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Community Ecoguard Patrol Handbook for Krahn-Bassa Proposed Protected Area

Wild Chimpanzee Foundation
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TABLE OF CONTENT

A. Introduction	2
B. General Methodology	2
B.1. Presentation of the Krahn-Bassa Proposed Protected Area	2
B.2. Presentation and purpose of the Grid Design	3
B.3. Main Activities of Community Ecoguard Patrols	3
B.4. Presentation of the General Protocol	4
<i>B.4.1. Positions and roles of the team members on transects</i>	4
<i>B.4.2. Organisation of the work during a mission inside the KBPPA</i>	5
<i>B.4.3. Organisation of the work during sensitization meetings with local communities</i>	7
C. How to record the data.....	8
C.1. Presentation of the data recording sheets	8
C.2. Recording Fauna observation	18
C.3. Recording Anthropogenic observations	21
D. How to use the GPS.....	24
D.1- Description of a GPS unit	24
D.2 Set-up of the GPS before use	25
D.3- How to use a GPS unit: basic functions for CEPs fieldwork.....	26
D.3.1. Save a new waypoint.	26
D.3.2. Rename a waypoint	27
D.3.3. Find a specific waypoint for navigation in the forest	28
D.3.4. Manually importing a new waypoint into the GPS unit	29
D.3.5. Recording RECCEs and Human paths	30
D.3.6. Record and calculate the surface of Land Plots areas	32
E. How to use a compass and a map	35
E.1- Description of a compass.....	35
E.2.- Following a direction.....	35
E.3- Finding an angle (or a direction) on a map.....	36
E.4- Estimating the distance to cover	36
F. Rules and behavioural considerations for a successful CEP.....	37
F.1- Mission preparation and Material	37
F.2- Rules in choosing a base camp and precautionary measures	38
F.3- How to behave in the forest	38
<i>F.3.1. Environmentally friendly behaviours during missions</i>	38
<i>F.3.2 Direct human encounters during CEP</i>	39
F.4- How to be a responsible Ecoguard	40
<i>F.4.1. During visit in villages, farms, mining areas</i>	40
<i>F.4.2. When not working</i>	41

A. Introduction

To support the Forestry Development Authority's (FDA) efforts to conserve the Krahn-Bassa Proposed Protected Area (KBPPA), the Wild Chimpanzee Foundation (WCF) and FDA decide to form and train Community Ecoguard Patrol (CEP) teams to help protect the forest. Community ecoguards can help identify areas under threat from poaching and habitat disturbance (mining, farming, cutting down trees, harvesting of Non-Timber Forest Product, logging, pit-sawing...) in the park, as well as deter poachers and other illegal activities by their presence and public sensitization. During field mission, they also collect data on large mammals (direct and indirect observation).

The handbook describes all activities performed by the ecoguards and explains the methods used in detail. At all times, **fieldwork activities will be overseen by a FDA ranger/auxiliary.**

B. General Methodology

B.1. Presentation of the Krahn-Bassa Proposed Protected Area

The Krahn-Bassa Proposed Protected Area (KBPPA) comprises 290,167 hectares of forest within the Krahn-Bassa National Forest (KBNF) especially a large part of the inactive forest concession FMC H and the proposed protected area Gbi.

The Proposed Krahn-Bassa Proposed Protected Area (KBPPA) is located in south-east Liberia, in the counties of Grand Gedeh, Sinoe and River Cess. Recent scientific research identified KBPPA as Liberia's top Conservation Priority Area (Junker et al., 2015). Several big mammal species inhabit the WPPA including the West African chimpanzee (*Pan troglodytes verus*), the forest elephant subspecies (*Loxodonta cyclotis*) and other endangered species such as the pygmy hippopotamus (*Choeropsis liberiensis*), Jentink's duiker (*Cephalophus jentinki*), red colobus monkey (*Piliocolobus badius*) and Diana monkeys (*Cercopithecus diana*) (see IUCN red data list 2012).

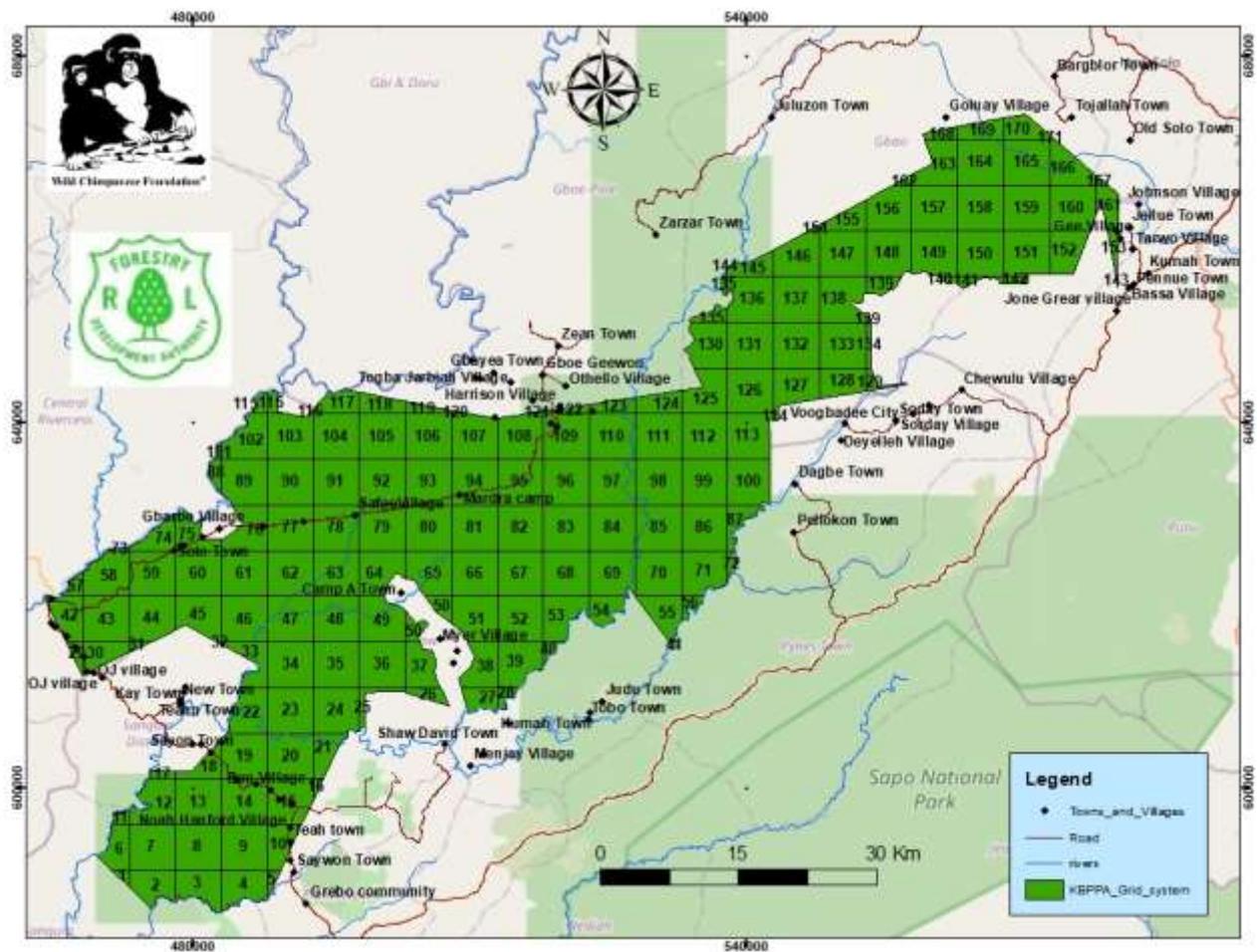


Figure 1. Grid design for the Community Ecoguard Patrols in the Krahn-Bassa Proposed Protected Area.

B.2. Presentation and purpose of the Grid Design

To effectively patrol the KBPPA, a squared grid sampling design (with a random start), consisting of 171 cells of 25 km² (5 x 5 km) was created (Figure 1). This design ensures systematic patrolling and also intensifying patrols in identified key areas, such as zones under high hunting pressure. As such, the same grid design is used each year, but areas of patrols may differ, depending on the management and conservation needs.

B.3. Main Activities of Community Ecoguard Patrols

Following the grid system described above, CEP teams:

- **Target a 4km patrol along human paths** encountered in each grid. During patrols, the teams record the tracks of the paths, take data on human activities and key wildlife species (“Navigation” datasheet and “Track” datasheet).
(NB. If 4km of human paths is not present, Recces should be done to make up the remaining distance)
- **Survey, record and calculate the surface of farms, fallows, clearings, mining areas, etc** (“Navigation” datasheet and “Land Plot Survey” datasheet).

- **Record all direct observations and encounters with people inside the forest** and note their activities in the forest, their town/village, nationality and name (“*Navigation*” *datasheet* and “*Human Encounter*” *datasheet*).
- **Sensitize the people** encountered in the forest about the National Park and the laws prohibiting hunting, mining, farming, etc (“*Human Encounter*” *datasheet*).
- **Lead sensitization meetings with local communities** after each mission and during especial awareness missions. These meetings have the purpose to discuss the illegal activities found in the park and to appeal to communities to prevent their own members and foreigners in conduct such illegal acts. Also awareness meetings have the aim to sensitize community members about environment law, punishment charges, the status of KBPPA and any issue brought by communities about the management of the park (*Village Awareness report*).
- **Fill in reports** after each CEP mission (*CEP report*) and Prepare reports in **SMART**.

B.4. Presentation of the General Protocol

B.4.1. Positions and roles of the team members on transects

To efficiently collect the data during patrols, a minimum of 4 people and a maximum of 6 people compose the CEP team. The position of each person during the patrol is the responsibility of the FDA team leader or supervisor. There is NO STRICT position to take. If the forest is open, it is encouraged the team members spread out to increase the chances of observing a sign of human presence. If the forest is closed, team members can follow each directly (one behind the other). Teams are ideally composed of:

- ✓ 4 trained local Community Ecoguards,
- ✓ 1 FDA Ranger/ Auxiliary (team leader),
- ✓ 1 WCF Team Supervisor,

Additionally 2 to 3 people will join the team but will not directly participate in the data sampling:

- ✓ 2 local community porters (recruited at the beginning of each mission) to care for the camp and cook.
- ✓ Occasionally, 1 WCF project supervisor might join the team to evaluate the organization and the efficiency of the team.

Each team member is responsible for different tasks during the patrols. The FDA team leader or supervisor is responsible for ensuring each person knows their responsibility and that they do it correctly. Tasks are as follows:

- ✓ Person **(1)** carries the compass and follow the bearing of the path. He will look directly in front of him to look for clearings where mines and farms might be, for example.
- ✓ Person **(2)** also has a compass. S/he should look mainly for observations on the ground.
- ✓ Person **(3)** is in charge of the first GPS unit. S/he will record **all observations** made by the team using the GPS unit (waypoints). S/he will also take the track of the human path or the recce (if no human path found).
- ✓ Person **(4)** will handle the data sheets. S/he is responsible for the recording of all observation data on the datasheets. S/he should also look for observations on the ground.
- ✓ Person **(5)** and **(6)** are the FDA team leaders and WCF supervisors. They are there to help guide the team and also make observations. One of them is in charge of the 2nd GPS unit to

check the distance covered on Trip odometer. This GPS is also used when land plots are taken (if 2 GPS are available for the patrol) by one of the team members.

- ❖ **To be sure of the distance covered, person (5) or (6) will also check the length of the track log with person (3)'s GPS before saving the track.**
- ✓ If the use of machetes is needed, person (1) and (2) should carry them. They will be used safely and only if necessary, as it makes a lot of noise that scares away animals.
- ✓ If a junction is met, the human path that is more in the direction of the centroid of the grid should be taken. Person (1) or (2) is responsible for checking this on the compass.
- ✓ Each mission the team members should change between positions 1-4 to increase their capacity using the GPS, datasheets, etc.
- ❖ **If no human paths are found, or less than 4km of patrols along human paths have been done in the grid and time remains in the day for patrols, Reces by the team should be carried out in the direction of the Centroid. The responsibilities of each team member remain the same.**

B.4.2. Organisation of the work during a mission inside the KBPPA

The objective, while patrolling is to prevent illegal activities, but also to get as much detailed information about wildlife and human activities, rather than to walk long distances. A target of 4km along human paths should be made inside each Grid. 1 grid should be patrolled per day. Some grids are much smaller than 4km² and so on those days 2 grids should be patrolled if possible. Centroids are marked for each grid to help the teams during navigation.

Each mission will last at least 10 days of effective patrolling in the forest (one grid per day minimum). Three days of awareness in the communities should be led after the patrol mission. A maximum of 8 days travel (to the forest, changing camp, etc) is included in the mission. As such a mission may vary from 13 days to 21 days.

WPPA has been divided into two areas: North and South. The limit between the two sections corresponds, approximately, with the boundary line of Grand Gedeh and River Gee counties (see Figure 1). **The North includes the grids 1 to 66. The South include the grids numbered from 67 to 100 (appendix 3). The program is divided into** three teams (Team North 1, Team North 2 and Team South). Depending on work schedules, it may occur that the teams work in the other area of the park in order to ensure all the grids are patrolled.

