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	Hiranya Sudasinghe
Project Title	Population genomics in a threatened Giant Snakehead fish in Sri Lanka
Application ID	38519-1
Date of this Report	04 Dec 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
Fieldwork in Sri Lanka to collect samples of giant snakeheads			X	Sampling was conducted across all major climatic zones and river basins of the island. Sites were chosen based on the known geographic distribution of giant snakeheads, using previous publications, past field observations, and additional reports from internet and social media sources. Across 22 sites, we collected 48 fin clips or tissue samples of the *Channa marulius* group, preserving them in vials with 100% ethanol for subsequent whole-genome sequencing.
Lab work in Switzerland to extract DNA, carry out genome sequencing			X	DNA extraction was performed on 34 samples from the *Channa marulius group* collected in Sri Lanka, along with 7 additional samples from related *Channa marulius* congeners from India and Southeast Asia (*C. pseudomarulius*, *C. auroflammea*, *C. aurolineata*, *C. marulioides*). Whole-genome sequencing was conducted using the Illumina NovaSeq 6000 platform at 20X coverage.
Data analysis		X		To complete some parts of the analyses, the study requires a generation of a reference genome
Community-based conservation awareness			X	Two webinars/discussions were carried out and each of these activities reached at least 70-80 people. My research updates are always shared on social media for public awareness.

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

a). By expanding from a single barcoding gene (cox1) to a near-complete mitochondrial protein-coding dataset, the project substantially enhanced the resolution of phylogenetic relationships. This revealed three clearly distinct mitochondrial lineages of Sri Lankan giant snakeheads, supporting previously noted morphological differentiation

b). The identification of three highly divergent genetic lineages within a relatively small region of Sri Lanka shows the value of genomic studies in biodiversity hotspots. These findings highlight how fine-scale genetic research can uncover previously unrecognized diversity critical for conservation planning.

c). The project successfully raised public awareness of Sri Lanka's giant snakeheads through outreach activities, including webinars and discussions within active biodiversity and aquarium-keeper communities. This engagement has increased recognition of the conservation importance of these genetically unique lineages.

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

The costs for genome sequencing and library preparation exceeded our original budget. To cover the shortfall, I secured additional funding, which caused a delay but allowed us to complete the planned sequencing.

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

To raise awareness of the conservation needs of Sri Lanka's giant snakeheads, I engaged with active online communities of biodiversity enthusiasts and snakehead keepers. I was invited to give public webinars hosted by University of Colombo and by the Sri Lanka Association for Fisheries and Aquatic Resources, where I highlighted the importance of our study. These events reached university students, fisheries stakeholders, and the general public, increasing knowledge and support for freshwater fish conservation.

5. Are there any plans to continue this work?

Yes. I plan to continue this research by generating a reference genome for the Sri Lankan giant snakehead. This will provide a foundation for future population genomic studies and further support conservation planning for the species.

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

The results will be shared through scientific publications and by presenting and discussing the findings in public webinars and outreach events. Several analyses on the population genomics still need to be carried out. Once they are completed, I will prepare the results for a scientific publication.

I have shared already my findings for the upcoming 7th National Report to the Convention on Biological Diversity (CBD). I will also share my findings for the next National Red List of Sri Lanka.

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

A recently recorded invasive giant snakehead (*Channa micropeltes*) is now breeding in parts of Sri Lanka, posing a serious threat to native freshwater fishes, including the native giant snakeheads, through predation and competition. The next critical steps are to develop and implement strict management protocols for this invasive species, informed by the ecological and genetic knowledge we have gained about our native giant snakeheads.

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 was acknowledged in all webinars related to this project, and it is also linked on my personal website. The Foundation will be acknowledged in forthcoming scientific publications, ensuring continued visibility for its support.

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

Hiranya Sudasinghe: Principal Investigator; coordinated the project, led data analysis, and oversaw dissemination of results.
Tharindu Ranasinghe: Assisted with fieldwork, sample collection, and curation of materials.

Lukas Rüber: Contributed to laboratory work and assisted in securing additional funding.

10. Any other comments?

ANNEX – Financial Report

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