

Final Evaluation Report

Your Details	
Full Name	Coulibaly Tchinyo
Project Title	Distribution and viability of an endangered primate species, the white-naped mangabey in Comoé National Park, north-east of Côte d'Ivoire
Application ID	34391-1
Date of this Report	October 30, 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
Determine the spatial distribution of white-naped mangabey populations in the park				Over the course of 1 year, from November 2021 to November 2022, we recorded a total of 21,740 videos during both the dry and rainy seasons. To capture footage of wildlife, we used between eight and 40 camera traps, which were deployed in gallery and forest patches throughout the park. Of the 21,740 videos recorded, 11,705 have been added to our database, which accounts for 53.8% of all the videos recorded. Of these 11,705 videos, 2,156 (18.4%) feature non-human primate species. Among the non-human primates, the white-naped mangabey was recorded in 1,148 videos, making up 53.2% of all non-human primate videos. In addition to the white-naped mangabey, seven other primate species were recorded using the camera trap method, including chimpanzees, olive baboons, patas monkeys, vervet monkeys, lesser spot-nosed monkeys, Lowe's monkeys, and olive monkeys. Lastly, we were able to record footage of nine diurnal primate species using the RECCE method.
Describe the ecological and anthropogenic factors that influence this distribution				The availability of food is the major ecological factor that affects this species in the park, especially during the dry season. However, there are also several human activities that have a significant impact on the species. These include poaching, fishing, setting up of fishermen and poachers camps, cutting down of trees, smoking of fish and game by fishermen and hunters, theft of

			camera traps, shooting of rifles by hunters, and the presence of cartridge casings. Our study also revealed that gold panning activities are particularly prevalent in the savannah.
Describe the quality of habitats to assess their viability			Between March and June 2022, four phenology transects were established and four surveys were conducted. The surveys covered a total of 4 ha of vegetation, with 2 ha each in the gallery and forest patch. The surveys aimed to collect data on the presence of ripe and unripe fruit, mature and immature fruit, and flowering intensity of each fruit species, including trees, shrubs, and lianas that have a diameter at breast height (DBH) of 5cm or more. Over 30 fruiting plant species belonging to 14 families and 26 genera were identified in the gallery forest. The most abundant families were Putranjivaceae, Ebenaceae, and Fabaceae. <i>Drypetes floribunda</i> was the most prevalent species, accounting for 42.4% of the total. <i>Diospyros abyssinica</i> accounted for 15.9%, while <i>Cynometra megalophylla</i> and <i>Dialium guineense</i> each accounted for 10.5% in the gallery forest.
Determine the populations viability by assessing the relationships between species and the local communities living around the park			The camera trap videos have revealed that the target species is associated with other primate species. Data was collected from 502 participants, which included residents, hunters, and park officials, through a combination of focus group discussions and semi-structured questionnaires. The findings showed that primate species are used for food, medicine, and beliefs. The white-naped mangabey is used for both food and medicine. The respondents around Comoé National Park identified four primate species, including the white-naped mangabey, patas monkey, olive

expected, costing over 2 months in relation to the initial timetable. The original timetable was scheduled for October 2021, but the transaction was completed later than expected. We bought more cameras (20 cameras) than we had estimated (15 cameras) to cover the entire study area simultaneously. We also used additional cameras provided by Office Ivoirien des Parcs et Reserves (OIPR) (20 cameras), CSRS (nine cameras) and Diorme Zausa (six cameras). We also had to purchase SD cards and batteries for the 20 camera traps provided by Office Ivoirien des Parcs et Reserves (OIPR). However, we encountered several issues such as damage to three cameras, eight others having functioning problems, and one camera being stolen during the rainy season. This led to a delay in data collection and analysis. The large number of videos to be analysed further delayed the submission of the final report, which was originally scheduled for February 2023. Additionally, the assistant's per diem cost £7.62 per day instead of the planned £4.57 per day, which required reallocating field fees meant for personal expenses (see the updated budget below). Unfortunately, we were not able to implement awareness-raising activities among residents due to a lack of support from the funding agency (co-founder). However, we did use some photos of primate species during surveys conducted among residents.