Planning the patrol:

Prior to the mission, the WCF field coordinator/field supervisor, the FDA Chief Park Warden and the FDA team leader identify the grids to be patrolled and agree on the mission timeline. Changes during the mission may occur and this is the responsibility of the FDA and WCF team members.

Starting the patrol:

CEP teams survey each grid by choosing one of the four sides of the chosen grid to begin the recce and search for a human path to patrol. If no human path is found at the very edge of the grid, a recce in the direction of the Centroid should be done until a human path has been found. The length

of this initial recce is included in the overall 4km patrol target for the grid. Data found on the Recce should be taken right from the start. (If observations are made on the way to the identified grid, they should be marked and noted on an “Off patrol” datasheet).

Patrolling human paths:

Patrols along human paths are the preferred means of patrols. Tracks of the paths should be recorded. All junctions with human paths should also be recorded (*Navigation and Re-visiting*). Those human paths can be mapped at a later date, or during a re-visit session or even during that given patrol day if there is time and the team have not reached the 4km of patrol. If a junction is met during a patrol on a human path, the path taken should either be the one that is most used and if no difference, than the one that goes in the direction of the Centroid.

If the chosen human path crosses into another grid, first of all a waypoint should be recorded at the boundary between the two grids. The patrol along the human path should be stopped (Mark Hum path End). SAVE and RECORD the Human path and take note of it on the data sheet (then clear the current track). Following this, a Recce should start in the direction away from the boundary with the other Grid. (Mark Recce start see below) and record the RECCE Track. **However**, it is up to the FDA team leader/WCF team Supervisor to decide whether to continue to follow the human path into the other grid, if he believes it is important and that the path may lead to farms, clearings, mines and/or hunting tents etc. Make sure to ALWAYS start a new track when you cross over to the other grid. As a rule of thumb, a very well used path **should NOT be abandoned**, but the patrol should continue into the other grid. IF it is decided to continue along the human path into the other grid, a NEW data sheet should be taken and a new tracklog recorded. Once the human path ends, the team should take a recce back to the original grid to continue patrolling it.

If a human path has to be walked along more than once during the 4km patrol, **be sure to ONLY take observations not taken previously**.

Patrolling Recces:

Recces should be done ONLY when there is no human path to patrol. The distance on the RECCE make up part of the 4km target. The same data should be taken on Recces as human paths. The Recces should also be tracked. If a human path is encountered along the Recce, the recce should stop and patrols should start on the Human Path. Recces should also be done if a human path finishes and the team want to patrol on another human path encountered in the same grid earlier that day. i.e. The team lead a recce to the start of the identified Human path, the start of which had been noted down on the navigation sheet, with a comment about revisiting in the comments column. Once the human path has been found again, the recce should stop and the patrol along the new human path should be done.

Land plots:

If during patrols on human paths or Recces, the team come across a land plot to be recorded (e.g.: clearings, farms, mines, chewing sticks sites (if it is significant), etc....), the area should be plotted using the 2nd GPS (the one that does NOT take the track of the patrol or the waypoints of observations). If it cannot be plotted, the waypoint should be taken and noted on the Navigation and Revisiting sheet. NOTE THAT, if 4km of patrols have not been completed due to many observations

and land plots during the patrol, the Grid DOES NOT have to be completed the next day, UNLESS the FDA team leader/WCF team supervisor thinks it is necessary as there are a lot of human activities.

B.4.3. Organisation of the work during sensitization meetings with local communities

When completing the patrols in the forest, it is important to spend time in nearby towns and villages located in the periphery of the KBPPA to continue to raise awareness in the local communities about the National Park. Doing this involves some steps that must be respected. The first one is to **make contact with the town chief** and introduce the team and the purpose of their presence.

Two choices are given to the FDA team leader/ WCF team supervisor according to the number of community persons available for the awareness meeting:

- ✓ Proceed to the awareness meeting,
- ✓ Take an appointment with the people in the coming days to have a bigger group.

All members of the community are welcome to participate if the WCF team supervisor and the FDA ranger present feel that the discussion will not be too difficult/sensitive.

If the latter is the case, it is perhaps better to have a more restrained meeting with only the community leaders. Each meeting will be different and will require the FDA team leader and WCF team supervisor to judge the situation accordingly. During these meetings, be sure to fill in:

- ✓ The town/village meeting report sheet described in *Reporting and Communication*
- ✓ The names of the people present and if possible their position in the community
- ✓ The topics discussed
- ✓ The questions asked
- ✓ The answers given.

The topics that can be discussed during these meetings are as followed:

- ✓ The creation of the park, where the boundary line is and what it means to have a national park.
 - This means that villagers cannot hunt, farm, mine, or extract any natural resources from the national park. It is a government land, protected integrally for the benefit of the community. See the *Education handbook* to help you find the correct ways to express the importance of the forest and the wildlife.
- ✓ The protected species of Liberia and the implications if FDA catches someone who has killed, traded, bought, sold, or even eaten one of these species, or is keeping it in their home as a pet.
 - You can use the protected species of Liberia poster to discuss the various animals. Additionally, each town has been given at least one of these posters, and you may ask the chief to bring it out to discuss it.
- ✓ Observations of farms made during the patrols:
 - No farming is allowed within KBPPA. The farmers, if encountered have to be sensitized and asked to leave immediately. Any farming within KBPPA have to be reported to FDA and WCF supervisors as soon as possible.
- ✓ Observations of hunting tents made during the patrols:
 - If you have come across a large hunting tent in the forest, be sure to take a photo and then identify the owners in the communities once back in the towns/villages, if possible. These photos can be shown to the community leaders and if possible

- the chief hunter as he is sure to know who the tent belongs to. The FDA ranger should remove the tent if it is located inside the KBPPA.
- It can then be explained that the tent was destroyed as it is illegal to hunt in the park.
 - If meat is found at a hunting tent, it should be removed and burned. Be sure to use gloves when handling meat and to wash hands with sanitizer afterwards.
 - Remember: all traps should be destroyed as well.
 - ✓ People met during the patrols:
 - If anybody found inside the forest said they came from a certain town, this should be checked with the town chief, using the photo taken during the encounter.
 - Using this person as an example. You can explain to the chief that it is his responsibility to be sure that none of his community is in the forest hunting, farming, mining etc...
 - If the person was arrested, the community are likely to ask about it, and the FDA ranger must explain what is likely to happen to that person. For now, no arrests are authorized during CEPs but that might change in the future with new FDA statements. When this happens, a guideline to arrests will be made available to the Ecogaurd teams. All arrests are to be done by the FDA ranger.
 - If the person is carrying bushmeat, the meat should be confiscated and burned. Be sure to use gloves when handling meat and to wash hands with sanitizer after.

C. How to record the data

Five different datasheets are used during CEP depending on the observation. A complete overview of the datasheets and the way to fill in them is presented in the following paragraphs. To recap, the different types of data taken during patrols are:

- ✓ All **direct and indirect observations of anthropogenic activities** (traps, roads, human paths, hunting tents, clearings, cartridges, chewing sticks, logging sites, etc...),
- ✓ All **direct and indirect** (calls, chimpanzee nests, nut-cracking sites, etc) observations of **primates**
- ✓ All **direct and indirect observations of elephants, pygmy hippopotamus, golden cats, and leopards**
- ✓ **All direct observation of duikers**
- ✓ For **land plots**, the status (*e.g.* new, used, abandoned), the type (*e.g.*: cassava, rice, clearing, mining, etc...) will be recorded.
- ✓ All other information that might be of important
- ✓ See Appendix 2 for a complete list of observations

C.1. Presentation of the data recording sheets

C.1.1. Navigation datasheet

The navigation datasheet is certainly the most important datasheet for CEP work, as nearly all observations made are written on this sheet. (all human signs and people met, all direct and indirect observations of chimpanzee, monkeys, elephant, Pygmy hippopotamus, leopards and golden cats (footprints, dung, vocalisations, nut cracking sites, etc...).)

The Navigation sheet must be kept **neat** and **without crossings-out**. If it is messy, at the end of the day, back at camp, a new clean sheet should be made.

The way to fill it in is presented in Figure 4:

- ✓ First fill in the top of the sheet with the:
 - **Date,**
 - **Reporter name,**
 - **Grid Number,**
 - **Start time,**
 - **Number of the sheet,**
 - **Mission number,**
 - **Team name.**
 - **FDA Ranger in charge**
- ✓ Fill in the datasheet according to the column
 - **TIME** is the time at which an observation is made (hh:mm),
 - **CODE** is the code of the species/type + code of the observation (*e.g.*: footprint, for more details on the codes see appendix 2),
 - **No of Obs.** is the number of objects detected (*e.g.*: 3 cartridges, 1 farm, 2 dungs, etc...),
 - **WPT** is the waypoint number given by the GPS when you mark the position of the observation,
 - **LONGITUDE** is the coordinate of the longitude (**UTM**),
 - **LATITUDE** is the coordinate of the latitude (**UTM**),
 - **Comments** are the comments that may rise with the observation (see list of code). All pictures taken must be recorded in this column as well (Figure 3).
- ✓ The **End time** will be recorded only at the end of the working day.
- ✓ The **Weather** will be recorded only at the end of the day (dominant weather).

WARNING: MAKE SURE TO TAKE THE WAYPOINTS AT THE START OF EACH DAY AND THE END OF EACH DAY. If observations are made at the same point, each observation should have its own line on the datasheet. ALSO MAKE SURE TO TAKE THE WAYPOINTS AT THE START AND END OF EACH HUMAN PATH PATROLLED AND EACH RECCE PATROLLED.

Figure 4: A “Navigation” datasheet example.

DATA COLLECTION SHEET DURING NAVIGATION						N° 1
Mission: 1 Date: 02/02/2014 Reporter : Antony J. Solo		Grid No : G04 07h25 Team: North FDA Ranger: Steek Topoe		Start time : Weather : Sunny		End time : 16h58
TIME	CODE (type OF observation + species)	No. of Obsv.	WPT	LONGITUDE (UTM)	LATITUDE (UTM)	COMMENTS (incl photo No.)
07:25	Start	/	001	0644522	0675256	

07:25	Hum path	1	001	0644522	0675256	Still used
07:25	Start HP	/	001	0644522	0675256	Track sheet
08:10	Cart	3	002	0644896	0678556	New
08:10	Hum DO	2	002	0644896	0678556	Picture # 002 (human encounter sheet)
08:10	Farm	1	002	0644896	0678556	1yr maintained Cocoa (land plot sheet)
08:10	Poach Cp	1	002	0644896	0678556	Still used
08:20	Human path	1	003	0656523	0658965	Still used
09:05	Eleph Dg	1	004	0648958	0685987	S1
09:05	Eleph FP	5	004	0648958	0685987	Recent
12:52	Leap FP	1	005	0648958	0685987	Recent
12:52	Leap FP	1	005	0648958	0685987	Old
13:12	Poach Cp	1	006	0644896	0678556	Abandoned
14:00	Trap	2	007	0658965	0654875	Working/destroyed
16:20	End HP	/	008	0658956	0658952	Track sheet (16:20)
16:21	Start Recce	/	008	0658956	0658952	Track sheet
16:58	End Recce	/	009	0689568	0678596	Track sheet (16:58)
16:58	End	/	009	0689568	0678596	

C.1.2. Meeting datasheet

After recording data on the direct observation (DO) of human(s) encountered during a CEP in the “Navigation” datasheet, details on the persons met should be noted on the “human encounter” datasheet. The same waypoint number (WPT) recorded on the “Navigation” datasheet must be used to fill in the “Human Encounter” datasheet.

At all-times the “Human Encounter” datasheet must be **kept neat** and **without crossings-out**. If it is messy, at the end of the day, back at camp, a new clean sheet should be made.

The way to fill it in is presented Figure 5:

- ✓ First fill in the top of the sheet with the:
 - **Mission number,**
 - **Date,**
 - **Reporter’s name,**
 - **Grid Number,**
 - **Team’s name,**
 - **FDA Ranger in charge,**
 - **Number of the data sheet.**
- ✓ Fill in the datasheet according to the columns type

- **WPT** is the waypoint number given by the GPS when you mark the position of the observation. And which is also filled in the “Navigation” datasheet,
- **Name (or number)** is the first and last name of the people met in the forest,
- **Town/Village** is the town/village of origin of the people met in the forest,
- **Ethnic Group** is the name of the ethnic group the people belong to,
- **Nationality** is the nationality of the people met in the forest,
- **Activity** represents the activity of the people when they were encountered in the forest (*e.g.*: Clearing, mining, logging, etc...),
- **Statement** is what the people said to the CEP after having heard their sensitization speech,
- **Action/Conservation Message** is what the CEP team has said to the people after having heard their statements.

