	<i>Cordia alliodora</i>	DIALIUM_GUIANEN	<i>Dialium guianense</i>
CORDIA_PLATYTH	<i>Cordia platythyrsa</i>	DIALIUM_GUINEEN	<i>Dialium guineense</i>
CORYNANT_LANE-PO	<i>Corynanthe lane-polei</i>	DICHAETA_AFRICAN	<i>Dichaetanthera africana</i>
CORYNANT_PACHYCE	<i>Corynanthe pachyceras</i>	DICHAPET_HEUDELO	<i>Dichapetalum heudelotii</i>
COULA_EDULIS	<i>Coula edulis</i>	DICHAPET_MADAGAS	<i>Dichapetalum madagascariense</i>
COUROUPI_GUIANEN	<i>Couroupita guianensis</i>	DICHAPET_ZENKERI	<i>Dichapetalum zenkeri</i>
CRATERIS_CAUDATU	<i>Craterispermum caudatum</i>	DICRANOL_DISTICH	<i>Dicranolepis disticha</i>
CRATERIS_LAURINU	<i>Craterispermum laurinum</i>	DICRANOL_PERSEI	<i>Dicranolepis persei</i>
CREMASPO_TRIFLOR	<i>Cremaspora triflora</i>	DIDELOTI_AFZELII	<i>Didelotia afzelii</i>
CROTON_AUBREVI	<i>Croton aubrevillei</i>	DIDELOTI_ENGLERI	<i>Didelotia engleri</i>
CROTON_DISPAR	<i>Croton dispar</i>	DIDELOTI_IDAE	<i>Didelotia idae</i>
CROTONOG_CATERVI	<i>Crotonogyne caterviflora</i>	DIDELOTI_UNIFOLI	<i>Didelotia unifoliolata</i>
CRUDIA_GABONEN	<i>Crudia gabonensis</i>	DIOSPYRO_CANALIC	<i>Diospyros canaliculata</i>
CRUDIA_LIBERIC	<i>Crudia liberica</i>	DIOSPYRO_CHEVALI	<i>Diospyros chevalieri</i>
CRUDIA_SENEGAL	<i>Crudia senegalensis</i>	DIOSPYRO_COOPERI	<i>Diospyros cooperi</i>
CRYPTOSE_TETRAPH	<i>Cryptosepalum tetraphyllum</i>	DIOSPYRO_DICHROP	<i>Diospyros dichrophylla</i>
CUSSONIA_BANCOEN	<i>Cussonia bancoensis</i>	DIOSPYRO_ELLIOTI	<i>Diospyros elliotii</i>
CUVIERA_ACUTIFL	<i>Cuviera acutiflora</i>	DIOSPYRO_FERREA	<i>Diospyros ferrea</i>
CUVIERA_MACROUR	<i>Cuviera macroura</i>	DIOSPYRO_GABUNEN	<i>Diospyros gabunensis</i>
CYNOMETR_ANANTA	<i>Cynometra ananta</i>	DIOSPYRO_HEUDELO	<i>Diospyros heudelotii</i>
CYNOMETR_LEONENS	<i>Cynometra leonensis</i>	DIOSPYRO_KAMERUN	<i>Diospyros kamerunensis</i>
DACRYODE_EDULIS	<i>Dacryodes edulis</i>	DIOSPYRO_LIBERIE	<i>Diospyros liberiensis</i>
DACRYODE_KLAINEA	<i>Dacryodes klaineana</i>	DIOSPYRO_MANNII	<i>Diospyros mannii</i>
DACTYLAD_BARTERI	<i>Dactyladenia barteri</i>	DIOSPYRO_NODOSA	<i>Diospyros nodosa</i>
DACTYLAD_DINKLAG	<i>Dactyladenia dinklagei</i>	DIOSPYRO_PISCATO	<i>Diospyros piscatoria</i>
DACTYLAD_GLOBOSA	<i>Dactyladenia globosa</i>	DIOSPYRO_SANZA-M	<i>Diospyros sanza-minika</i>
DACTYLAD_HIRSUTA	<i>Dactyladenia hirsuta</i>	DIOSPYRO_SOUBREA	<i>Diospyros soubreana</i>
DACTYLAD_SCABRIF	<i>Dactyladenia scabrifolia</i>	DIOSPYRO_THOMASI	<i>Diospyros thomasi</i>
DACTYLAD_WHYTEI	<i>Dactyladenia whytei</i>	DIOSPYRO_VIGNEI	<i>Diospyros vignei</i>
DALBERGI_HEUDELO	<i>Dalbergia heudelotii</i>	DISCOCLA_HEXANDR	<i>Discoclaoxylon hexandrum</i>
DALBERGI_OLIGOPH	<i>Dalbergia oligophylla</i>	DISCOGLY_CALONEU	<i>Discoglyprena caloneura</i>
DANIELLI_OGEA	<i>Daniellia ogea</i>	DISTEMON_BENTHAM	<i>Distemonanthus benthamianus</i>
DANIELLI_THURIFE	<i>Daniellia thurifera</i>	DONELLA_UBANGIE	<i>Donella ubangiensis</i>
DASYLEPI_RACEMOS	<i>Dasylepis racemosa</i>	DRACAENA_ARBOREA	<i>Dracaena arborea</i>
DEINBOLL_CUNEIFO	<i>Deinbollia cuneifolia</i>	DRACAENA_CERASIF	<i>Dracaena cerasifera</i>
DEINBOLL_GRANDIF	<i>Deinbollia grandifolia</i>	DRACAENA_MANNII	<i>Dracaena mannii</i>
DELPYDOR_GRACILI	<i>Delpydora gracilis</i>	DRYPETES_AFZELII	<i>Drypetes afzelii</i>
