Final Evaluation Report

Your Details	
Full Name	LOFANGA BOLUKAOTO ANDRE
Project Title	Biodiversity inventories of freshwater Crabs from unexplored and threatened areas of Yangambi Biosphere Reserve (D.R. Congo): Implications for conservation
Application ID	40842-1
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1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

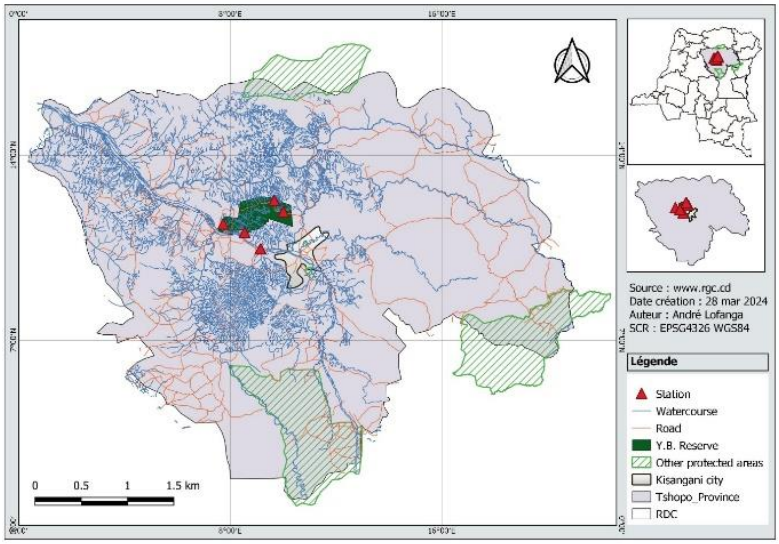
Objective	Not achieved	Partially achieved	Fully achieved	Comments
Biodiversity inventory of freshwater crabs from Yangambi Biosphere Reserve (YBR) and around areas				This study inventoried eight species of freshwater crabs (fig.2-9), including four undescribed, in and around the Yangambi Biosphere Reserve (YBR) (fig.1). These species belong to 6 genera: *Acanthothelphusa*, *Lirrangopotamonautes*, *Longipotamonautes Platythelphusa*, *Arcopotamonautes* and *Rotundopotamonautes*.  Fig.1. Study area map

Fig.2. *Acanthothelphusa congoensis* collected in the Ngadebia stream, northern part of the YBR YBR.

Fig.3. *Acanthothelphusa stanleyensis* collected in the Seledebia stream, eastern part of the YBR.

Fig.4. *Lirrangopotamonautes kisangani* collected in the southern part of the YBR, on the Congo River.

Fig.5. *Plathythelphusa langi* collected in the southern part of the YBR, in the Congo River.

Fig.6. Longipotamonautes sp1.n. collected in the Bokululu stream, southwestern part of the YBR.

Fig.7. *Longipotamonautes* sp2.n. collected in the Afolofolo stream, southwestern part of the YBR.

				 Fig.8. *Arcopotamonautes* sp.n. collected in the forest, on the land, south-western part of the YBR  Fig.9. *Rotundopotamonautes* sp. n. from surrounding areas
Identify anthropogenic threats to crabs and their habitats				Threats such as overfishing, the use of chemicals in fishing, overexploitation, deforestation and the destruction of natural habitats were identified. These threats were included in the awareness-raising message to the local community, enabling them to adopt less damaging practices that could endanger the species.

To bring local people to adopt practice that are less damaging to crab sensitive habitats				The on-going educational component in this project was aimed at encouraging local people to become aware of the negative impacts of agriculture on the freshwater ecosystems on Yangambi Biosphere Reserve and the surrounding areas that could negatively impact populations of crabs. Before the field studies began we met with the Chiefs in this area. The targets of the educational messaging were the local people living around Yangambi Biosphere Reserve where we collected semi-terrestrial crab species that are the most threatened from human impacts.

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

a). The crab fauna from YBR freshwater crabs is compiled for the first time that include four new species to science (*Rotundopotamonautes* sp.n., *Longipotamonautes* sp1.n., *Longipotamonautes* sp2.n. and *Arcopotamonautes* sp.n.). This will guide future systematic work in this area, will also assist ecologists and other biologists working in YBR.

b). The threats, specific habitats population level and trend of some of these crabs were reported that will guide future management plans for freshwater fauna from YBR.

c). This project has helped me to obtain data to achieve my Master's programme and also to enhance conservation activities. This is because through educational sessions, local people are now adopting practice that are less damaging to crab sensitive habitats.