For each person met in the forest, a picture must be taken with a preference for those being caught performing illegal activities (*e.g.*: hunters with their hunted animals, farmers in their fields, camps, guns, farms, etc...) and **add the number of the picture in the “Name” column of the datasheet** (*e.g.*: Kosso Jones, #344; Figure 4).

DATA COLLECTION SHEET FOR HUMAN ENCOUNTER IN THE FOREST

Mission: 1

Reporter:

Date: 02/02 2014

Antony J. Solo

Grid No:

G04

Team:

North

FDA ranger:

Steek T..

N° 1

Waypoint	Name (or number)	Town/Village	Ethnic Group	Nationality	Activity	Statement	Action/Conservation Message
002	<i>Kosso Jones</i>	<i>Tempo</i>	<i>Glio</i>	<i>Liberian</i>	<i>Clearing*</i>	<i>I did not know this was the National Park. I will stop clearing the land and go back to town</i>	<i>Message: Do not come back here. The government and your community has agreed to work together to protect this forest as a national park</i>
002	<i>David Tok</i>	<i>Bao Town</i>	<i>Glio</i>	<i>Liberian</i>	<i>Hunting</i>	<i>I came to hunt to feed my family. I have hunted 2 red colobus and 1 Black duiker</i>	<i>Message: It is against the law to hunt here, you need stop this straight away. If you are found again, FDA will arrest you; (# 002)</i>

Figure 5: A “Human Encounter” datasheet example. *Activity could also be farming, mining, logging, fishing, chewing stick extraction, etc...

C.1.3. Land Plot Survey datasheet

After recording data on the type of Land Plot encountered during the CEP in the “Navigation” datasheet, a plot of the land should be done using the 2nd GPS and the data recorded in the “landplot” datasheet. The waypoint number (WPT) recorded on the “Navigation” datasheet must also be recorded in the comments column in the “Land Plot” datasheet.

At all-times, the “Land Plot” datasheet must be **kept neat** and **without crossings-out**. If it is messy, at the end of the day, back at camp, a new clean sheet should be made.

The way to fill it in is presented Figure 6:

- ✓ First fill in the top of the sheet with the:
 - **Mission number,**
 - **Date,**
 - **Reporter’s name,**
 - **FDA Ranger in charge**
 - **Grid Number,**
 - **Team’s name,**
 - **Start time of the track recording,**
 - **End time of the track recording.**
- ✓ Fill in the datasheet according to the columns type
 - **Land Plot Code** is the code given to the land plot by the FDA team leader/ WCF team supervisor (*e.g.*: A, B, C..., AA, BB, CC, etc...). A different code **MUST** be used for each recorded Land Plot,
 - **Type code** is the code given to the Land Plot to determine its type (*e.g.*: farming, clearing, mining, logging land plots, etc...). Age estimation of the age of the land plot **MUST** be recorded (*e.g.*: New, < 1 yr, < 2 yr, < 3 yr, abandoned, etc...). For the particular cases of farming and mining activities, if the type of farm or the type of mining is known, it **MUST** be recorded (*e.g.*: Cocoa farm, gold mining, plantain farm etc...). The list of code is available in Appendix 2,
 - **WPT** is the waypoints column for each corner of the land plot. The waypoint **MUST** be renamed into the GPS in order to follow the code given to the Land Plot (*e.g.*: A1, A2, A3, etc...). How to record and rename a waypoint is presented in chapter *D-3.2.D.3.2. Rename a waypoint,*
 - **Longitude** is the coordinate of the longitude of the waypoint (UTM),
 - **Latitude** is the coordinate of the latitude of the waypoint (UTM),
 - **Area (ha)** represents the surface, in hectares, calculated by the GPS for the Land plot being recorded. All GPS units **MUST** be calibrated to automatically calculate surfaces in hectares. This is explained in chapter *D-2- Set-up of the GPS before use,*
 - **Time of recorded tracking (hh:mm)** record the time given by the GPS when the track is saved in the GPS. How to record the track is presented in chapter *D-3.5.D.3.5. Recording RECCEs and Human paths,*
 - **Comments:** is the column designed to authorize any other information on the Land Plot (*e.g.*: owner, pictures, etc...).

DATA COLLECTION SHEET FOR SURVEYING OF LAND PLOTS

Mission : 1

Grid No: *G04*

Start time : *07:25*

Date: *02/02 2014*

Team : *North*

Reporter : *Antony Sobo*

FDA ranger: *Steek T.*

End time : *16:58*

Land Plot code	CODE (Type of the observation) Specify age (new, 1 yr, 2 yr, adandoned, etc...)	WPT	Longitude (UTM)	Latitude (UTM)	Area (ha)	Time of recorded Tracking (hh:mm)	Comments (Specify photo no).
<i>A</i>	<i>Cocoa Farm (1 yr.)</i>	<i>A1</i>	<i>0658985</i>	<i>0658952</i>	<i>5.6</i>	<i>09:42</i>	<i>#067</i>
		<i>A2</i>	<i>0658956</i>	<i>0685986</i>			
		<i>A3</i>	<i>0656895</i>	<i>0698569</i>			
		<i>A4</i>	<i>0658962</i>	<i>0669865</i>			
		<i>A5</i>	<i>0656895</i>	<i>0698569</i>			
		<i>A6</i>	<i>0658962</i>	<i>0669865</i>			
<i>B</i>	<i>Gold mining (New)</i>	<i>B1</i>	<i>0658985</i>	<i>0658952</i>	<i>2.3</i>	<i>11 :10</i>	<i>#068</i>
		<i>B2</i>	<i>0658956</i>	<i>0685986</i>			
		<i>B3</i>	<i>0656895</i>	<i>0698569</i>			
<i>Bbis</i>	<i>Clearing</i>	<i>Bbis1</i>	<i>0658985</i>	<i>0658952</i>	<i>0.5</i>	<i>11 : 47</i>	<i>#069 Found into or next to the B (if same owner/user)</i>
		<i>BBis2</i>	<i>0658956</i>	<i>0685986</i>			
		<i>Bbis3</i>	<i>0656895</i>	<i>0698569</i>			

Figure 6: A “Land Plot” datasheet example. *The land plot could also be a logging, fishing, chewing stick extraction area, or any other type of farming (plantain, rice, cassava, corn etc...).

C.1.4 Track datasheet

After patrolling a human path or a recce, the track taken during that patrol must be saved in the GPS 1 and recorded in the “Track” datasheet. In this datasheet, data on the type of track will be recorded (e.g.: road, human path, recce, logging road, etc...), as well as their usage status (e.g.: new, used, abandoned) and what they are used for (e.g.: motorbike, farming, poaching, car, logging, etc...). This datasheet MUST be filled in at the end of every track recording. Doing it at the end of the day may lead to miss data on the usage of the track.

At all-times the “Track” datasheet must be **kept neat** and **without crossings-out**. If it is messy, at the end of the day, back at camp, a new clean sheet should be made.

The way to fill it in is presented Figure 7:

- ✓ First fill in the top of the sheet with the:
 - **Team,**
 - **Area,**
- ✓ Fill in the datasheet according to the columns type
 - **Date** is the date of the recorded track, written with the format “dd/mm/yyyy”. The date must be the same as the working day,
 - **Type of track** is the type of track being recorded (e.g.: car road, motorbike track, human path, recce, poaching track, logging track, etc...),
 - **Recording time** is the time mentioned by the GPS when the track is recorded with the format “hh:mm”. How to record the track is presented in chapter D-3.5.D.3.5. *Recording RECCES and Human paths,*
 - **Reporter** is the team member in charge of the GPS and recording the track,
 - **Grids N°** is the number of the grid(s) being sampled. If a part of the track is continuing outside of the PGKNP, this must be mentioned in the comments column.
 - **Comments** column will be used to record the code of the track which has been saved in the GPS (e.g.: G099R20140828 with G for Grebo, 099 for the grid number, R for Recce (Or M for mapping human path session), and then the date yymmdd). The GPS used for the recording will be mentioned (if two GPSs are used for one team) as well as type of usage for non-recce tracks (e.g.: car, poaching, motorbike, walk, etc...).

TRACK DATASHEET (HUMAN PATH, RECCE, ROADS)					
Team : <i>North</i>			AREA (North/South) : <i>North</i>		
DATE (dd/mm/yy)	Type of track (Human Path, Road, Recce)	Recording Time	Reporter	Grids No	COMMENTS (Track Code / GPS N°)
<i>02/02/14</i>	<i>Human Path*</i>	<i>16:20</i>	<i>Antony Solo</i>	<i>G04</i>	<i>G04M140202/Gps 1</i>
<i>02/02/14</i>	<i>Recce</i>	<i>16:58</i>	<i>Antony Solo</i>	<i>G04</i>	<i>G04R140202/Gps 1</i>
<i>05/02/14</i>	<i>Old Road</i>	<i>12 :45</i>	<i>Otis Quagea</i>	<i>G099 G100</i>	<i>G099M140205/Gps 2 Motorbike usage</i>

Figure 7: A “Track” datasheet example. *The track could also be a logging road, a poaching track, etc...

C.1.5. Revisiting Hotspot datasheet

After each working day, the “Revisiting” datasheet MUST be filled in with the observation or signs that will have to be revisited during another mission after having sensitized the people. This can be done at camp.

Before a revisiting mission, “Revisiting” datasheets can be prepared per grid and printed out in order to ease fieldwork activities so the columns to fill in will only be the “revisiting date” and “comments” columns (Figure 8).

At all times the “Revisiting Hotspot” datasheet must be **kept neat** and **without crossings-out**. If it is messy, at the end of the day, back at camp, a new clean sheet should be made. The way to fill it in is presented Figure 7:

- ✓ First fill in the top of the sheet with the:
 - **Area**,
 - **Team**,
 - **FDA Ranger**
- ✓ Fill in the datasheet according to the columns type
 - **Grid** is the grid number to be revisited,
 - **First observation date (mission n°)** is the date and the mission number during which the observation was made the first time,
 - **Code** is the observation code mentioned when the observation was recorded for the first time (*e.g.*: Hunting camp, fishing camp, village, farm, mining area, logging area, etc...). The list of codes is available in appendix 2.
 - **N°** is the number of observation of the same type that were recorded the first time,
 - **WPT** is the waypoint that was recorded in the GPS when the observation was made the first time,
 - **Longitude** is the longitude coordinate of the waypoint that was recorded in the GPS when the observation was made the first time,
 - **Latitude** is the latitude coordinate of the waypoint that was recorded in the GPS when the observation was made the first time,
 - **Comments** column will display the first comments made when the observation was recorded the first time,
 - **Revisiting date** is the date at which the waypoint is revisited with the format “dd/mm/yyyy”,
 - **Revisiting comments** will display the new status of the first observation.

REVISITING HOTSPOT DATASHEET									N°: 1
AREA (North / South): <i>North</i>			Team: <i>Revisiting team</i>			Supervisor/FDA Ranger: <i>Ben Queminee/Steek Topoe</i>			
GRID	First observation date (Mission N°)	CODE	N°	WPT	Longitude (UTM)	Latitude (UTM)	Comments on first observation	Revisiting Date	Revisiting Comments
G04	02/02/14 (M1)	Farm*	1	002	0644896	0678556	1yr maintained Cocoa	<i>02/05/14 (M4)</i>	<i>Still growing</i>
G04	02/02/14 (M1)	Poach Cp.	1	002	0644896	0678556	In use	<i>02/05/14 (M4)</i>	<i>Abandoned</i>
G02	03/02/14 (M1)	Nursery	1	025	0658952	0578965	Cocoa	<i>03/05/14 (M4)</i>	<i>Removed</i>
G054	25/02/14 (M2)	Poach Cp.	1	085	0624584	0689542	In use-hunters met and told to leave	<i>06/05/14 (M4)</i>	<i>Still used-hunters met again and told to leave. Last chance.</i>

Figure 8: A “Revisiting Hotspot” datasheet example.*Observation to be revisited can also be Human camp/tent (poacher, fisherman camp, farmers’ village, etc...), new farm, mining area, etc....,

C.1.5. Other rules to follow with datasheets

Regarding the datasheets:

- ✓ Each new working day MUST start with a new datasheet with the general information of the day noted (e.g.: grid number, team number, etc...).
- ✓ If a 2nd grid is sampled on the same day, ALWAYS use a new datasheet to fill in the observation.
- ✓ ALL datasheets MUST be kept clean, tidy and ordered by days and grid. If they are messy, be sure to make new ones by copying the data precisely back at camp.
- ✓ The FDA team leader/WCF team supervisor MUST check all of the completed datasheets at the end of the day to make sure everything has been noted correctly and/or to add the forgotten details. It is always better to do it the same working day otherwise you may not remember at a later date.

Regarding the pictures:

- ✓ **Pictures are data!** Recording them properly is of great importance. They need to be noted on the datasheets in the ‘Comments’ column. For example, if 5 pictures are taken on a site they must be recorded as followed:
 - #058-063.
- ✓ **Do not delete** any photos so as not to mix up the numbers of the photos. Always put an object of reference (preferably a pen) next to the object being photographed.