DESMOSTA_VOGELII	<i>Desmostachys vogelii</i>	DRYPETES_AUBREVI	<i>Drypetes aubrevillei</i>
DESPLATS_CHRYSOC	<i>Desplatsia chrysochlamys</i>	DRYPETES_AYLMERI	<i>Drypetes aylmeri</i>
DESPLATS_DEWEVRE	<i>Desplatsia dewevrei</i>	DRYPETES_CHEVALI	<i>Drypetes chevalieri</i>
DESPLATS_SUBERIC	<i>Desplatsia subericarpa</i>	DRYPETES_FLORIBU	<i>Drypetes floribunda</i>
DETARIUM_MICROCA	<i>Detarium microcarpum</i>	DRYPETES_GILGIAN	<i>Drypetes gilgiana</i>
DETARIUM_SENEGAL	<i>Detarium senegalense</i>	DRYPETES_INAEQUA	<i>Drypetes inaequalis</i>
DIALIUM_AUBREVI	<i>Dialium aubrevillei</i>	DRYPETES_IVORENS	<i>Drypetes ivorensis</i>

DRYPETES_KLAINEI	<i>Drypetes klainei</i>	FICUS_LEONENS	<i>Ficus leonensis</i>
DRYPETES_LEONENS	<i>Drypetes leonensis</i>	FICUS_LINGUA	<i>Ficus lingua</i>
DRYPETES_PRINCIP	<i>Drypetes principum</i>	FICUS_LUTEA	<i>Ficus lutea</i>
DUGUETIA_STAUDTI	<i>Duguetia staudtii</i>	FICUS_LYRATA	<i>Ficus lyrata</i>
DUPARQUE_ORCHIDA	<i>Duparquetia orchidacea</i>	FICUS_MUCUSO	<i>Ficus mucuso</i>
EHRETIA_CYMOSA	<i>Ehretia cymosa</i>	FICUS_NATALEN	<i>Ficus natalensis</i>
EKEBERGI_CAPENSI	<i>Ekebergia capensis</i>	FICUS_OTTONII	<i>Ficus ottoniifolia</i>
ELAEIS_GUINEEN	<i>Elaeis guineensis</i>	FICUS_PACHYNE	<i>Ficus pachyneura</i>
EMPOGONA_BRACTEA	<i>Empogona bracteata</i>	FICUS_SAGITTI	<i>Ficus sagittifolia</i>
EMPOGONA_CORIACE	<i>Empogona coriacea</i>	FICUS_SANSIBA	<i>Ficus sansibarica</i>
EMPOGONA_DISCOLO	<i>Empogona discolor</i>	FICUS_SAUSSUR	<i>Ficus saussureana</i>
EMPOGONA_REFLEXA	<i>Empogona reflexa</i>	FICUS_SUR	<i>Ficus sur</i>
ENGLEROP_LAURENT	<i>Englerophytum laurentii</i>	FICUS_TESSELA	<i>Ficus tesselata</i>
ENGLEROP_OUBANGU	<i>Englerophytum oubanguiense</i>	FICUS_THONNINGII	<i>Ficus thonningii</i>
ENTANDRO_ANGOLEN	<i>Entandrophragma angolense</i>	FICUS_UMBELLA	<i>Ficus umbellata</i>
ENTANDRO_CANDOLL	<i>Entandrophragma candollei</i>	FICUS_VOGELIA	<i>Ficus vogeliana</i>
ENTANDRO_CYLINDR	<i>Entandrophragma cylindricum</i>	FLACOURT_INDICA	<i>Flacourtia indica</i>
ENTANDRO_UTILE	<i>Entandrophragma utile</i>	FUNTUMIA_AFRICAN	<i>Funtumia africana</i>
ERIOCOEL_KERSTIN	<i>Eriocoelum kerstingii</i>	FUNTUMIA_ELASTIC	<i>Funtumia elastica</i>
ERIOCOEL_PUNGENS	<i>Eriocoelum pungens</i>	GAERTNER_COOPERI	<i>Gaertnera cooperi</i>
ERIOCOEL_RACEMOS	<i>Eriocoelum racemosum</i>	GAERTNER_LIBERIE	<i>Gaertnera liberiensis</i>
ERYTHRIN_EXCELSA	<i>Erythrina excelsa</i>	GAERTNER_LONGIVA	<i>Gaertnera longivaginalis</i>
ERYTHRIN_MILDBRA	<i>Erythrina mildbraedii</i>	GAERTNER_PANICUL	<i>Gaertnera paniculata</i>
ERYTHRIN_SENEGAL	<i>Erythrina senegalensis</i>	GAERTNER_TRACHYS	<i>Gaertnera trachystyla</i>
ERYTHROP_IVORENS	<i>Erythrophleum ivorense</i>	GARCINIA_AFZELII	<i>Garcinia afzelii</i>
ERYTHROP_SUAVEOL	<i>Erythrophleum suaveolens</i>	GARCINIA_EPUNCTA	<i>Garcinia epunctata</i>
ERYTHROX_MANNII	<i>Erythroxyllum mannii</i>	GARCINIA_KOLA	<i>Garcinia kola</i>
EUADENIA_EMINENS	<i>Euadenia eminens</i>	GARCINIA_MANNII	<i>Garcinia mannii</i>
EUCALYPT_DEGLUPT	<i>Eucalyptus deglupta</i>	GARCINIA_OVALIFO	<i>Garcinia ovalifolia</i>
EUCALYPT_ROBUSTA	<i>Eucalyptus robusta</i>	GARCINIA_QUADRIF	<i>Garcinia quadrifaria</i>
EUCALYPT_UTILIS	<i>Eucalyptus utilis</i>	GARCINIA_SMEATHM	<i>Garcinia smeathmannii</i>
