Progress Report

ID: 17672-1

Title of the project: Comparative study of populations of mangrove crabs from six mangrove ecosystems in Cameroon: Implications for Conservation

By

Pierre Armand Mvogo-Ndongo, ***Leader of the project***

Ph.D. student, University of Yaounde I, Cameroon

Fig 1: Photo of Pierre A. Mvogo-Ndongo during the trip in TiKo' mangrove area

This is an update of a pilot project supported by the Rufford Small Grant Foundation that began in May, 21, 2015 conducted by Pierre A. Mvogo-Ndongo (mpierrearmand@yahoo.fr) , under the supervision of Dr. Thomas von Rintelen (Thomas.vonRintelen@mfn-berlin.de) and Dr. Christian Albrecht (Christian.Albrecht@allzool.bio.uni-giessen.de).

I. Objectives of the project

The overall aims of the project are: 1) to carry out a biodiversity inventory of Cameroon's mangrove crabs at six locations - Campo, Eboundja, Grand Batanga-Lobe, Moungko, Tiko and Limbe;

2) to assess human-caused damage and pollution to the mangrove forest ; and 3) to educate local people about (i) the importance of mangroves both locally and globally as nurseries for commercial fish and shellfish species that in turn support the livelihoods of the local communities and protect the coastline from floods and storm damage; (ii) the threats to the mangrove ecosystem and how to mitigate the impact of these threats, so that the mangroves can regenerate; (iii) the methodologies needed to collect routine monitoring data on the health of the ecosystem and its organisms; and (iv) the need to conserve endangered mangrove species and the steps that need to be taken to protect them from extinction.

The fieldworks have already been carried out in the following localities: Campo, Eboundja, Grand Batanga-Lobe, Moungko, Tiko as outlined in the following table. The fishmen, farmers, and young people encountered in the field and in the local school have been educated on the topics outlined above.

II. Schedule of the project

Period	Activities	localities	Status
May, 21/2015 – Jun, 4/2015	Field research (rainy season)	Campo (02°20.950' N ; 009°50.556' E)	Achieved
Jun, 5/2015 – Jun, 13/2015	Lab work	University of Yaounde I	Achieved
Jun, 15/2015 – Jun, 30/2015	Field research with pre-educational phase (rainy season)	Eboundja (02°48.023'N; 009°53.628'E)	Achieved
July 1/2015 – July, 9/2015	Lab work with pre- educational phase	University of Yaounde I	Achieved
July, 12/2015 – July, 27/2015	Field research with pre-educational phase (dry season)	Grand-Batanga-Lobé area (02°52.952'N; 00953.733')	Achieved
July 29, 5/2015 – August, 6/2015	Lab work	University of Yaounde I	Achieved
August, 7/2015 – August, 19/2015	Field research with pre-educational phase (dry season)	Moungko area (03°38.078'N ; 009°46.467'E)	Achieved
August, 20/2015 – August 24/2015,	Lab work	University of Yaounde I	Achieved
August 26/2015 – September 6/2015	Field research with pre-educational phase (rainy season)	Tiko area (03°98.822'N ; 009°21.661' E)	Achieved
September 8/2015 – September 20/2015	Labwork	University of Yaounde I	Achieved
December 7/2015 – December 20/2015	Last field research (dry season)	Limbe area	Not yet achieved
April 2016	Educational Workshops		Not yet been done