Regarding off patrol observations:

- ✓ When walking to the identified start of a patrol in a grid, observations should be taken and noted on a navigation sheet. At the top, next to grid number, specify that is it “Off PATROL”. Be sure to not take down observations already made that day or on previous days of the mission. Only new observations.

C.2. Recording Fauna observation

Only observations made of key animals need to be taken during Ecoguard patrols. A complete list of types of observations is provided in **Appendix 2**. This Appendix should also be with the teams during patrols. To summarise, data is taken on:

Direct observations:

- (i) of Chimpanzees, elephants, duikers, monkeys, leopards, golden cats and pygmy hippopotamuses should be taken

Indirect Observations:

- (i) of chimpanzees (nests, tracks, dung, nut-cracking sites, feeding sites, calls)
- (ii) of monkeys (calls)
- (iii) of golden cats, leopards, pygmy hippopotamuses, elephants (Tracks, dung)

Each observation **MUST** be recorded on a separate line. If more than one observation is made at the same waypoint, each different type of observation should be recorded on a separate line on the “navigation” sheet. Make sure to use the correct code. Some observations require particular attention and are described below.

C.2.1 Monkeys

Two types of observations are possible when recording data on monkeys:

- If two or more different species of monkeys are seen at the same waypoint, each species should have a separate line on the datasheet. The number of individuals should be noted under the column number.
- Groups of monkeys such as Diana, Mona and the lesser-spot nosed and greater spot nosed, usually only have one male per group. If calls are heard coming from more than one direction, this means that there are two different groups and thus should be noted on two separate lines.
- **As monkey calls are often repeated, special care must be taken to not record the calls of the same group several times.**

C.2.2. Elephant dung

Indirect observations of elephants will be more common than direct ones (tracks and dung). If several pieces of dung are found in the same area, it is important to know



Figure 9: Elephant dung S2 (Nandjui Awo©).

whether they came from the same individual or not. To do so, check to see if **the colour, texture and decay stage** are the same. It is necessary to have some personal intuition for this.

To determine the **decay stages** of elephant dung, we follow the Monitoring Illegal Killing of Elephants standards (Hedges & Lawson, 2006).

Four different decay stages can be noted for elephant dung:

- ✓ Level **S1**: all bolls (of dung faecal material) are intact,
- ✓ Level **S2**: one or more (but not all) are intact,
- ✓ Level **S3**: no boll is intact, but coherent fragments remain,
- ✓ Level **S4**: no boll is intact; only trace (e.g. plant fibres) remains; no coherent fragments are present (but fibres may be

held together by mud).

Note the decay stage in the comments column. ALSO, each different pile of dung needs to be noted in a separate line on the navigation datasheet, even if the waypoint is the same.

C.2.3. Chimpanzees



Figure 10: Chimpanzee nest (WCF ©).

NESTS: Knowing that chimpanzees live in groups, it is important to search around the initial nest observed to find more nests (around 25m radius). If any are found, record the data on the “Navigation datasheet”. Each nest should have a separate line on the datasheet if the decay stage is different.

There are 4 stages of decay while recording chimpanzee nest observations:

- **Stage I** (very fresh nest): all the leaves in the nest are green and sometime dung and traces of urine are found under the nest.
- **Stage II** (fresh nest): the majority of the leaves are still green but there are no traces of dung or urine (**Error! Reference source not found.**)
- **Stage III** (old nest): all of the leaves are no longer green, but the nest has still kept its general form
- **Stage IV** (very old nest): all of the leaves are no longer green, and the nest has lost its shape

The decay stage must be recorded in “Navigation data sheet” in the column ‘Comments’.

Nut cracking site – When recording data on nut cracking site, two informations are needed:

- ✓ The stage of decay,
- ✓ As much as possible, the species of plant that was eaten (*e.g.: Panda oleosa,*). Write down the local name if you do not know the scientific name.



Figure 10: A nut cracking site stage 1 with *Panda oleosa* nuts and stones as hammer (WCF ©)

The decay stages for nut cracking sites will be defined as follow:

- ✓ **Stage 1** = site where the shell of the nut is freshly open, used in the past week.
- ✓ **Stage 2** = site where the shell of the nut are plenty but all the shells are dry, used in the past month to a year.
- ✓ **Stage 3** = old site where there are hardly any shells and the traces are nearly not visible.

Don’t forget to take pictures of nut cracking sites. Remember that pictures are data! If the hammer differs (*e.g.: stone versus wood*) it is important to know it. As usual, **the picture’s numbers and the decay stage MUST be recorded in the**

column ‘Comments’ of the “Navigation Datasheet”

C.2.4. Observations of dead animals

- ✓ If any dead animal is found in forest (e.g.: carcass, smoked, caught in a trap, etc...), the species should be identified (IF POSSIBLE) and recorded in the “Navigation datasheet”. If the exact species cannot be identified, note at least the family (ie, monkey, duiker, etc). There are two ways to record this type of data:
- ✓ If the animal has been killed by a poacher (e.g.: trapped or shot), then the observation code in the observation column will be ‘**CAR**’ (for carcass) plus the code for the species (e.g.: **CAR Eleph.**) and the column ‘Comments’ will be used to record the type of poaching which was used to kill the animal (e.g.: trap, gun shot, etc...).
- ✓ If there is no clue about the cause of death of the animal, then the code to be used in the ‘observation’ column of the “Navigation datasheet” will be code for the species (e.g.: **Elephant DO**) and the column ‘Comments’ will be used to mention that the death is unknown or natural for example (e.g.: unknown death, natural death, etc...).

C.3. Recording Anthropogenic observations

Appendix 2 gives a complete list of types of observations that can be made during patrols. **Make sure that you always have a copy of this appendix when on patrol.** Two main types of observations can be made:

- ✓ Direct observations (e.g.: human encounters)
- ✓ Indirect observations (e.g.: cartridges, traps, etc...)

NOTE THAT IF YOU COME ACROSS A LARGE THREAT TO THE FOREST DURING YOUR MISSION (FOR EXAMPLE A COMMERCIAL HUNTING SITE, CHEWING STICK TENT, INFORM THE FDA AND WCF HEAD OFFICE IMMEDIATELY WHEN OUT OF THE FOREST!!!)

Basically, all anthropogenic observations will be recorded during CEP missions.

Examples of specific cases are provided below.

C.3.1. Habitat disturbance observations:

*i) **Cut trees/logs/chewing sticks:***

Be sure to distinguish between **cut down tree, pit-sawing site, cut chewing stick tree, chewing stick root extraction, chewing stick logs and logged trees**. These are all different types of observations and are defined as:

- a.** Cut down tree (**cut tr**): a tree which has been cut down by the local communities (NOT *Garcinia* species)
- b.** Pit-sawing site (**pit**): a site where pit-sawing is active by the local communities
- c.** Cut chewing stick tree (**chew tr**): a cut *Garcinia* (*chewing stick*) tree

- d. Chewing stick root extraction (**chew root**): site where the roots of garcinia species have been extracted, usually from hole.
- e. Chewing stick logs (**chew stick**): one of more (even in piles) of chewing sticks
- f. Logged trees (**Log**): trees or logs which have been cut down by a profession logger (ie. Commercial logging)
- g. NB. For all of the above note down in the comments if they are **NEW** or **OLD**
- h. FOR ALL OF THE ABOVE OBSERVATIONS, not the number of logs, cut trees, etc, in the number of observations column.

ii) **Farms**

- a. For all farm observations, note if they are new, abandoned or an estimate age (<1yr, <2yr, <3yrs etc).
- b. Note down the type of crop in the comments sections (cocoa, rubber, **rice**, cassava, etc).
- c. Make sure to take the land plot of each farm.
- d. For Fallows (**fallow**- when farmers leave their farm land to regenerate) and clearings (**clear** - when farmers clear land to make a new farm) the land plots should be taken. Note down if they are old or new in the comments section.

iii) **Mines :**

- a. For mines, be sure to note if they are used or abandoned
- b. Be sure to make the difference between an mine (**Mine**) and a prospection site (**Prospection**)
- c. For prospection sites, note if it is new or old. Prospection sites are generally holes made by humans to look for gold.
- d. Make sure to take the land plot for each mining area.

C.3.2. Hunting signs:

- i) **Note if hunting tents (**tent**) are used or abandoned AND if they are old or new.**
- ii) Note the number of cartridges (**Cart**) per way point in the number of observation columns. Specify if they are old or new in the comments section.
- iii) If dryers, objects, etc are found at a hunting tent, note them down in the comments section of the hunting tent observation, not as another observation.
- iv) BUT, if dead animals (**CAR**) are found at a hunting tent, they should be noted down as a separate observation on a separate line on the datasheet. The cause of death (trap, gun, etc) and species (if possible) should be noted in the comments section. The number of carcasses per species should be noted. Each different type of species should have a separate line on the datasheet.

- v) For all types of traps (**trap**), note in the comment section the type (Pit-fall, wire, etc) and if they are Active or inactive, and if they are old or new. **BE SURE TO CUT ALL TRAPS or fill up pit-fall traps!!!**
- vi) For gunshots (**shot**), be sure to write the number of shots in the number of observations column.

C.3.3. Other human activities

i) Roads and paths

In GKNP, there are different types of roads and paths that need to be clear when taking data. They are:

- a) **Human paths** (used by all types of people including poachers, hunters, chewing stick extractors, and even community members travelling from one place to another). **These are the paths that the ecoguards should patrol on.** Tracks should be taken when patrolling on a human path. Junctions with new human paths should be noted on the navigation sheet and the revisiting sheet. If a human path is one that is clearly used for members of one community to reach another community (for example Billibo to Garleo, note this down in the comments section). If there is another reason that the path is used, for example by researchers, note this down in the comments section. The path may also be used by chewing stick harvesters to reach the Cavalla river to export the chewing sticks. Be sure to note this down in the comments section if the use of the path is known.
- b) **Poacher tracks (Poach tr)**: each time a track of a poacher is observed it should be noted down.
- c) **Unloading roads and sites –** are used by commercial loggers. Note if they are used or abandoned in the comments section.
- d) **Roads –** KBPPA has some roads that run through it. Note which road it is when you cross it (ie Road to Gboe Geewon) in the comments section.
- e) **Other tracks paths and roads, can go under the OHA observation with a comment about its use in the comments column (see below).**

ii) Settlements and camps

- a. For any settlement, note if it is used or abandoned and how many houses there are in the comments section.
- b. For any other camp (NOT HUNTING), note if it is used for chewing stick harvesters, farmers, miners, etc in the comments section.
- iii) **Other human activity**: If any other observation of human activities is made the code is OHA and a description of the observation in the comments column should be noted.

As mentioned, **REMEMBER each observation MUST be recorded on a separate line.** Make sure to fill in the correct **codes** for each observation on the “Navigation datasheet”.

Furthermore, **if direct encounters happen** and the CEP teams have the opportunity to discuss with the person, the “Meeting” datasheet must be filled in. Try to know why the person is here, what is (s)he doing here, if (s)he comes often, where (s)he comes from, its first and last name, etc. Paragraph *B-4.B.4.3. Organisation of the work during sensitization meetings with local communities* give also details on subjects to approach during the interview.

CEP teams need to explain why they are in the forest and what their purpose is. Try to get as much information as possible and record them on the “Meeting” datasheet or on a notebook if there not enough space on the datasheet. **Don’t forget to take pictures!**

D. How to use the GPS

D.1- Description of a GPS unit

For GPS units and compasses, the direction, angle and azimuth are all the same thing and are described in terms of degrees.



Figure 11: A GPS unit.

1. External antenna.
2. Turn GPS **ON** and **OFF** by pressing the button found on the very top next to the antenna or on the wright side according to the GPS model unit for two seconds.
3. To **light up the screen** press the on/off button once and then press the **rocker** button to the right or to the left to adjust the brightness, then press **ENTER**
4. Press **PAGE** to **change the page** (e.g.: main menu page; satellite page; map page; compass page; trip computer page).
5. Press **MENU** to enter the different page functions.
6. Find navigation waypoints with **FIND**.
7. Save a waypoint with the button **MARK**.
8. Press **ENTR** to save a point, or to select an option.
9. Press **QUIT** to return to the previous page, to leave the menu page or a selected option. It can also be pressed when the GPS is displaying an unwanted page.

10. The large **rocker** button in the centre allows you to scroll the options menu in all directions (up, down, left and right), by pressing on the relevant white arrow.
11. The two small buttons **IN** and **OUT** allows to zoom in and to zoom out the map background when on the map page is selected.
12. The screen of the GPS

The GPS receiver unit function in either **2D** or **3D** dimensions, when it has the proper level of satellite signal. A GPS unit automatically searches for satellite signals when it is turned on. It can also function in mode GPS off, but this is not useful in the forest. A message will appear on the screen to indicate whether the mode GPS OFF needs to be used when there is no satellite signal. This option should never be selected even when the satellite reception is not effective. Instead, select the “**continue acquisition**” option to continue searching for satellites in order to use the GPS unit.

The **satellite page** displays the connected satellites as well as the coordinates of the current position, which can be seen in the second line at the very top of the screen.

