

Final Evaluation Report

Your Details	
Full Name	Paul Addah
Project Title	Assessment of Habitat Preferences and Distribution Patterns of Leopard in Mole National Park; A Baseline for their Conservation
Application ID	36466-1
Date of this Report	3rd January, 2023

1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objective	Not achieved	Partially achieved	Fully achieved	Comments
To provide the first baseline estimate of leopard density and habitat selection in Mole National Park				The survey covered the four ranges of the park (Jang, Ducie, Bawena and Park HQ) where all 30 cameras were deployed across 73 sites. A total of 7,200 camera trap nights were surveyed between January - April 2022 and July – October 2022 across the two seasons, Dry season (4,350) and Rainy season (2,850). 674 trap nights were lost over the two seasons due to faulty SD cards, broken cameras following environmental or animal interactions and theft by poachers. The dry season survey produced 15,364 images with the rainy season yielding 10,785 creating a combined total of 26,149 images. A proportion of the cameras per survey area were placed directly at water points which caused a substantial increase in the overall number of images captured due to the constant movement of wildlife. Of the 26,149 images collected, 0.76% (198) were of leopard (including leopard data provided by the Panthera research team during the period of the study). Using the ArcGIS, the distribution maps of the leopard and other carnivore species was generated. Leopards were mostly captured on camera in the riverine forests than the other habitat types in the park. It was also noticed that anytime the leopard is spotted/captured the hyena was also captured.
To inform protected area managers about the status, distribution, and current threats to				Throughout the survey, a total of 58 pictures of suspected illegal activities within the park were detected, most of them poaching (n=42), representing

<p>leopard populations in the area</p>			<p>23 different events taken at 16 different stations, both at night (n=9) and during daylight (n=14). Eight independent pictures of injured animals were captured which are likely the result of being caught in gin-traps (species included spotted hyena, western kob, olive baboon (<i>Papio anubis</i>) and genet). Those pictures were taken at five different stations (Figure 18). In addition, various evidence of poaching during the deployment and removal of our camera traps, such as poachers' camps (n=19) and carcasses left behind by poachers (n=7) were also detected. This information together with the distribution of both the leopards and other species were made known to the management of the park resulting in improved patrolling within those areas. We can proudly say that our information can be attributed to be part of the arrest of 63 poachers within the period of the survey.</p>
<p>To develop a Leopard Conservation Action and Management Plan (LCAMP) for Ghana for the effective management of big cats and dogs in Ghana's and West Africa's protected areas.</p>			<p>This we realised was an objective that could not be done alone looking at the little knowledge that exist in the country about the big cats and dogs in the country. However, a partnership/relationship is being built with the Panthera team who happened to be in the park to gather data on leopards as part of their West African leopard data survey. We also built the capacity of park staff on the use of camera traps to monitor wildlife and how to identify carnivore prints on their normal daily patrols. To see to it that this objective is achieved, a leopard conservation NGO was established by the team named "Leopard Home Conservation International". This NGO is hoped to partner with other similar bodies in the world to see to the lasting conservation of these species.</p>

<p>Raise awareness and build capacity among stakeholders, local wildlife officers, students, and the general public about leopard research and conservation in the country</p>			<p>A total of 500 pupils from both public and private schools from four communities (Larabanga, Damongo, Mognori and Murugu) surrounding the park have been sensitised on the importance of wildlife conservation. These people were sensitised during our community education and awareness programmes and some wish to participate in our future conservation action programmes. Coupled with this various action took place in schools and among communities and three already existing wildlife conservation clubs (WCC) were empowered in three of the four selected community schools in the area. Nonetheless, more fringe communities need to be covered and educated.</p> <p>A total 40 staff of the park's capacity was built in identifying, monitoring and data collection on carnivores to enable the continues monitoring and protection of the carnivores in the park. This was possible due to the innovation and dynamism of the team as we rotated the staff that followed the team in its activities in the field.</p>
<p>Published papers in peer-reviewed scientific journals.</p>			<p>This is still ongoing as the scientific research report have been submitted to my supervisors for review. It is hoped to be submitted for publication as soon as this is done.</p>
<p>Generate leopard distribution maps and forecast areas with high leopard densities</p>			<p>To determine the distribution patterns for leopard across the Mole National Park, data from the camera trap surveys was utilised as well as data from the Panthera group. Each camera trap photograph was characterised by hour. As one leopard could create three photographs and another 20 due to the time, they spent in front of the camera only the first image of each time event was used to avoid any bias. Using the ArcGIS, the distribution maps of the leopard and other carnivore species was generated. Also, with the use of heat</p>

				maps areas with high leopard and wildlife densities were generated.
A video documentary about the project will be released to pique community interest in leopard conservation				Short videos and pictures were captured during the implementation of this project. This is however yet to be put together into one full documentary by the team.
Erect billboards along the main roads linking park to the communities as an aide memoir to protect leopards				This activity sadly could not be implemented due to the rise in cost of living in the country. It is however hoped to be achieved in the next project hoping to be submitted.
Seminars to be organized to give opportunity to all participants to make input into the conservation action proposal.				This activity sadly could not be implemented due to the rise in cost of living in the country. It is however hoped to be achieved in the next project hoping to be submitted.