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

As part of this project, I had the opportunity to interact with local communities and learn about their knowledge of primate species in the Comoé National Park. During our surveys, we showed the participants pictures of various primate species and asked them to identify them correctly. We surveyed residents, hunters, and park managers from 35 different localities bordering the park. The participants belonged to nine Ivorian ethnic groups, including the Koulango, Malinké, Djimini, Lobi, Baoulé, Lohoron, Senoufo and Yacouba. To collect data, we used camera traps, the RECCE method, phenological data and surveys among the 35 surrounding localities of the park. Three field assistants from two villages (Kakpin and Amaradougou) near the park helped me with the data collection process. They were trained to use camera traps, the RECCE method, and to collect phenological data. In addition, a PhD student was trained to use camera traps and is currently collecting data on hippopotamuses in CNP. The local communities showed great interest in safeguarding the wildlife in CNP for future generations, tourism, and preventing the disappearance of species. Furthermore, they want the park managers and their financial and technical partners, as well as the policy makers, to consider their living conditions and implement conservation-minded activities that provide economic benefits on a local scale.

5. Are there any plans to continue this work?

I am excited to continue my work on this species in CNP. Initially, my team and I plan to launch an awareness-raising campaign for the local community in surveyed localities. We aim to expand our research to cover all forested habitats to gather a comprehensive database of the target species and other mammal species, with a special focus on the forest elephant, bay duiker, bongo, and yellow-backed duiker. To develop sustainable conservation strategies for the white-naped mangabey that

occurs in CNP, we plan to collect droppings and conduct genetic analyses to estimate the potential risk of disease. Additionally, we intend to establish a complete list of plant species in their diet. We also plan to investigate other study areas such as the Dassioko and Port-Gauthier classified forests, Volunteer Natural Reserve Tanoé-Ehy, and GEPRENAF, which is near CNP and currently experiencing an increase in illegal panning activities.

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

The results of the project will be shared with the local community through an awareness-raising campaign that includes distributing flyers and presenting the findings to the park manager. The first manuscript is currently being prepared, which will focus on the results of surveys conducted among the local community. The second manuscript will be published on the spatial distribution of the target species and the threat factors hindering their survival in the park. This project is part of a PhD thesis, which will be publicly defended at the Félix Houphouët-Boigny University and Centre Suisse de Recherches Scientifiques en Côte d'Ivoire (CSRS). All findings from this study will be shared on ResearchGate for their dissemination.

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

Currently, my top priority is to complete the analysis of the acquired data, publish it, and finalise my thesis so that I can defend it next year. Looking into the future, I plan to raise awareness among the residents about the conservation of endangered mammal species, particularly the white-naped mangabey. Furthermore, I am seeking additional funding from your foundation to continue my research on the current distribution of target species in five different protected areas, including CNP.

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?

As part of the reports and receipts for the assistants' salaries, I included the Rufford Foundation logo. The first report was posted on my Facebook page in the previous year and on ResearchGate in October 2023. Additionally, I used the foundation's name as a funder of our research in the reports we produced for other co-founders such as RASAP-CI, PASRES, and WAPCA.

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

COULIBALY Tchinyo, Project leader and principal investigator, PhD student at Félix Houphouët-Boigny University, Associate researcher, and member of the research group Conservation and Valorization of Natural resources at CSRS. I am also member of NGO Action pour la Conservation de la Biodiversité en Côte d'Ivoire (ACB-Côte d'Ivoire) in commission Conservation of terrestrial fauna with specific status.

OUATTARA Karim, Senior Lecturer and Thesis Supervisor at Félix Houphouët-Boigny University, Associate researcher, and Head of the research group in Conservation

and Valorization of Natural Resources at CSRS. Dr Karim OUATTARA is the global supervisor of the project and contributes to the improvement of the protocol with useful advice. He has over 10 years of experience in natural resources management and large mammals conservation in Côte d'Ivoire. He also contributed to numerous mammal inventory works and is one of the primate specialists in Côte d'Ivoire. His work links behavioural ecology, economics, local communities empowerment and the inclusion of ecosystem services in development planning according to the sustainable development goals.