EUCLINIA_LONGIFL	<i>Euclinia longiflora</i>	GARDENIA_IMPERIA	<i>Gardenia imperialis</i>
EUGENIA_KALBREY	<i>Eugenia kalbreyeri</i>	GARDENIA_VOGELII	<i>Gardenia vogelii</i>
EUGENIA_LEONENS	<i>Eugenia leonensis</i>	GARUGA_PINNATA	<i>Garuga pinnata</i>
EUGENIA_LIBERIA	<i>Eugenia liberiana</i>	GILBERTI_AYLMERI	<i>Gilbertiodendron aylmeri</i>
EUGENIA_POBEGUI	<i>Eugenia pobeguini</i>	GILBERTI_BILINEA	<i>Gilbertiodendron bilineatum</i>
EUGENIA_SALACIO	<i>Eugenia salacioides</i>	GILBERTI_IVORENS	<i>Gilbertiodendron ivorense</i>
EUGENIA_WHYTEI	<i>Eugenia whytei</i>	GILBERTI_LIMBA	<i>Gilbertiodendron limba</i>
FEGIMANR_ACUMINA	<i>Fegimanra acuminatissima</i>	GILBERTI_OBLIQUU	<i>Gilbertiodendron obliquum</i>
FICUS_ARDISIO	<i>Ficus ardisioides</i>	GILBERTI_PREUSSI	<i>Gilbertiodendron preussii</i>
FICUS_ASPERIF	<i>Ficus asperifolia</i>	GILBERTI_ROBYNSI	<i>Gilbertiodendron robynsianum</i>
FICUS_BARTERI	<i>Ficus barteri</i>	GILBERTI_SPLENDI	<i>Gilbertiodendron splendidum</i>
FICUS_CONRAUI	<i>Ficus conraui</i>	GLENNIEA_ADAMII	<i>Glenniea adamii</i>
FICUS_CRATERO	<i>Ficus craterostoma</i>	GLUEMA_IVORENS	<i>Gluema ivorensis</i>
FICUS_ELASTIC	<i>Ficus elasticoides</i>	GLYPHAEA_BREVIS	<i>Glyphaea brevis</i>
FICUS_EXASPER	<i>Ficus exasperata</i>	GMELINA_ARBOREA	<i>Gmelina arborea</i>
FICUS_KAMERUN	<i>Ficus kamerunensis</i>	GREENWAY_OLIVERI	<i>Greenwayodendron oliveri</i>

GREWIA_PRAECOX	<i>Grewia praecox</i>	ISOLONA_COOPERI	<i>Isolona cooperi</i>
GREWIA_PUBESCE	<i>Grewia pubescens</i>	IXORA_BRACHYP	<i>Ixora brachypoda</i>
GROSSERA_VIGNEI	<i>Grossera vignei</i>	IXORA_LAXIFLO	<i>Ixora laxiflora</i>
GUIBOURT_COPALLI	<i>Guibourtia copallifera</i>	IXORA_SPP	<i>Ixora sp.</i>
GUIBOURT_DEMEUSE	<i>Guibourtia demeusei</i>	JATROPHA_CURCAS	<i>Jatropha curcas</i>
GUIBOURT_DINKLAG	<i>Guibourtia dinklagei</i>	JATROPHA_GOSSYPI	<i>Jatropha gossypifolia</i>
GUIBOURT_EHIE	<i>Guibourtia ehie</i>	KEETIA_MULTIFL	<i>Keetia multiflora</i>
GUIBOURT_LEONENS	<i>Guibourtia leonensis</i>	KEETIA_VENOSA	<i>Keetia venosa</i>
GYMNANTH_COLORAT	<i>Gymnanthemum coloratum</i>	KHAYA_ANTHOTH	<i>Khaya anthotheca</i>
GYMNOSTE_ZAIZOU	<i>Gymnostemon zaizou</i>	KHAYA_GRANDIF	<i>Khaya grandifolia</i>
HAPLORMO_MONOPHY	<i>Haplormosia monophylla</i>	KHAYA_IVORENS	<i>Khaya ivorensis</i>
HARRISON_ABYSSIN	<i>Harrisonia abyssinica</i>	KIGELIA_AFRICAN	<i>Kigelia africana</i>
HARUNGAN_MADAGAS	<i>Harungana madagascariensis</i>	KLAINEDO_GABONEN	<i>Klainedoxa gabonensis</i>
HECKELDO_LEONENS	<i>Heckeldora leonensis</i>	LAGUNCUL_RACEMOS	<i>Laguncularia racemosa</i>
HECKELDO_STAUDTI	<i>Heckeldora staudtii</i>	LANNEA_NIGRITA	<i>Lannea nigriflora</i>
HEINSIA_CRINITA	<i>Heinsia crinita</i>	LANNEA_WELWITS	<i>Lannea welwitschii</i>
HEISTERI_PARVIFO	<i>Heisteria parvifolia</i>	LANTANA_CAMARA	<i>Lantana camara</i>
HERITIER_DENSIFL	<i>Heritiera densiflora</i>	LASIODIS_FASCICU	<i>Lasiodiscus fasciculiflorus</i>
HETEROPT_LEONA	<i>Heteropterys leona</i>	LASIODIS_MANNII	<i>Lasiodiscus mannii</i>
HEVEA_BRASILI	<i>Hevea brasiliensis</i>	LASIODIS_MARMORA	<i>Lasiodiscus marmoratus</i>
HIBISCUS_DIVERSI	<i>Hibiscus diversifolius</i>	LECANIOD_CUPANIO	<i>Lecaniodiscus cupanioides</i>
HIBISCUS_ROSA-SI	<i>Hibiscus rosa-sinensis</i>	LEPLAEA_ADENOPU	<i>Leplaea adenopunctata</i>