2. Describe the three most important outcomes of your project.

a). The first baseline data of leopards in the Mole National Park have been produced from the survey conducted within the period. As this is the first leopard specific successful leopard survey in the park.

b). The production of the first leopard distribution map of the park as this has aided the arrest of some 63 poachers and helped increase tourist numbers for the recovery of the park's tourism sector from a little above 7000 tourists in 2020 to about 17,000.

c). A total of 500 pupils from both public and private schools from four communities (Larabanga, Damongo, Mognori and Murugu) surrounding the park have been sensitised on the importance of wildlife conservation. These people were sensitised during our community education and awareness programmes and some wish to participate in our future conservation action programmes. Coupled with this various action took place in schools and among communities and three already existing wildlife conservation clubs (WCC) were empowered in three of the four selected community schools in the area. Nonetheless, more fringe communities need to be covered and educated.

d). A total 40 staff of the park's capacity was built in identifying, monitoring and data collection on carnivores to enable the continues monitoring and protection of the carnivores in the park. This was possible due to the innovation and dynamism of the team as we rotated the staff that followed the team in its activities in the field.

The significant achievement of the work is the intensified protection given to the desired habitats of the leopards and the increase in tourist numbers.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

Initially we planned on conducting a recce of the area for a month, however, due to the economic situation and the rising cost of living in the country we reduced it to 2 weeks. To deal with this challenge, discussions were held with the team and management of the park to seek their input in terms of civic/field knowledge sharing. In the end, we agreed and adopted a more conventional/orthodox approach which involved an analysis of the SMART software of the park on areas where leopards and other carnivores were reportedly found. This approach rather proved positive and yielded results as sites selected enabled the capture of many leopards.

Another unforeseen difficulty encountered was the theft and distraction of camera traps. The purpose of the trapping was to capture leopard images in the park. However, due to its complimentary importance of the trap persons suspected to be poachers either stole or destroyed the traps that were set. This made it difficult to set two traps at a station as it was planned. The team however due to its hard work, good communication and human relation skills. We were able to receive leopard data to augment our data from the Panthera team who were in the park during the same period and suffered the same challenge.

4. Describe the involvement of local communities and how they have benefited from the project.

From the beginning, local communities were involved in every facet of the project. Prior to the start of all activities, communication was established with all the focal communities, and when appropriate, honour was paid. All community members received equal chance during our educational and knowledge-sharing sessions as part of our local community engagement.

Some local chiefs have promised to take steps to stop people from hunting threatened animals in their villages as part of our local community engagements and discussions with local community leaders. Some local communities have also taken on the duty of informing their members about the advantages of conserving fragile and vulnerable wildlife species through their local radio stations (information centres), which are frequently educated the locals.

5. Are there any plans to continue this work?

Yes.

6. How do you plan to share the results of your work with others?

To make the data available to a larger community of academics and organisations with an interest in preserving the leopard population, we intend to publish the results of this effort in a high impact, international peer-reviewed journal. To raise awareness about the predicament of leopards in Ghana, we also plan to publish our research results from the student thesis in a local and national newspaper column.

To encourage more effective conservation actions and research in the future, copies of all research publications shall be made available to the major stakeholder groups, including The Rufford Foundation, Forestry Commission, Wildlife Division, the university authorities, district education office, and the district assembly.

7. Looking ahead, what do you feel are the important next steps?

In the future, we intend to expand our activities for raising awareness and educating people about conservation to larger communities. Our goal is to scale up our educational efforts to encourage pro-conservation behaviour among marginalised people and rescue the critically endangered leopard populations in Ghana and the Mole National Park. We want to accomplish the following with our next project:

- To involve local communities in the development of a roadmap for conserving leopards and other wildlife species in the park.
- To provide an opportunity for pupils, teachers and local community members to learn more about the park, its importance and what people can do to help protect it.
- To educate, raise awareness, increase public interest and understanding of the environment with the aim of promoting conservation of threatened wildlife species.

8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?

Yes, The Rufford Foundation logo was used on all our printed educational materials including t-shirts and banner.

Yes, The Rufford Foundation was acknowledged in all our public presentations, and communications on the project activities. The Rufford Foundation was also updated through a report on the progress of our work.