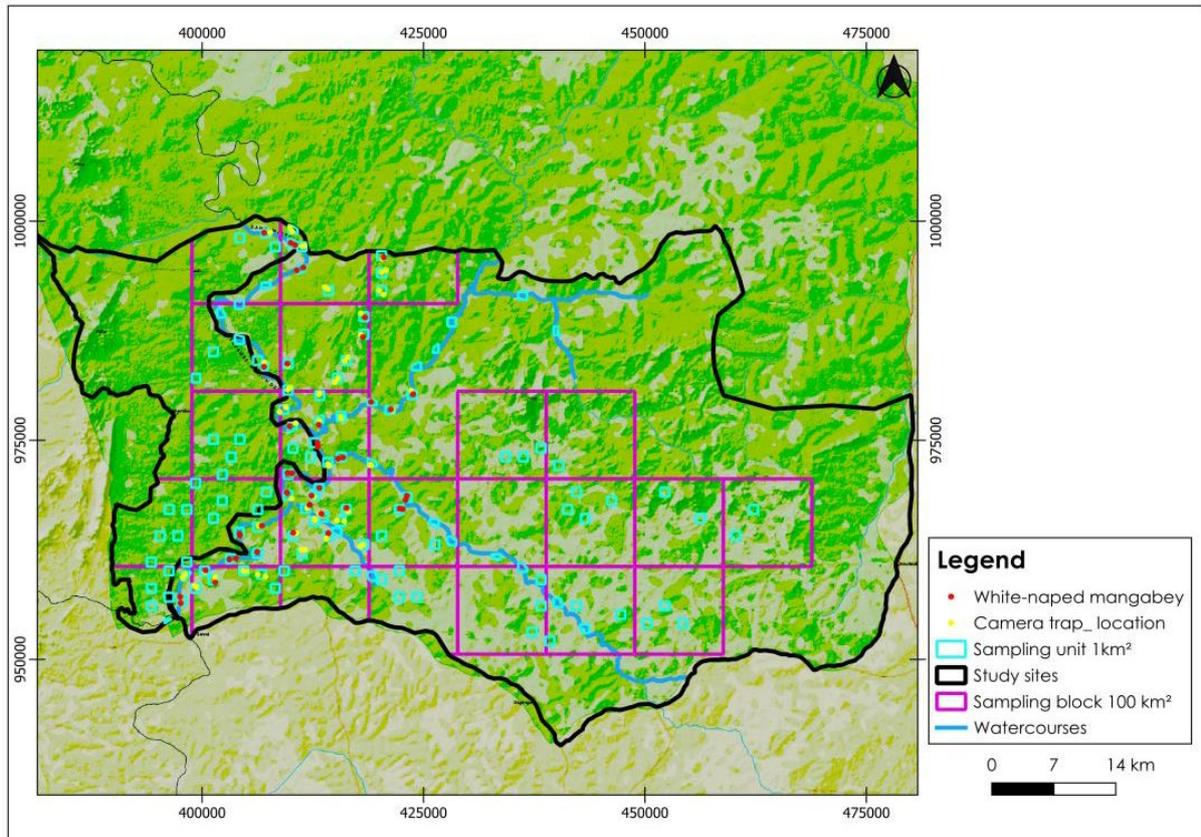
OUATTARA Amara, Park manager in charge of ecological monitoring at CNP and head of the geographic information system (GIS) of the northeastern directorate of OIPR in Bouna. He provides technical support in the field during the study. He has worked in the area for more than five years.

YAO Aboubakar OUATTARA, COULIBALY Bamory and **KOUAKOU Kouamé** are the three field assistants (ecoguides) who accompanied me for data collection in CNP. The two first people helped to collect data from camera traps, RECCE, and surveys among residents in the bordering localities of the park. KOUAKOU Kouamé was the botanist who helped me to establish and identify on-site fruiting plant species with the support of YAO Aboubakar OUATTARA. In addition, GORE Gnako Lionel Fares is a PhD student trained by using camera traps who currently collected data focused on hippopotamuses in CNP.

