

Progress Report

Update

I am pleased to provide you with a comprehensive update on the recent 14-days field work in January 2024 dedicated to the sampling of crayfish, snails, environmental DNA (eDNA), water parameters and corresponding education campaign. This endeavor was made possible through your generous support, and we are grateful for the opportunity to share our progress with you.

I received the Rufford Small Grant to conduct this project aimed at assessing the presence and abundance of the globally invasive red swamp crayfish *Procambarus clarkii* in Lakes Burera and Ruhondo in northern Rwanda. We surveyed sites at different depths in the lakes and in the drainages of these twin lakes where the species has been reported previously by locals. This project also aimed to conduct an education campaign to sensitize fishermen around these lakes to protect biodiversity by preventing the spread of *Procambarus clarkii* for the protection and conservation of other organisms in these two lakes.

Project activities and their progress

Project activities	Current status
1. Study of <i>Procambarus clarkii</i> in Lakes Ruhondo and Burera to assess their occurrence and distribution in the littoral zone and at different depths of the lakes.	Ongoing, first field done
2. Measurement of physico-chemical water parameters and other selected environmental variables to assess their variation in relation to the distribution of biodiversity and <i>Procambarus clarkii</i> .	Done
3. Engage at least 100 fishermen to protect biodiversity in these lakes by preventing the spread of the invasive <i>Procambarus clarkii</i> in Lakes Ruhondo and Burera and educating them about the role and importance of other biodiversity and the need to protect the lake and its biodiversity in general.	Done
4. Morphological identification	Ongoing
5. DNA based identification	Ongoing
6. Producing the final report	Pending
7. Peer reviewed publication	Pending

Progress Activities



Members of the field team from left on the photo: Nzaramba, Rwibutso, Habimana and Kwizera.



Project team members sampling red swamp crayfish *Procambarus clarkii* and snails in Lake Ruhondo. © Jean de Dieu Nzaramba.

Crayfish and Snail Sampling:

- Conducted systematic sampling across designated sites.
- Collected specimens for detailed analysis, contributing to our understanding of the local biodiversity.



Team members on their way to multiple water parameters sampling at Lake Burera. © Emmanuel Kwizera.



Procambarus clarkii caught in a trap at Lake Burera. © Emmanuel Kwizera.



Photo of invasive red swamp crayfish (*Procambarus clarkii*) from Ruhondo Lake. © Marcellin Rwibutso.



© Emmanuel Kwizera.



© Emmanuel Kwizera.

Water Parameter Assessment:

- Measured key water parameters, including temperature, pH, dissolved oxygen, and nutrient levels.
- Documented variations in these parameters to assess the overall health of aquatic ecosystems.

Education campaign

We visited the fishermen of the two lakes Ruhondo and Burera, where we launched an extensive campaign explaining to the fishermen what the *Procambus clarkii* is and how it originated, how it has spread worldwide and what impact it has on other organisms in the same habitat. The fishermen told us about the great losses they have suffered from this invasive red swamp crayfish, which is called “MAGURUKOTONI or MASOKOZA” in the local language. The fishermen were educated about the importance of protecting aquatic organisms, with special attention to the lake and its biodiversity, including snails. At the end of the campaign, the fishermen pledged to find a solution to prevent the spread of this species in these lakes and rivers.



Fishermen of the two lakes Ruhondo and Burera, their representatives of the cooperatives and team members during and after campaign. © Emmanuel Kwizera.



© Emmanuel Kwizera.



Members of the project team taking eDNA samples from water of Lake Ruhondo. Before the campaign. ©Habimana Richard.

eDNA Analysis:

- Successfully extracted environmental DNA samples from water sources.
- Implemented advanced techniques for genetic analysis to identify species presence and abundance.



Next Steps:

Laboratory Analysis:

- Commencing detailed laboratory analysis of collected samples to derive precise data on species diversity and environmental conditions.

Data Interpretation:

- Engaging in rigorous data interpretation to draw meaningful conclusions and identify potential ecological trends.

Report Compilation:

- Preparing a comprehensive report that will encompass findings, challenges, and recommendations based on the analysis.

Acknowledgments:

We extend our heartfelt gratitude for your continuous support, which has been instrumental in the successful execution of this field work. Your commitment to advancing scientific research in these critical areas is invaluable, and we look forward to sharing the detailed findings with you soon.

Should you have any immediate questions or require additional information, please do not hesitate to reach out.

Thank you once again for your unwavering support.