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## **Report**

**Title:**

Camera Trap Survey for wildcats (Leopard and African Golden Cat) and other threatened Mammalian Species around the Gola Rainforest National Park (GRNP).

**Funding Organisation:**

The Mohamed bin Zayed Species Conservation Fund (MBZSCF)

**Project number:** 200523259

**Size of grant:** \$ 5,000

**Implementing Organisation:** GRCLG

**Principal Applicant:**

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**Overview:**

Gola Rainforest National Park (GRNP) is one of 34 global biodiversity hotspot and last remaining large tracts of the Upper Guinea Rainforest (UGR). The Gola Forest Conservation Concession Programme started through a collaborative venture of Royal Society for the Protection of Birds (RSPB), the Conservation Society of Sierra Leone (CSSL), and government through the Forestry Department (FD). In 2011, Gola Forest Reserves became a National Park. GRNP (68,515ha) supports 60 globally threatened species (GTS). The park has high diversity, with many endemics and forest specialists, e.g. 999 plant species, 109 mammals, 49 large mammals, 327 bird species, 575 butterflies, 43 amphibians, and 140 dragonflies; including the regionally important western chimpanzee (CR) population, the largest known pygmy hippo (EN) population, the only discovered wildcat - Leopard (VU) declining in large parts of the global range and forest elephant (EN) amongst others. The first REDD+ project in West Africa protects GRNP and its surrounding 4km community forest leakage-belt. The communities around the 4km leakage-belt include 122 settlements. The REDD+ project helps the forest edge community people to sustainably increase crop yield, keeping annual deforestation of their community forests to the lowest level. Increasing population and deforestation drives agricultural encroachment into community forest, which has no formal protection, but provides vital habitat for GTS and may link blocks of GRNP and Gola Forest National Park (GFNP) in Liberia. Several surveys have been conducted in and around the park using camera traps to get regular, reliable knowledge on the distribution of terrestrial mammals and birds; and to get data on single species' ecology e.g. habitat preference and activity patterns of GTS in park, leakage belt and offsite zones. Camera trapping is conducted in and around the park on different GTS, but before this survey none was conducted for wildcats.

**Name and conservation status of the primary target species**

**Scientific Name:** *Caracal aurata*

**English Name:** African Golden Cat

**Conservation Status:** Vulnerable

**English Names and conservation status of the other target species**

1. The Leopard (Endangered)
2. African Golden Cat (Vulnerable),
3. Western chimpanzee (Critically Endangered),
4. Pygmy hippo (Endangered),
5. Forest elephant (Endangered),
6. Jentincks Duiker (Endangered)
7. Zebra Duiker (Endangered)

**Importance of the associated habitat:**

The target species listed above are IUCN Redlist Species that occurs in project area. They move between the park and the unprotected community forest and between both Sierra Leone and Liberia. Identifying, mapping and protecting/conserving these habitats will enhance the conservation of the target species and their respective habitats used as corridors for movement.

**Significance of the study/How this project relates to other work done previously with this species in this area (e.g. Species Action Plan, previous survey or monitoring work).**

Before this fund, no work was done on Wild Cats; but however, a shot from a camera trap in GRNP have proven the existence of Leopard in GRNP; several works have also been done on the other target threatened species listed in the proposal and in this report.

**Justification/How this project will contribute to the conservation of your target species:**

This project will ensure that priority habitats are identified and mapped for protection and conservation of Wild Cats and the other GTS

**Project Aim:**

To conduct Camera Trap Survey in the project area in order to know the distribution and abundance of Wild Cats and other HCV species, and identify /map out HCV habitats for protection and establishment of community forestry through MOU with target community stakeholders:

**Specific Objectives:**

1. Conduct Camera Trap Surveys for wildcats and other HCV species;
2. Organise and analyse acquired data;
3. Identify and map out the HCV habitats;
4. Conduct sensitisation workshop to present result to community stakeholders;
5. Sign MOU with community stakeholders to conserve and protect the HCV habitats/species.