Table 1: schedule of the project

III. Preliminary results of the project.

Localities	species of mangrove crabs collected in each locality	Degree of estimated pollution in the mangrove (%)	Number of huts or houses built in the mangrove	Degree of destruction and degradation of the mangrove (%)	Comments
Campo	*Sesarma angolense ; Sesarma buettikoferi ; Uca tangeri ; Cardisoma armatum ; Perisesarma huzardi; Metagrapsus curvatus ; Armases elegans ; Perisesarma alberti ; Goniopsis pelii ; Panopeus africanus ; Sesarma sp.*	70	16	65	Campo mangrove area harbors 12 species of crabs threatened by human activities. Some of these species: -*Sesarma buettikoferi*, *Metagrapsus curvatus*, and *Armases elegans* - appear to be indicator species for the destruction of mangrove forests. Local people have to change their current activities in order to slow down their negative impact on the mangroves. This is the main message we are delivered to them during the field research.
Eboundja	*Gecarcinus weileri; Cardisoma armatum; Goniopsis pelii; Sesarma buettikoferi*	80	40	99	The mangroves at Eboundja are going to become extinct! Four species of crab were collected: *Gecarcinus weileri and Cardisoma armatum* are hole-living land crabs that depend on salt water habitat. From our observations, *Sesarma buettikoferi* mainly occurs where mangroves are destroyed and *Goniopsis pelii* are accidentally collected because only 4 specimens were observed. We have talked to local people and asked them to protect the few mangrove plants we have seen as well as the importance of caring for and re-planting this forest.
Grand-Batanga-Lobé area	*Cardisoma armatum; Goniopsis pelii ; Sesarma buettikoferi*	75	38	98	The situation at this locality is similar to the situation from Eboundja area. But so far, *Gecarcinus weileri* don't occur here. However, the challenges to this ecosystem come from the local people who need a place to build their houses. In addition, they added that they didn't have a problem living without with the mangrove forest, and that our warnings are not important to them despite the fact that Cameroon mangroves are protected by the law n° 96/12.
Moungko area	*Cardisoma armatum ; Goniopsis pelii ; Sesarma buettikoferi; Metagrapsus curvatus ; Armases elegans ; Perisesarma alberti ; Sesarma angolense*	80	68	90	Mangroves at Mouangko are highly exploited and have been polluted by local people. However, we have taken a lot of time to talk about the importance of this forest to local people during the field work and this education will continue with the workshop phase.
Tiko area	*Sesarma angolense ; Sesarma buettikoferi ; Uca tangeri ; Cardisoma armatum ; Perisesarma huzardi; Metagrapsus curvatus ;*	80	80	70	Mangroves at Tiko are also highly exploited and have been polluted by local people. However, like Mouangko we have taken a lot of time to talk about the importance of this forest to the

	Armases elegans ; Perisesarma alberti ; Goniopsis pelii ; Panopeus africanus.				local people during our fieldwork and this education will continue with the workshop phase.

Table 2: preliminary results of the project

IV. General comments:

Species of mangrove crabs were identified that could be used as indicators of the destruction, pollution, and degradation of mangrove forests by human activities. The mangrove crab *Sesarma buettikoferi* appears to be important as an indicator of recent mangrove destruction by human activities, while *Metagrapsus curvatus* is an indicator species in areas that are heavily polluted. Populations of the tree-climbing crab (*Armases elegans*) are particularly affected by human tree-cutting activities. This species prefers to live on young trees and is rarely found on old trees, and we found that it has been particularly affected in Cameroon because humans have targeted young trees for cutting down, a preference that was confirmed by our local guides. In each locality, I have also spent much time to train my local guides to be able to continue with the sensibilization of local people in each their home locality on behalf on conservation of mangrove ecosystems. So, even if I'm not in each locality, I'm follow-up the situation of the mangrove via those young local guides.

We encountered some challenges with the pre-educational phase in some areas (especially in Grand-Batanga-Lobé area) where mangrove forests are almost completely disturbed! We are planning to initiate monitoring by the local communities in the future (a program developed in consultation with our local guides, the local authorities (the Chief of each site where we placed each transect), and national authorities (ministries, NGOs). We are preparing to meet these challenges during future educational workshops that we will organize once we have all of our field data collected and analysed.

The Cameroon mangrove ecosystems are protected by the law n° 96/12 of August- 05-1996 stating that: «les écosystèmes de mangroves font l'objet d'une protection particulière qui tient compte de leur importance dans la conservation de la diversité biologique marine et le maintien des équilibres écologiques côtiers». However, our preliminary data indicate that this law is not effective in practice. And I have a great determination of overcome at this situation and with my local team to protect and conserve the mangrove and wetland ecosystems in my home country (Cameroon) as well the fauna thereto.

V. Annexes: Some images of mangrove crabs and of the destruction of mangrove forests recorded during our field research in 2015.

Fig 2: *Goniopsis pelii*

Fig 3*: Sesarma buettikoferi*

Fig 4: *Armases elegans*

Fig 5: *Panopeus africanus*

Fig 6: *Cardisoma armatum*

Fig 7: *Metagrapsus curvatus*

Fig 8: *Gecarcinus weileri*

Fig 9*: Perisesarma alberti*

Fig 10: Logs just cut from the mangrove forest at Mouangko

Fig11: Logs just cut from the mangrove forest at Tiko

Fig 12: Destruction of the mangrove forest at Campo

Fig 13: Humans have cleared mangrove vegetation and have houses in the mangrove forest at Campo