

Final Evaluation Report

We ask all grant recipients to complete a project evaluation that helps us to gauge the success of your project. This must be sent in **MS Word and not PDF format**. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please DO NOT fill in and submit this form until the project has been completed.

Complete the form in English. Note that the information may be edited before posting on our website.

Please email this report to jane@rufford.org.

Your Details	
Full Name	Sulemana Bawa
Project Title	Describing the Freshwater Turtle Community Structure of the Upper Volta Basin in Ghana; With Priority Search for the Nubian Flapshell Turtle
Application ID	42575-2
Date of this Report	10 th October, 2025

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
Assess the diversity, population and distribution of freshwater turtles in four catchments of the Upper Volta basin and compare community structure and habitat association across the study sites.			x	Although the priority species was not detected, the study's objectives were fully achieved through ecological surveys and assessments of turtle bycatches in fishing traps, which together documented the distribution and habitat associations of freshwater turtles.
Assess ethno-ecological knowledge and turtle utilization across ethno-cultural settings along the Upper Volta basin		x		This objective was only partially achieved. The focus group discussions produced valuable qualitative insights; however, the long-term market surveys were not implemented as rigorously as planned. This limitation likely reduced the volume and depth of information obtained from the market survey component of the research.
Awareness creation, establishment and capacity building of a surveillance team			x	The study effectively established and strengthened a dedicated team capable of sustained engagement with fisherfolk to monitor and document turtle observations. This team will play a key role in

			<p>the next phase of research, which will focus on developing species-specific management strategies and implementing a community-based resource management framework for turtle conservation. In addition, the project enhanced awareness of turtles' ecological roles and the importance of their conservation among local stakeholders.</p>
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2. Describe the three most important outcomes of your project.

a). A total of five sampling sites—Karamenga, Nngo, Kulunga, Dapali, and Adaayili—distributed across three catchment areas (Nasia, Kpasinkpe, and Middle White Volta) were surveyed to document the diversity, distribution, and habitat associations of freshwater turtles within the Upper Volta Basin. The Red Volta and Gambaga catchments could not be assessed due to security constraints associated with ongoing conflict in the area.

Overall, 151 individual freshwater turtles, representing four species, were recorded through a combination of ecological surveys and bycatch assessments (Table 1). The assemblage was numerically dominated by *Pelomedusa subrufa*, which accounted for 61 individuals (40.4%), followed by *Cyclanorbis senegalensis* (35 individuals; 23.2%) and *Pelusios castaneus* (28 individuals; 18.5%). *Trionyx triunguis* was the least abundant, with 27 individuals (17.9%). *C. elegans* wasn't recorded during this research, and based on picture reading, local fishers were not sure of its existence, despite that similar large-sized turtles have been recorded in the recent past.

Of all captures, 120 individuals (79.5%) were obtained during systematic ecological surveys, while 31 individuals (20.5%) were recorded as incidental captures by local fishers. *Pelusios castaneus* and *Pelomedusa subrufa* were more frequently represented in fishing nets (mostly in swamps) relative to the soft-shell species, suggesting possible differences in habitat preference, mobility, or susceptibility to fishing gear, or likely non-reportage of soft-shell turtle by-catches due to local delicacy for soft-shell turtle meat.

Species richness and relative abundance were broadly comparable across sampling sites, with only minor spatial variation. Likewise, habitat associations among species showed consistent patterns across the basin. The soft-shell turtles (*T. triunguis* and *C. senegalensis*) were more frequently encountered in lotic systems (43 vs. 19 individuals), typically characterized by largely sandy substrates and woody banks. In contrast, *P. castaneus* and *P. subrufa* were predominantly associated with lentic habitats (51 vs. 38 individuals), particularly in seasonal water bodies bordered by sparse shrubs and grassy banks in the rainy season.

These results reveal a moderately diverse turtle assemblage dominated by *Pelomedusa subrufa*, with species abundance patterns reflecting habitat heterogeneity across the Upper Volta Basin.

Table 1: Freshwater turtle species and habitat association in the study area.