**Methodology:**

- Consultation meetings with target community stakeholders
- Camera trapping in project area
- Organise and analyse acquired data
- Community sensitization workshop on results
- Community stakeholder consultation workshop for community forestry
- Sign MOU with community stakeholders for community forestry

**Materials:****List of equipment:**

- Reconyx PC800 Hyperfire Camera traps (37)
- SD cards (2 per camera = 74)
- Big safety locks with keys for camera traps (37)
- Small padlocks with keys for camera traps (37)
- Rechargeable batteries (12 per camera = 444 batteries)
- Battery chargers (5)
- Plastic boxes for camera transport (27)
- GPS (2) with batteries and spare batteries
- Compass (2)
- Coloured paper for start and end pictures
- Black markers
- Desiccant (1 for each camera for each deployment)
- Flagging tape
- Measuring tape (2)
- DBH tape (2)
- Spherical densitometer (2)
- PC
- Reconyx software for setup of camera traps
- Reconyx software for analysis of camera trap pictures
- Microsoft office software (MS word and Excel)
- R and Minitab statistics software
- Data sheets (predeployment, deployment, collection, habitat), maps and pencils
- Print out of SOP
- Projector for presentations
- Notebooks and pen for workshops
- Flipchart for presentations

**Location:**

This project focuses particularly on the Sierra Leone to Liberia community forest portion between Sierra Leone and Liberia.

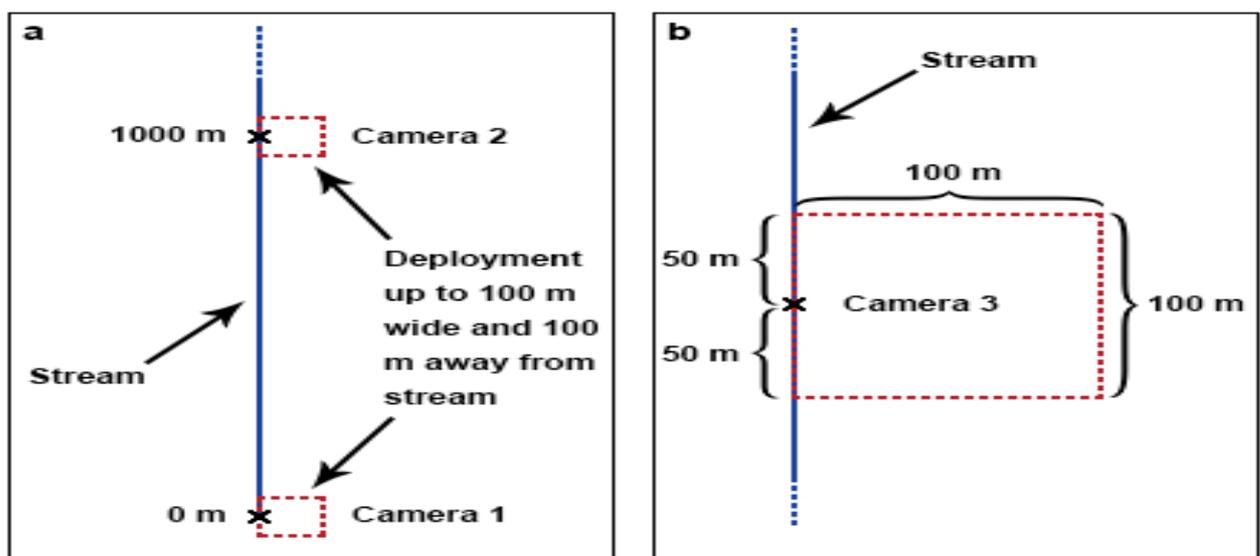
### Camera Trapping Protocol:

The camera trapping along the Sierra Leone/Liberian border follow the procedure of the general camera trapping survey (Standard Operating Procedures for Camera trapping). The location and steps differing from the general camera trapping survey are as follows:

1. The sampling points are distributed among 8 communities:
  - A. Mayengema,
  - B. Mogbaima,
  - C. Misila,
  - D. Goli,
  - E. Bannie,
  - F. Yollo,
  - G. Levuma,
  - H. Peyama

