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 circular[1] plots were considered as recording units: the first had a radius of 12.63 m (area of 500 m^2) within which trees 40 cm dbh and above were measured; and a second or nested plot had radius of 5.64m (area of 100 m^2), 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 m^2 = 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.

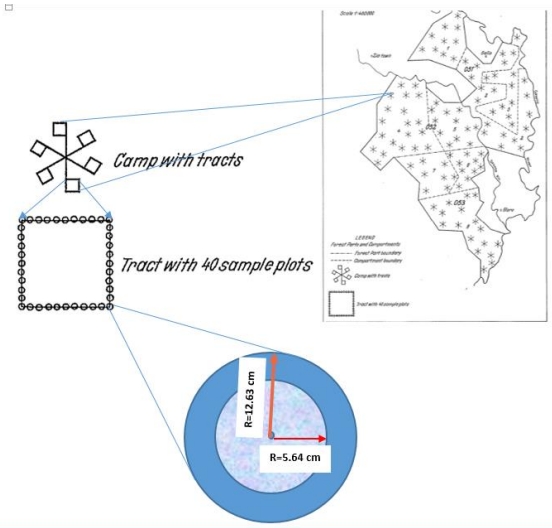

Figure 1: Sketch diagram showing plot arrangement within tracts and tracts within camps (Camp unit system) in the 1968 NFI.

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).

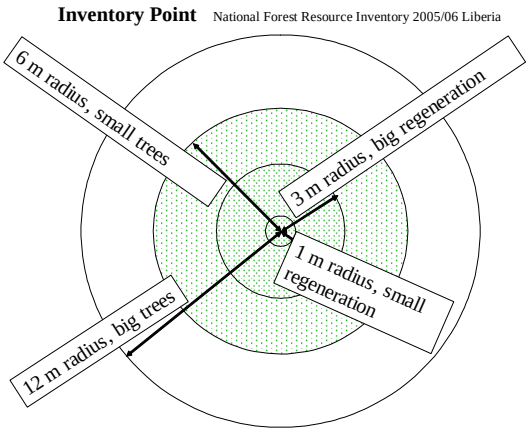

Figure 2: Subplot arrangement within cluster primary units (PSU's) (Camp unit system) in the 2006 Forest Inventory of the Indigenous Forests in Liberia.

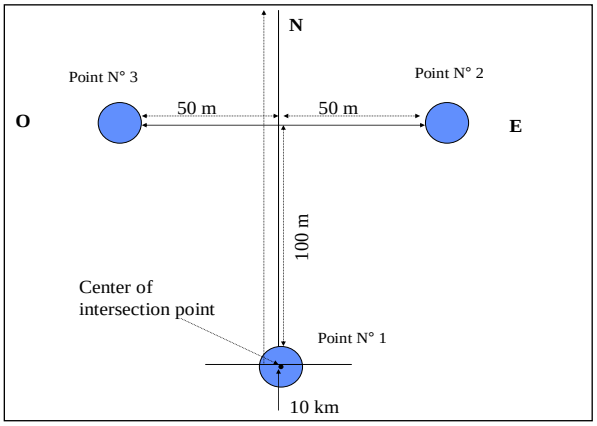

Figure 3: Subplots arrangement as a secondary sampling unit (SSU) within a cluster plot (Camp unit system) in the 2006 Forest Inventory of the Indigenous Forests in Liberia.

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 ± 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 (m3/ha)	Standard Deviation (m3/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.

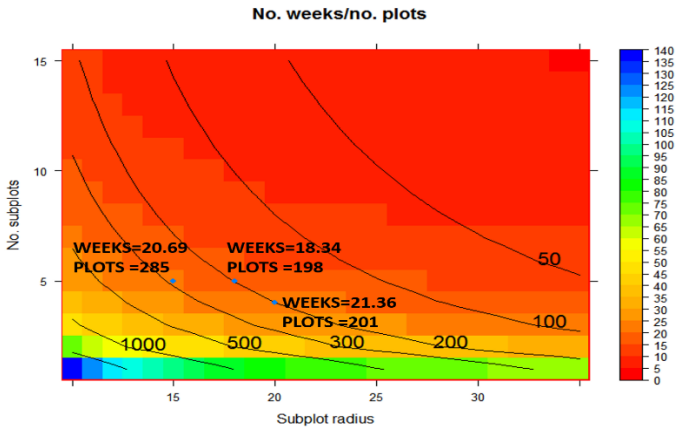

Figure 5: Sampling design optimization. A total of 285 cluster plots with five 18 m radius circular subplots to be sampled in around 22.5 weeks have been selected. Color gradient depicts cost (weeks for a total crew of 6 teams, around 5-6 persons per team). Contour plots indicate number of cluster plots.

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).

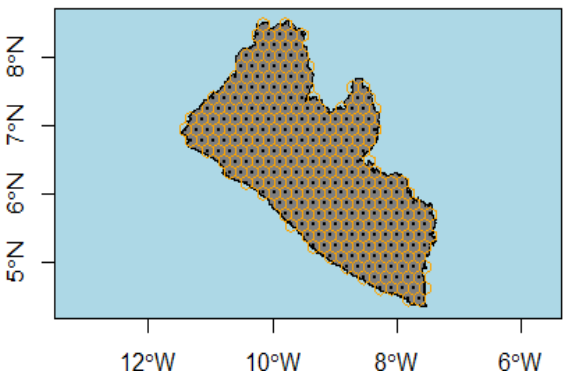

Figure 6: Hexagonal grid showing the locations of the 285 cluster plot centers over Liberia.

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).

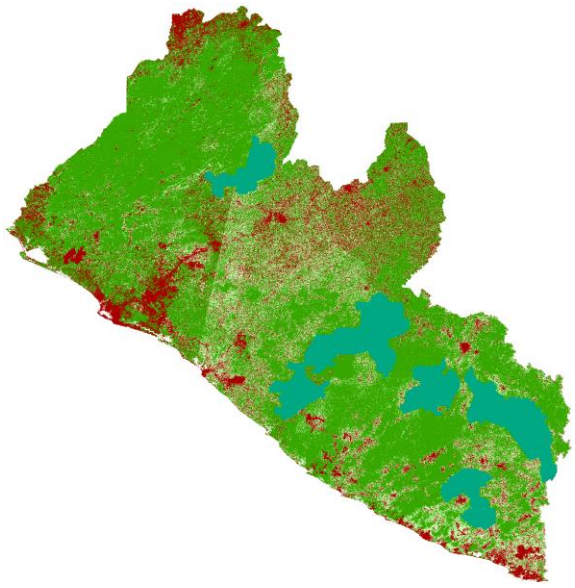

Figure 7: Geoville's 2015 forest cover map, overlapped with a forest management concession map.

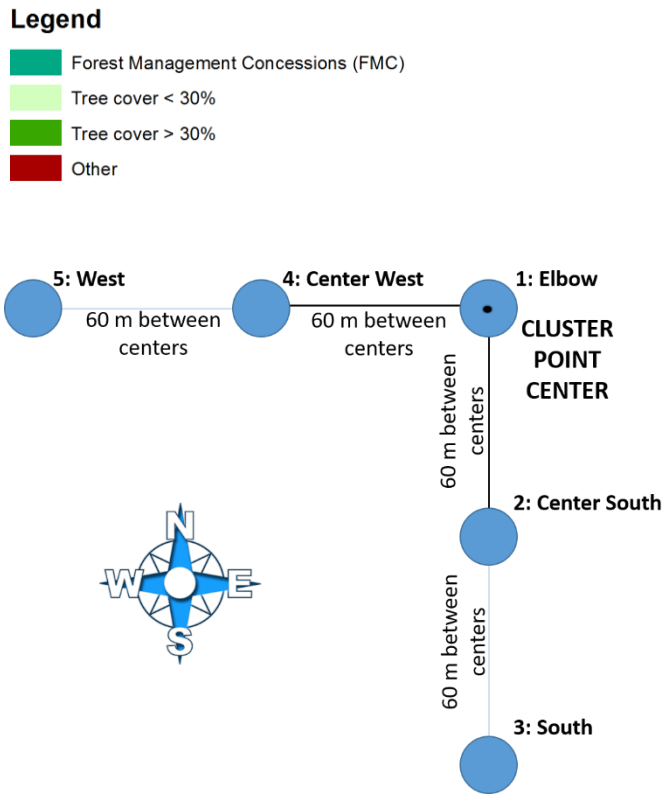

Figure 8: Plot (SSU) arrangement within a cluster plot (PSU). Plots are separated 60 m from each other.

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.

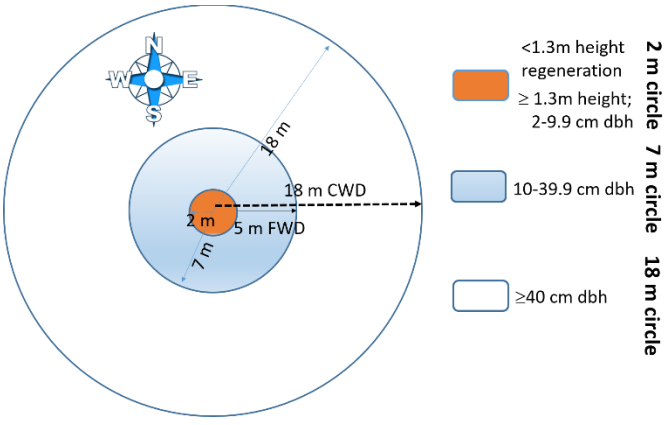

Figure 9: Nested subplot (SSU) configuration and tree measurements taken in each nested circle.

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 ≤ dbh	F2-F9,F13
Nest 1	Circle	7 m radius	1/SSU	10 cm ≤ dbh < 39.9 cm	F13
Nest 2	Circle	2 m radius	1/SSU	2 cm ≤ dbh ≤ 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 ≤ d. intersection	F11
FWD transect	Line	5 m	1/SSU	2 cm ≤ d. intersection ≤ 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.

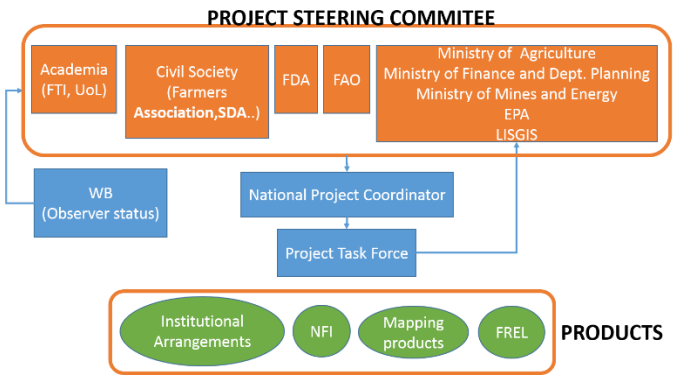

Figure 10: Project organizational chart.

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 activies. 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:

- 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 undertakn 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 wile 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 (Bio-physical 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.