Species	Total Individuals (n)	% of Total	Ecological Survey (n)	Fishing nets (n)	Primary Habitat Type	Dominant Substrate / Vegetation
<i>Pelomedusa subrufa</i>	61	40.4%	45	16	Lentic (seasonal pools, ponds)	Sandy substrate; sparse riparian shrubs
<i>Cyclanorbis senegalensis</i>	35	23.2%	31	4	Lotic (rivers, streams)	Sandy bottom; savanna woodland trees and shrubs along banks
<i>Pelusios castaneus</i>	28	18.5%	22	6	Lentic (shallow wetlands)	Sandy substrate; grassy banks
<i>Trionyx triunguis</i>	27	17.9%	22	5	Lotic (main river channels)	Sandy substrate; sparse savanna shrubs and trees along banks
Total	151	100%	120	31	—	—

b). Document the local knowledge of freshwater turtle species distribution and ecology, and ethno-cultural uses.

Five focus group discussions were conducted (one at each sampling site) with a total of 59 participants, consisting of fishermen and community leaders. Participants across the study sites demonstrated a nuanced understanding of freshwater turtle species, classifying them primarily based on shell type (soft-shell versus hard-shell) and plastron/carapace colouration, with a few references to patterns of the plastron and carapace, consistent with observations from our earlier studies. Their descriptions of species' habitat preferences were largely consistent with ecological observations, indicating a high degree of local ecological knowledge of species' habitat use. Fishers and hunters consistently reported that hard-shelled turtles are more common in lentic or static water bodies, where they are frequently caught in fishing nets during the dry season as the water dries up. In contrast, soft-shelled species were widely recognised as being more abundant in lotic or flowing rivers, reflecting their affinity to permanent water bodies.

Ethno-cultural uses of turtles and their body parts were reported across all communities surveyed, with only minor variations among ethnic groups. Consumption of turtle meat was nearly universal, with a notable preference for soft-shell species owing to their higher meat-to-bone ratio and perceived superior taste.

This preference likely contributes to higher exploitation pressure on these species. Conversely, hard-shelled turtles were valued more for their carapaces, which are utilized in traditional medicine for a range of therapeutic and ritual purposes, including treatments for ailments and spiritual protection.

Market surveys were conducted in three prominent markets and fishing landing sites in the area (Janga, Kpasenkpe and Pwalugu) every two market weeks for four months (October 2024 to January 2025). While there was no evidence of active trade in fresh turtle meat, fishers and market vendors indicated that freshly captured turtles are typically consumed locally—either by the fishers and their households or sold directly to individuals within the community—rather than being transported to formal market centres. However, dried turtle shells, often belonging to *Pelusios castaneus* and *Kinixys erosa*, were found in limited quantities in local markets, primarily as remnants intended for medicinal or ornamental use.

While volunteers are keeping in touch with market vendors and fisherfolk, active market surveys are not being continued due to the non-existence of a financial stream to support their daily transportation across market centres. In future consumption prevalence assessments, we will recommend household surveys and fishing-community-level monitoring rather than market centres, since there are indications that turtles may be traded and consumed more locally than transported to formal market centres.

Collectively, while these findings did not reveal observations different from our earlier studies, they underscore the strong ethno-ecological knowledge of local communities regarding turtle species and habitats, as well as the socio-cultural significance of turtles in subsistence and traditional practices. Such insights are essential for designing culturally sensitive and community-based conservation strategies for freshwater turtles in the region.

c). As part of the project's long-term conservation objectives, a local turtle surveillance team was established and trained to support ongoing monitoring efforts within the study area. Across the three sampling sites, a total of seven (7) volunteers underwent targeted capacity-building activities focused on species identification, specimen measurement and recording, and community engagement. Following the initial training phase, three members demonstrated sustained commitment and have since been retained as a core monitoring group responsible for continuous field surveillance and liaison with local fishers.

The surveillance team has developed a strong capacity in proper documentation of reported freshwater turtle occurrences, with particular attention to potential sightings of *C. elegans* or any other species not previously recorded. The team will maintain contact with fishermen to assess and record bycatches in fishing nets and report to the team lead for assistance with identification and reporting. In addition, they will also engage in folk sensitisation, aimed at promoting awareness of turtle conservation and fostering local stewardship of aquatic biodiversity. While the team is not receiving cash remuneration, they are motivated by the prospect of recording *C. elegans* following fishermen's reports of periodic catches of large-sized turtles matching the species' descriptions, and their interest in being part of a future long-term community-based project employing the Community Resource Management Area (CREMA) mechanism for the conservation of freshwater biota in the area, which the project leads are conceiving.