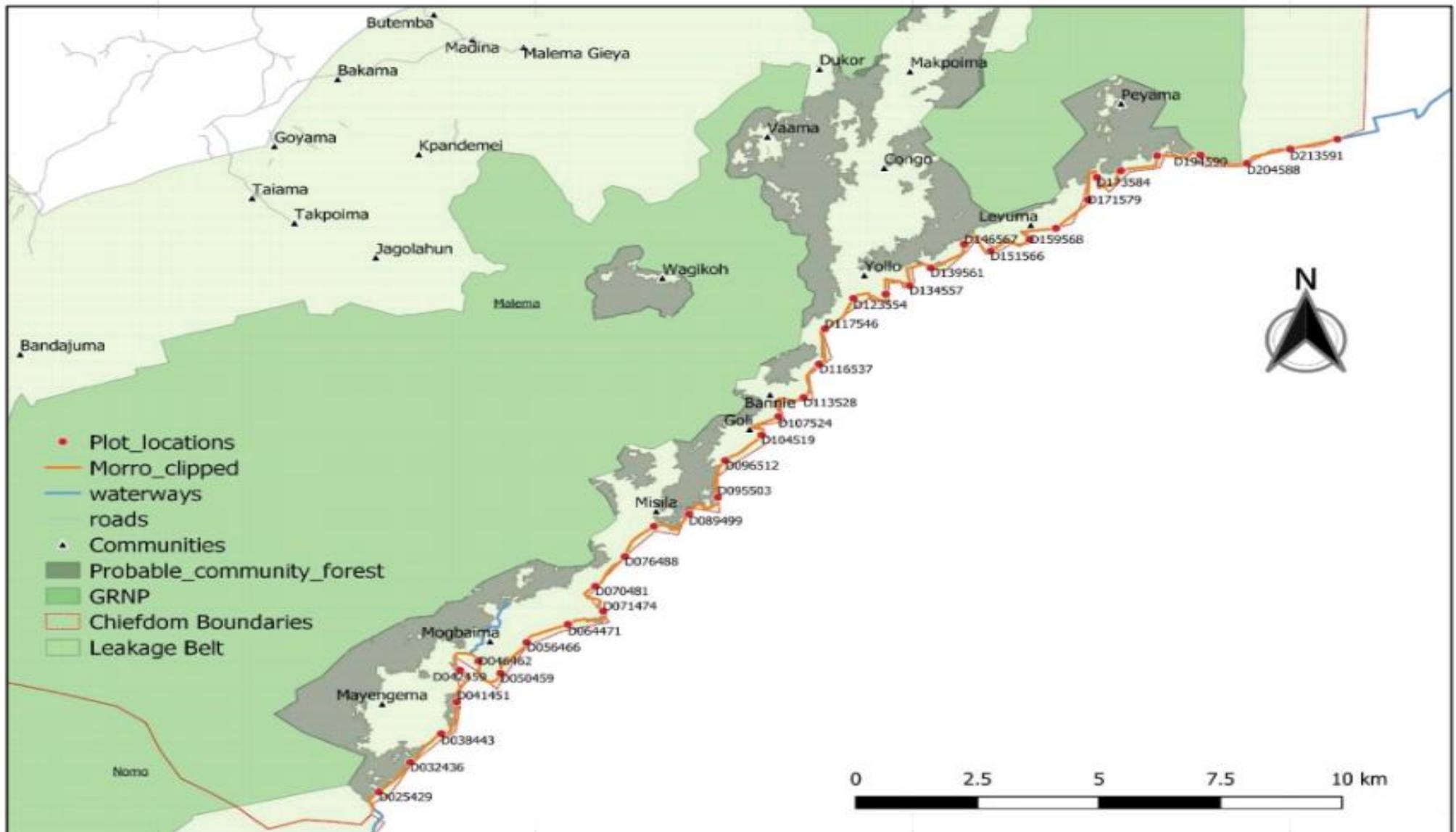
The sampling points are distributed among the communities in a selected stretch of 36.488 km on the Morro River (i.e. its total extension within the Malema boundaries). A total of 37 camera traps to be deployed at 1000m (1km) intervals along the Morro river, in 100m x 100m (1 ha) plots, as shown in Figure 1.