The **menu page** shows all the different GPS functions. The data and time are displayed at the bottom of this page.

The **compass page** shows a compass indicating the direction by a vertical line coming from the top of the screen. When in navigation mode, an arrow indicates the angle (direction) to follow to get to a specific point.

The **map page** shows the current position on a map and all the other saved points in the GPS unit. The itinerary taken is traced along the map. An arrow indicating the North, labelled **N**, is also displayed, as well as the scale, which can be increased or decreased by pressing **IN** or **OUT**. The pointer on the screen can be moved by using the **rocker**. Press the corresponding arrow to move the pointer in the desired direction. Select a point to see its coordinates. They will be displayed at the top of the screen. Press **ENTR**, to see more specific details.

The **trip computer page** shows information regarding distance, speed and the time spent along an itinerary.

D.2 Set-up of the GPS¹ before use

Before each mission, it is highly recommended to verify the parameters of your GPS and set it up according to the following rules:

- ✓ Check the language:
 - Main Menu > Setup > System > Language: select ‘**English**’, press **ENTER**.
- ✓ Check if the Longitude / Latitude recording system is set in UTM:
 - Main Menu > Setup > Position format: Select ‘**UTM UPS**’, press **ENTER**.
- ✓ Check that the north is set with the Magnetic North:

¹ For GPS Garmin 60cx, GPS Garmin Map 60CSx and GPS Garmin 62s

- Main Menu > Setup > Heading > North reference: Select '**Magnetic**', press **ENTER**.
- ✓ Display the orientation in degrees:
 - Main Menu > Setup > Heading > Display: Select '**Numeric Degrees**', press **ENTER**.
- ✓ Check that the north is still at the top of the map:
 - Main menu > Setup > Map > Orientation: select '**North Up**', press **ENTER**.
- ✓ Check to have 2 data fields on the map screen when you navigate:
 - Main menu > Setup > Map > Data field: Select '**2 Small**', press **ENTER**.
- ✓ Check that the GPS is not recording track logs:
 - Main menu > Setup > Track > Tracklog: select '**Do not record**', press **ENTER**.
- ✓ Check that the GPS is recording track logs with a point every 10 meters:
 - Main menu > Setup > Track > Recording Method > Select '**Distance**' press **ENTER**
 - Main menu > Setup > Track > Recording Interval > set it up to one point every 10 meters, i.e. 0.01 km press **ENTER**.

To configure the above settings, start your GPS and press the **MENU** button twice to reach the **Setup** menu (Figure 12). Then select the **Setup** menu with the **rocker** button.



Figure 12: SETUP menu of the GPS 62s

D.3- How to use a GPS unit: basic functions for CEPs fieldwork.

D.3.1. Save a new waypoint.

The process is as follows:

- ✓ Make sure that the GPS has acquired enough satellites to have a “3D” data acquisition, meaning that the altitude is taken into account with the longitude and the latitude.
 - Once the 3D is acquired, place the GPS unit (*e.g.*: place yourself) at the place you want to record the coordinate.

- ✓ Press **MARK**
 - A page on the screen will appear displaying the following information: “*position number*”, “*date*” and “*time*” of the position, “*longitude*” and “*latitude*” coordinates, “*altitude*” of the position.
- ✓ Scroll down with the **rocker** and select **OK** at the bottom of the screen. Press **ENTER**
 - This will save the position data. At the same time, the previous page will reappear.
- ✓ By pressing **MAP**, the recorded point can be seen on the map.
 - It is very important to save the point and to keep note of the position number, the date and the time.

WARNING: Always make sure that the point has been correctly recorded in the GPS unit.

- ✓ To do this, press **FIND**, then **proximity waypoints** and then **ENTR** and check that the last recorded position number or name is there. Next, press **QUIT** to leave the page.

D.3.2. Rename a waypoint

Even if it is possible to rename a waypoint straight after having recorded it, it is strongly recommended to keep the waypoint name as a number as the GPS unit is doing it automatically. This prevents any time wasting while making observations during a patrol. Secondly it prevents typing mistakes. However, a situation may arise where you need to name or rename a waypoint, the process to follow is presented here:

- ✓ After pressing **MARK**, scroll down using the **rocker** button to select the line indicating the name of the waypoint and then press **ENTER**
 - A table of letters and numbers will appear. Scroll along to the desired letter/number and press **ENTR** each time to select a character (*e.g.*: scroll along to **T** and press **ENTR** to write **T**; select backspace or delete and press **ENTR** to erase a mistake; select **space** and press **ENTR** to make a space, etc...).
 - The boxes containing the arrows < and > can be used to move left and right through what has been typed on the screen to edit a specific letter. Select the letter and press **ENTER**
- ✓ Select **OK** when you have finished typing a name for the waypoint and press **ENTER**
- ✓ The position is still not saved in the GPS unit. To do this, scroll along to **OK** and press **ENTER**. The previous page will then reappear.

It is essential to write down the name or number of the waypoint and its coordinates in a notebook so as to be able to find it easily later. This is especially important when it concerns the base camp or any other important reference points. Make sure that these points are

saved on the list of “intermediate waypoints” (see chapter D.3-3.3. *D.3.3. Find a specific waypoint for navigation in the forest*)

D.3.3. Find a specific waypoint for navigation in the forest

At times, it is necessary to find a specific waypoint, such as the base camp or the beginning of a human path. To do so, the process is as follows:

- ✓ Press **FIND** and a page showing the **waypoints** list will appear.
 - Select **waypoints** and press **ENTER** to open the list of waypoints.
 - Scroll through the list to find the desired waypoint by using the **rocker**.
- ✓ When you have selected the waypoint you want, press **ENTER**
- ✓ The map will appear showing the chosen waypoint. Select **GO** by pressing **ENTER**
 - A page with the position details, as well as the distance and the angle to follow to reach the waypoint will appear.
- ✓ On the bottom line, select the **tracks icon**. Make sure that this is highlighted
- ✓ Press **ENTER** to track the waypoint.
 - Indications about the direction/angle to take, the distance left to cover, the current speed of walking and an estimation of the time it will take to reach the waypoint are shown on this page.

During the navigation to a waypoint, the angle may change and the distance should get shorter. These are the two most important pieces of information to take into account in order to reach the waypoint.

- ✓ If the angle surpasses 30°, this means that the correct direction is no longer followed and an adjustment is necessary.
 - For example, if the starting angle is set at 76° and after some time of navigation the angle has changed and the GPS unit display an angle of 108° or 45° (meaning a difference of 32° and 31° respectively), then the correct direction is no longer followed. If this happens, there is an increased chance you will miss the waypoint you are trying to navigate to.
- ✓ If the difference between the angles is between 90° and 270°, this means that the waypoint has already been passed.
 - For example, if between two readings of the GPS unit the distance left is increasing, then you are moving away from the waypoint. When navigating, make sure to use the compass as your main reference for the direction you are following, once the GPS unit has shown you what angle you need to follow.
- ✓ It is therefore very important that while navigating you keep an eye on the distance and the angle indicated by the GPS unit with regard to what was displayed at the start **OR** what was indicated on the compass last time that you changed the bearing.

- ✓ In general, as you approach a waypoint (*e.g.*: less than 50 meters), make sure to pay extra attention to the angle, as it can change very quickly. At less than 30 meters, take 1 minute pauses to wait for the GPS unit to stabilize and find a more accurate angle. From here on, keep the pace very slow and come to a complete stop when the distance is displayed as **0m**. This is very difficult if the GPS receiver is not locked on to enough satellite signals. In this case, stop when you have reached 10 meters from the point. From here, the base camp or the beginning of a human path should be easily reachable by looking around without navigating with the GPS unit.

D.3.4. Manually importing a new waypoint into the GPS unit

This is an essential tool to know if an important point to find has been unknowingly deleted or if a waypoint's coordinates are available on paper but not registered into the GPS unit. This highlights the need to ALWAYS note down the coordinates of any important point, such as the base camp.

To introduce a point into the GPS receiver, the process is as follows:

- ✓ Press **MARK** even if there aren't enough satellite signals to try and save the record of the position.
- ✓ The page of details of the position will appear. **Do not** press **ENTER**.
- ✓ Use the **rocker** to scroll along to the position number and press **ENTR** to give the name you want to give to the waypoint (see chapter D.3.2.D.3.2. *Rename a waypoint*).
 - The date and the time will automatically be recorded.
- ✓ The **UTM coordinates** and the **Zone** need to be very precise and it is therefore advised to make the necessary changes. Select them and ~~the~~ press **ENTER**
 - A small table will appear, make sure the geographical zone **29N** is selected. To do this, push the right arrow ">" on the **rocker** and select the zone. Press **ENTR** to advance to the coordinated (longitude on top, latitude on the bottom).
- ✓ The digit that is highlighted in black (writing is in white), is the digit that is currently selected.
 - Change the digits on the GPS unit to those that you wish to use. Check each digit one by one, make the necessary corrections by selecting a number in the table and press **ENTER**
- ✓ Automatically, the latitude number is selected. If not, select it again by using the **rocker**, then press **ENTER**
 - Repeat the same procedure as above and input the correct latitude coordinate. Press **ENTER**
- ✓ Then, with the **rocker**, select the **OK** option, located on the right hand side of the bottom line, to finally save the waypoint. Press **ENTER**

WARNING: make sure that the waypoint has been successfully saved by searching for it in the GPS unit (see chapter D.3.3.D.3.3. *Find a specific waypoint for navigation in the forest*).

D.3.5. Recording RECCEs and Human paths²

To record Recce's or Human path's tracks, first switch on your GPS unit and wait until it receive at least 3 satellites signals (the question mark will disappear when your GPS is ready).

WARNING: If your GPS was on before the recce or human path session starts (*e.g.*: during a navigation session to reach a waypoint), it is possible that, given the setup chosen, the GPS unit might have automatically record a track. If so, then it is important to clear it before starting a new recce or human path session.

To **clear a current track**, the procedure is as followed:

- ✓ Press the **menu** button twice or press the Page button to reach to Track manager.
- ✓ Select the **Track manager** menu.
- ✓ Select the **current track**, then press **ENTER**
 - The GPS unit will display the different options available for this track, especially clear current track option. Select it and press **ENTER**

Once this is done, it is possible to start recording a new Recce or Human path session. This will be done as follows:

- ✓ Before walking along the path, **Mark** a new waypoint and record it on the "Navigation datasheet" with the code "Recce start" or "Human Path Start" according to what is being recorded (see chapter *C-1.Error! Reference source not found.* and *APPENDIX 2*).
 - Don't forget to mention 'track sheet' as well in the column "Comments".
- ✓ To start recording, press the **Menu** button twice or press the **Page** button to reach the main menu.
- ✓ Select the **Setup** menu and press **ENTER**.
- ✓ Select the **Tracks** menu and press **ENTER**.
- ✓ Go on **Tracklog** text box and press **ENTER**.
- ✓ In the "**Method of record**" line, select the "**Show on the map**" option and press **ENTER**.
 - Now the track is ON and ready to record with the good parameters.

WARNING: Before starting a new record of tracking, again clear the current track to make sure that you don't have any undesirable track.

² For GPS Garmin map 62s

- ✓ Press the **QUIT** button 3 times to get back to the Map page.

The survey can now start and the data is being recorded. All anthropic observations, and important wildlife observations (as defined in the chapter *B-4.B.4. Presentation of the General Protocol*) must be recorded in the “Navigation datasheet” according to the methodology (see chapter *B-4.B.4. Presentation of the General Protocol* and *APPENDIX 2*).

- ✓ Once the recce or the human path is surveyed, **mark** another waypoint and record it on the “Navigation datasheet” with the code “Recce End” or “Human Path End” according to what was being recorded (see chapter *C-1. Error! Reference source not found.* and *APPENDIX 2*).

The next step is to record and to name the track properly in the GPS unit according to the track code being depicted in chapter *C-1. Error! Reference source not found.* (e.g.: if it is a recce track, then the code will be [G ‘grid_number’ R ‘date’] (G01R141002)).

- ✓ Press the **Menu** button twice to reach the main menu.
- ✓ Select **Track manager** and press **ENTER**.
- ✓ Select **Current track** and press **ENTER**.
- ✓ Select **Save portion** and press **ENTER**.
- ✓ Select the first track segment to save (use the **rocker** button) and press **ENTER**.
- ✓ Select the last track segment to save and press **ENTER**.
 - The GPS unit will display the name of the track, the date and the time. To rename the track, select the name line and proceed the same way as explained in chapter *D-3.2. Rename a waypoint*.

WARNING – Be careful to ensure the time is kept in the name too!!! Do not delete that part! Just add the name of the track after the time, but delete the first part that comes up automatically.

- ✓ Once the track code is given, select **DONE** and press **ENTER**.
- ✓ Record the time given by the GPS on the “Navigation datasheet” and the “Track datasheet” for the ‘Recce End’ or ‘Human path end’ line.
- ✓ If the end of the recce or the human path also corresponds to the end of the patrolling day, then add a line on the “Navigation datasheet” stipulating the ‘END’ of the day as shown in chapter *C-1. Error! Reference source not found.*

WARNING: At the end of a patrolling day, go back to the main menu of your GPS unit and select Set-up > Tracks > Tracklog and select “Do not record” in the corresponding text box before.