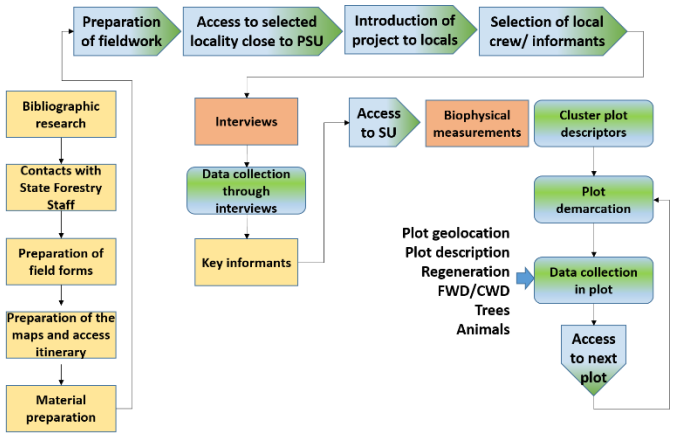

Figure 11: Steps on NFI data collection.

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.

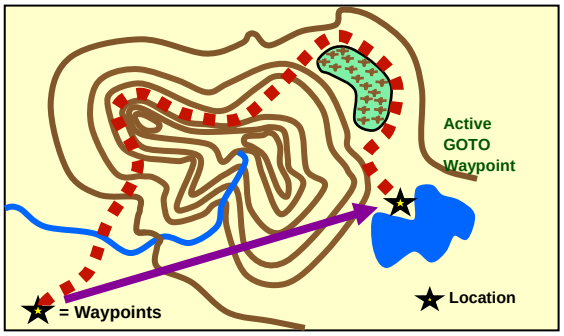

Figure 11: Example of a path to a waypoint using a GPS GOTO function.

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).

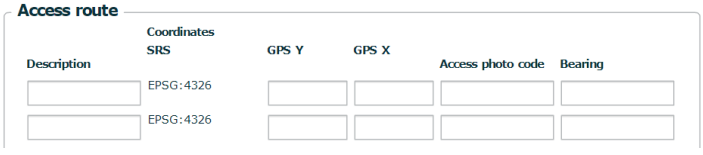

Figure 12. Access route table for waypoints and significant turns during the access route to the cluster plot.

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.

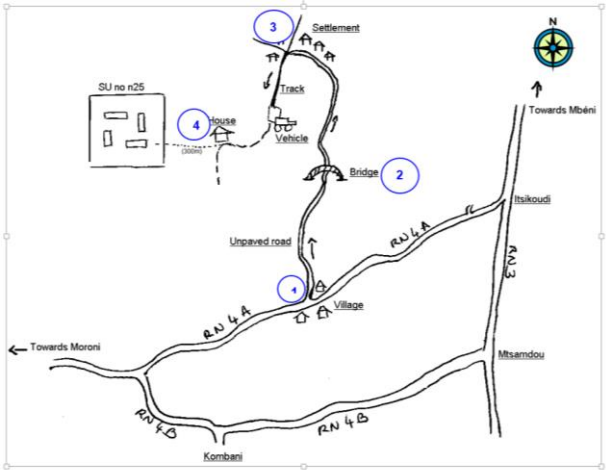

Figure 13. Access to sampling unit sketch.

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 270º or 90º):

   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 90º);

   on the contrary, if it is higher, then the team will move to the West (bearing 270º);
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 º or 180 º):

   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 (0º);

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

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.

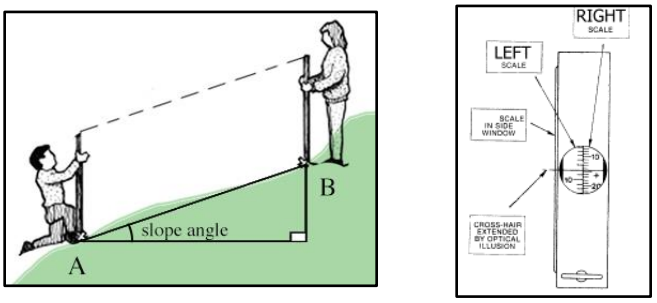

Figure 14. Measuring slope in plot and depiction of the two existing scales in a SUUNTO clinometer. Readings should be made from the left scale.

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).

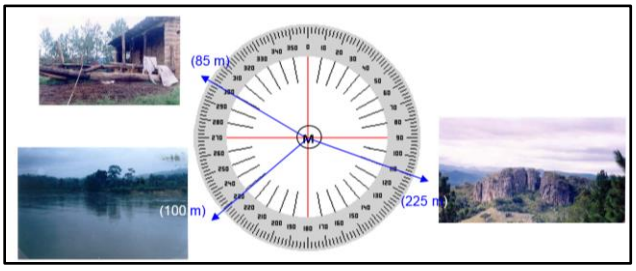

Figure 14. Access to sampling unit sketch (**Form F2. Reference Point Form**).

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1	South West corner of the House of the Mr X family.	300	85	5
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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 inmediately 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).

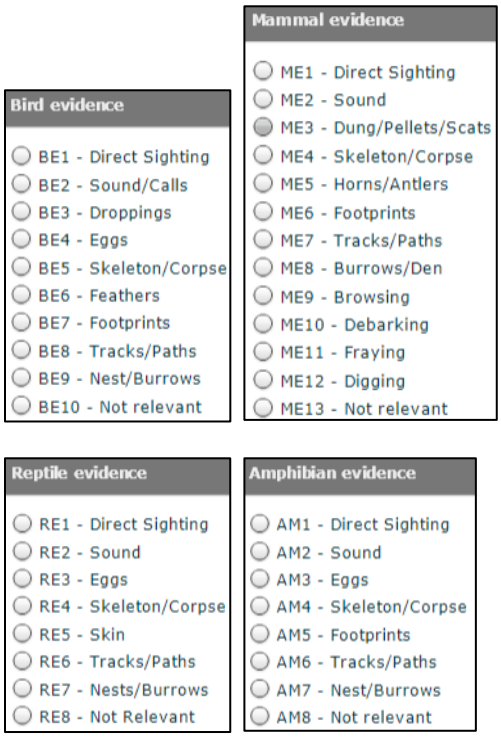


Figure 15. Wildlife evidence codes to determine signals of wildlife presence, for all four wildlife groups in the NFI. to sampling unit sketch (**Forms F3-F6**).

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. Possibilites are depicted in Fig. 16 (**Form F7**).

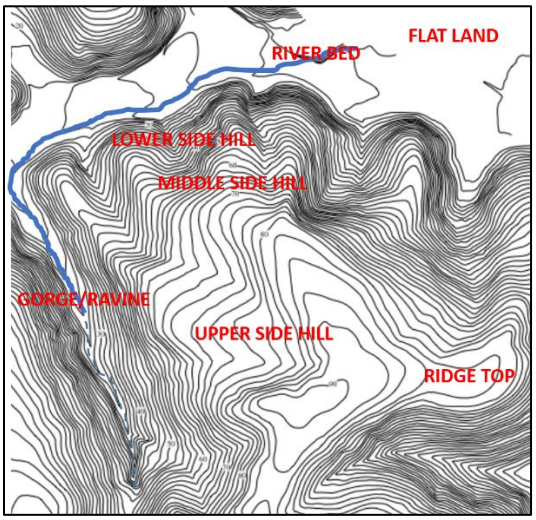


Figure 16. Possible topographic positions for plots (**Form F7**).

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.

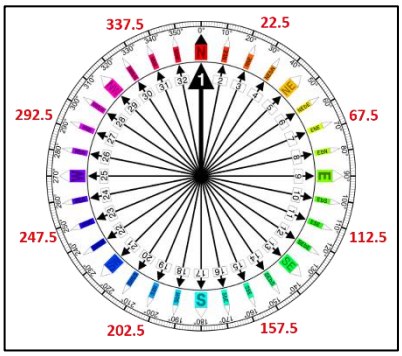


Figure 16. Possible aspect positions for plots (**Form F7**).

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 thir use will be recorded and written.

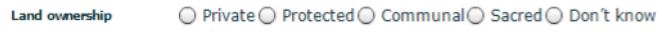
Number of snags (standing dead trees) and fallen trees in the plot will be recorded in categories (1-5,

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

Stand description, main understory types and Disturbances

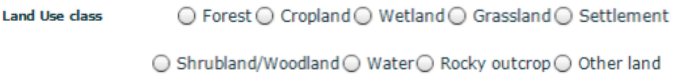
In Form F8, more information to describe the plot will be enumerated. As part of the overall stand description, land ownership should be included when possible (Table 6).

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



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**).

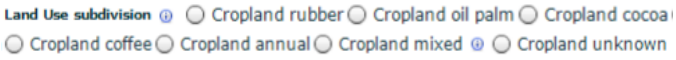


In case the plot has been classified as "Forest" or "Cropland", subdivisions will appear, respectively, as in Table 8 (Forest) and Table 9 (Cropland). In the case of Forest, extra information on the successional status and forest type is to be added.

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

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 one other subclassification appears (Table 9).

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



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**).

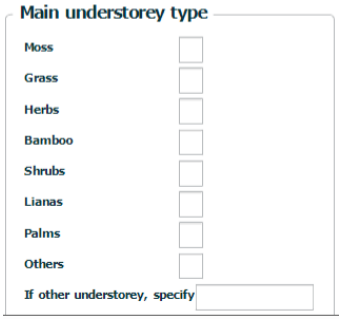
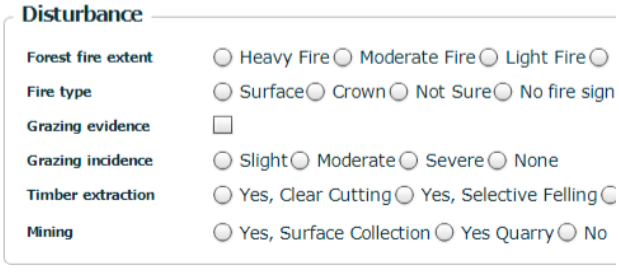


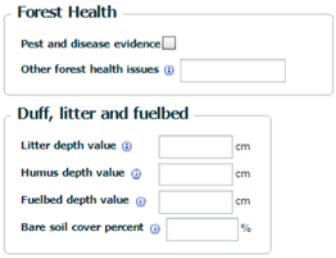
Table 11. Main disturbance categories (**Form F8, Disturbance**).



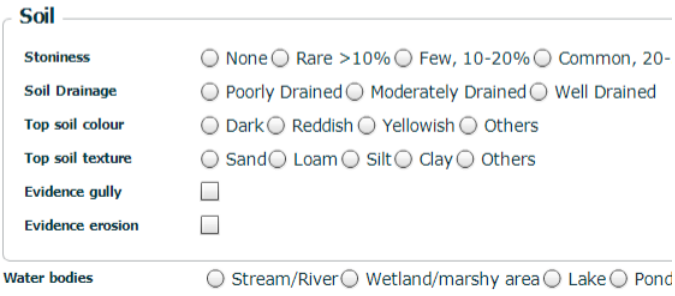
Finally, disturbance signs in the plot will be covered by filling up the different categories in the variables depicted in Table 11.

Forest health, and duff litter and fuelbed (**Form F9**) should also be recorded, as much as possible, given the likely presence of rock inmediately below the surface in many of the plots. Categories are depiced 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 fueldbed**).



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



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) inmediately 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 shoud 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 inputed for each of the four canopy cover locations in the plot. Table 14 shows the form to fill up.

