Progress Report

Project ID: Rufford Small Grant (2025)

Conservation and assessment of the extinction risk for Sudanonautes eyimba, a threatened freshwater crab species endemic to Mt. Nlanako, Cameroon

Photo of Menye Ndongo Louisea C in the lab. @photo by Carine Rosine T

This report is an update of a my first Rufford Small Grant based on conservation of the freshwater crab *Sudanonautes eyimba.*

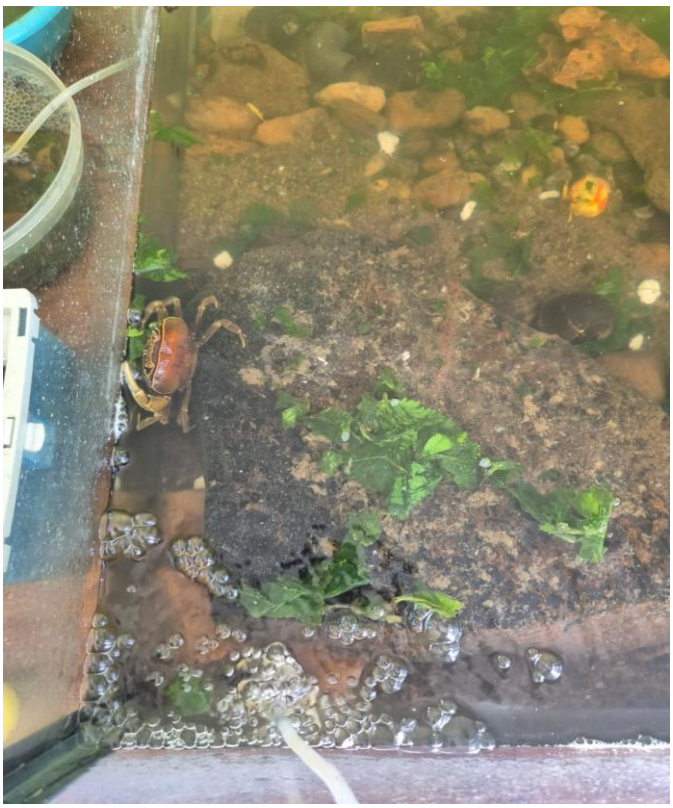
This project focuses on gathering data on habitat requirements, population structure and reproductive cycle of this species, needed to assess its extinction risk using the IUCN Red List protocols. Community training is planned to build awareness of conserving species and their habitats, to explain the benefits of intact ecosystems, and to involve the local population in the long-term management of their aquatic and forest resources.

The starting point of this project has been discussed by my Cameroon supervisor Prof. Dr. Pierre A. Mvogo Ndongo following the are the detailed breakdown of the 12-month timeframe for surveys and interviews for my conservation project.

The activities funded included :

1- Aquariums (200 liters) and tanks for Long-term animal husbandry to observe reproductive biolog

Photo of Menye Ndongo Louisea C in the lab. @photo by Carine Rosine T



Long-term animal husbandry to observe reproductive biology. @photo by Louise Charlene

Comments

This activity is conducting in the Aquaculture unit of the Cameroon Association for Research on Crustaceans and Other Aquatic Resources. We introduced three size categories (juveniles, subadults, and adults) of specimens of *Sudanonautes eyimba.* (1) juveniles (small-bodied non-reproductive specimens), (2) sub-adults (medium-sized but non reproductive specimens), and (3) adults (large sexually mature adults). After 10 month of growing these species, we noticed that all characters in juveniles show only isometric growth, whereas subadult and adult males show different degrees of allometric growth (accelerated development) in the major cheliped and gonopods but not in their abdomen, while subadult females show allometric growth in their pleopods and abdomens (but not in their chelipeds). The specimens in captivity are feeding naturally with palm nuts, cassava, dead fish, insects, plants. Water are aerated continually. Until now I did not yet observe female hatching. In this respect, we realized that reproductive cycle of this species is longer that we initially thought. This is one important data to assess its extinction risk using the IUCN Red List protocols.