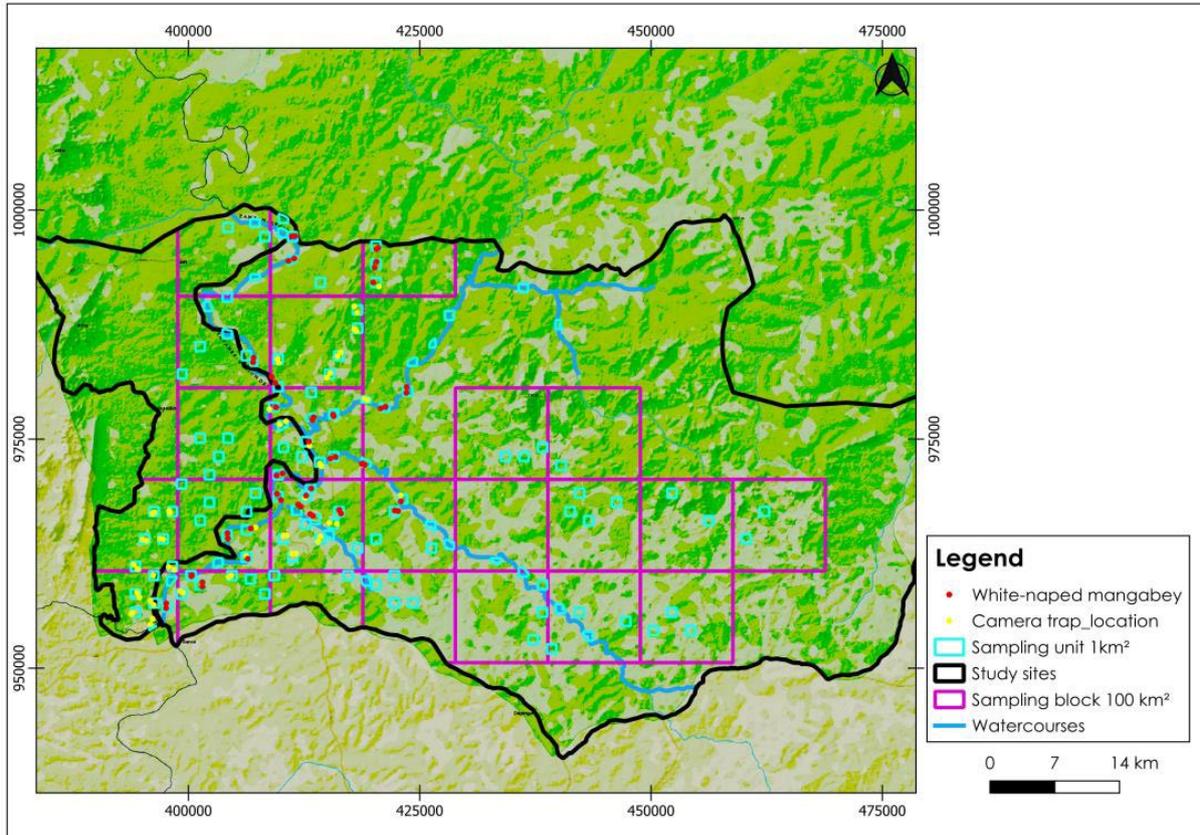
10. Any other comments?

I am grateful to The Rufford Foundation for their financial support through the Rufford Small Grant which has been instrumental in furthering my research and enhancing my skills in project management. I aim to secure additional funding to complete ongoing project activities such as awareness-raising and future research. I would like to express my sincere appreciation to DR OUATTARA Karim, my Thesis Supervisor, for his invaluable support and advice, DR KONE N'Golo Abdoulaye, a Lecturer at Nangui Abrogoua University and Director at Comoé National Park Research Station in Ecology, for his support, and Andrea DEMPSEY, Secretary and Member of Directors of the West African Primate Conservation Action (WAPCA) (Co-founder), for their encouragement in completing this study. A special thanks to Professor KONE Inza, Director of CSRS, Adiopodoumé KM 17, for granting permission to host the allocated funds in the institution, for the technical support in purchasing camera traps from the USA and transporting them to CSRS, and for the financial assistance provided through the RASAPCI programme (co-funder). I would also like to thank the Ministry of Tutel and OIPR for permitting me to conduct this research in the CNP. Additionally, I am grateful to PASRES for granting me an unrestricted scholarship for my thesis work (co-funder), the field team members, and all the residents of the 35 bordering Comoé National Park who participated in this research. Attached herewith is the poster I created for sharing the results of my research at an upcoming awareness-raising event.

Appendix 1: Spatial distribution of the white-naped mangabey during the dry season in Comoé National Park.



Appendix 2: Spatial distribution of the white-naped mangabey during the rainy season in Comoé National Park.



Appendix 3 : Camera traps and RECCE methods were used to record primate species in Comoé National Park, specifically in gallery forests and forest patches.



Left: *Cercocebus lunulatus*. Right: *Pan troglodytes verus*.



Left: *Papio Anubis*. Right: *Cercopithecus lowei*.