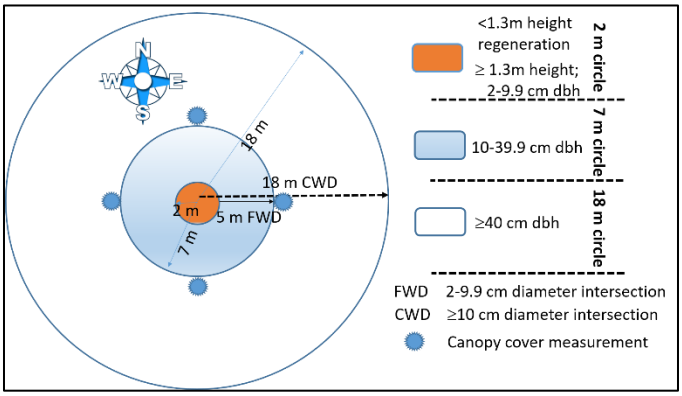


Figure 17. Plot configuration and position of canopy cover measurements (blue stars).

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.		
2.		
3.		
4.		

Canopy cover

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

Fine woody debris (Form F10)

Following Fig. 17, a 5 m. long transect, located inmediately over the floor, will be located between 2 and 7 m. in the east direction from the plot center. This exercise should be stragetically 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.

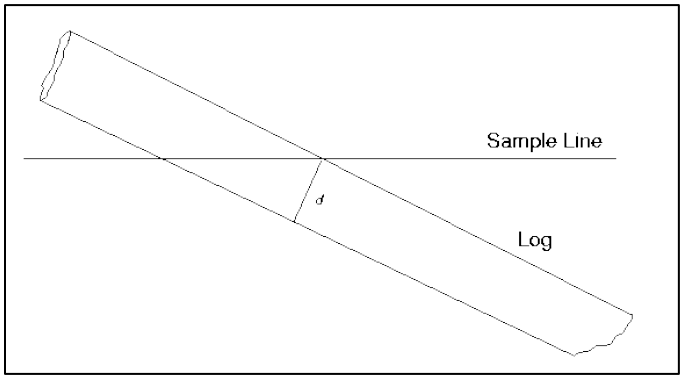


Figure 19. Line intersection method: how the diameter at intersection is defined for a piece of woody debris

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 of three times the sample line or transect, then each of the diameters at intersection should be enumerated.

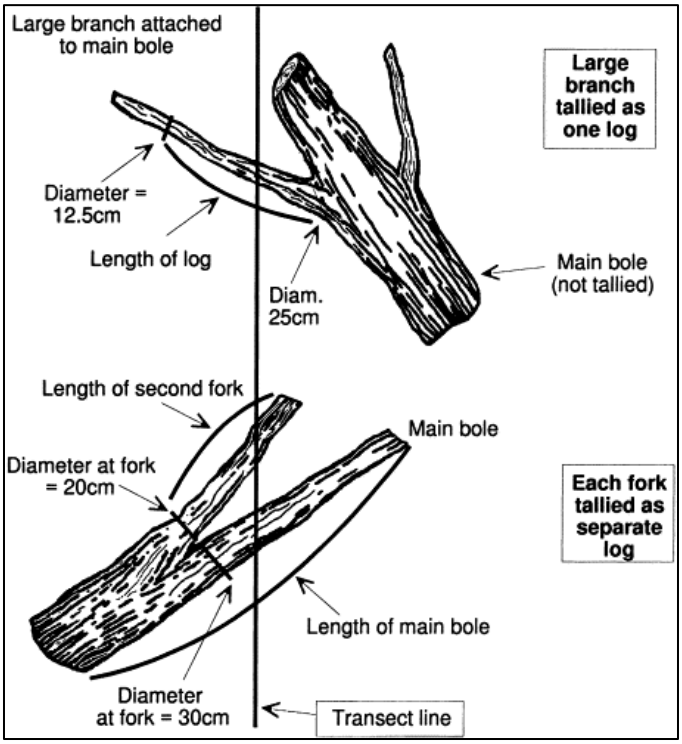


Figure 20. Examples of special cases where bifurcated branches cross the line sample (transect) line. Although this example is mostly drawn for coarse woody debris sampling, in fine woody debris sampling, both diameters at intersection of the branches of the bifurcation should be enumerated.

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.

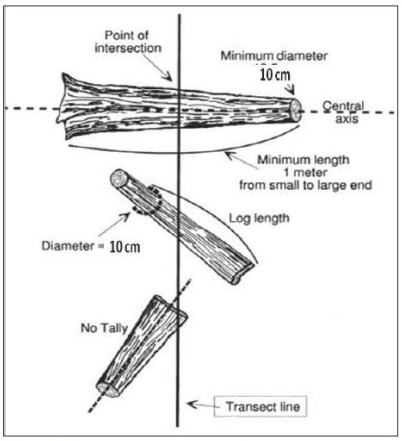


Plate 5: Conditions for tally of CWD for measurement

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.

Inmediately 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. diaameter 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.

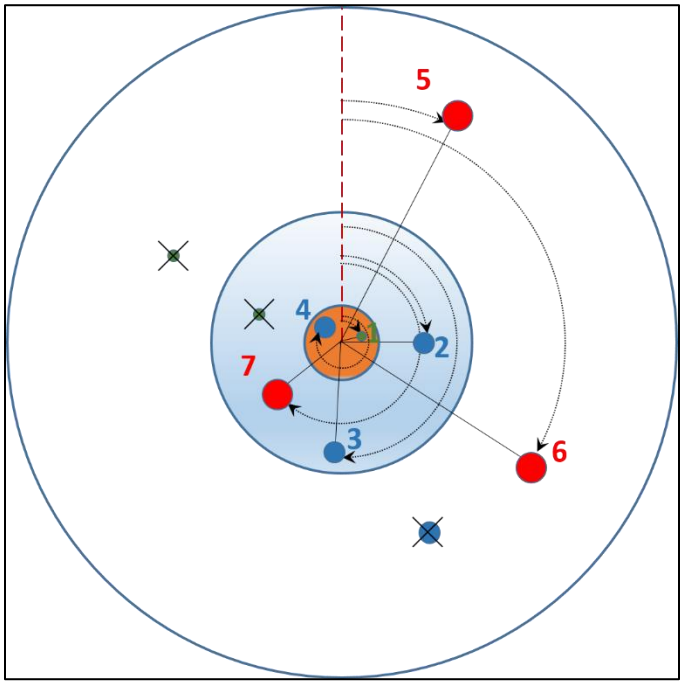


Figure 22. Example of enumeration of small (green), medium (blue) and big (red) trees in a plot, starting from the 2m. radius subplot (in orange) for small trees, to continue with the 7m. (in blue) subplot for medium trees and finalizing with the 18 m. (in white) subplot for big trees. Trees marked with 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 or 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 hast 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).

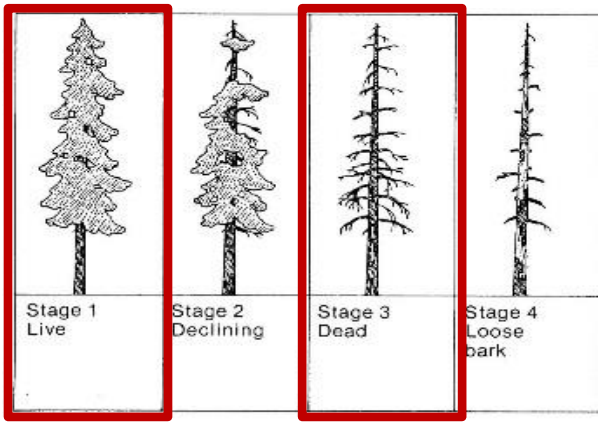


Figure 23. Tree condition classes to be enumerated. Only the five categories enclosed in red rectangles are considered for the Liberian NFI. See Annex 1 for full graphic

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).

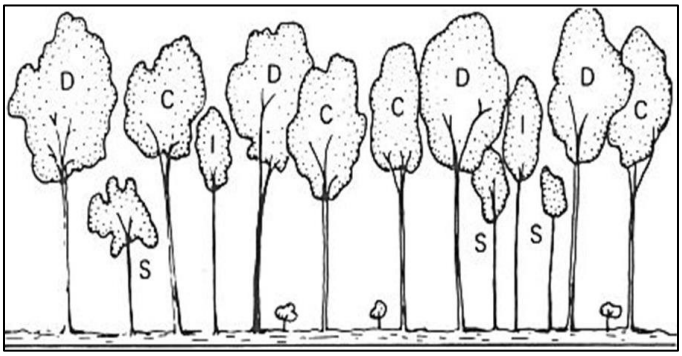


Figure 24. Dominant (D), codominant (C), intermediate (I) and suppressed (S) trees according their position in the forest canopy.

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.

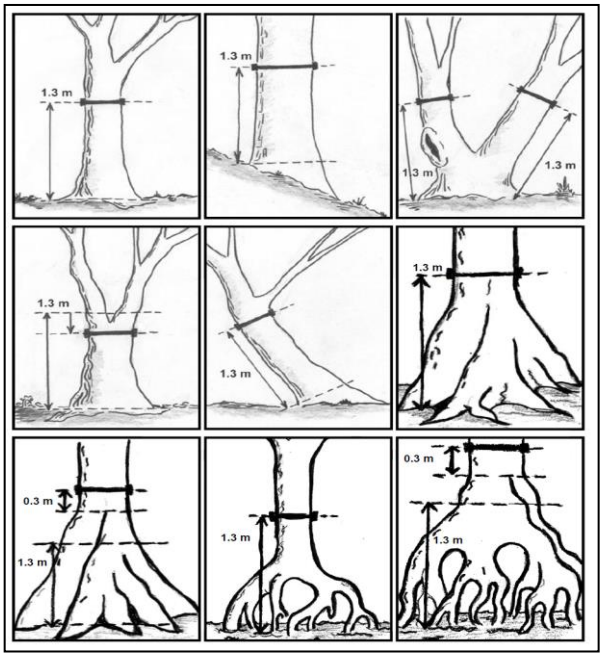


Figure 25. Correct placement of DBH tape in different growth scenarios

- 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 wich 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.

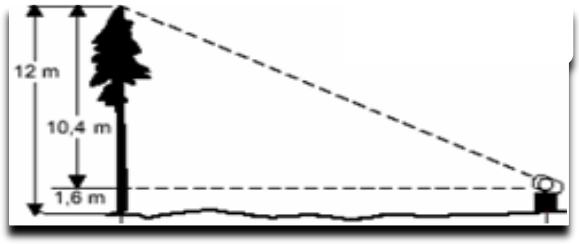


Figure 26. Example of a measurement of total height in a tree. For the NFI, as in the figure, the feet of the enumerator will be at the same elevation as the base of the tree.

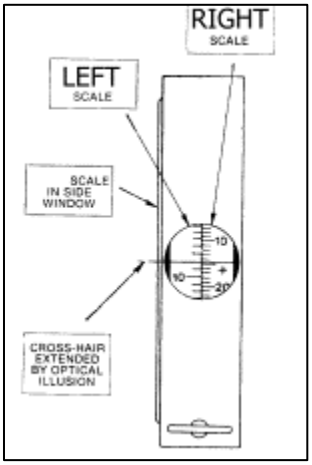


Figure 27. Scales seen through the lens of a Suunto degrees clinometer. The left scale is in degrees and the right scale in percentage. During the NFI only the left scale will be used to enumerate angles.