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

Due to ongoing conflict in parts of the study area, two of the initially proposed catchments—the Gambaga and Red Volta—could not be accessed for field sampling. Consequently, the Gambaga catchment was substituted with the Nasia catchment, and additional sampling sites were established within the Middle White Volta and Nasia catchments to ensure adequate spatial representation. In total, five sampling sites were ultimately surveyed across three catchments: Nasia, Kpasinkpe, and Middle White Volta.

While the volatility of the Ghanaian cedi initially seemed to have played to the advantage, this was eroded by the sharp increase in the prices of goods and services. The team leads, therefore, realigned expenses to forestall any major impact on planned activities.

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

The ethno-ecological knowledge and turtle utilization component of the study was conducted through focus group discussions involving local hunters and fishers across the study communities. These participatory sessions provided valuable insights to shape local perceptions and enrich traditional ecological knowledge. In the course of these engagements—and through collaborative assessments of turtle by-catches—fishers were sensitized to the ecological roles of freshwater turtles and the importance of their conservation within aquatic ecosystems. Additionally, local field assistants were recruited from the study sites to support field activities. This participatory approach not only facilitated data collection but also helped to enhance community awareness and ownership and build local capacity in turtle ecology and conservation practices.

5. Are there any plans to continue this work?

The research lead has maintained active contact with the established turtle surveillance team to ensure the continuous monitoring and documentation of significant turtle observations in fishing nets. Any unidentified or potentially novel species encountered will be promptly reported, and instances of *C. elegans* suspected by local fishers will trigger an immediate field visit to confirm and verify the species identity.

The study further highlighted a concerning decline in the abundance of *Cyclanorbis senegalensis* and *Trionyx triunguis*, underscoring the need for targeted conservation action. In response, the research team plans to undertake a detailed investigation into the biology, ecology, and population dynamics of these two species. This effort will be complemented by the establishment of a species-specific management program within critical habitats, developed collaboratively with local communities and traditional authorities. The initiative will be implemented through the Community Resource Management Area (CREMA) framework, fostering locally led stewardship and long-term conservation of freshwater turtle populations in the region.

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

The results of this research will be shared through multiple complementary pathways targeting local stakeholders, policymakers, and the scientific community.

The research team has already conducted feedback sessions with key local stakeholders, including fishers and community opinion leaders at the study sites. These engagements were used to share preliminary findings and to gather contextual insights that help interpret the results. Further feedback meetings are planned during the next phase of the project, which aims to implement the CREMA mechanism for the management of freshwater biota in the area, for which a concept note is currently being developed.

Secondly, the results will be used to support engagement with traditional authorities, local government agencies, and civil society organizations, who are integral to the CREMA development and implementation process. These discussions will focus on translating the findings into evidence-based, species-specific management and conservation actions, informing collaborative planning and decision-making processes.

Finally, the research team is systematically organizing the data for dissemination through scientific channels. The lead researcher maintains strong collaborations with members of the IUCN SSC Tortoise and Freshwater Turtles Specialist Group. The data from this study will be shared within this network and potentially combined with datasets from other studies for joint publications in peer-reviewed journals and broader conservation assessments, building on previous successful collaborations.

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

An in-depth assessment of the ecology and biology of the focal turtle species *C. senegalensis* and *T. triunguis*, coupled with the formulation of a community-based management framework, is vital for safeguarding and sustaining the freshwater turtle populations and their habitats in the area. Otherwise, the seemingly common species will gradually slide into threatened statuses.

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?

The Rufford Foundation was acknowledged as the sponsor of the project in all engagements, and the Foundation's logo was used in all PowerPoint presentations and printed materials, including focus group discussion questionnaires.

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

Sulemana Bawa: Team lead and principal investigator – Design of field protocols, implementation and reporting

Paul Tehoda: Team lead and assistant investigator – Design of field protocols and field surveys

Abukari Inusah: Field assistant – assisting with field ecological surveys and coordinating with fishers for turtle bycatches

Ayaaba Karim: Field assistant – assisting with field ecological surveys and coordinating with fishers for turtle bycatches

Kwame Paul: Field assistant – assisting with field ecological surveys and coordinating with fishers for turtle bycatches

10. Any other comments?

Freshwater turtle populations in Ghana are experiencing a marked and ongoing decline across much of their natural range. Consequently, capturing an accurate representation of species composition and abundance now demands prolonged, systematic research efforts. Without the prioritization of targeted ecological studies, species-specific management strategies, and the active engagement of local communities, once abundant species may rapidly transition into threatened categories.

ANNEX – Financial Report
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