2- 12-month fieldwork project

During our research in Mt. Nlonako ecological reserve, we noticed that *Sudanonautes eyimba* occurs in only a single stream, therefore, we extend fieldworks in other localies adjacent to Nlonako to search this species. Therefore, we visited other localities : Ambam near Campo-Ma'an Nationak Park, Yabassi (in Eboforest Ecological Reserve) and Warman Island (Lake Ossa Faunal Reserve).

Photo of Menye Ndongo Louisea C in the field. @photo by Pierre A. Mvogo Ndongo

Photo of habitat of Sudanonautes eyimba. @photo by Menye Louise Charlene

As per our objective to gathering data on habitat requirements, population structure, we reported 48 specimens of Sudanonautes eyimba composed as follow : 48 specimens : 15 adults (8 adult males, 7 adult females), 22 subadults (10 subadult males and 12 subadult females) and 11 juveniles. Adult and some subadult specimens dig hole outside the water, while the juvenile specimens are all found inside the water body.

Photo of a hole of adult specimens of *S. eyimba* @photo by Menye Louise Charlene

Photo of water body for juvenile pecimens of *S. eyimba* @photo by Menye Louise Charlene

A number of threats to the continued survival of *Sudanonautes eyimba* were identified during this study including those that impact its habitat. Many parts of Eyimba locality (including the locality where this species was collected) have been cleared of natural forest cover to make way for agriculture with the result that the vegetation is now dominated by shade-tolerant tropical plants of the family Amaranthaceae that grow well in moist soils, cultivated fields, and wastelands (also see Mvogo Ndongo et al. 2017). Apart from the substantial disturbance of the original vegetation on Eyimba locality in Mt. Nlonako, pesticides applied to the crops may drain into the aquatic habitats inhabited by *S. eyimba*, which could well have a

serious impact on this species. Furthermore, the clearing of original forest cover has exposed the aquatic systems on this locality (and the freshwater invertebrates that live there) to direct sunlight, and this is reflected in the high average daytime water temperatures of up to 30°C recorded during this study (compared to average water temperatures in streams shaded by forest cover of between 22–26°C). In addition, our water chemistry data indicate that the marginal aquatic habitats on Eyimba locality and sourronding areas have a low average pH of 5.5-6.2, indicating acidic conditions at these localities well outside of the preferred pH range (6.5–9.0) for most freshwater organisms (Robertson-Brayan 2004). This is of concern because acidic conditions may influence hatching and survival of *S. eyimba* and other aquatic invertebrates whose larval and/or juvenile stages are often more sensitive to low pH than are the adults. The immediate threats from habitat disturbance, altered water chemistry, and pollution all clearly raise questions about the long-term existence of crabs at this specific locality. The predator impact did not found on *Sudanonautes eyimba*, but on *Sudanonautes africanus* that live in sympatric with our target species.

Photo 1 of prey of a specimen of *S. africanus* in Eyimba locality @photo by Menye Louise Charlene

Photo of prey of a specimen of *S. africanus* in Eyimba locality @photo by Menye Louise Charlene

To get more information on its geographic range in order to calculate calculation of the exact geographic range estimated by using the Extent of Occurrence (EOO) and the Area of Occupancy (AOO), we conducted fieldwork in other localities that include : Ambam near Campo-Ma'an Nationak Park, Yabassi (in Eboforest Ecological Reserve) and Warman Island (Lake Ossa Faunal Reserve).

Photo of a specimen of *Sudanonautes* sp.1 from Eboforest locality @photo by Pierre A. Mvogo Ndongo

Photo of a specimen of *Louisea* sp. from Eboforest locality @photo by Pierre A. Mvogo Ndongo

Photo of a specimen of *Sudanonautes* sp.2 from Lake Ossa @photo by Pierre A. Mvogo Ndongo

Photo of a specimen of *Sudanonautes* sp.3 from Lake Ossa @photo by Pierre A. Mvogo Ndongo

3- Public educational sessions

According to local administrative autorities, It is too difficult to make a public the educational sessions given the security condition around Nlonako ecological reserve. To overcome this, we intensify the on-going educational component, meeting all people individually and over-use the Chiefs of village to help us in this strategy.