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

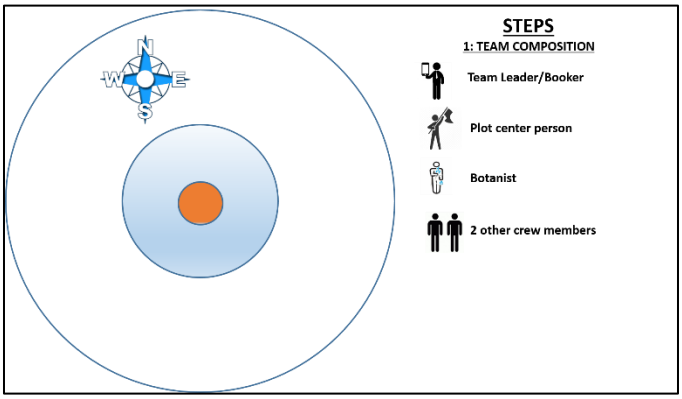
When the work in the Sampling Unit is completed, the field team registers on **Form F1** the date when leaving the SU, to go either to the next SU or to base. Summary notes on the work carried out in the SU, including difficulties encountered while carrying out the field inventory in the SU should be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

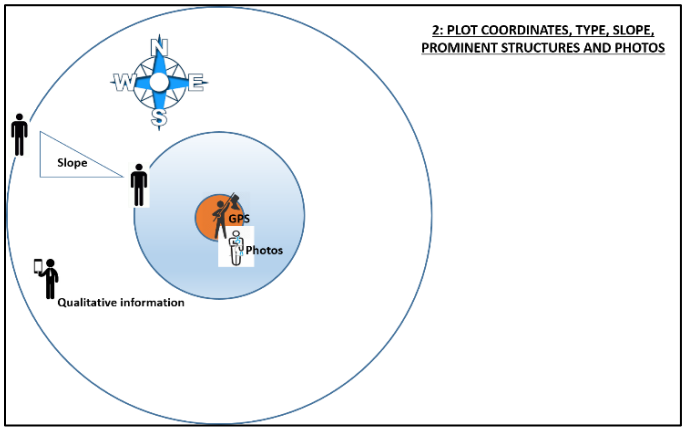
The field forms should be well-organised, filed and thoroughly checked by the field team leader, to ensure that all fields are duly completed and that there are no inconsistencies. Then they should be handed over to the supervision team for review and quality control. If they have to be sent by mail/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

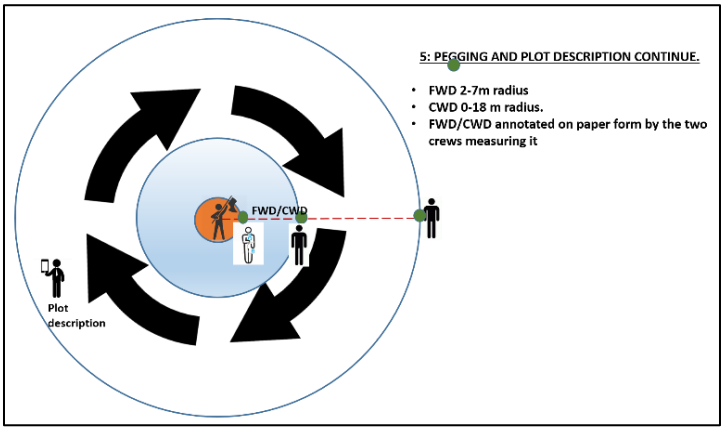
When the field team has access to a computer, the photographs should be uploaded.

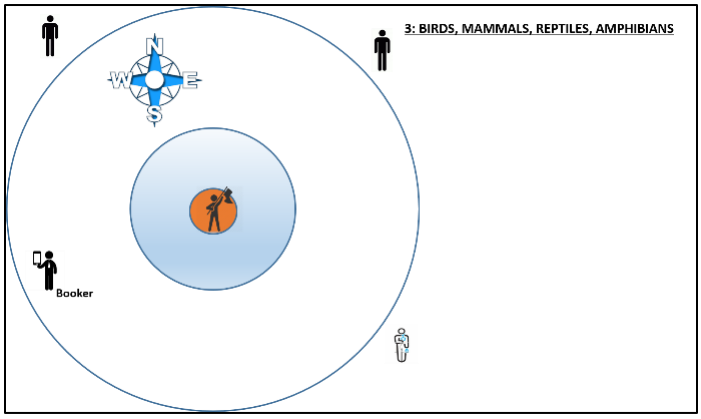
7.3. Team Steps for plot measurements

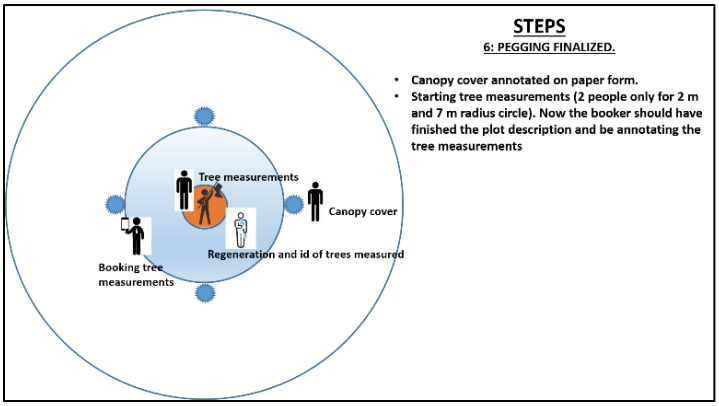
Efficiency during plot enumeration will depend on a well-designed and practised team strategy to adequately distribute the roles of each person. The following are proposed steps for plot enumeration in a team of 5 people:

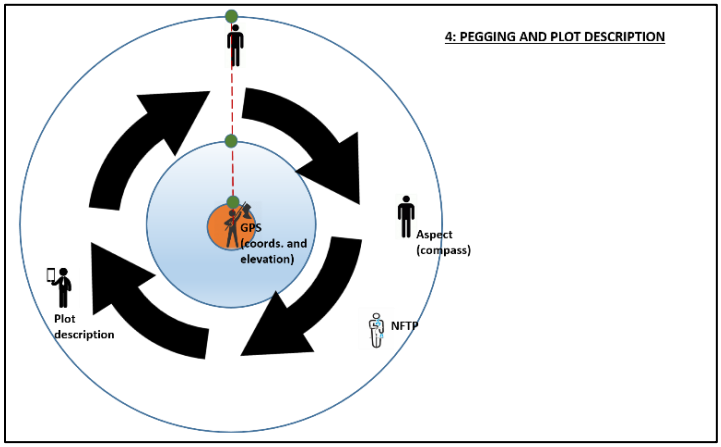


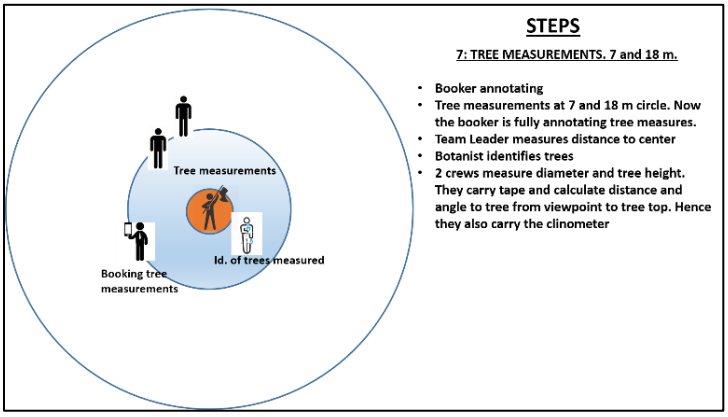

2: PLOT COORDINATES, TYPE, SLOPE, PROMINENT STRUCTURES AND PHOTOS
N
W
E
S
Slope
GPS
Photos
Qualitative information

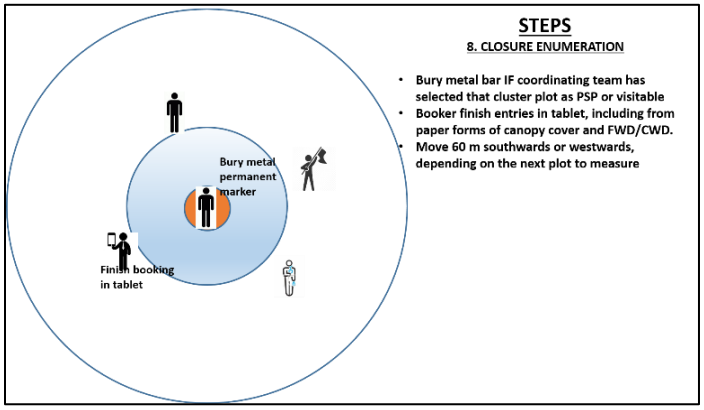

5: PEGGING AND PLOT DESCRIPTION CONTINUE.
FWD 2-7m radius
CWD 0-18 m radius.
FWD/CWD annotated on paper form by the two crews measuring it
FWD/CWD
Plot description


3: BIRDS, MAMMALS, REPTILES, AMPHIBIANS
N
W
E
S
Booker


STEPS
6: PEGGING FINALIZED.
Canopy cover annotated on paper form.
Starting tree measurements (2 people only for 2 m and 7 m radius circle). Now the booker should have finished the plot description and be annotating the tree measurements
Tree measurements
Canopy cover
Regeneration and id of trees measured
Booking tree measurements


4: PEGGING AND PLOT DESCRIPTION
GPS (coords. and elevation)
Aspect (compass)
Plot description
NFTP


STEPS
7: TREE MEASUREMENTS. 7 and 18 m.
Booker annotating
Tree measurements at 7 and 18 m circle. Now the booker is fully annotating tree measures.
Team Leader measures distance to center
Botanist identifies trees
2 crews measure diameter and tree height. They carry tape and calculate distance and angle to tree from viewpoint to tree top. Hence they also carry the clinometer
Tree measurements
Id. of trees measured
Booking tree measurements