N.B.: if you come across a human path that you are not planning to walk along during the same patrolling day, mark a new waypoint, record it as a ‘Human path’ on the “Navigation datasheet” and record it as well on the “Revisiting datasheet” to walk along it at a later date. No human path start and no Human Path End codes should appear on your “Navigation datasheet” in this instance (see chapter *C-1. Error! Reference source not found.*).

D.3.6. Record and calculate the surface of Land Plots areas³

This technique applies to fields, plantations, fallows, clearings, logging and mining areas. To record these types of areas and calculate their surface areas proceed as explained below:

First, it is necessary to verify if the Area Calculation mode is quickly available in the GPS unit being used. The quickest way to do this, is to press the **page button** as much as necessary to have a complete overview of the available pages.

If the **Area calculation page is not available**, then it is necessary to setup the GPS unit in order to make it available (otherwise skip this paragraph and go to the next step). This is done as follows (Figure 13):

- ✓ Go on the **Main menu** either by pressing the **menu button** twice, or by using the **page button** (Figure 10: *picture A*).
- ✓ With the **rocker** button, select **Setup** and press **ENTER** (Figure 13: *picture B*).
- ✓ With the **rocker** button, select **Page sequence** and press **ENTER** (Figure 13: *picture C*).
- ✓ With the **rocker** button, select **Add page** and press **ENTER** (Figure 13: *picture D*).
- ✓ With the **rocker** button, select **Area calculation** and press **ENTER** (Figure 13: *picture E*).
- ✓ Quit the Main menu by pressing the **QUIT button** as many time as necessary.



Figure 13: Steps to set up the Area calculation page in the pages menu of a GPS unit

If the **Area calculation page is available**, then, after having reached one corner of the land plot being measured, select it by pressing the page button until it appears. A warning page will appear telling that the GPS unit is ready to calculate the area of the Land Plot (Figure 14: *picture A*). The procedure is as following:

³ This procedure is valid for GPS Garmin Map 62s only

- ✓ When you are ready to do the survey, select '**Start**' and press **ENTER**.
- ✓ A map background appears, with at the bottom a 'calculate' option (Figure 14: *picture B*).
 - This means that the GPS unit is currently recording the track of the limits of the Land Plot. **Do not press ENTER** until the Land Plot is surveyed.
- ✓ **Before starting to walk** the limits of the Land Plot, **mark your first waypoint** of the corner of the Land Plot by pressing the **Mark button** (Figure 14: *picture C*).
- ✓ Rename the waypoint by using the **rocker** to select the top line (Figure 14: *picture D*). Then press **ENTER**.
 - A page will appear to name the waypoint the way we need (Figure 14: *picture E*). Write the 'Code' of the Land Plot and the 'Number' of the Waypoint in this Land Plot (*e.g.*: A1, A2, etc...) by using the keyboard. **Do not forget to record each waypoint on your "Land Plot datasheet"**.
 - When the renaming is finished, scroll down with the **rocker** to the '**Done**' option and press **ENTER** (Figure 14: *picture E*).
 - The page with all the inputs on the waypoint will appear again but with the new given name. Scroll done with the **rocker** and select the '**Done**' option. Press **ENTER** (Figure 14: *picture F*). **Your waypoint is now saved.**

- ✓ After having marked your first waypoint, the map background (Figure 14: picture G) will appear again. **Do not touch anything**, the GPS unit is still recording the limits of the Land Plot.



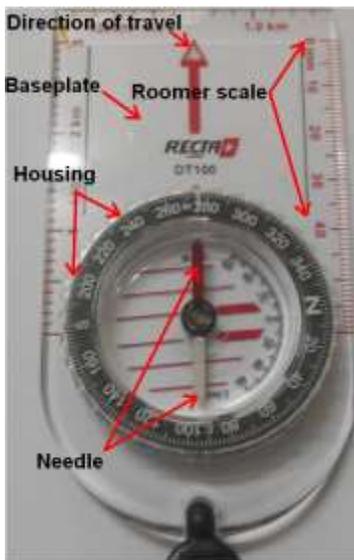
Figure 14: Steps to calculate the area of a land plot with a GPS unit

- ✓ Continue until you reach the second corner of the Land Plot and mark a second waypoint following the procedure described above (Figure 14: pictures B to G). The second waypoint will be called A2, the third point A3, etc... Repeat this until all the corners of the Land Plot are recorded and you reach your starting point again.
- ✓ Then, and only then, it is possible to select the ‘**Calculate**’ option and press **ENTER** (Figure 14: picture G).
 - The area calculation window will appear. Record in the “Land Plot datasheet” the area (in hectare units) calculated by the GPS unit.
- ✓ With the **rocker**, select the ‘**Save track**’ option and press **ENTER** (figure 14: picture H).

- **Do not rename the track** this time, select the ‘**Done**’ option and press **ENTER** (Figure 14: *picture I*).
- ✓ The last window will confirm that the track has been saved properly and will present its name and the time it was recorded (Figure 14: *picture J*).
 - Record the time given by the GPS unit (here 15:38) into the “Land Plot datasheet”, then select the ‘**OK**’ option and press **ENTER**.

E. How to use a compass and a map

E.1- Description of a compass



The compass is an essential part of equipment to carry with you in the forest. It can be used along the tracks taken and complements the use of the GPS (Figure 16).

A compass consists of a **circular compass housing** with a **compass needle** (the red side always indicating magnetic **North**). This is mounted on a baseplate with a long arrow indicating the direction of travel (DOT). The circular compass housing is divided into degrees ranging from 0° to 360°. On one side of the compass is a **roomer scale**, exactly like a ruler, to measure distances.

Tips to remember:

- ✓ The opposite of North (N) is South (S). If you are facing North, South is behind you, East (E) is to your right and West (W) is to your left.
- ✓ 0° is the same as 360°. Therefore both correspond to True North.
- ✓ True East is at 90°, True south is at 180° and True west is at 270°.

Magnetic north corresponds to the degree of True north plus a correction of 6° in Liberia, check that you’re GPS is set up with the Magnetic north as you are using the compass (using magnetic north) to navigate.

E.2.- Following a direction

To follow a bearing with a compass the procedure is quite simple.

- ✓ First, turn the circular compass housing to the angle you want to follow (the number of the corresponding angle should be directly above the North dot).
- ✓ Then, position yourself, by turning, until the red arrow indicates the north on the circular compass housing.

- ✓ The North dot is now showing the correct direction of travel to follow.

E.3- Finding an angle (or a direction) on a map

This is particularly important to know how to do, especially if the GPS stops working, or if the coordinates of the location you are trying to find are not known. If this is the case, do not panic and stay calm. All that is needed is a compass and a detailed map of the area showing the landmarks (**Make sure you always have this with you**).

Firstly, it is important to be able to locate yourself on the map. To do it follow the steps below:

- ✓ First, trace a line from your current location to the location you are aiming for.
- ✓ Then, place the compass on the map, with the **roomer scale** side of the compass placed along the drawn line and the compass set towards the location you are trying to reach.
- ✓ The angle indicated by the arrow on the baseplate is the direction you need to take. There is no need to take any notice of the red compass needle.
- ✓ Then remove the compass from the map and follow the steps indicated in the previous section to find the correct direction.
 - It is recommended to add 6-8 degrees to this angle due to magnetic variation.
 - It is useful to remember that on a map, north is at the top, south is at the bottom, east is on the right and west is on the left.

E.4- Estimating the distance to cover

It is also possible to estimate the distance and time needed to reach a specific point. To do so, a few simple calculations are necessary:

- ✓ Measure the distance that separates the two points on your map in centimeters (cm) or in millimeters (mm) and write it down somewhere. As an example, we will take **46mm**.
- ✓ Then refer on the map and its **graphic scale**. It is indeed necessary to measure the length of this scale bar to estimate the true distance that you will have to walk in reality. For example, if the scale bar measures **23mm** and indicates **1,5km**, this means that **23mm** on the map corresponds to **1,5km** in reality.
- ✓ The distance needed to walk is thus:
 - ✓ is $[\text{distance between the two points (e.g. } 46\text{mm)}] / [\text{length of the scale bar on the map (} 23\text{mm)}] \times [\text{distance indicated on the scale bar (} 1,5\text{km)}] = 3\text{km}$
 - ✓ For a ration scale (e.g. 1/65000), 1 cm on the map represents 65000cm in reality. If you measure **46mm** (4.6cm), the distance needed to walk is $4.6 \times 65000 = 299000$ cm = 2990m = **2.99km**, which is practically 3km.

Estimating the time is based on the realities of the field. On average, in a primary forest, you can walk **1km in 25-30 minutes**. So, for **3km** for example, you will need to walk between 1h15mins and 1h30mins. If after 1h30mins, you haven't reached your intended location, you should recheck your position and angle of direction if possible. It is often very difficult to walk in a straight line because of the many obstacles you encounter in the forest. Without a GPS it is sometimes hard to readjust your position and direction. To reduce any errors with the compass, try and aim different objects (trees, etc) that are not too far in the distance but are directly in the line of direction you intend to follow. Walk towards these objects and when you reach them, aim for the next suitable object further along your path. If you encounter a big obstacle, aim at an object after the obstacle, go around the obstacle and walk towards the targeted object. When, for example, you are walking back to the base camp, and you have walked between the average and maximum amount of time needed to cover the distance, slow down and keep a look out for reference points and landmarks. If you have followed the correct direction, you should be able to get your bearings simply with the reference point and land marks.

F. Rules and behavioural considerations for a successful CEP

F.1- Mission preparation and Material

The FDA team leader and WCF supervisor should always give responsibilities to its team members regarding the care of the material and food rations. For the care of the equipment the person(s) responsible:

- ✓ Must ensure the expensive equipment is well protected and kept in boxes with silica gel when not being used back at the camp. (GPS, Binoculars, camera, etc).
- ✓ Must check the material before leaving for each mission to avoid any problems. The material for a team is:
 - The TWO GPS units
 - Spare batteries for GPS units and torches
 - Compasses
 - Maps of KBPPA and Target Grids
 - Binoculars to help with identification of wildlife observations
 - Datasheets (3 per grid), pens, clipboards
 - Notebooks
 - Tents
 - Flashlights
 - Kitchen equipment
 - Mats etc
 - Camera
 - Stapler to keep sheets from each patrol day together.

For the care of the food, the person(s) responsible must ensure it is rationed correctly during the mission and ration the medicine.

F.2- Rules in choosing a base camp and precautionary measures

Certain rules when choosing a base camp should be followed.

- Choose a place that is as far as possible from roads and human paths
- Choose a place that has little risk of falling trees,
- Choose a place that is close to a water source that is not a drinking site for animals,
- Choose a place that is not frequently used by wildlife,
- Choose a place that is higher up in altitude than the forest shallows since those areas are visited at night by animals.

Once you have chosen your base camp, the very first thing to do is to **take the GPS position** and note down any physical references that might help to return to the camp if the GPS unit fails.

Secondly, once the camp is settled, **hygiene measures are to be taken** in and around the camp. Those measures are here to prevent any human disease transmission to wildlife. Some basic rules:

- ✓ **Ensure you have plastic trash bags** to keep used batteries in and all other non-biodegradable trash (plastic, tins, etc...). At the end of the mission, this trash bag should be taken out of the forest to be disposed of correctly.
- ✓ **Dig a hole to bury biodegradable trash.** All left over food and dirty water should also be buried far from any water body.
- ✓ **Choose an appropriate area to be used as a temporary « latrine site ».** The site should be far from water bodies and far from any habituated animal groups if they are in the area). Use a cutlass or other tool to make sure the faeces are buried deep in the group at minimum 30 cm.

Thirdly, if a CEP team member is sick prior to a mission (*e.g.*: diarrhea, fever...) or has respiratory problems (*e.g.*: cold, runny nose, sneezing or coughing...), he must not enter the PKBNP and must stay at home. If the sickness is caught during the mission, then he should leave the camp and the forest with the help of a colleague to get treated in the nearest health centre. **Appendix 4** gives a more detailed overview of how choose a camp and the hygiene rules to follow.

F.3- How to behave in the forest

F.3.1. Environmentally friendly behaviours during missions

Any person working in the forests should show an environmentally friendly attitude and should give examples to all team members, colleagues, friends and local communities on how to behave so as to help reduce poaching in the area, and more globally, how to protect their environment.