2. Depending on the location of animal signs (in case there are signs observed in the deployment plot), there is some flexibility to place the camera trap anywhere in the deployment plot. If there is no sign within the plot as illustrated in Figure 1b the camera should be placed exactly in the proposed location. If the survey team observes more than 1 animal sign within the same deployment plot, the camera trap are placed close to the sign that is closer to the proposed location.
3. If the habitat is not forest (less than 50% forest within a 20m radius), no deployment of camera. There is no need to deploy that camera elsewhere, but note the number of the point where the camera was not deployed, and the reason why, e.g. habitat has been cleared for farmland.
4. A detailed map of the camera trap proposed locations and a table of their coordinates (in UTM 29N) are provided before any field survey (see Fig. 2 and Table 1). Each plot is named with 6 digits, based on the respective proposed coordinates for camera trap deployment, preceded by a D (for Darwin/MBZ). The second, third and fourth digit of the easting and northing of each plot centre coordinate (in UTM 29 N, omitting the 0) are forming the plot name, e.g. D025429.
5. Camera traps are left in the field for three months (90 days) and during the pre-deployment the best cameras are selected and set to extend battery life.
6. The data sheets used for the camera trapping for this survey are appended below. The completion of these data sheets will be the same as described in the Standard Operating Procedure (SOP) for Camera Trapping.



**Figure 1:** Location of camera trap deployment plots along the Malema/Liberian border (a) and location of camera trap within each plot (b) in case no sign of animals is observed upon deployment. In case of animal signs observed in the plot upon deployment, the camera trap can be deployed close to the sign, as long as it is located within the range of the deployment plot (1 ha).

**Samples Plots:** The R&M Department in collaboration with the RSPB, identified, confirmed, and validated protocol for camera trapping, and identified 37 sites for camera trapping along the Malema/Liberia border



**Figure 2.** A detailed map of the camera traps locations.

**Table 1:** Co-ordinates of camera trap locations.

<b>N</b>	<b>Plot_ID</b>	<b>X</b>	<b>Y</b>
1	D025429	302567.559870	842906.278180
2	D032436	303217.767400	843656.111680
3	D038443	303851.009500	844378.372940
4	D041451	304169.292510	845175.916310
5	D042459	304232.128280	845983.924330
6	D046462	304620.751900	846213.918480
7	D050459	305072.982330	845904.578770
8	D056466	305614.289050	846687.490030
9	D064471	306457.784220	847141.095140
10	D070481	307024.307160	848107.411930
11	D071474	307186.123750	847475.947250
12	D076488	307629.634000	848859.139530
13	D082496	308228.660440	849620.260870
14	D089499	308948.175190	849930.559870
15	D095503	309541.082960	850356.203530
16	D096512	309696.340250	851285.940730
17	D104519	310442.529330	851933.662500
18	D107524	310791.782680	852403.594620
19	D113528	311303.679730	852883.905600
20	D116537	311628.344870	853734.865580
21	D117546	311745.076900	854631.291590
22	D123554	312333.386390	855405.899680
23	D129555	312997.494060	855512.936620
24	D134557	313489.426560	855729.266860
25	D139561	313923.405990	856177.857130
26	D146567	314612.719340	856774.944370
27	D151566	315154.553970	856605.007340
28	D159568	315960.805740	856899.159740
29	D164571	316496.966600	857184.124210
30	D171579	317152.795610	857907.449750
31	D173584	317341.169740	858475.718750
32	D178586	317833.891890	858644.570880
33	D185590	318580.687300	859026.089180
34	D194590	319472.143230	859046.166650
35	D204588	320423.575410	858833.299220
36	D213591	321316.707680	859196.967030
37	D222594	322285.526400	859444.737660

**Achievement/why is this project important to your personal development as a conservation biologist and the work / objectives of your organization**

This project has helped to improve my ability to manage small-scale conservation projects according to specified budget and timeline; and improve my analytical skills. This Project have also helped to complement the effort of the Darwin Project and GRCLG for ensuring that GTS and HCV areas in the project area are identified, protected and conserved through research, survey, community engagement, sensitizations and establishment of community forestry.