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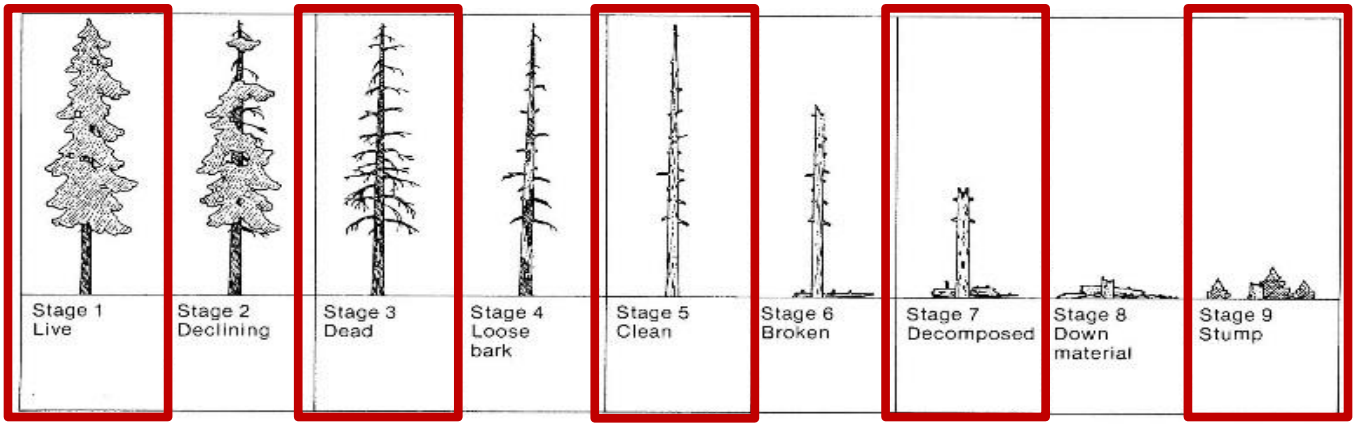
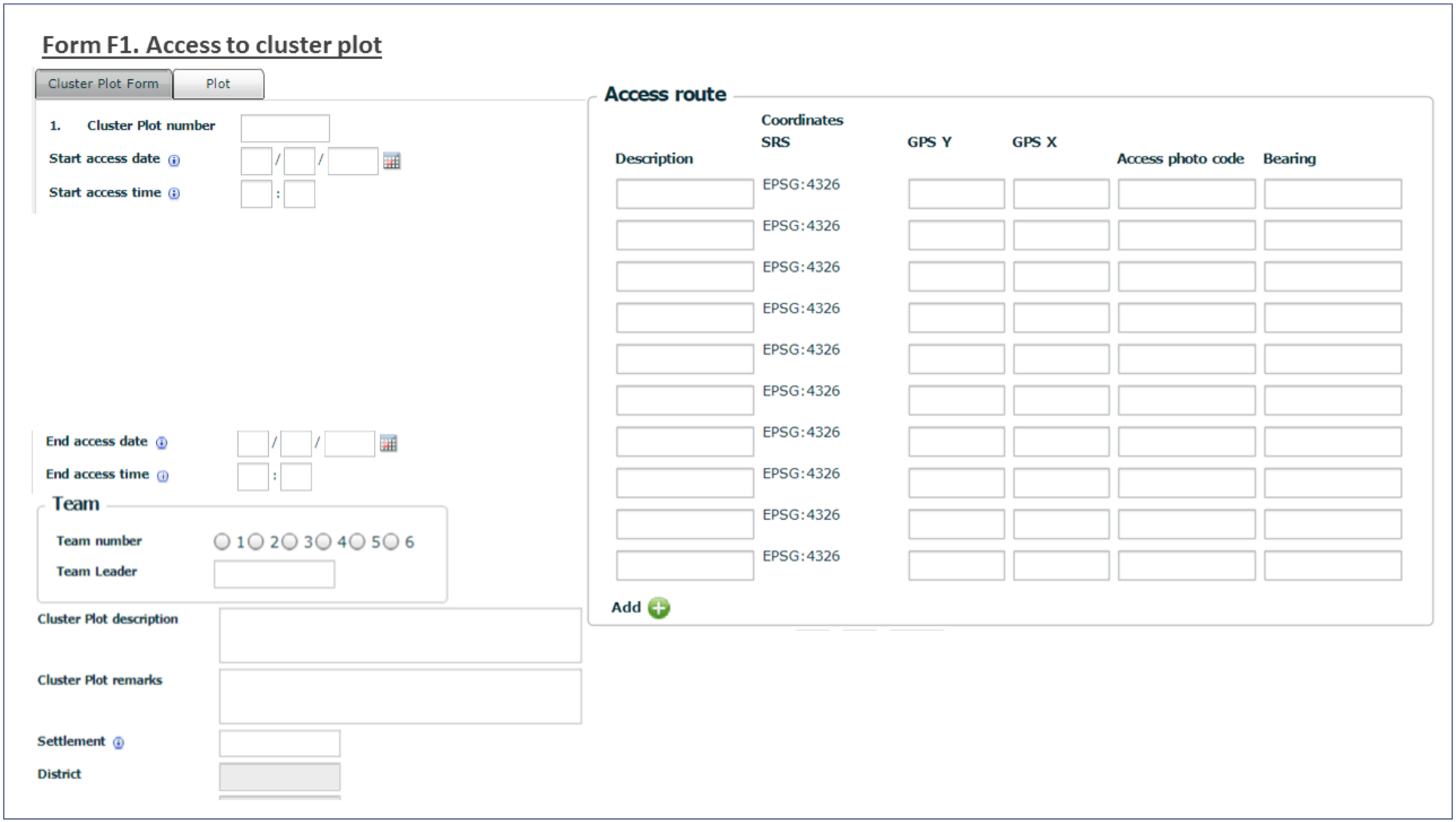
Sylla, M. and Picard, N. (2005). Guide méthodologique des évaluations rapides de bois

Annex 1 Tree Condition Graphic



ANNEX 2 – Field Forms

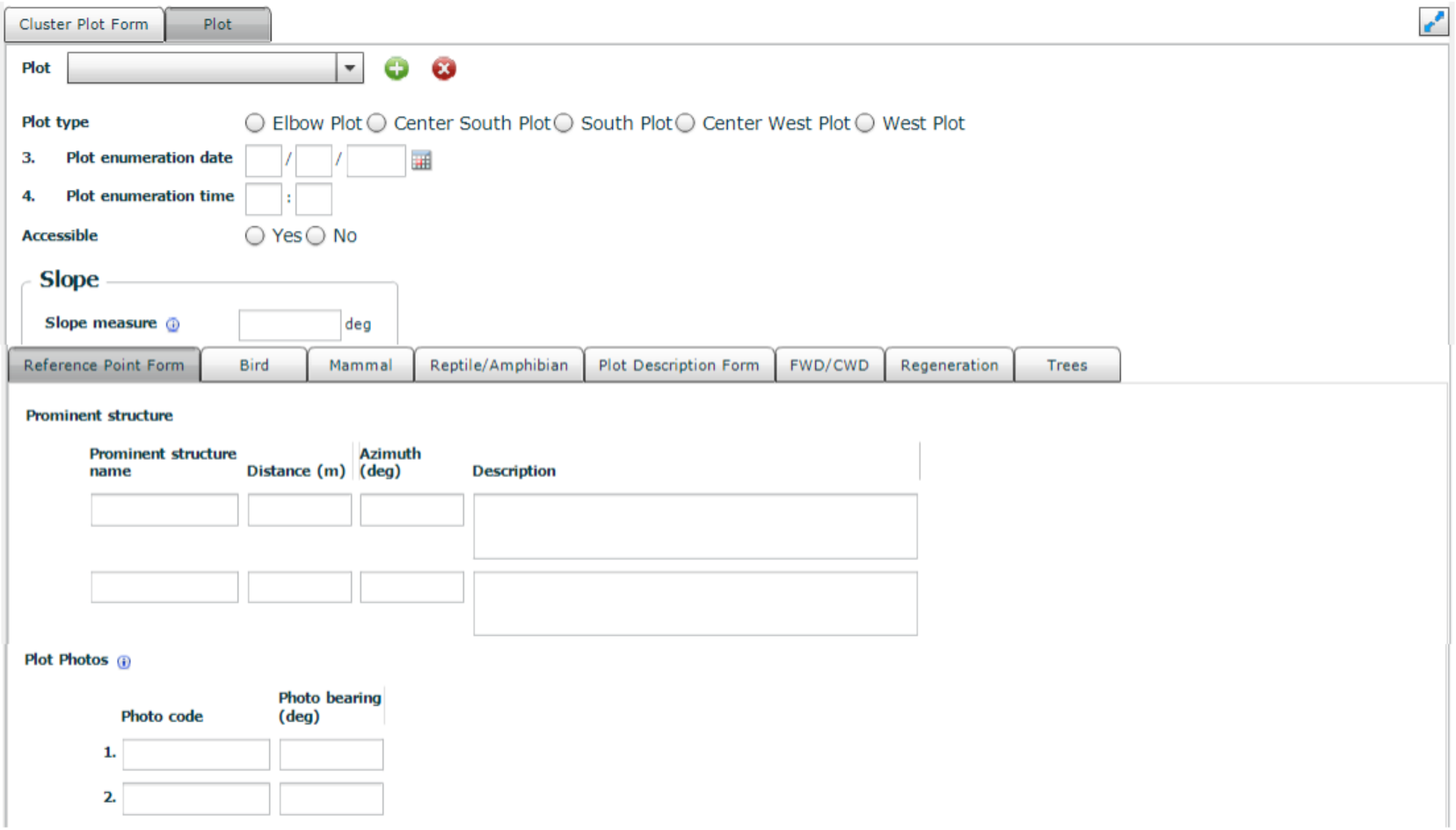


Form F1A. Sketch for access to cluster plot

Cluster Plot Form | Plot

1. **Cluster Plot number**

Form F2. Plot identification and Plot Reference Point



Form F3. Bird identification

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

Birds

Species Code | Scientific name | Vernacular name | Language | Dialect | Name of unlisted species | Species identity | Group size

Bird evidence | Specific remarks

Species Code | Scientific name | Vernacular name | Language | Dialect | Name of unlisted species | Species identity | Group size

Bird evidence | Specific remarks

Species Code | Scientific name | Vernacular name | Language | Dialect | Name of unlisted species | Species identity | Group size

Bird evidence | Specific remarks

Species identity

- C - Certain
- D - Doubtful

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

Form F4. Mammal identification

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

Wildlife Mammal

Species

Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size

Mammal evidence | Specific remarks

Species

Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size

Mammal evidence | Specific remarks

Species

Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size

Mammal evidence | Specific remarks

Species identity

- C - Certain
- D - Doubtful

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

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

Reptile evidence	Specific remarks

Species Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size

Reptile evidence	Specific remarks

Species Code	Scientific name	Vernacular name	Language	Dialect	Name of unlisted species	Species identity	Group size