To show this good example, a first step is to walk calmly and quietly in the forest. It will also improve the number of direct observations and will help to surprise people in the forest! Secondly, CEP members, accompanied by an FDA ranger, are authorized to remove and destroy traps and cartridges from the forest during their patrols. Finally, as a protector of flora and fauna, it is forbidden to:

- ✓ Remove any bark from a tree.
- ✓ Remove any roots from plants or trees.
- ✓ Collect any fruits, nuts, or leaves.
- ✓ Cut any trees or bushes for any reason whatsoever.
- ✓ Eat any bushmeat **INSIDE** the forest.
- ✓ Remove and carry with you any species such as fish, snails, tortoise, reptiles, birds, eggs, frogs, insects, mushrooms, etc...
- ✓ Kill any animal inside the KBPPA.
- ✓ Leave the forest carrying any live or dead animal, as well as dung, feathers, bones, teeth etc..., **UNLESS** given permission by an FDA Official for research purposes.
- ✓ **If you have to touch a dead animal carcasses that was killed and smoked by hunters, be sure to wear gloves.**
- ✓ **Touching any other carcass is STRICTLY forbidden because of the deadly Ebola virus.**

F.3.2 Direct human encounters during CEP

What do you do when you come across someone in the forest? Overall, this question must be partially answered before every CEP mission. **Confirm with the FDA Parks or zone warden what the mandate will be, tasks and responsibilities of the FDA ranger accompanying the CEP.**

Below are different scenarios for encounters with people in the park and guidelines on how to proceed: (Remember for all encounters to fill in the “Meeting datasheet” inside the forest and to take the relevant data and a photo).

Example 1:

If the team meets a **farmer maintaining types of food crops farms (cassava, etc...)**: Ask the farmer if he knows his farm is inside the Proposed Krahn-Bassa National Park. The FDA ranger should explain to the farmer that he should prepare to leave and start a new farm back in his town, outside of the Park land.

Example 2:

If the team meets a **hunter in the forest without meat but with a gun**: Ask the hunter if he knows he is walking inside the national park and that is illegal to hunt there. The hunter should be told to go back to town. The gun should NOT be confiscated (this may change

in the near future. If it does, new guidelines will be prepared). If the encounter is inside the community forest, the team FDA ranger should also try and explain to him which animals he is allowed to hunt in his community land (*e.g.*: Not the protected species). They should also explain that commercial hunting will not be tolerated, nor the selling of bushmeat within Liberia and across the border with Ivory Coast. Remind the person about the dangers of hunting and eating bushmeat (Ebola).

Example 3:

If the teams meets a **hunter with dead animals**: Ask the hunter if he knows he is walking inside the National Park, meaning that no one should be hunting there. The hunter should be told to go back to town. The gun should NOT be confiscated, (this may change in the near future. If it does, new guidelines will be prepared) but the **dead smoked animals should be seized and burned after having noted the details of the infraction. No transaction between the CEP, the FDA and the hunter should be done inside the park. If the meat is not smoked no one in the team should touch it without gloves.** The team should also try and explain to him which animals he is allowed to hunt in his community land (*e.g.*: Not the protected species) and also explain that commercial hunting will not be tolerated, nor selling of bushmeat across the border in Ivory Coast. Remind the person about the dangers of hunting and eating bushmeat (Ebola). The FDA ranger should explain that if FDA comes across the hunter a second time in the forest, he will be arrested.

Remember: Always collected the person information (i.e. name, town, etc., in the “Human Encounter” sheet) and take a picture.

F.4- How to be a responsible Ecoguard

The following are simple rules that must be followed at all times by the team members (WCF, FDA and community members) of the Ecoguard Patrol teams. If any rule is broken by a team member they will be directly removed from the program and replaced.

F.4.1. During visit in villages, farms, mining areas

The first rule is to be polite and respectful with people met during CEP missions. That being said some more rules apply during missions when visiting villages, farms, mining areas, etc... here is a list of the fundamental ones:

- ✓ It is forbidden to purchase or sell any products (farm-products, chewing stick, bush meat, etc...) from anybody found farming or hunting inside the forest.
- ✓ It is forbidden to purchase or sell any gold in the forest or in the region. There are many mining sites within the government forest which are very harmful to the wildlife.

- ✓ It is forbidden during the time spent in villages and towns to look for or get a girlfriend. Being on duty means behaving professionally. **Sexual relationships with anyone underage will not be tolerated, for any reasons.**

F.4.2. When not working

Team members working for an FDA/WCF project who then **eat bushmeat** back in their communities are showing an extremely BAD example and are even encouraging poachers to continue killing animals in the park. Given the Ebola outbreak, the Government of Liberia has BANNED ALL consumption of bushmeat. This should be respected. Firstly this behavior shows little respect for the organization you are working with and for the work you are doing. Consequently, this type of behavior **will not be tolerated, for any reasons**, under FDA/WCF projects, even when team members are not on duties.

It is thus asked to every CEP team members when they are back in their towns and villages:

- ✓ **Do not hunt.** CEP members have been provided with alternative livelihood and means of earning an income instead of hunting. Therefore CEP members do not have to hunt anymore to sustain their families.
- ✓ **Do NOT eat any bushmeat** to set a good example. Moreover, bushmeat can transmit Ebola and other diseases.
- ✓ **Explain to their families**, friends and neighbors that animals in the forest are finishing and that they are needed to have a healthy forest.
- ✓ **Ensure that their families know Ebola is real.** NOT eating bush meat, is one of the best ways to NOT catch this deadly virus!

Finally, it is requested that team members to do not lie to your colleagues and supervisors. This includes fake receipts as well. Being honest, fair and diplomatic with your working partners and those you encounter and meet during the time you are working is the best way to become a responsible Ecoguard. Furthermore, if someone is caught lying about the costs of items on receipts, or any other reasons, his contract will be terminated. WCF/FDA do not tolerate stealing and lies!

**APPENDIX 1:
List of Protected Wildlife of Liberia**

<u>Common name</u>	<u>Scientific name</u>	<u>Local name</u>
<u>Primata</u>		
Western chimpanzee	<i>Pan troglodytes verus</i>	baboon/Gweh
Western black and white colobus	<i>Colobus polykomos</i>	lion monkey
Western red colobus	<i>Piliocolobus badius</i>	red monkey
Olive colobus	<i>Procolobus verus</i>	verus monkey
Diana monkey	<i>Cercopithecus diana</i>	king or field monkey
<u>Sirania</u>		
Manatee	<i>Trichechus senegalensis</i>	sea cow
<u>Proboscidea</u>		
Forest elephant	<i>Loxodonta cyclotis</i>	elephant
<u>Artiodactyla</u>		
Pygmy hippopotamus	<i>Choeropsis liberiensis</i>	Water cow
Bongo	<i>Tragelaphus euryceros</i>	elk
Jentink's duiker	<i>Cephalophus jentiki</i>	white antelope
Yellow-backed duiker	<i>Cephalophus silvicultor</i>	antelope
Zebra duiker	<i>Cephalophus zebra</i>	marking or mountain deer
Brooke's Duiker	<i>Cephalophus ogilbyi brookei</i>	wide ear black back
Giant forest hog	<i>Hylocherus meinertzhageni</i>	bush hog
<u>Carnivora</u>		
Leopard	<i>Panthera pardus</i>	leopard
Golden Cat	<i>Caracal aurata</i>	tiger
<u>Pholidata</u>		
Giant pangolin	<i>Smutsia gigantea</i>	ant bear, anteater
Black-bellied pangolin	<i>Uromanis tetradactyla</i>	ant bear, anteater
White-bellied pangolin	<i>Phataginus tricuspis</i>	ant bear, anteater
<u>Crocodylia</u>		
Nile crocodile	<i>Crocodylus niloticus</i>	alligator
West African crocodile	<i>Crocodylus suchus</i>	alligator
Slender-snouted crocodile	<i>Crocodylus cataphractus</i>	alligator
African dwarf crocodile	<i>Osteolaemus tetraspis</i>	Crocodile
<u>Chelonia</u>		
All marine turtles		
<u>Aves</u>		
Bare-headed rock fowl	<i>Picathartes gymnocephalus</i>	

All birds of prey of the families *Sagittariidae*, *Falconidae*, *Pandionidae* and *Strigidae*, including all eagles, hawks, harriers, kites, falcons, buzzards, vultures and owls.



HUNTING OF PROTECTED ANIMALS IN LIBERIA, BOTH INSIDE AND OUTSIDE OF PROTECTED AREAS, IS PUNISHABLE BY LAW

Anyone caught hunting, buying, selling, capturing, keeping as a pet or eating a protected animal will be prosecuted



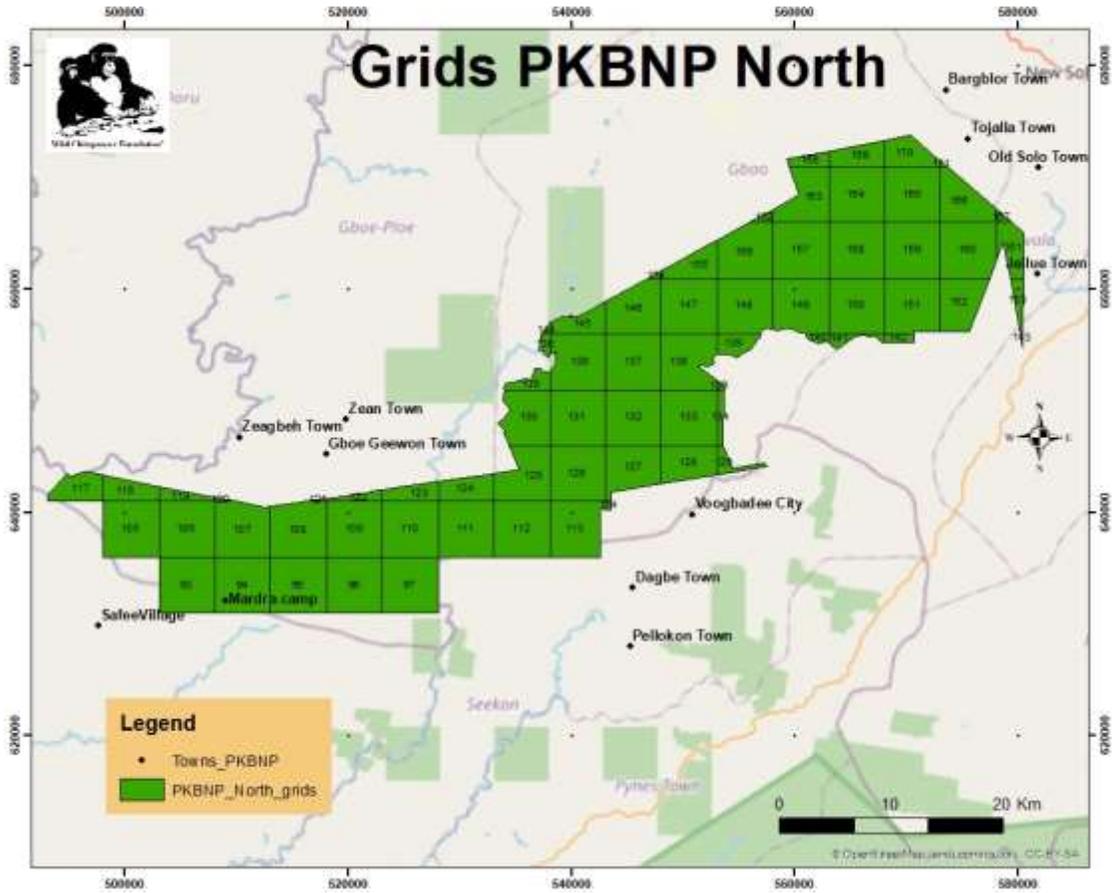
APPENDIX 2
List of observations to consider during CEP activities