**Budget/ Financial Report**

Activity	Description	Current Status	Next Steps	Deadline
Stationaries/ Batteries	Office use/Camera Traps	Complete	Procure batteries for camera traps	Complete
Travel cost	Fuel for 2 motor bikes to and from project area during project implementation activities	In progress	Field travels to complete camera trap collection and community forestry processes	Next month
Camera Trapping	Casual Labour cost (porters, guides and cooks	In progress	Collect final set of camera traps from the field	Next month
Data analysis	Organize data for analysis	In progress	Finalize analysis when final traps are collected from field	Next month
Mapping	Casual Labour cost (porters, guides and cooks	In progress	Complete mapping exercise when final traps are analyzed	Next month
Refreshment	Community consultation, sensitization and community forestry establishment meetings	In progress	Community engagement meeting to complete community forestry processes	Next month
Final Report	End of project report	In progress	Submit analyzed data and summary report	Next month

Cost Area	Budget Line	Budget	Expenditures
Community Labour Costs	Casual Labour for camera trapping	n/a	SLL 11,122,000.00
	Casual Labour for training on community forestry	n/a	SLL 1,190,000.00
	Skilled Labour for camera trapping	n/a	SLL 968,000.00
Community Outreach Costs	Dry rations and fresh food for camera trapping	n/a	SLL 2,436,500.00
	Food provisioning for meeting	n/a	SLL 16,760,000.00
GRC Staff Costs	DSA for field activities	n/a	SLL 5,620,000.00
	Transport	n/a	SLL 5,160,000.00
Non Vehicle Equipment Costs	Training material	n/a	SLL 434,000.00
	Office supply	n/a	SLL 2,500,000.00
Vehicle Equipment Costs	Vehicle maintenance	n/a	SLL 2,306,000.00
	<b>Total</b>	<b>SLL 48,500,000.00</b>	<b>SLL 48,496,500.00</b>
	<b>Total Funds Available</b>	<b>SLL 3,500</b>	<b>n/a</b>

**Further description of expenses supported by the grant:**

Stationaries include writing materials, Duracel batteries were bought for up to 37 camera traps that were used for the project. 2. Travel cost cover all project related travel to project area for community consultation, camera trapping, sensitizations workshops and consultation workshops. 3. Camera trapping cost includes payment for all casual labour that was hired throughout field work. 4. Mapping cost also includes payment for all casual labour that was hired throughout field work. 5. Refreshment cost includes cost of breakfast and lunch during community sensitizations and consultation workshops

**Please specify if there is anything else you wish to highlight regarding this budget (e.g. this funding would be combined with funding from other organizations)**

This budget was used judiciously as specified for project activities. Any other cost related to this project and not included in this proposal covered by the Darwin Initiative Project of GRCLG e.g. Salaries and Daily Sustainable Allowances (DSA).etc

**Progress report from objectives in relation to methodology:**

**Consultation meetings:** Consultation meetings were held with the target community stakeholders to let them know the aims and objectives of the project and to solicit their support for the implementation of the project and development of processes for the establishment of community forestry

**Figure 4.** Pictures of consultation meetings.



**1. Camera Trapping:**

The Research and Monitoring(R&M) Department of GRCLG deployed and collected 24 camera traps out of 37 between Mayengema and Yollo, with an estimated deployment time of 90 days.

**Figure 5.** Pictures of team on camera trapping training:



**Figure 6:** Images of some of the project target species and other species from some of the previous camera traps collected from the project area before this project



**2. Community stakeholder sensitisation meetings:**

Sensitisation workshops have been conducted for stakeholders to know the preliminary survey results from other communities. The Research and Monitoring(R&M) Department of GRCLG have deployed the remaining 13 camera traps between Yollo and Peyama, with an estimated deployment time of 90 days. The distribution and abundance of the HCV species in project area will be known after the final data analysis: The final set of the remaining 13 camera traps will be collected in the month of June 2021 and final data analysis will be completed in end of June 2021. After the final analysis, other sensitisation workshops will be conducted in the communities to inform the stakeholders about the distribution and abundance of the HCV species in their respective remaining communities.

**Figure 6. Pictures taken during the previous community stakeholder sensitisation meetings:**



**3. Community Forestry site identification :**

Network of natural High Conservation Value (HCV) habitats are being identified and mapping is ongoing. Eight communities are to be worked with to identify HCV-community forestry areas within the Makpoima cluster, out of which we were able to cover two communities which include Peyama and Levuma successfully. The people welcomed the idea and agreed to offer the HCV areas for community forestry management based on the previous survey result of the other target species that exist in their respective community forest. So far two communities are still on record to have agreed on and identified HCV-CF areas within their village boundaries. On the side of the village boundary marking/mapping, the teams of boundary markers were dispatch into the field with all the logistics required, but mapping exercise is yet to be complete.

