

Final Evaluation Report

Your Details	
Full Name	Naim Khandakar
Project Title	Population status, diet and community-based conservation initiative for globally Endangered Great Knot (<i>Calidris tenuirostris</i>) on Central Coast in Bangladesh
Application ID	39472-1
Date of this Report	5 February 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
1. Understanding the population of Great Knot on the central coast of Bangladesh.				We successfully conducted population surveys along the central coast of Bangladesh. See details below (a).
2. Assessing prey availability, diet composition, and identifying foraging and roosting grounds of the Great Knot.				This goal was partially achieved. We identified prey availability, diversity, and density from the foraging areas of the Great Knot. However, we were unable to collect droppings and regurgitates from the Great Knot, as they foraged and roosted in mixed-species flocks with other shorebird species. Collecting these samples would have likely introduced bias.
3. Quantifying threats to the Great Knot.				We have quantified the threats to the Great Knot and will include additional information in this section during the peer-review publication.
4. Raising awareness and promoting the conservation of Great Knot and other shorebirds through outreach events.				Described in detail below (d)

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

a). Objective 1: Between October 2023 and March 2024, we conducted surveys for the Great Knot along the central coast of Bangladesh, using both boat-based and on-foot observations during high tides (Fig. 2). The highest count recorded was 123 individuals in March 2024. No individuals were found in October and November 2023. However, we recorded seven individuals in December 2023, 17 in January 2024, and 80 in February 2024 within our study area (Fig. 1).

b). Objective 2: The potential food sources for Great Knots found in the foraging areas along the central coast of Bangladesh included gastropods, bivalves, amphipods, polychaetes, and oligochaetes. Gastropods were the most dominant group, comprising 26% of the total macro-benthic individuals, followed by bivalves (22%), amphipods (19%), polychaetes (17%), and oligochaetes (16%). In terms of density, gastropods were the most abundant, with 257 individuals per square meter, followed by bivalves (211 ind./m²), amphipods (182 ind./m²), polychaetes (166 ind./m²), and oligochaetes (157 ind./m²). We were unable to collect droppings and regurgitates from the Great Knot as they foraged and roosted in mixed-species flocks with other shorebird species. Collecting these samples would have likely introduced bias, as it would be difficult to distinguish between the droppings and regurgitates of the Great Knot and those of other species in the flock.

c). Objective 3: Anthropogenic threats to the foraging and roosting areas of the Great Knot include activities such as fishing (44%) on the mudflats and shore, cattle grazing (29%), and crab hunting by crab hunters (27%). While we did not observe any direct hunting of Great Knots during our study, interviews with fishermen, farmers, and local community members indicated that shorebird hunting is a regular occurrence during the winter months in these areas.

d). Objective 4: We conducted five awareness campaigns to raise awareness about the importance of conserving the Great Knot and other migratory shorebirds, as well as their habitats. Our outreach efforts also included training sessions for school students, focusing on species identification and the proper use of binoculars. We visited five local schools, reaching approximately 1,200 students from various classes, along with 20 teachers. During these visits, we delivered speeches on the significance of the Great Knot and other migratory shorebirds, their importance, and the threats they face. Participants were also educated about the value of coastal intertidal mudflats and shorebird diversity in their area, emphasizing both national and international perspectives (Fig. 4-6).

To further engage the students, we organized art competitions, with 15 winners receiving educational materials as prizes. As part of these campaigns, we distributed educational materials to local schools, markets, and the wider community, reinforcing the need to protect these threatened species and the laws and regulations protecting migratory birds (Fig. 7). The programs were inclusive, involving various stakeholders, including fishermen, farmers, school children, and the broader local community.

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

N/A

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

The local communities were actively involved in the project through awareness campaigns and educational activities. We engaged school children, fishermen, farmers, crab hunters, and local residents to raise awareness about the importance of conserving the Great Knot and other migratory shorebirds. School students, in particular, benefited by learning about species identification, conservation, and how to use binoculars. Educational materials were distributed to schools, local markets, and the community, reinforcing the need to protect these threatened species. This project has enhanced local knowledge on conservation, empowering the community to promote the sustainable use of intertidal mudflats and recognize the importance of coastal wetlands for migratory shorebirds.



Figure 1. Great Knots roost during high tide in mixed-species flocks.



Figure 2. Globally endangered Great Knot surveyed along the central coast of Bangladesh.



Figure 3. Mud samples were collected (top), rinsed through a sieve, and macro-benthic organisms were preserved in a vial filled with alcohol for lab analysis (bottom).



Figure 4. Educational outreach events at schools, discussing the importance of conserving Great Knots and their habitats with local students and teachers.



Figure 5. Students drew and displayed artwork of the Great Knot, demonstrating their understanding of the species and its conservation. Winners of the art competition were awarded prizes.



Figure 6. Empowering school students with training sessions on the proper use of binoculars.





Figure 7. Engaging the local community by distributing flyers and discussing the importance of conserving Great Knots, other migratory shorebirds, and their habitats.

5. Are there any plans to continue this work?

Yes, we plan to continue this work as the project has raised new questions to explore. Our next activities will include surveys along the entire coastline of Bangladesh to assess the population of Great Knots, GPS satellite tagging of the species and other migratory shorebirds to better understand their habitat preferences and migratory patterns, as well as continued engagement with local communities.

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

We have already submitted a manuscript based on this project to the ZOO'S PRINT Journal, which is currently under review. Additionally, we have shared our preliminary results with local stakeholders. We are also in the process of preparing another manuscript for publication in a peer-reviewed journal.

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

The 710-kilometer-long coast of Bangladesh provides crucial habitats for non-breeding shorebirds, including the Great Knot. The next important step is to continue long-term, systematic monitoring studies along the entire coastline of Bangladesh for the Great Knot. Additionally, our focus will be on understanding shorebird habitat use and migratory patterns, which will help inform local authorities, such as the Bangladesh Forest Department and Flyway Experts, in protecting key non-breeding sites for the species. We anticipate that the information gathered on shorebird migratory ecology and habitat use will be valuable for other shorebird sites along the East Asian-Australasian and Central Asian Flyways.

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, we have included the Rufford Foundation's logo on our educational materials, such as flyers and banners.

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

Delip K. Das (Assistant Professor, Dept. of Zoology, Jagannath University): Advisor
Dr. Teresa Catry (Assistant Researcher, Centre for Environmental and Marine Studies, University of Lisbon, Portugal): Advisor

Shariful Islam: Research Assistant

Kamrun Nahar Jeny: Research Assistant

Mustafizur Rahman: Volunteer

Sujan Datta: Volunteer

Tajul Islam: Local Field Guide

10. Any other comments?

Once our research papers related to this project are published, we will share them with The Rufford Foundation. We sincerely thank The Rufford Foundation for their support, which made this project possible. Additionally, we are deeply grateful to the local community for their invaluable cooperation and support throughout this study.