HIBISCUS_STERCUL	<i>Hibiscus sterculiifolius</i>	LEPLAEA_CEDRATA	<i>Leplaea cedrata</i>
HOLARRHE_FLORIBU	<i>Holarrhena floribunda</i>	LEPLAEA_THOMPSO	<i>Leplaea thompsonii</i>
HOMALIUM_AFRICAN	<i>Homalium africanum</i>	LEPTACTI_ARBORES	<i>Leptactina arborescens</i>
HOMALIUM_ANGUSTI	<i>Homalium angustifolium</i>	LEPTAULU_DAPHNOI	<i>Leptaulus daphnoides</i>
HOMALIUM_LE-TEST	<i>Homalium le-testui</i>	LEPTONYC_OCCIDEN	<i>Leptonychia occidentalis</i>
HOMALIUM_LONGIST	<i>Homalium longistylum</i>	LEUCAENA_LEUCOCE	<i>Leucaena leucocephala</i>
HOMALIUM_SMYTHEI	<i>Homalium smythei</i>	LIJNDENI_BARTERI	<i>Lijndenia barteri</i>
HOMALIUM_STIPULA	<i>Homalium stipulaceum</i>	LOESENER_KALANTH	<i>Loesenera kalantha</i>
HOPLESTI_KLAINEA	<i>Hoplostigma klaineanum</i>	LONCHOCA_SERICEU	<i>Lonchocarpus sericeus</i>
HUGONIA_AFZELII	<i>Hugonia afzelii</i>	LOPHIRA_ALATA	<i>Lophira alata</i>
HUGONIA_PLANCHO	<i>Hugonia planchonii</i>	LOVOA_TRICHIL	<i>Lovoa trichilioides</i>
HUGONIA_PLATYSE	<i>Hugonia platysepala</i>	MACARANG_BARTERI	<i>Macaranga barteri</i>
HUNTERIA_SIMII	<i>Hunteria simii</i>	MACARANG_HETEROP	<i>Macaranga heterophylla</i>
HUNTERIA_UMBELLA	<i>Hunteria umbellata</i>	MACARANG_HEUDELO	<i>Macaranga heudelotii</i>
HURA_CREPITA	<i>Hura crepitans</i>	MACARANG_HURIFOL	<i>Macaranga hurifolia</i>
HYMENOCA_LYRATA	<i>Hymenocardia lyrata</i>	MACHAERI_LUNATUM	<i>Machaerium lunatum</i>
HYMENODI_FLORIBU	<i>Hymenodictyon floribundum</i>	MAESOBOT_BARTERI	<i>Maesobotrya barteri</i>
HYMENOST_GRACILI	<i>Hymenostegia gracilipes</i>	MAESOPSI_EMINII	<i>Maesopsis eminii</i>
IDERTIA_AXILLAR	<i>Idertia axillaris</i>	MAGNISTI_BUTAYEI	<i>Magnistipula butayei</i>
IRVINGIA_GABONEN	<i>Irvingia gabonensis</i>	MAGNISTI_ZENKERI	<i>Magnistipula zenkeri</i>
IRVINGIA_ROBUR	<i>Irvingia robur</i>	MALLOTUS_OPPOSIT	<i>Mallotus oppositifolius</i>
IRVINGIA_TENUINU	<i>Irvingia tenuinucleata</i>	MALLOTUS_SUBULAT	<i>Mallotus subulatus</i>
ISOLONA_CAMPANU	<i>Isolona campanulata</i>	MAMMEA_AFRICAN	<i>Mammea africana</i>

MANGIFER_INDICA	Mangifera indica	MORINGA_OLEIFER	Moringa oleifera
MANIHOT_ESCULEN	Manihot esculenta	MUSANGA_CECROPI	Musanga cecropioides
MANILKAR_OBOVATA	Manilkara obovata	MUSSAEND_CONOPHA	Mussaenda conopharyngiifolia
MANILKAR_SYLVEST	Manilkara sylvestris	MUSSAEND_ELEGANS	Mussaenda elegans
MARANTHE_AUBREVI	Maranthes aubrevillei	MUSSAEND_ERYTHRO	Mussaenda erythrophylla
MARANTHE_CHRYSOP	Maranthes chrysophylla	MYRIANTH_ARBOREU	Myrianthus arboreus
MARANTHE_GLABRA	Maranthes glabra	MYRIANTH_LIBERIC	Myrianthus libericus
MARANTHE KERSTIN	Maranthes kerstingii	MYRIANTH_SERRATU	Myrianthus serratus
MAREYA_MICRANT	Mareya micrantha	NAPOLEON_ALATA	Napoleonaea alata
MARGARIT_DISCOID	Margaritaria discoidea	NAPOLEON_SAPOENS	Napoleonaea sapoensis
MARKHAMI_TOMENTO	Markhamia tomentosa	NAPOLEON_TALBOTI	Napoleonaea talbotii
MASSULAR_ACUMINA	Massularia acuminata	NAPOLEON_VOVELII	Napoleonaea vogelii
MELALEUC_LEUCADE	Melaleuca leucadendra	NAUCLEA_DIDERRI	Nauclea diderrichii
MELIA_AZEDARA	Melia azedarach	NAUCLEA_LATIFOL	Nauclea latifolia
MELIOSMA_LANCEOL	Meliosma lanceolata	NAUCLEA_VANDERG	Nauclea vanderguchtii
MEMECYLO_AFZELII	Memecylon afzelii	NECEPSIA_AFZELII	Necepsia afzelii
MEMECYLO_ENGLERI	Memecylon englerianum	NEOBOUTO_MANNII	Neoboutonia mannii