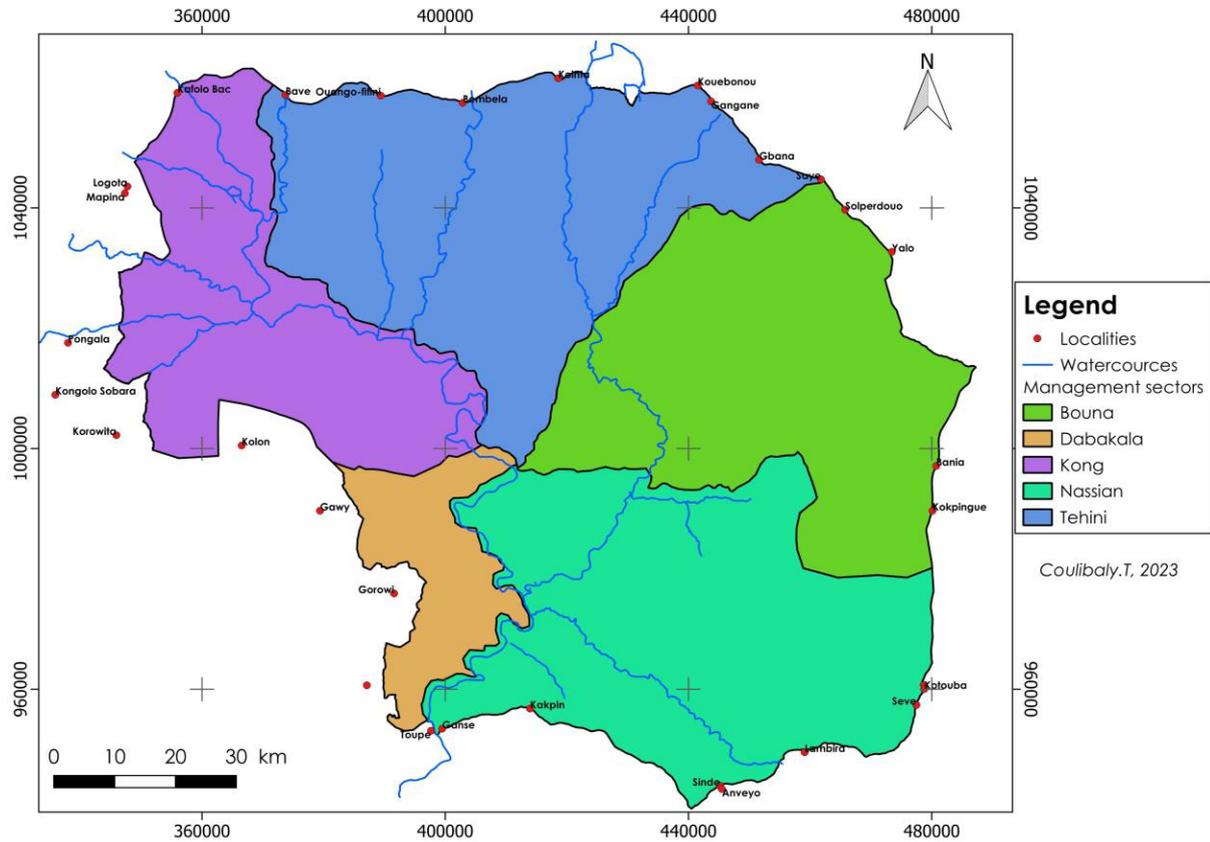


Left: *Chlorocebus sabaeus*. Right: *Erythrocebus patas*.



Left: *Cercopithecus petaurista*. Middle: *Procolobus verus*. Right: *Colobus vellerosus*.

Appendix 4 : The map of Comoé National Park displays the locations of nearby localities that were surveyed.



Appendix 5 : Focus group discussion in three surveyed localities near CNP.



Top: Kakpin. Middle: Sindé. Bottom: Kointa.

Appendix 6 : A semi-structured questionnaire with the park manager and residents.



Top: Park manager (Bouna). Middle: Women Leader (Koïnta). Bottom: Chief at Solperdouo.

Appendix 7 : The members of the project's field team conducted the project.



Left: Field assistant trained (Amaradougou). Right: Project leader.



Left: Field assistant trained (Kakpin). Right: PhD student trained.



Left: Field assistant botanist (Kakpin). Right: PhD student with project leader.