

Final Evaluation Report

Your Details	
Full Name	Joseph Kwasi Afrifa
Project Title	Breeding ecology of critically endangered Hooded Vulture (<i>Necrosyrtes monachus</i>) in Cape Coast Metropolitan Area in Ghana
Application ID	40846-1
Date of this Report	20th August 2024

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 carry out studies aimed at investigating nest-site availability and selection, breeding success of Hooded Vultures, and nest predation within Hooded Vultures' as well as the species involved				The project assessed the nesting ecology of the local Hooded Vulture population in the Cape Coast metropolis. Using the breeding behaviour of confirmed pairs, we identified and characterized nest sites, and we also investigated variables important for nest selection. Lastly, we monitored the success of sites in fledging a juvenile. We also monitored nests to identify natural causes of nest failure using Solaris 4K camera traps and a DJI Mavic mini drone. A research article based on this study has been developed presenting two novel natural causes of mortality of Hooded Vultures; the unintentional crushing of eggs and the eating of a chick, presumably alive, by adults. This article when published.
To use citizen science for monitoring nest sites				The project trained 22 undergraduate students and equipped 10 locals from 7 communities on vulture nest monitoring however only 9 of the trained volunteers continued to show active support to the project and it continued after the project ended. Through the project, we identified 8 active nesting sites within the study area which our trained volunteers are monitoring and submitting data to the project lead. The trained volunteers are also involved in submitting vulture nest sightings as well as monitoring populations at roost sites and feeding grounds. The only challenge to this objective was the limited number of equipment we could provide to the volunteers.

<p>To embark on public education campaign for species conservation</p>			<p>To achieve this objective, a vulture awareness conservation education event was organised, where trained citizen scientists engaged with their communities to disseminate knowledge about vultures and emphasize the importance of their nesting sites for population recovery. This involved one-on-one discussions between volunteers and community members. To further amplify vulture conservation awareness, the project team participated in two live sessions on the local radio station to create awareness to the public. These sessions facilitated discussions on vulture ecology, and threats faced by vultures in the region, and included phone-in sessions to address questions from the public.</p>
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2. Describe the three most important outcomes of your project.

a). Nesting Ecology Insights: We successfully assessed the nesting ecology of Hooded Vultures in Cape Coast, identifying and characterizing nest sites through detailed observation of breeding behaviours using both field surveys and camera traps observation, the first of its kind in the region. This led to the discovery of two novel natural causes of mortality: unintentional egg crushing by adults and potential chick predation. These findings, documented using Solaris 4K camera traps and a DJI Mavic mini drone, are significant contributions to vulture conservation research. We also modelled and identified variables that are most important for nest site selection in hooded vultures in Cape Coast, Ghana

b). Successful Citizen Science and Stakeholder Engagement: The project trained 22 undergraduate students and 10 locals from 7 communities in vulture nest monitoring who are actively monitoring nesting sites and the population of vultures in Cape Coast. This community-driven monitoring process fostered local involvement and ensured ongoing data collection, vital for long-term conservation efforts. Also, stakeholders like the urban park manager and officials from the electricity company were engaged and educated on the use of some trees in the municipality for breeding by vultures. This ensures that these nesting sites are protected and not disturbed during tree pruning exercises carried out by these institutions.

c). Enhanced Public Awareness and Education: We conducted a vulture conservation awareness event, where trained citizen scientists engaged directly with their communities. Additionally, the project team participated in live radio sessions, discussing vulture ecology and threats, and addressing public questions. These efforts significantly raised awareness about the importance of vultures and their nesting sites, contributing to broader conservation advocacy. Also, we organised an awareness creation campaign in second-cycle schools where 90-plus students were directly educated and made aware of vultures and their significant contribution to the environment.

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

One of the unforeseen challenges was the limited number of volunteers who remained active after the project ended. Although 22 students and 10 community members were trained, only 9 volunteers continued to contribute data and monitor nests. To address this, we focused on empowering these dedicated volunteers by providing them with the available equipment and ongoing support, ensuring that the project's goals continued to be met even with a smaller team.

Additionally, there was a challenge in providing sufficient monitoring equipment to all volunteers. We tackled this by prioritizing the most active volunteers and strategically allocating resources to maximize coverage of the nesting sites.

The last and major challenge was the difficulty in accessing some areas with identified nests. In some instances, some property owners prevented us access to trees on their properties and some even demanded payment to access the trees. We tackled this by obtaining an introductory letter from the municipal office which helped in access some of the sites

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

Local communities were deeply involved through the training of 10 community members and the engagement of 22 undergraduate students in vulture nest monitoring. These participants gained valuable skills in wildlife monitoring and conservation, which not only contributed to the project but also enhanced their understanding and appreciation of local biodiversity. The communities also benefitted from increased awareness of the ecological importance of Hooded Vultures through direct interactions with trained volunteers and public awareness campaigns.

Also, during the awareness creation sessions on the radio, the community members were allowed to phone in and get their questions answered. The huge number of calls during this session shows high involvement of the community.

5. Are there any plans to continue this work?

Yes, there are plans to continue this work. The project has laid a strong foundation for ongoing monitoring of vultures and conservation efforts in the Cape Coast area. The active volunteers will continue to monitor the identified nesting sites, and we aim to expand the network of citizen scientists in the future. Additionally, further research will be conducted to explore the causes of reproductive failures in Hooded Vultures, building on the insights gained from this project. We also plan to expand the nest monitoring using camera traps in other urban areas and protected areas to be able to understand the variations in causes of mortality and nest failure in the Hooded Vulture in Ghana

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

The results of this work will be shared through avenues such as:

Scientific Publication: A research article has been developed based on the findings, which will be submitted to a peer-reviewed journal.

Public Presentations: We plan to present the results at conferences and workshops focused on wildlife conservation and avian ecology.

Community Engagement: The findings will also be shared with local communities through continued education events and discussions led by trained volunteers.

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

The important next steps include but are not limited to:

Expanding the network of citizen scientists to increase the scope of vulture monitoring across a larger area.

Conducting in-depth research into the causes of reproductive failures, particularly focusing on potential external factors such as environmental toxins.

Continuing public education efforts to raise awareness about the importance of vulture conservation, particularly in urban areas where human-vulture interactions are more common.

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 promotional materials, including training manuals, posters, and presentations related to the project. The Foundation was acknowledged during all public events, including the radio sessions, where the support received was highlighted to the audience.

The Rufford Foundation and the grant number have also been acknowledged in the drafted article for publication.

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

Joseph Kwasi Afrifa: Project Lead - Oversaw all aspects of the project, including research design, volunteer training, data analysis, and community engagement. He provided technical support with the use of camera traps, drones, and other monitoring equipment.

Joseph Kobina Daniels: Field Coordinator - Managed field activities, including nest monitoring, data collection, and volunteer coordination. Joseph also led the public awareness campaign and organized community engagement events.

Longji Aaron Bako: Data Analyst and Supervisor - Analyzed the ecological data collected and contributed to the development of the research article.

10. Any other comments?

The project has significantly contributed to the understanding of Hooded Vulture ecology in urban environments, highlighting the importance of both research and community involvement in conservation efforts. The unexpected findings related to reproductive failures underscore the need for ongoing study and action. We are grateful to The Rufford Foundation for their support, which has made this critical work possible.