MEMECYLO_LATERIF	Memecylon lateriflorum	NEOCARYA_MACROPH	Neocarya macrophylla
MEMECYLO_NORMAND	Memecylon normandii	NEOLEMON_CLITAND	Neolemonniera clitandrifolia
MEMECYLO_OCCULTU	Memecylon occultum	NEOSTENA_GABONEN	Neostenanthera gabonensis
MEMECYLO_POLYANT	Memecylon polyanthemus	NEOSTENA_HAMATA	Neostenanthera hamata
MEMECYLO_RAMOSUM	Memecylon ramosum	NESOGORD_KABINGA	Nesogordonia kabingaensis
MEMECYLO_VIRIDE	Memecylon viride	NESOGORD_PAPAVR	Nesogordonia papaverifera
MICRODES_PUBERUL	Microdesmis puberula	NEWBOULD_LAEVIS	Newbouldia laevis
MILDBRAE_PANICUL	Mildbraedia paniculata	NEWTONIA_AUBREVI	Newtonia aubrevillei
MILICIA_EXCELSA	Milicia excelsa	NEWTONIA_DUPARQU	Newtonia duparquetiana
MILICIA_REGIA	Milicia regia	NEWTONIA_GRIFFON	Newtonia griffoniana
MILLETTI_CHRYSOP	Millettia chrysophylla	NORONHIA_MANNII	Noronhia mannii
MILLETTI_DINKLAG	Millettia dinklagei	NORONHIA_NILOTIC	Noronhia nilotica
MILLETTI_GRANDIS	Millettia grandis	NUXIA_CONGEST	Nuxia congesta
MILLETTI_GRIFFON	Millettia griffoniana	OCHNA_AFZELII	Ochna afzelii
MILLETTI_LANE-PO	Millettia lane-poolei	OCHNA_MEMBRAN	Ochna membranacea
MILLETTI_LIBERIC	Millettia liberica	OCHNA_MULTIFL	Ochna multiflora
MILLETTI_PALLENS	Millettia pallens	OCTOKNEM_BOREALI	Octoknema borealis
MILLETTI_WARNECK	Millettia warneckeii	OKOUBAKA_AUBREVI	Okoubaka aubrevillei
MILLETTI_ZECHIAN	Millettia zechiana	OLDFIELD_AFRICAN	Oldfieldia africana
MIMOSA_PIGRA	Mimosa pigra	OMPHALOC_AHIA	Omphalocarpum ahia
MITRAGYN_LEDERMA	Mitragyna ledermannii	OMPHALOC_ELATUM	Omphalocarpum elatum
MITRAGYN_STIPULO	Mitragyna stipulosa	OMPHALOC_PACHYST	Omphalocarpum pachysteloides
MONOCYCL_VIGNEI	Monocyclanthus vignei	ONCOBA_BRACHYA	Oncoba brachyanthera
MONODORA_CRISPAT	Monodora crispata	ONGOKEA_GORE	Ongokea gore
MONODORA_MYRISTI	Monodora myristica	OPHIOTBOT_ZENKERI	Ophiobotrys zenkeri
MONODORA_TENUIFO	Monodora tenuifolia	ORMOCARP_SENNOID	Ormocarpum sennoides
MONODORA_UNDULAT	Monodora undulata	ORMOCARP_VERRUCO	Ormocarpum verrucosum
MORELIA_SENEGAL	Morelia senegalensis	OURATEA_MULTIFL	Ouratea multiflora
MORINDA_CHRYSOR	Morinda chrysorhiza	OXYANTHU_FORMOSU	Oxyanthus formosus
MORINDA_LUCIDA	Morinda lucida	OXYANTHU_PALLIDU	Oxyanthus pallidus

OXYANTHU_RACEMOS	<i>Oxyanthus racemosus</i>	PLEIOCER_AFZELII	<i>Pleioceras afzelii</i>
OXYANTHU_SPECIOS	<i>Oxyanthus speciosus</i>	PLUMERIA_RUBRA	<i>Plumeria rubra</i>
OXYANTHU_SUBPUNC	<i>Oxyanthus subpunctatus</i>	POLYCERA_PARVIFL	<i>Polyceratocarpus parviflorus</i>
OXYANTHU_UNILOCU	<i>Oxyanthus unilocularis</i>	POLYSCIA_FULVA	<i>Polyscias fulva</i>
PANCOVIA_TURBINA	<i>Pancovia turbinata</i>	POLYSTEM_DINKLAG	<i>Polystemonanthus dinklagei</i>
PANDA_OLEOSA	<i>Panda oleosa</i>	POUCHETI_AFRICAN	<i>Pouchetia africana</i>
PANDANUS_CANDELA	<i>Pandanus candelabrum</i>	POUTERIA_CUSPIDA	<i>Pouteria cuspidata</i>
PARAMACR_COERULE	<i>Paramacrolobium coeruleum</i>	POUTERIA_PIERREI	<i>Pouteria pierrei</i>
PARINARI_CONGENS	<i>Parinari congensis</i>	PREMNA_HISPIDA	<i>Premna hispida</i>
PARINARI_EXCELSA	<i>Parinari excelsa</i>	PROTOMEG_STAPFIA	<i>Protomegabaria stapfiana</i>
PARKIA_BICOLOR	<i>Parkia bicolor</i>	PSEUDOSP_MICROCA	<i>Pseudospondias microcarpa</i>
PARKIA_BIGLOBO	<i>Parkia biglobosa</i>	PSIDIUM_GUAJAVA	<i>Psidium guajava</i>