9. Provide a full list of all the members of your team and their role in the project.

Paul Addah:

Leader and contact person for all information on the project activities. Paul was involved in the mobilization of communities, building of rapport with local leaders, teachers, students, Forestry Services Division, Wildlife Division, the concessionaire and selected project participants. Paul organized all the field activities and carried out training, orientation and capacity building for students, staff and field assistants in field data collection how to carry out the field inventories. Paul carried out the writing of update reports and the final report submitted to Rufford Foundation on the progress of the project. Finally, Paul was involved in all the conservation education programs at both public and school levels, communication and community sensitization activities as well as discussions with the stakeholders and local leaders.

Felix Andoh:

Responsible for organising and monitoring of project logistics. He was actively involved in the organization of sensitization programs. He supported build the capacity of staff and field assistants in conducting community surveys. He was responsible for monitoring of project budget allocations. Felix was our main facilitator during all school and community sensitization programs. Felix was the project teams main resource person during science education and sensitization festivals.

Elvis Bawa:

Elvis was our media relations personnel responsible for photography, video recording and editing. Elvis also played the role of GIS analyst and trained the field assistants and staff on the use of GPS gadget to collect field data.

Eric Bani and Osman Abubakari:

Provided technical support and training on the use of camera traps. They assisted to trained and built the capacity of the staff and field assistants to set up and monitor camera traps in the field.

10. Any other comments?

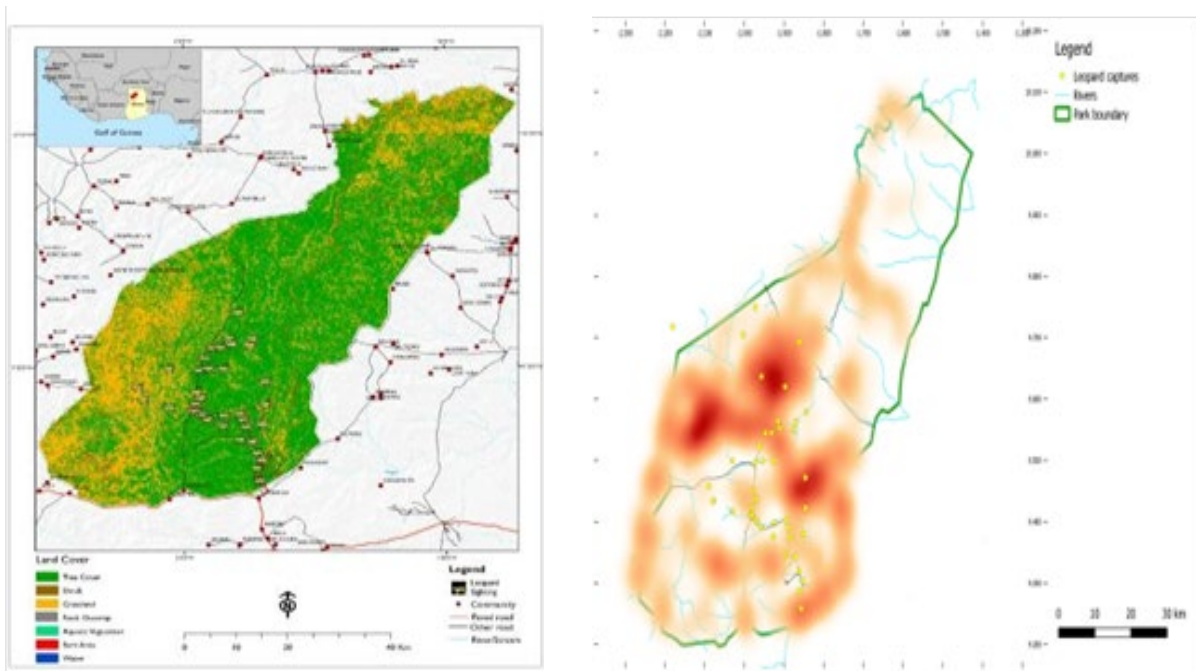
Over the period, we have gained significant experience in the monitoring of wild cats especially the leopards. This has helped us build a good relationship with leopard specialists such as Dr Marine Drouilly who is the regional coordinator for West Africa. this relationship would be depending on the establishment of the leopard home conservation international.

Importantly, an MPhil thesis have been put together and submitted for an award. The Rufford Foundation will be provided with a copy of the final thesis upon completion.

The project team would be grateful if The Rufford Foundation will provide additional funding support for us to continue with our leopard and environmental conservation projects in Ghana. We have built close working rapport with NGOs and communities during the first phase of our project and would like to continue the education program to safeguard the vulnerable wildlife populations in the area.



Some leopard images captured on camera.



Left: Leopard distribution map generated. Right: Leopard in relation to density of all large herbivores.



Left: Genet Cat. Right: Caracal.



Left: Side-Striped Jackal. Right: Aardvark.



Left: Spotted Hyena. Right: Carnivore distribution map.



Images of students on conservation education campaign.