Reptile evidence	Specific remarks

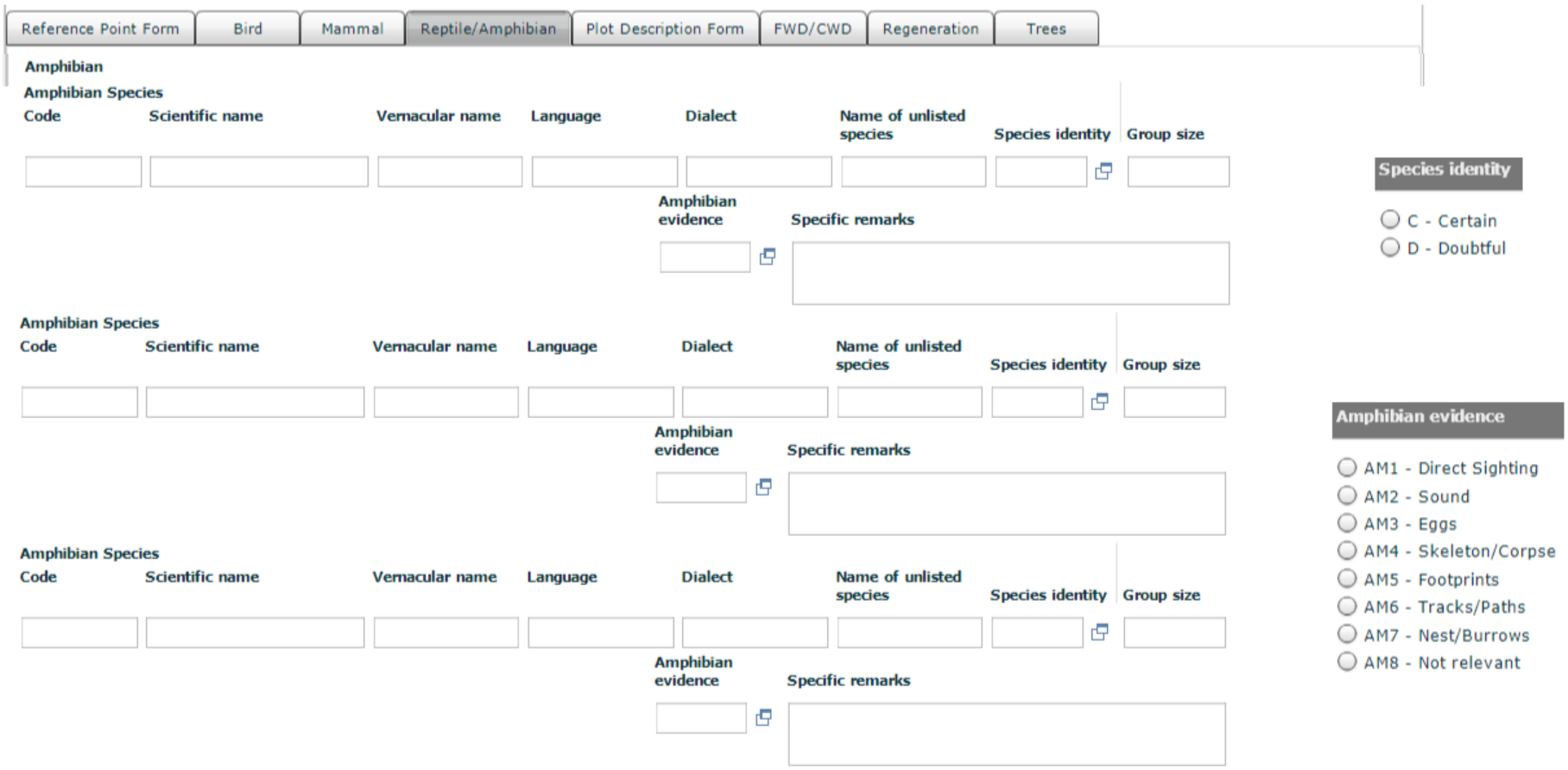
Species identity

- C - Certain
- D - Doubtful

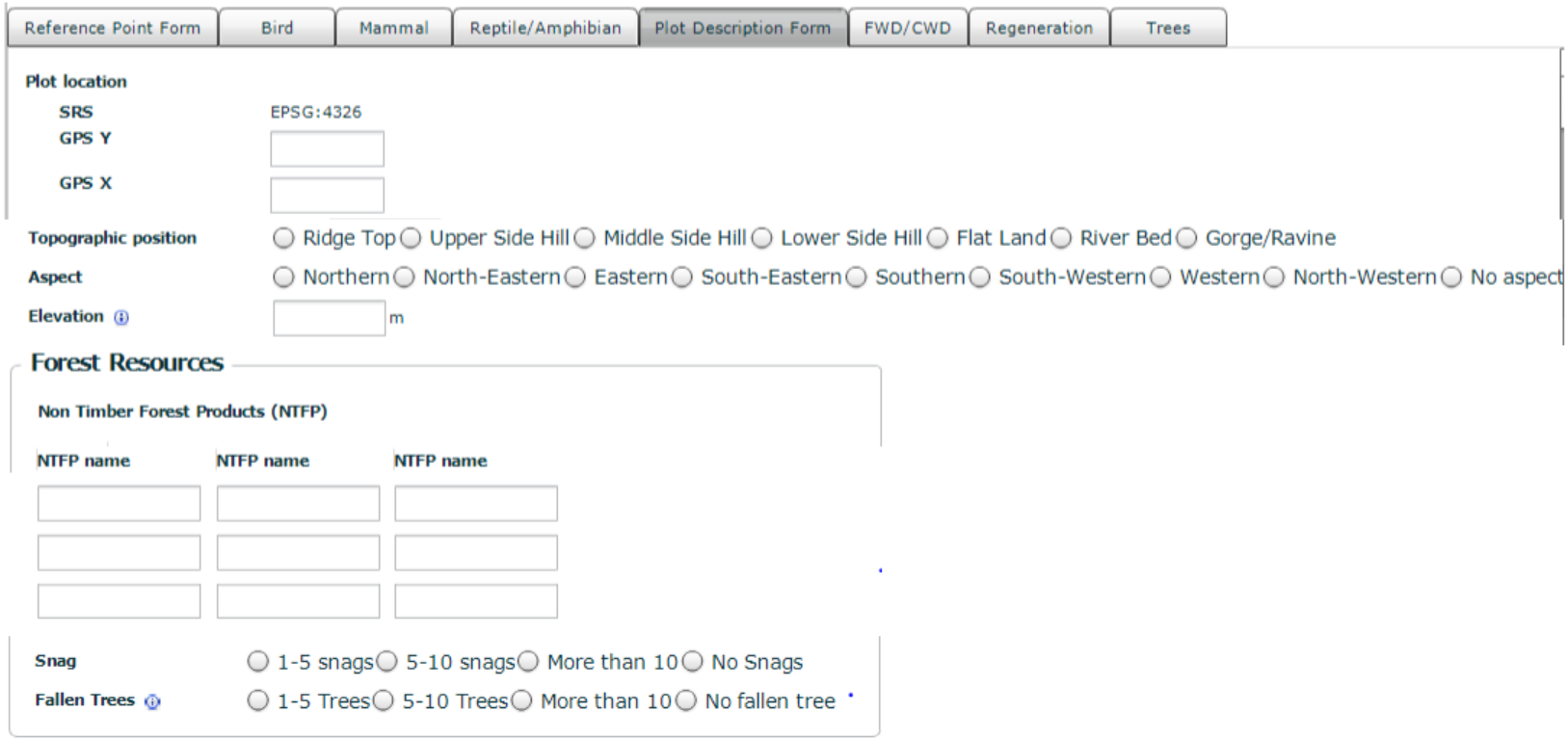
Reptile evidence

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

Form F6. Amphibian identification



Form F7. Plot Description. Forest Resources



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 ◯ Semidecideous ◯ Evergreen

If Cropland

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

Main understorey type

Moss ☐

Grass ☐

Herbs ☐

Bamboo ☐

Shrubs ☐

Lianas ☐

Palms ☐

Others ☐

If other understorey, 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.		
2.		
3.		
4.		

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

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

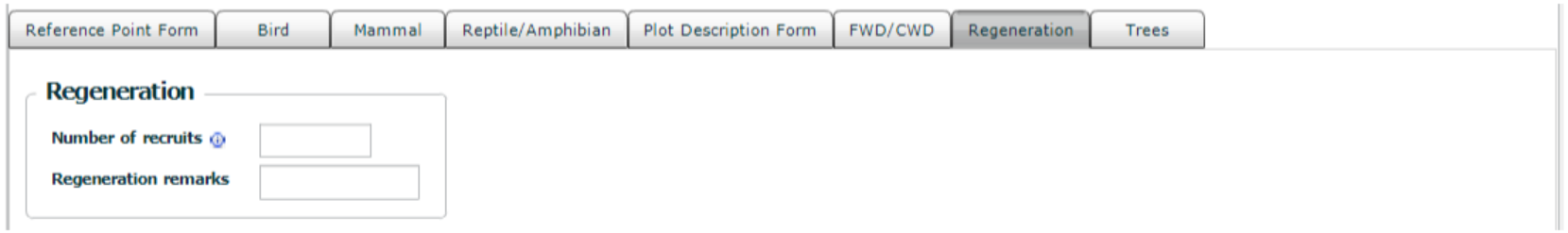
Coarse woody debris

Diameter large end (cm)	Diameter small end (cm)	CWD length (m)	CWD decomposition status	Remarks