PAURIDIA_AFZELII	<i>Pauridiantha afzelii</i>	PSIDIUM_GUINEEN	<i>Psidium guineense</i>
PAURIDIA_CANTHII	<i>Pauridiantha canthiiflora</i>	PSOROSPE_ALTERNI	<i>Psorospermum alternifolium</i>
PAURIDIA_HIRTELL	<i>Pauridiantha hirtella</i>	PSYCHOTR_BIDENTA	<i>Psychotria bidentata</i>
PAURIDIA_STIPULO	<i>Pauridiantha stipulosa</i>	PSYCHOTR_DJUMAEN	<i>Psychotria djumaensis</i>
PAURIDIA_SYLVICO	<i>Pauridiantha sylvicola</i>	PSYCHOTR_GABONIC	<i>Psychotria gabonica</i>
PAURIDIA_ZIAMAEA	<i>Pauridiantha ziamaeana</i>	PSYCHOTR_LIMBA	<i>Psychotria limba</i>
PAVETTA_AKEASSI	<i>Pavetta akeassii</i>	PSYCHOTR_PEDUNCU	<i>Psychotria peduncularis</i>
PAVETTA_HOOKERI	<i>Pavetta hookeriana</i>	PSYCHOTR_PSYCHOT	<i>Psychotria psychotrioides</i>
PAVETTA_LASIOCL	<i>Pavetta lasioclada</i>	PSYCHOTR_SOHMERI	<i>Psychotria sohmeri</i>
PAVETTA_MICHELI	<i>Pavetta micheliana</i>	PSYCHOTR_TETRAGO	<i>Psychotria tetragonopus</i>
PAVETTA_MOLLISS	<i>Pavetta mollissima</i>	PSYCHOTR_UMBELLA	<i>Psychotria umbellata</i>
PAVETTA_OWARIEN	<i>Pavetta owariensis</i>	PSYCHOTR_VOGELIA	<i>Psychotria vogeliana</i>
PAVETTA_PLATYCA	<i>Pavetta platycalyx</i>	PSYDRAX_ARNOLDI	<i>Psydrax arnoldiana</i>
PELTOPHO_PTEROCA	<i>Peltophorum pterocarpum</i>	PSYDRAX_MANENSI	<i>Psydrax manensis</i>
PENTACLE_MACROPH	<i>Pentaclethra macrophylla</i>	PSYDRAX_SUBCORD	<i>Psydrax subcordata</i>
PENTADES_BUTYRAC	<i>Pentadesma butyracea</i>	PTERNAND_AZUREA	<i>Pternandra azurea</i>
PERSEA_AMERICA	<i>Persea americana</i>	PTEROCAR_MILDBRA	<i>Pterocarpus mildbraedii</i>
PETERSIA_MACROCA	<i>Petersianthus macrocarpus</i>	PTEROCAR_SANTALI	<i>Pterocarpus santalinoides</i>
PHOENIX_RECLINA	<i>Phoenix reclinata</i>	PTERYGOT_BEQUAER	<i>Pterygota bequaertii</i>
PHYLLANT_PROFUSU	<i>Phyllanthus profusus</i>	PTYCHOPE_ANCEPS	<i>Ptychopetalum anceps</i>
PHYLLANT_RETICUL	<i>Phyllanthus reticulatus</i>	PYCNANTH_ANGOLEN	<i>Pycnanthus angolensis</i>
PHYLLOCO_AFRICAN	<i>Phyllocosmus africanus</i>	PYCNOCOM_MACROPH	<i>Pycnocomma macrophylla</i>
PHYTOLAC_AMERICA	<i>Phytolacca americana</i>	PYROSTRI_AFFINIS	<i>Pyrostria affinis</i>
PIPER_CAPENSE	<i>Piper capense</i>	QUASSIA_UNDULAT	<i>Quassia undulata</i>
PIPER_GUINEEN	<i>Piper guineense</i>	RAPHIA_HOOKERI	<i>Raphia hookeri</i>
PIPER_UMBELLA	<i>Piper umbellatum</i>	RAPHIA_PALMA-P	<i>Raphia palma-pinus</i>
PIPTADEN_AFRICAN	<i>Piptadeniastrum africanum</i>	RAPHIA_VINIFER	<i>Raphia vinifera</i>
PIPTOSTI_FASCICU	<i>Piptostigma fasciculatum</i>	RAUVOLFI_MANNII	<i>Rauvolfia mannii</i>
PIPTOSTI_FUGAX	<i>Piptostigma fugax</i>	RAUVOLFI_VOMITOR	<i>Rauvolfia vomitoria</i>
PLACODIS_OBLONGI	<i>Placodiscus oblongifolius</i>	RHAPHIOS_BENINEN	<i>Rhaphiostylis beninensis</i>
PLACODIS_PSEUDOS	<i>Placodiscus pseudostipularis</i>	RHAPHIOS_CORDIFO	<i>Rhaphiostylis cordifolia</i>
PLAGIOSI_EMARGIN	<i>Plagiosiphon emarginatus</i>	RHIZOPHO_MANGLE	<i>Rhizophora mangle</i>
PLEIOCAR_MUTICA	<i>Pleiocarpa mutica</i>	RHIZOPHO_RACEMOS	<i>Rhizophora racemosa</i>

RICINODE_HEUDELO	Ricinodendron heudelotii	SOLANUM_UMBELLA	Solanum umbellatum
RINOREA_AYLMERI	Rinorea aylmeri	SOPHORA_TOMENTO	Sophora tomentosa
RINOREA_BRACHYP	Rinorea brachypetala	SOYAUXIA_FLORIBU	Soyauxia floribunda
RINOREA_BREVIRA	Rinorea breviracemosa	SOYAUXIA_GRANDIF	Soyauxia grandifolia