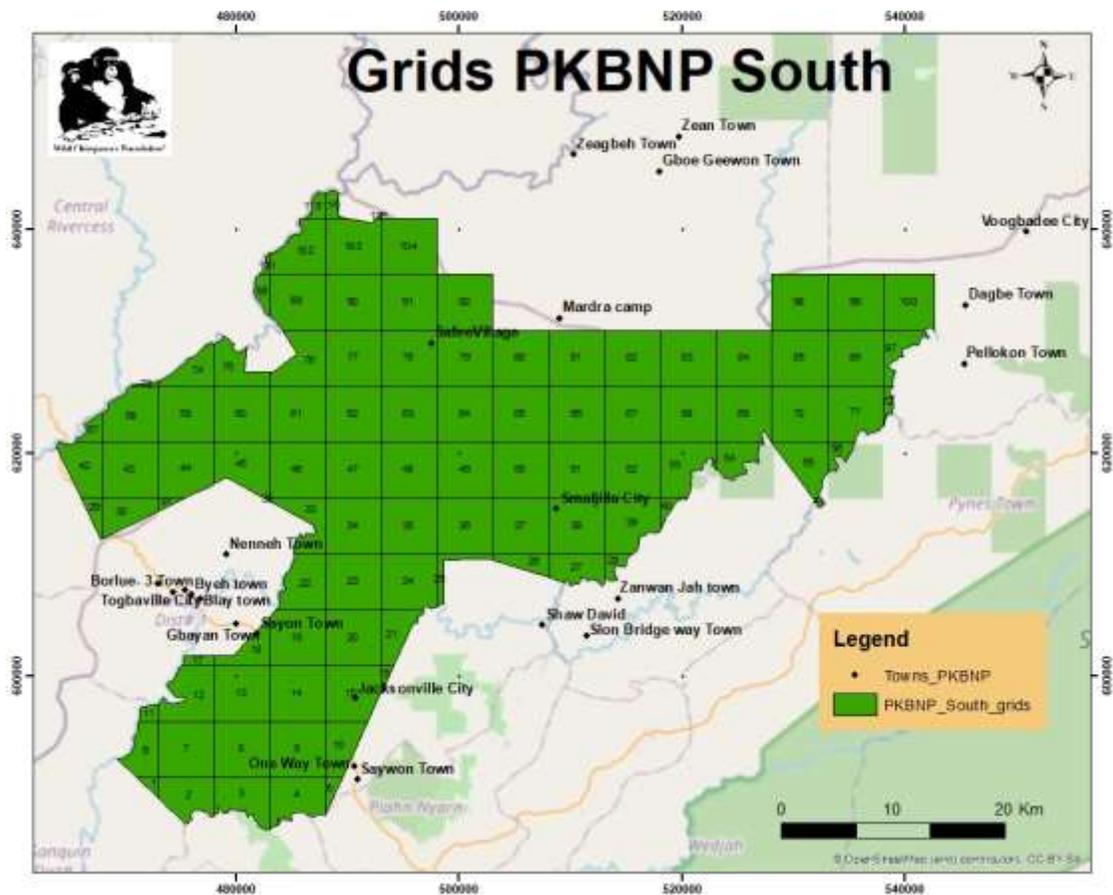
Common name / Observations	Family / Precisions	Species/ Precisions	Codes
DIRECT OBSERVATION : Animals			
Mammals			
Primates			
Campbell's monkey (Mona)	<i>Mammal / Cercopithecidae</i>	<i>Cercopithecus campbelli</i>	Mona
Sooty Mangabey	<i>Mammal / Cercopithecidae</i>	<i>Cercocebus atys</i>	Sooty
Diana monkey	<i>Mammal / Cercopithecidae</i>	<i>Cercopithecus diana</i>	Diana
Lesser spot-nosed monkey	<i>Mammal / Cercopithecidae</i>	<i>Cercopithecus petaurista</i>	Petau
Greater spot nosed monkey (putty spot-nosed monkey)	<i>Mammal / Cercopithecidae</i>	<i>Cercopithecus nictitans</i>	Nictitans
Olive Colobus	<i>Mammal / Colobinae</i>	<i>Procolobus verus</i>	Olive
Western black and white colobus (King Colobus)	<i>Mammal / Colobinae</i>	<i>Colobus polykomos</i>	Polyko
Western red colobus	<i>Mammal / Colobinae</i>	<i>Piliocolobus badius</i>	Badius
Chimpanzee	<i>Mammal / Hominidae</i>	<i>Pan troglodytes verus</i>	Chimp
Demidoff's galago	<i>Mammal / Galagonidae</i>	<i>Galagoides demidoff</i>	Galag
Thomas's galago	<i>Mammal / Galagonidae</i>	<i>Galagoides thomasi</i>	Th Galag
Potto	<i>Mammal / Lorisidae</i>	<i>Perodicticus potto</i>	Potto
Bovidaes			
Bay duiker	<i>Mammal / Bovidae</i>	<i>Cephalophus dorsalis</i>	Black-B
Black duiker	<i>Mammal / Bovidae</i>	<i>Cephalophus niger</i>	Black-Dr
Bongo	<i>Mammal / Bovidae</i>	<i>Tragelaphus euryceros</i>	Bongo
Buffalo	<i>Mammal / Bovidae</i>	<i>Syncerus caffer nanus</i>	Buff
Bushbuck	<i>Mammal / Bovidae</i>	<i>Tragelaphus scriptus</i>	Bushbuck
Jentink's duiker	<i>Mammal / Bovidae</i>	<i>Cephalophus jentinki</i>	Jentink
Maxwell's duiker	<i>Mammal / Bovidae</i>	<i>Philantomba maxwellii</i>	Max
Brooke's duiker	<i>Mammal / Bovidae</i>	<i>Cephalophus ogilbyi brookei</i>	Brook
Royal antelope	<i>Mammal / Bovidae</i>	<i>Neotragus pygmaeus</i>	Ry Ant
Yellow-backed duiker	<i>Mammal / Bovidae</i>	<i>Cephalophus silvicultor</i>	Yellow-B
Zebra duiker	<i>Mammal / Bovidae</i>	<i>Cephalophus zebra</i>	Zebra
Elephantidae			
Forest elephant	<i>Mammal / Elephantidae</i>	<i>Loxodonta cyclotis</i>	Eleph
Hippopotamidae			
Pygmy hippopotamus	<i>Mammal / Hippopotamidae</i>	<i>Choeropsis liberiensis</i>	Pg hippo
Tragulidae			
Water chevrotain	<i>Mammal / Tragulidae</i>	<i>Hyemoschus aquaticus</i>	Chevr

Carnivora			
Golden Cat	<i>Mammal / Felidae</i>	<i>Caracal aurata</i>	Gold cat
Leopard	<i>Mammal / Felidae</i>	<i>Panthera pardus</i>	Leop
Birds			
Timneh parrot	<i>Birds / Psittacidae</i>	<i>Psittacus timneh</i>	T-parr
White-necked Picathartes / White-necked rockfowl	<i>Birds / Picathartidae</i>	<i>Picathartes gymnocephalus</i>	Pica
INDIRECT OBSERVATION for Elephant/Chimpanzee/Monkeys/Leopard/Golden cat/Pygmy Hippopotamus			
Code/Type of activity			
Dung	<i>Species activity</i>	<i>Dung</i>	Dg
Foot-print	<i>Species activity</i>	<i>Animal Track</i>	FP
Nest	<i>Species activity</i>	<i>Nest</i>	Nest
Nut-cracking site	<i>Species activity</i>	<i>Nut-cracking site</i>	NCS
Direct Observation	<i>Species activity</i>	<i>Direct observation</i>	DO
Track	<i>Species activity</i>	<i>Animal Track</i>	Track
Drumming	<i>Species activity</i>	<i>Drumming</i>	Drum
Feeding Site	<i>Species activity</i>	<i>Feeding</i>	Food
Vocalisation	<i>Species activity</i>	<i>Vocalisation</i>	VO
Other species activity (type)	Species activity	Other species activity	OSA
Human Activities			
Cut down trees (NOT Garcinia)	<i>Human Activities</i>	<i>Cut down trees</i>	Cut tr
Cut Garnicia tree	<i>Human Activities</i>	<i>Chewing stick</i>	Chew tr
Chewing stick root extraction	<i>Human Activities</i>	<i>Chewing stick</i>	Chew root
Chewing sticks extracted	<i>Human Activities</i>	<i>Chewing stick</i>	Chew stick
Pit-sawing site	<i>Human Activities</i>	<i>Pit-sawing</i>	Pit
Poacher's camp	<i>Human Activities</i>	<i>Poacher's camp</i>	Poach cp
Camps (specify use in comments)	<i>Human Activities</i>	<i>Camp</i>	Camp
Settlement (lived in/deserted)	<i>Human Activities</i>	<i>Hamlets</i>	Hamlet
Cartridges	<i>Human Activities</i>	<i>Cartridges</i>	Cart
Carcass (note the cause of death)	<i>Human activities</i>	<i>Carcass</i>	Car
Gunshot	<i>Human Activities</i>	<i>Gunshot heard</i>	shot
Hole made by humans	<i>Human Activities</i>	<i>Hole made by humans</i>	Hum hole
Clearing made by humans (recent/old)	<i>Human Activities</i>	<i>Clearing made by humans (recent/old)</i>	Hum clear
Forest exploitation (put amount in comments)	<i>Human Activities</i>	<i>Forest exploitation</i>	Fr expl
Farm (old/new/abandoned)	<i>Human Activities</i>	<i>Farm</i>	Farm
Logged trees	<i>Human Activities</i>	<i>Logging</i>	Log

Logging Road (old/new in comments)	<i>Human Activities</i>	<i>Logging</i>	Log Rd
Fallow	<i>Human Activities</i>	<i>Fallow</i>	Fallow
Unloading site (Logs)	<i>Human Activities</i>	<i>logging</i>	Unload st
Mining/Gold-washing site	<i>Human Activities</i>	<i>Gold-washing site</i>	Mine
Trap (specify type in comments)	<i>Human Activities</i>	<i>e.g. Snares</i>	Trap
Different tracks/paths (specify use in comments)	<i>Human Activities</i>	<i>Different tracks/paths</i>	Hum Path
Poacher's tracks/paths	<i>Human Activities</i>	<i>Poacher's tracks/paths</i>	Poach tr
Other human activity (type)	<i>Human Activities</i>	<i>Other human activity</i>	OHA
LMUR	<i>Human Activities</i>	<i>Boundary line</i>	LMUR BL
Natural Factors			
Rivers	<i>Natural factor</i>	<i>Rivers</i>	Riv
Other natural factor (type)	<i>Natural factor</i>	<i>Other natural factor (type)</i>	Nat fac
Position			
Patrol Start	<i>Section marking</i>	<i>Start of the section</i>	Start
Patrol End	<i>Section marking</i>	<i>End of the section</i>	End
Start of Human Path	<i>Section marking</i>	<i>Start of the section</i>	Start HP
End of Human Path	<i>Section marking</i>	<i>End of the section</i>	End HP
Start of Recce	<i>Section marking</i>	<i>Start of the section</i>	Start Recce
End of Recce	<i>Section marking</i>	<i>End of the section</i>	End Recce

APPENDIX 3 Patrolling sector of CEP teams





APPENDIX V

How to behave in the forest

I. RULES FOR CAMP SITES:

I.1- Choosing your camp site:

When staying in the forest for more than 24 hours, field teams are required to choose a place to set up their base camp. The main criteria for choosing your base camp are explained in detail in the handbooks. Keep in mind to avoid feedings sites, water holes/drinking sites, nesting sites, animal passage areas or burrows, which are all sites used frequently by wildlife. This is a way to reduce any interaction between the teams and the local wildlife.

I.2- Hygiene measures to follow in and around the camp:

- Ensure you have plastic trash bags to keep used batteries in and all other non-biodegradable trash (plastic, tins, etc.). At the end of the mission, this trash bag should be taken out of the forest to be disposed of correctly.
- Dig a hole to bury biodegradable trash. All left over food and dirty water should also be buried far from any water body.
- Choose an appropriate area to be used as a temporary « latrine site ». The site should be far from water bodies and far from any habituated animal groups if they are in the area. Use a cutlass or other tool to make sure the faeces are buried deep in the ground at minimum 30 cm.

II .HEALTH:

- You should not go in the forest if you are sick (diarrhea, fever, etc....); anybody sick with respiratory symptoms (cold, runny nose, sneezing, coughing...) should not enter the forest camps (stay in the villages or leaves the forest).

III. DURING WORK IN THE FOREST:

- Never ever touch bones or carcasses in the forest (take the GPS point and inform your superiors).
- Smoking in the forest is forbidden, as is spitting.
- Never leave trash in the forest, bring it back with you.
- Disinfect your hands after eating, urinating, nose cleaning etc. – all of these things should be done out of view of the monkeys.
- If you have to urinate, clean the ground from leaves, let the urine go in the ground and cover it with leaves afterwards.

III. IN CASE YOU MEET CHIMPANZEES IN THE FOREST:

- Wear a mask which fully covers mouth and nose if available.
- Move away slowly.
- If a chimpanzee is approaching you, do not make sudden movements, do not interact or establish eye contact with the chimpanzee, turn and away move slowly.

II. HOW TO BEHAVE WITH REGARD TO NATURE

IV.1- Respecting Flora

It is forbidden to:

- Remove any bark from a tree.
- Remove any roots from plants or trees.
- Collect any fruits, nuts, or leaves.
- Cut any trees or bushes for any reason whatsoever!

IV.2- Respecting Fauna

It is **forbidden and punishable by law** to:

- Eat any bushmeat inside the forest during any FDA/WCF mission.
- Remove and carry with you any species such as fish, snails, tortoise, reptiles, birds, eggs, frogs, insects, mushrooms, etc....
- Kill any animal inside the forest.
- To leave the forest and carry with you any live or dead animal, as well as dung, feathers, bones, teeth, etc., UNLESS given permission by an FDA Official for research and other purposes.
- Remember, **EBOLA** is real!! Touching dead animal Carcasses is **STRICTLY** forbidden!!!

IV.3- Responsibility of people working in the forests

Any person working in the forests should show an environmentally friendly behavior and should give examples to all teams' members, colleagues and local communities on how to behave so as to help reduce poaching in the area.

Any team member working in the forest who then eat bushmeat back in the communities around the forest area are showing an extremely BAD example and are even encouraging poachers to continue killing animals in the park. This can also bring about insecurity issues for any other person working in the park.

Back in your town and village homes:

- Do NOT eat any bushmeat to set a good example.
- Explain to your family, friends and neighbors that animals in the forest are finishing and that we need the animals to stay to help our forest to grow!
- Ensure your families know Ebola is real. **NOT** eating bushmeat, is one of the best ways to NOT catch Ebola!