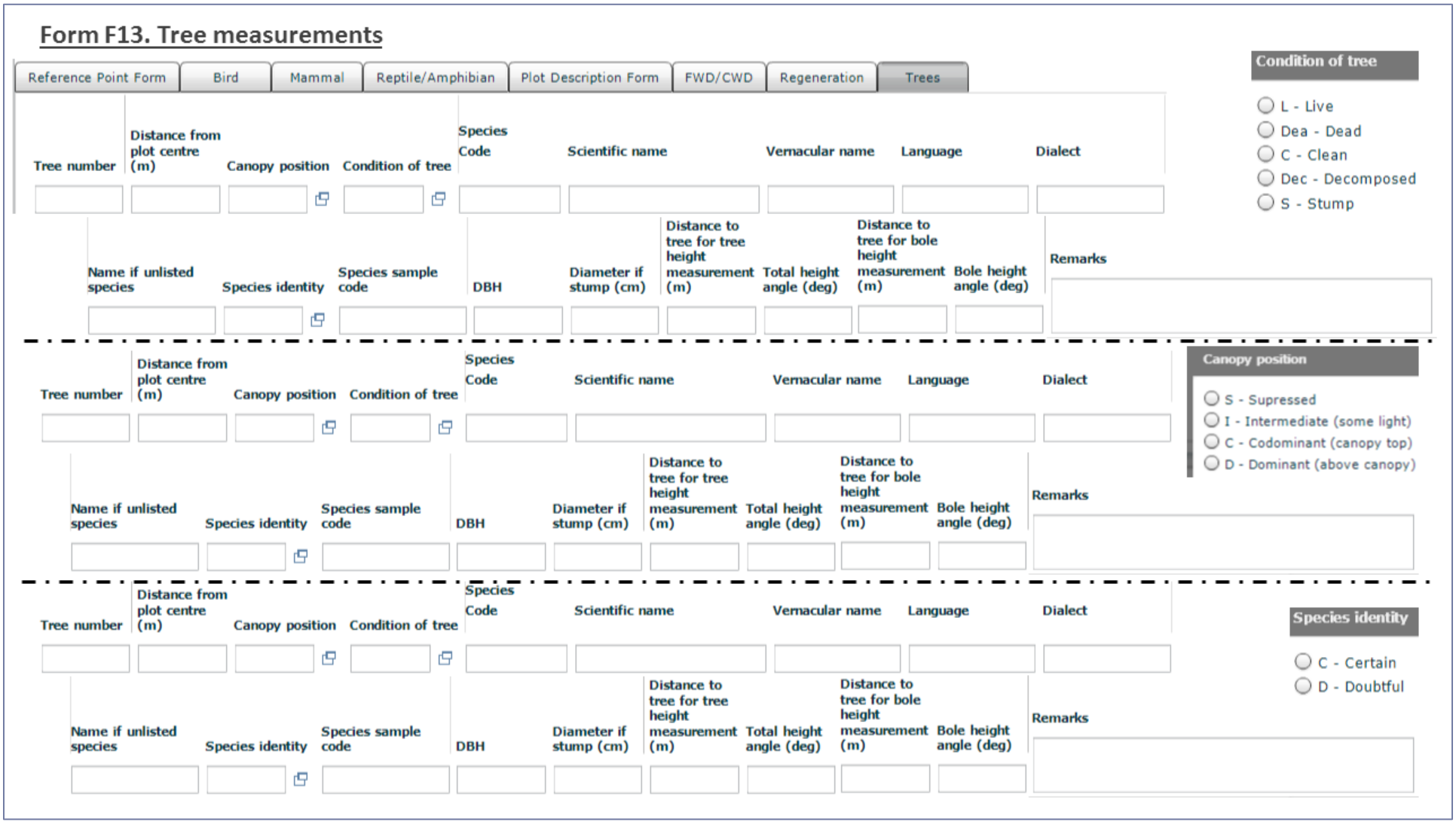
FWD decomposition status

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

Form F12. FWD/CWD. Regeneration



Form F13. Tree measurements



ANNEX 2 Birds Species List

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

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

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

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

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

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

Annex 3 Mammals Species List

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

HIPPOSID_BEATUS	Hipposideros beatus
HIPPOSID_CAFFER	Hipposideros caffer
HIPPOSID_CYCLOPS	Hipposideros cyclops
HIPPOSID_FULIGIN	Hipposideros fuliginosus
HIPPOSID_GIGAS	Hipposideros gigas
HIPPOSID_JONESI	Hipposideros jonesi
HIPPOSID_LAMOTTE	Hipposideros lamottei
HIPPOSID_MARISAE	Hipposideros marisae
HIPPOSID_RUBER	Hipposideros ruber
HYBOMYS_PLANIFR	Hybomys planifrons
HYBOMYS_TRIVIRG	Hybomys trivirgatus
HYBOMYS_UNIVITT	Hybomys univittatus
HYDRICTI_MACULIC	Hydrictis maculicollis
HYEMOSCH_AQUATIC	Hyemoschus aquaticus
HYLOMYSC_ALLENI	Hylomyscus alleni
HYPSIGNA_MONSTRO	Hypsignathus monstrosus
HYPSUGO_CRASSUL	Hypsugo crassulus
HYSTRIX_CRISTAT	Hystrix cristata
KERIVOUL_CUPROSA	Kerivoula cuprosa
KERIVOUL_PHALAEN	Kerivoula phalaena
LEMNISCO_BELLIER	Lemniscomys bellieri
LEMNISCO_STRIATU	Lemniscomys striatus
LEPTAILU_SERVAL	Leptailurus serval
LIBERIIC_KUHNI	Liberiictis kuhni
LISSONYC_ANGOLEN	Lissonycteris angolensis
LOPHUROM_SIKAPUS	Lophuromys sikapusi
LOXODONT_AFRICAN	Loxodonta africana
LOXODONT_CYCLOTI	Loxodonta cyclotis
MALACOMY_CANSDAL	Malacomys cansdalei
MALACOMY_EDWARDS	Malacomys edwardsi
MALACOMY_LONGIPE	Malacomys longipes
MANIS_GIGANTE	Manis gigantea
MANIS_TETRADA	Manis tetradactyla
MANIS_TRICUSP	Manis tricuspis
MASTOMYS_COUCHA	Mastomys coucha
MASTOMYS_ERYTHRO	Mastomys erythroleucus
MASTOMYS_NATALEN	Mastomys natalensis
MEGALOGL_WOERMAN	Megaloglossus woermanni
MELLIVOR_CAPENSI	Mellivora capensis
MICROPOT_LAMOTTE	Micropotamogale lamottei
MICROPTE_PUSILLU	Micropteropus pusillus
MIMETILL_MOLONEY	Mimetillus moloneyi
MINIOPTE_INFLATU	Miniopterus inflatus
MINIOPTE_SCHREIB	Miniopterus schreibersii
MOPS_CONDYLU	Mops condylurus
MOPS_NANULUS	Mops nanulus
MOPS_SPURREL	Mops spurrelli
MOPS_THERSIT	Mops thersites
MUS_MINUTOI	Mus minutoides
MUS_MUSCULO	Mus musculoides
MUS_SETULOS	Mus setulosus
MYONYCTE_TORQUAT	Myonycteris torquata
MYOTIS_BOCAGII	Myotis bocagii
MYOTIS_TRICOLO	Myotis tricolor
NANDINIA_BINOTAT	Nandinia binotata
NANONYCT_VELDKAM	Nanonycteris veldkampii
NEOROMIC_BRUNNEA	Neoromicia brunnea
NEOROMIC_CAPENSI	Neoromicia capensis
NEOROMIC_GUINEEN	Neoromicia guineensis
NEOROMIC_NANA	Neoromicia nana
NEOROMIC_TENUIPI	Neoromicia tenuipinnis
NEOTRAGU_PYGMAEU	Neotragus pygmaeus
NYCTERIS_ARGE	Nycteris arge
NYCTERIS_GRANDIS	Nycteris grandis
NYCTERIS_HISPIDA	Nycteris hispida
NYCTERIS_INTERME	Nycteris intermedia
NYCTERIS_MACROTI	Nycteris macrotis
NYCTERIS_MAJOR	Nycteris major
OENOMYS_ORNATUS	Oenomys ornatus
OVIS_ARIES	Ovis aries
PAN_TROGLOD	Pan troglodytes
PANTHERA_PARDUS	Panthera pardus
PARAXERU_POENSIS	Paraxerus poensis
PERODICT_POTTO	Perodicticus potto
PHILANTO_MAXWELL	Philantomba maxwellii
PHYSETER_MACROCE	Physeter macrocephalus
PILIOCOL_BADIUS	Piliocolobus badius
PIPISTRE_BRUNNEU	Pipistrellus brunneus
PIPISTRE_NANULUS	Pipistrellus nanulus
POIANA_LEIGHTO	Poiana leightoni
POTAMOCH_PORCUS	Potamochoerus porcus
PRAOMYS_DALTONI	Praomys daltoni
PRAOMYS_MORIO	Praomys morio
PRAOMYS_ROSTRAT	Praomys rostratus
PRAOMYS_TULLBER	Praomys tullbergi
PROCOLOB_VERUS	Procolobus verus
PROFELIS_AURATA	Profelis aurata
PROTOXER_AUBINNI	Protoxerus aubinnii
PROTOXER_STANGER	Protoxerus stangeri
RATTUS_RATTUS	Rattus rattus
RHINOLOP_ALCYONE	Rhinolophus alcyone
RHINOLOP_GUINEEN	Rhinolophus guineensis
RHINOLOP_HILLORU	Rhinolophus hillorum
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_ANOSCOP	Afronatrix anoscopus
AFROTYPH_LIBERIE	Afrotyphlops liberiensis
AFROTYPH_MANNI	Afrotyphlops manni
AFROTYPH_PUNCTAT	Afrotyphlops punctatus
AFROTYPH_SCHLEGE	Afrotyphlops schlegelii
AGAMA_AFRICAN	Agama africana
AGAMA_AGAMA	Agama agama
AGAMA_PARAGAM	Agama paragama
AGAMA_PLANICE	Agama planiceps
APARALLA_LINEATU	Aparallactus lineatus
APARALLA_MODESTU	Aparallactus modestus
APARALLA_NIGER	Aparallactus niger
ATHERIS_CHLOREC	Atheris chlorechis
ATRACTAS_ATERRIM	Atractaspis aterrima
ATRACTAS_CORPULE	Atractaspis corpulenta
ATRACTAS_DAHOMEY	Atractaspis dahomeyensis
ATRACTAS_IRREGUL	Atractaspis irregularis
BITIS_ARIETAN	Bitis arietans
BITIS_GABONIC	Bitis gabonica
BITIS_NASICOR	Bitis nasicornis
BOAEDON_FULIGIN	Boaedon fuliginosus
BOAEDON_LINEATU	Boaedon lineatus
BOAEDON_OLIVACE	Boaedon olivaceus
BOAEDON_VIRGATU	Boaedon virgatus
BOTHROPH_LINEATU	Bothrophthalmus lineatus
CAIMAN_CROCODI	Caiman crocodilus
CALABARI_REINHAR	Calabaria reinhardtii
CALOTES_VERSICO	Calotes versicolor
CAUSUS_LICHTEN	Causus lichtensteinii
CAUSUS_MACULAT	Causus maculatus
CAUSUS_RHOMBEA	Causus rhombeatus
CHALCIDE_VIRIDAN	Chalcides viridanus
CHAMAELE_DILEPIS	Chamaeleo dilepis
CHAMAELE_GRACILI	Chamaeleo gracilis
CHAMAELE_SENEGAL	Chamaeleo senegalensis
CHAMAELY_FASCIAT	Chamaelycus fasciatus
COPHOSCI_DURUS	Cophoscincopus durus
COPHOSCI_GREERI	Cophoscincopus greeri
COPHOSCI_SIMULAN	Cophoscincopus simulans
CORONELL_AUSTRIA	Coronella austriaca
CROCODYL_NILOTIC	Crocodylus niloticus
CROTAPHO_HIPPOCR	Crotaphopeltis hippocrepis
CROTAPHO_HOTAMBO	Crotaphopeltis hotamboeia
CYNISCA_LIBERIE	Cynisca liberiensis
DASYPELT_FASCIAT	Dasypeltis fasciata
DASYPELT_SCABRA	Dasypeltis scabra
DENDROAS_VIRIDIS	Dendroaspis viridis
DERMOCHE_CORIACE	Dermochelys coriacea
DIPSADOB_BREVIRO	Dipsadoboa brevirostris
DIPSADOB_UNDERWO	Dipsadoboa underwoodi
DIPSADOB_UNICOLO	Dipsadoboa unicolor
ERETMOCH_IMBRICA	Eretmochelys imbricata
FEYLINIA_ELEGANS	Feylinia elegans
GASTROPH_ECHINAT	Gastropholis echinata
GONIONOT_CAPENSI	Gonionotophis capensis
GONIONOT_GRANTII	Gonionotophis grantii
GONIONOT_GUIRALI	Gonionotophis guirali
GONIONOT_KLINGI	Gonionotophis klingi
GONIONOT_POENSIS	Gonionotophis poensis
GRAYIA_SMITHII	Grayia smithii
HAPSIDOP_LINEATU	Hapsidophrys lineatus
HAPSIDOP_SMARAGD	Hapsidophrys smaragdinus
HEMIDACT_BROOKII	Hemidactylus brookii
HEMIDACT_FASCIAT	Hemidactylus fasciatus
HEMIDACT_LONGICE	Hemidactylus longicephalus
HEMIDACT_MABOUIA	Hemidactylus mabouia
HEMIDACT_MURICEU	Hemidactylus muriceus
HEMITHEC_CAUDICI	Hemitheconyx caudicinctus
HOLASPIS_GUENTHE	Holaspis guentheri
HORMONOT_MODESTU	Hormonotus modestus
HYDROPHI_BROOKII	Hydrophis brookii
KINIXYS_EROSA	Kinixys erosa
KINIXYS_HOMEANA	Kinixys homeana
LEPIDOCH_KEMPII	Lepidochelys kempii
LEPIDOCH_OLIVACE	Lepidochelys olivacea
LEPIDOTH_FERNAND	Lepidothyris fernandi
LEPIDOTH_STRIATU	Lepidothyris striatus
LETHEOBI_LEUCOST	Letheobia leucosticta
LETHEOBI_PALLIDA	Letheobia pallida
LYCOPHID_IRRORAT	Lycophidion irroratum
LYCOPHID_NIGROMA	Lycophidion nigromaculatum
LYCOPHID_SEMICIN	Lycophidion semicinctum
LYGODACT_CONRAUI	Lygodactylus conraui
LYGODACT_STRONGI	Lygodactylus strongi
LYGODACT_THOMENS	Lygodactylus thomensis
MACROPRO_CUCULLA	Macroprotodon cucullatus
MECISTOP_CATAPHR	Mecistops cataphractus