RINOREA_CLAESSE	Rinorea claessensii	SPATHAND_BLAKEOI	Spathandra blakeoides
RINOREA_DENTATA	Rinorea dentata	SPATHODE_CAMPANU	Spathodea campanulata
RINOREA_DJALONE	Rinorea djalonensis	SPIGELIA_ANTHELM	Spigelia anthelmia
RINOREA_ILICIFO	Rinorea ilicifolia	SPONDIAN_PREUSSI	Spondianthus preussii
RINOREA_LEPIDOB	Rinorea lepidobotrys	SPONDIAS_DULCIS	Spondias dulcis
RINOREA_OBLONGI	Rinorea oblongifolia	SPONDIAS_MOMBIN	Spondias mombin
RINOREA_PREUSSI	Rinorea preussii	STACHYOT_STAFPFA	Stachyothyrsus stapfiana
RINOREA_RUBROTI	Rinorea rubrotincta	STERCULI_LONGIFO	Sterculia longifolia
RINOREA_WELWITS	Rinorea welwitschii	STERCULI_OBLONGA	Sterculia oblonga
RITCHIEA_CAPPARO	Ritchiea capparoides	STERCULI_TRAGACA	Sterculia tragacantha
ROBINIA_PSEUDOEA	Robinia pseudoacacia	STEREOSP_ACUMINA	Stereospermum acuminatissimum
ROTHMANN_HISPIDA	Rothmannia hispida	STREBLUS_USAMBAR	Streblus usambarensis
ROTHMANN_LONGIFL	Rothmannia longiflora	STREPHON_PSEUDOC	Strephonema pseudocola
ROTHMANN_MUNSAE	Rothmannia munsae	STROMBOS_NANA	Strombosiosis nana
ROTHMANN_WHITFIE	Rothmannia whitfieldii	STROMBOS_PUSTULA	Strombosia pustulata
ROUREA_COCCINE	Rourea coccinea	STROPHAN_GRATUS	Strophanthus gratus
ROUREA_MINOR	Rourea minor	STROPHAN_HISPIDU	Strophanthus hispidus
ROUREA_THOMSON	Rourea thomsonii	STROPHAN_PREUSSI	Strophanthus preussii
SACOGLOT_GABONEN	Sacoglottis gabonensis	STRYCHNO_USAMBAR	Strychnos usambarensis
SALACIA_LEHMBAC	Salacia lehmbachii	SYMPHONI_GLOBULI	Symphonia globulifera
SANTIRIA_TRIMERA	Santiria trimera	SYNSEPAL_AFZELII	Synsepalum afzelii
SCAEVOLA_PLUMIER	Scaevola plumieri	SYNSEPAL_BREVIPE	Synsepalum brevipes
SCAPHOPE_AMOENUM	Scaphopetalum amoenum	SYNSEPAL_REVOLUT	Synsepalum revolutum
SCHIZOCO_LINDERI	Schizocolea linderi	SYZYGIUM_GUINEEN	Syzygium guineense
SCLEROCR_CORNUTU	Sclerocroton cornutus	SYZYGIUM_JAMBOS	Syzygium jambos
SCOTTELL_CORIACE	Scottellia coriacea	SYZYGIUM_OWARIEN	Syzygium owariense
SCOTTELL_KLAINEA	Scottellia klaineana	SYZYGIUM_ROWLAND	Syzygium rowlandii
SCOTTELL_LEONENS	Scottellia leonensis	SYZYGIUM_SAMOENS	Syzygium samoense
SCYTOPET_TIEGHEM	Scytopetalum tieghemii	TABERNAE_AFRICAN	Tabernaemontana africana
SENNALATA	Senna alata	TABERNAE_CRASSA	Tabernaemontana crassa
SENNALPODOCAR	Senna podocarpa	TALIPARI_TILIACE	Talipariti tiliaceum
SENNASIAMEA	Senna siamea	TARENNA_GRACILI	Tarenna gracilis
SENNASPECTAB	Senna spectabilis	TARENNA_HUTCHIN	Tarenna hutchinsonii
SENNASURATTE	Senna surattensis	TARENNA_NITIDUL	Tarenna nitidula
SERICANT_TOUPETO	Sericanthe toupetou	TARENNA_PAVETTO	Tarenna pavettoides
SHIRAKIO_AUBREVI	Shirakiopsis aubrevillei	TARENNA_THOMASI	Tarenna thomasii
SMEATHMA_LAEVIGA	Smeathmannia laevigata	TARENNA_VIGNEI	Tarenna vignei
SMEATHMA_PUBESCE	Smeathmannia pubescens	TAXODIUM_DISTICH	Taxodium distichum
SOLANUM_ANGUIVI	Solanum anguivi	TEPHROSI_VOGELII	Tephrosia vogelii
SOLANUM_DONIANU	Solanum donianum	TERMINAL_CATAPPA	Terminalia catappa
SOLANUM_MAURITI	Solanum mauritianum	TERMINAL_IVORENS	Terminalia ivorensis
SOLANUM_RUGOSUM	Solanum rugosum	TERMINAL_MACROPT	Terminalia macroptera
SOLANUM_TORVUM	Solanum torvum	TERMINAL_SUPERBA	Terminalia superba

TETRABER_TUBMANI	Tetraberlinia tubmaniana	UVARIA_OVATA	Uvaria ovata