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

We encountered no unforeseen difficulties in implementing this local project. However, the long-standing inhabitants of certain villages around the Yangambi Biosphere Reserve were reluctant when the project was announced for 2023. They were sceptical because previous projects in social sectors had failed to convince them due to a lack of direct participation and effective co-management. To resolve this problem satisfactorily, we approached the village chief and key opinion leaders in the local community to ensure their active and direct involvement in the project. On this occasion, we presented the essential elements of the project while showing its present and future impact in their environment. After the meeting, everyone agreed with the ambitious project philosophy and supported it.

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

Local authorities (village chiefs and local organisations), fishermen, farmers and field assistants from the villages of Bosukulu, Yangilimo, Yambelo, Lianga and Bakobi, which surround the YBR, were involved in the project.

Village chiefs and elders helped us reach people. Our field research assistants and guides helped us collect scientific data and educate local people using local and national languages. Local fishermen and farmers gave us constructive advice as part of permenent education.

To compare threats, we visited other localities, such as Maiko National Park, Masako Forest Reserve, Yoko Forest Reserve and Uma Community Reserve, and brought back important data to be developed in the future.

5. Are there any plans to continue this work?

The freshwater crabs discovered from this project are semi-terrestrial species with great conservation value. The data collected for each species remain too preliminary for their IUCN Red List assessments. Therefore, I need to pursue with this project to develop the conservation action plan for each species trough the following objectives:

1- To assess the population structure, including gathering data on sex ratios, breeding season, fecundity, and distribution and to monitor changes in population levels and habitat.
2- To assess how abiotic environmental factors (water quality indicators such as oxygen, dissolved ions and pH) and biotic factors (predators, competition with other freshwater crab species, food sources) that influence population dynamics.
3- To use these data to update and implement conservation management measures aimed at stabilising population levels and increasing crab numbers.

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

The results of this project will be presented at national level (seminars, workshops, etc.), to managers and staff of government agencies responsible for overseeing nature conservation in the DRC, and to international journals.

Manuscripts in preparation, related to this project, are as follows:

1. New collection of freshwater crabs (Crustacea: Potamonautidae) from the Democratic Republic of Congo, with implications for conservation.

2. Description of four new freshwater crab species *Longipotamonautes* sp1.n., *Longipotamonautes* sp2.n., *Rotundopotamonautes* sp.n. and *Arcopotamonautes* sp.n. (Brachyura: Potamoidea: Potamonautidae) endemic in and around the Yangambi Biosphere Reserve in the Democratic Republic of Congo.

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

As mentioned above, the next step will be to develop conservation action plans for the semi-terrestrial crab species discovered in the framework of this project.

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, I have used the Rufford Foundation logo in my official documents, in the seminar document for my current master's thesis and in the documents produced for this project. The Rufford Foundation will also be acknowledged in all my future manuscripts.

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

Dr Nicaise Amundala (local supervisor, University of Kisangani in DRC) and Dr Pierre A. Mvogo Ndongo (external supervisor, University of Douala, Cameroon) helped me supervise my fieldwork. They also helped me obtain naicessary field documents and provided me with field equipment and logistical support. Laboratory analyses were carried out under their supervision. They will help me share the results with other stakeholders and international researchers.

I also benefited from the support of the Chair of the IUCN Freshwater Crustaceans Specialist Group, Professor Neil Cumberlidge (Northern Michigan University, USA). He has given me constructive advice throughout this project to ensure compliance with ethical considerations and all policies required for the identification of DRC freshwater crabs. He will also help me assess the crab species in our region for IUCN Red List conservation status.

Field assistants and guides: their role was to guide me and help collect data in the field, and to talk to local people as part of educational activities.

Village chiefs and other DRC field researchers on freshwater ecosystems played an important role in facilitating and promulgating advice for the success of this project.

10. Any other comments?

The project enabled me to establish important links with the traditional and administrative authorities in all the localities studied, and to gain additional experience in educational

activities. In addition, the project provided me with the data for my master's thesis, which I will be submitting soon.

Restoring the habitats of the crab species at Yangambi remains a challenging issue. The key role of The Rufford Foundation funding would be desirable, as it has enabled a species list to be drawn up and crabs to be assessed in the unexplored area of the Yangambi Biosphere Reserve.

Habitat of Longipotamonautes sp1.n. (stream in Yangambi Biosphere Reserve)

Habitat of *Longipotamonautes* sp2.n. (stream in Yangambi Biosphere Reserve)