#### **4. Community forestry establishment processes:**

Community forestry establishment processes have commenced to conserve the identified HCV areas. Natural Resource Management committees were established in 11 out of the 14 DARWIN communities they include the following communities:

1. Dukor
2. Makpoima
3. Seiyama
4. Levuma
5. Bani
6. Goli
7. Misila
8. Mogbaima
9. Mayengema
10. Peyama
11. Vaama

In each of the communities five committee members were selected by the entire people of each village and membership committee include 2 female 3 male, overall female 22, male 33 grand total of 55 members. Training in the roles and responsibilities, sustainable management of natural resources, leadership and community forestry management took place in two separate areas in the 14 target communities:

1. Makpoima centre
2. Mogbaima centre

Natural resource management committee members, 5 members from each village and other local authorities attended the training.

#### **Challenges:**

Work was delayed because of the COVID 19 pandemic, movements were restricted, communities were isolated from others and other restrictions on social activities and social gatherings. However, other project activities fully commenced in November 2021 as mentioned in the reviewed project timelines after the first report.

#### **Conclusion:**

**Thanks to the** Mohamed bin Zayed Species Conservation Fund (MBZSCF) for providing the grants and the opportunity to work for the fund. The final analysis will be completed once the remaining camera traps are collected from the field and the funds will have regular update on results and progress on community forestry activities through mails with Nicolas.







**Appendix 4:**

**Camera trap habitat data collection sheet**

Team members:

Date:

Time:

Camera Trap number:

Plot Number:

**General habitat description:**

UTM	X:	Y:
Habitat type	_____ (Please indicate number and specifications as required) 1) Mature forest (pristine) 2) Degraded forest (selective logging) 3) Old secondary forest (overgrown farmbrush of > 20 years age; areas that have been cleared and then regrown) 4) Farmbrush 10-20 years (specify age) 5) Farmbrush < 10 years (specify age) 6) Farmed swamp 7) Unfarmed (open) swamp 8) Unfarmed forested swamp 9) Freshly cleared ground 10) Terrestrial 1 year since clearing 11) Terrestrial 2 years since clearing 12) Terrestrial more than 2 years since clearing 13) Plantations of different types (specify crop type) 14) Abandoned perennial plantation (> 1 year, specify crop type and age), 15) Others (please specify below) _____	

**Plant diameter at breast height (DBH) (count woody plants/trees in each category):**

Number of woody plants/trees in 5m radius			Number of woody plants/ trees in 20m radius	
DBH1=0-5cm	DBH2=6-10cm	DBH3=11-30cm	DBH4=31-50 cm	DHB5>50cm

**Water Features (within 20m radius):**

<input type="checkbox"/> River / stream (width: _____ m)	<input type="checkbox"/> Standing water (pond, lake)	<input type="checkbox"/> Swamp
Water depth	<input type="checkbox"/> < 20 cm <input type="checkbox"/> 20 - 50 cm <input type="checkbox"/> > 50 cm	Distance away: _____ m

**Human Activity (within 20m radius):**

<input type="checkbox"/> Path / Track	# Paths: _____	Width(s): _____	m
<input type="checkbox"/> Logging	# Cut stumps	Fresh: _____	New: _____ Old: _____
Purpose of logging (timber, farming, others – please specify): _____			
<input type="checkbox"/> Farming	<input type="checkbox"/> <50% of plot is farmed <input type="checkbox"/> >50% of plot is farmed	Crop: _____	<input type="checkbox"/> Fresh New <input type="checkbox"/> Old <input type="checkbox"/> Recent burning <input type="checkbox"/> Cut stumps
<input type="checkbox"/> Hunting	# Traps: _____	Trap type: / Other evidence: _____	
<input type="checkbox"/> Mining	# New mining holes: _____	# Old mining holes: _____	

**Other information:**

- animal signs	- feeding sites
- nests	- others
Please specify animal species if possible.	