TETRAPLE_CHEVALI	Tetrapleura chevalieri	UVARIAST_PIERREA	Uvariastrum pierreanum
TETRAPLE_TETRAPT	Tetrapleura tetraptera	UVARIOPS_CONGENS	Uvariopsis congensis
TETRORCH_DIDYMOS	Tetrorchidium didymostemon	UVARIOPS_GLOBIFL	Uvariopsis globiflora
TETRORCH_OPPOSIT	Tetrorchidium oppositifolium	UVARIOPS_GUINEEN	Uvariopsis guineensis
TIEGHEME_HECKELI	Tieghemella heckelii	VANGUERI_DISCOLO	Vangueriella discolor
TRECULIA_AFRICAN	Treculia africana	VANGUERI_ORTHACA	Vangueriella orthacantha
TREMA_ORIENTA	Trema orientalis	VANGUERI_VANGUER	Vangueriella vanguerioides
TRICALYS_ANOMALA	Tricalysia anomala	VEPRIS_SUAVEOL	Vepris suaveolens
TRICALYS_BIAFRAN	Tricalysia biafrana	VEPRIS_TABOUEN	Vepris tabouensis
TRICALYS_ELLIOTT	Tricalysia elliotii	VEPRIS_VERDOOR	Vepris verdoorniana
TRICALYS_PALLENS	Tricalysia pallens	VISMIA_GUINEEN	Vismia guineensis
TRICALYS_RETICUL	Tricalysia reticulata	VITEX_CHRYSOC	Vitex chrysocarpa
TRICHILI_MONADEL	Trichilia monadelpha	VITEX_CONGOLE	Vitex congolensis
TRICHILI_ORNITHO	Trichilia ornithothera	VITEX_DONIANA	Vitex doniana
TRICHILI_PRIEURI	Trichilia prieuriana	VITEX_FERRUGI	Vitex ferruginea
TRICHILI_TESSMAN	Trichilia tessmannii	VITEX_GRANDIF	Vitex grandifolia
TRICHOSC_ACUMINA	Trichoscypha acuminata	VITEX_MICRANT	Vitex micrantha
TRICHOSC_ARBOREA	Trichoscypha arborea	VITEX_OXYCUSP	Vitex oxycuspis
TRICHOSC_BALDWIN	Trichoscypha baldwinii	VITEX_PHAEOTR	Vitex phaeotricha
TRICHOSC_BARBATA	Trichoscypha barbata	VITEX_RIVULAR	Vitex rivularis
TRICHOSC_BIJUGA	Trichoscypha bijuga	VITEX_THYRSIF	Vitex thyrsoiflora
TRICHOSC_BLYDENI	Trichoscypha blydeniae	VOACANGA_BRACTEA	Voacanga bracteata
TRICHOSC_CAVALLI	Trichoscypha cavalliensis	VOACANGA_CAUDIFL	Voacanga caudiflora
TRICHOSC_LIBERIC	Trichoscypha liberica	VOACANGA_THOUARS	Voacanga thouarsii
TRICHOSC_LINDERI	Trichoscypha linderi	WARNECKE_CINNAMO	Warneckea cinnamomoides
TRICHOSC_LONGIFO	Trichoscypha longifolia	WARNECKE_FASCICU	Warneckea fascicularis
TRICHOSC_LUCENS	Trichoscypha lucens	WARNECKE_GUINEEN	Warneckea guineensis
TRICHOSC_MANNII	Trichoscypha mannii	WARNECKE_MEMEICYL	Warneckea memecyloides
TRICHOSC_OLODIAN	Trichoscypha olodiana	XIMENIA_AMERICA	Ximenia americana
TRICHOSC_SMYTHEI	Trichoscypha smythei	XYLIA_EVANSII	Xylia evansii
TRILEPIS_MADAGAS	Trilepisium madagascariense	XYLOPIA_ACUTIFL	Xylopia acutiflora
TRIPLOCH_SCLEROX	Triplochiton scleroxylon	XYLOPIA_AETHIOP	Xylopia aethiopica
TURRAEA_LEONENS	Turraea leonensis	XYLOPIA_ELLIOTI	Xylopia elliotii
UAPACA_GUINEEN	Uapaca guineensis	XYLOPIA_LE-TEST	Xylopia le-testui
UAPACA_HEUDELO	Uapaca heudelotii	XYLOPIA_PARVIFL	Xylopia parviflora
UAPACA_MOLE	Uapaca mole	XYLOPIA_QUINTAS	Xylopia quintasii
UAPACA_PYNAERT	Uapaca pynaertii	XYLOPIA_RUBESCE	Xylopia rubescens
UAPACA_TOGOENS	Uapaca togoensis	XYLOPIA_STAUDTI	Xylopia staudtii
ULMUS_PUMILA	Ulmus pumila	XYLOPIA_VILLOSA	Xylopia villosa
UNKNOWN	Unknown sp.	ZANHA_GOLUNGE	Zanha golungensis
UNLIST	Unlisted sp.	ZANTHOXY_ATCHOUM	Zanthoxylum atchoum
UROBOTRY_CONGOLA	Urobotrya congolana	ZANTHOXY_GILLETI	Zanthoxylum gilletii
UVARIA_AFZELII	Uvaria afzelii	ZANTHOXY_LEPRIEU	Zanthoxylum leprieurii
UVARIA_CHAMAE	Uvaria chamae	ZANTHOXY_MEZONEU	Zanthoxylum mezoneurispinosum

ZANTHOXY_PSAMMOP	Zanthoxylum psammophilum
ZANTHOXY_RUBESCE	Zanthoxylum rubescens
ZANTHOXY_VIRIDE	Zanthoxylum viride