MEIZODON_CORONAT	Meizodon coronatus
MEIZODON_REGULAR	Meizodon regularis
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.
AFRIXALU_VITTIGE	Afrixalus vittiger
AFRIXALU_VIBEKEN	Afrixalus vibekensis
AFRIXALU_DORSALI	Afrixalus dorsalis
AFRIXALU_EQUATOR	Afrixalus equatorialis
AFRIXALU_FULVOVI	Afrixalus fulvovittatus
AFRIXALU_NIGERIE	Afrixalus nigeriensis
AFRIXALU_OSORIOI	Afrixalus osorioi
AMIETOPH_CAMERUN	Amietophrynus camerunensis
AMIETOPH_TOGOENS	Amietophrynus togoensis
AMIETOPH_SUPERCI	Amietophrynus superciliaris
AMIETOPH_REGULAR	Amietophrynus regularis
AMIETOPH_MACULAT	Amietophrynus maculatus
AMIETOPH_LATIFRO	Amietophrynus latifrons
AMIETOPH_GRACILI	Amietophrynus gracilipes
ARTHROLE_GUTTURO	Arthroleptis gutturosus
ARTHROLE_POECILO	Arthroleptis poecilonotus
ARTHROLE_ADOLFIF	Arthroleptis adolfifriederici
ARTHROLE_DECORAT	Arthroleptis decorata
ASTYLOST_DIADEMA	Astylosternus diadematus
ASTYLOST_OCCIDEN	Astylosternus occidentalis
AUBRIA_SUBSIGI	Aubria subsigillata
CARDIOGL_OCCIDEN	Cardioglossa occidentalis
CARDIOGL_LEUCOMY	Cardioglossa leucomystax
CHIROMAN_RUFESCE	Chiromantis rufescens
CONRAUA_CRASSIP	Conraua crassipes
CONRAUA_ALLENI	Conraua alleni
GEOTRYPE_PSEUDOA	Geotrypetes pseudoangeli
GEOTRYPE_SERAPHI	Geotrypetes seraphini
GEOTRYPE_ANGELI	Geotrypetes angeli
HEMISUS_MARMORA	Hemisus marmoratus
HOPLOBAT_OCCIPIT	Hoplobatrachus occipitalis
HYLARANA_OCCIDEN	Hylarana occidentalis
HYLARANA_ALBOLAB	Hylarana albolabris
HYPEROLI_ADAMETZ	Hyperolius adametzi
HYPEROLI_ADEMETZ	Hyperolius ademetzi
HYPEROLI_CHLOROS	Hyperolius chlorosteus
HYPEROLI_CONCOLO	Hyperolius concolor
HYPEROLI_FESTIVU	Hyperolius festivus
HYPEROLI_FUSCIVE	Hyperolius fusciventris
HYPEROLI_GUTTULA	Hyperolius guttulatus
HYPEROLI_LAMOTTE	Hyperolius lamottei
HYPEROLI_LIBERIE	Hyperolius liberiensis
HYPEROLI_NIMBAE	Hyperolius nimbae
HYPEROLI_OCELLAT	Hyperolius ocellatus
HYPEROLI_OESERI	Hyperolius oeseri
HYPEROLI_PICTURA	Hyperolius picturatus
HYPEROLI_PLATYCE	Hyperolius platyceps
HYPEROLI_SYLVATI	Hyperolius sylvaticus
HYPEROLI_TRIFASC	Hyperolius trifasciatus
HYPEROLI_WERMUTH	Hyperolius wermuthi
HYPEROLI_ZONATUS	Hyperolius zonatus
HYPEROLI_NITIDUL	Hyperolius nitidulus
KASSINA_COCHRAN	Kassina cochranae
KASSINA_MACULAT	Kassina maculata
KASSINA_WEALII	Kassina wealii
KASSINA_LAMOTTE	Kassina lamottei
LEPTOPEL_MACROTI	Leptopelis macrotis
LEPTOPEL_NOTATUS	Leptopelis notatus
LEPTOPEL_OCCIDEN	Leptopelis occidentalis
LEPTOPEL_VIRIDIS	Leptopelis viridis
LEPTOPEL_BEQUAER	Leptopelis bequaerti
LEPTOPEL_AUBRYI	Leptopelis aubryi
LEPTOPEL_BOCAGII	Leptopelis bocagii
LEPTOPEL_BOULENG	Leptopelis boulengeri
NIMBAPHR_LIBERIE	Nimbaphrynoides liberiensis
NIMBAPHR_OCCIDEN	Nimbaphrynoides occidentalis
PETROPED_NATATOR	Petropedetes natator
PHLYCTIM_BOULENG	Phlyctimantis boulengeri
PHLYCTIM_LEONARD	Phlyctimantis leonardi
XENOPUS_LAEVIS	Xenopus laevis
PHRYNOBA_VILLIER	Phrynobatrachus villiersi
PHRYNOBA_TOKBA	Phrynobatrachus tokba
PHRYNOBA_STEINDA	Phrynobatrachus steindachneri
PHRYNOBA_PLICATU	Phrynobatrachus plicatus
PHRYNOBA_PHYLLOP	Phrynobatrachus phyllophilus
PHRYNOBA_OGOENSI	Phrynobatrachus ogoensis
PHRYNOBA_NATALEN	Phrynobatrachus natalensis
PHRYNOBA_MACULIV	Phrynobatrachus maculiventris
PHRYNOBA_LIBERIE	Phrynobatrachus liberiensis
PHRYNOBA_LATIFRO	Phrynobatrachus latifrons
PHRYNOBA_HIEROGL	Phrynobatrachus hieroglyphicus
PHRYNOBA_GUTTURO	Phrynobatrachus gutturosus
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 werneri
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
ADENANTH_PAVONIN	Adenanthera pavonina
AEGLOPSI_CHEVALI	Aeglopsis chevalieri
AFROLICA_ELAEOSP	Afrolicania elaeosperma
AFZELIA_BELLA	Afzelia bella
AFZELIA_PARVIFL	Afzelia parviflora
AGANOPE_LEUCOBO	Aganope leucobotrya
AIDIA_GENIPIF	Aidia genipiflora
ALBIZIA_ADIANTH	Albizia adianthifolia
ALBIZIA_ALTISSI	Albizia altissima
ALBIZIA_CHEVALI	Albizia chevalieri
ALBIZIA_FERRUGI	Albizia ferruginea
ALBIZIA_GUMMIFE	Albizia gummifera
ALBIZIA_LEBBECK	Albizia lebbeck
ALBIZIA_ZYGIA	Albizia zygia
ALCHORNE_CORDIFO	Alchornea cordifolia
ALCHORNE_FLORIBU	Alchornea floribunda
ALCHORNE_HIRTELL	Alchornea hirtella
ALLOPHYL_AFRICAN	Allophylus africanus
ALLOPHYL_HAMATUS	Allophylus hamatus
ALLOPHYL_TALBOTI	Allophylus talbotii
ALSTONIA_BOONEI	Alstonia boonei
AMANOA_BRACTEO	Amanoa bracteosa
AMPHIMAS_PTEROCA	Amphimas pterocarpoides
ANACARDI_OCCIDEN	Anacardium occidentale
ANCISTRO_DENSISP	Ancistrocarpus densispinosus
ANDROSIP_ADENOST	Androsiphonia adenostegia
ANGYLOCA_OLIGOPH	Angylocalyx oligophyllus
ANISOPHY_MENIAUD	Anisophyllea meniaudii
ANNICKIA_CHLORAN	Annickia chlorantha
ANNICKIA_POLYCAR	Annickia polycarpa
ANNONA_GLABRA	Annona glabra
ANNONA_SENEGAL	Annona senegalensis
ANONIDIU_MANNII	Anonidium mannii
ANOPYXIS_KLAINEA	Anopyxis klaineana
ANTHOCLE_NOBILIS	Anthocleista nobilis
ANTHOCLE_VOGELII	Anthocleista vogelii
ANTHONOT_CRASSIF	Anthonotha crassifolia
ANTHONOT_FRAGRAN	Anthonotha fragrans
ANTHONOT_MACROPH	Anthonotha macrophylla
ANTHONOT_PYNAERT	Anthonotha pynaertii
ANTHOSTE_SENEGAL	Anthostema senegalense
ANTIARIS_TOXICAR	Antiaris toxicaria
ANTIDESM_LACINIA	Antidesma laciniatum
ANTIDESM_MEMBRAN	Antidesma membranaceum
ANTIDESM_OBLONGU	Antidesma oblongum
ANTIDESM_RUFESCE	Antidesma rufescens
ANTROCAR_MICRAST	Antrocaryon micraster
APHANOCA_MARGINI	Aphanocalyx margininervatus
APHANOCA_MICROPH	Aphanocalyx microphyllus
APHANOCA_PTERIDO	Aphanocalyx pteridophyllus
APODISCU_CHEVALI	Apodiscus chevalieri
APORRHIZ_TALBOTI	Aporrhiza talbotii
APORRHIZ_UROPHYL	Aporrhiza urophylla
ARGOCOFF_EKETENS	Argocoffeopsis eketensis
ARGOMUEL_MACROPH	Argomuellera macrophylla
ARTOCARP_ALTILIS	Artocarpus altilis
AUBREVIL_PLATYCA	Aubrevillea platycarpa
AULACOCA_DIVERGE	Aulacocalyx divergens
AULACOCA_JASMINI	Aulacocalyx jasminiflora
AVICENNI_GERMINA	Avicennia germinans
BAPHIA_NITIDA	Baphia nitida
BAPHIA_OBANENS	Baphia obanensis
BAPHIA_PUBESCE	Baphia pubescens
BAPHIA_SPATHAC	Baphia spathacea
BAUHINIA_MONANDR	Bauhinia monandra
BEILSCHM_CAUDATA	Beilschmiedia caudata
BEILSCHM_CHEVALI	Beilschmiedia chevalieri
BEILSCHM_MANNII	Beilschmiedia mannii
BELONOPH_COFFEOI	Belonophora coffeoides
BERLINIA_AURICUL	Berlinia auriculata
BERLINIA_BRACTEO	Berlinia bracteosa
BERLINIA_CONFUSA	Berlinia confusa
BERLINIA_GRANDIF	Berlinia grandiflora
BERLINIA_OCCIDEN	Berlinia occidentalis
BERLINIA_TOMENTE	Berlinia tomentella
BERSAMA_ABYSSIN	Bersama abyssinica
BERTIERA_RACEMOS	Bertiera racemosa
BERTIERA_RETROFR	Bertiera retrofracta
BERTIERA_SPICATA	Bertiera spicata
BIXA_ORELLAN	Bixa orellana
BLIGHIA_SAPIDA	Blighia sapida
BLIGHIA_UNIJUGA	Blighia unijugata
BLIGHIA_WELWITS	Blighia welwitschii
BOMBAX_BUONOPO	Bombax buonopozense
BRACHYST_LEONENS	Brachystegia leonensis
BRENANDE_DONIANU	Brenandendron donianum

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

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

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

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

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

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

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

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

ZANTHOXY_PSAMMOP	Zanthoxylum psammophilum
ZANTHOXY_RUBESCE	Zanthoxylum rubescens
ZANTHOXY_VIRIDE	Zanthoxylum viride