

Final Project Evaluation Report

Your Details	
Full Name	Chechia Alexandros Marignandro
Project Title	Nest protection and population evaluation of the critically endangered Big-headed Turtle or the Rere (<i>Erymnochelys madagascariensis</i>) at Lake Kinkony
Application ID	23211-1
Grant Amount	£4999
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Date of this Report	25 September 2018

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
To estimate the population density of <i>Erymnochelys madagascariensis</i> at the site to learn whether the population is stable, increasing or decreasing				<p>A lot of fisherman said they usually capture accidentally any Rere from March until August, but this project proposed that mark-recapture programme carried out in November until December because these species are active during rainy season (Kutchling, 1999). This time was not enough for data collection to evaluate this small population.</p> <p>The data from mark-recapture is insufficient to analyse by software Marc because one turtle only might be trapped because the traps which were used did not fit on very low population of this animal in this lake. But thanks to implementation of this project, five nests could be found, two individual from fishermen and one was trapped by local staff researcher. If we compare the data from multidisciplinary investigation and data from this project we can say that the population increasing in Lake Kinkony because in 2013 they found three turtles (Biodev, 2013) and for this year we found three individuals and five nests.</p>
To learn more about the reproductive ecology: number of eggs per clutch, hatch rates per egg clutch				<p>During nest season (2017-2018) five nests were found thanks to use of method of participatory action research through collaboration with local population. First nest was found in November 2017, three nests in December 2017 and the last in January 2018. Three nests of the five could be measured because others two nests have been laid exceed three days (Kutchling, 2000) and the following number of eggs are 23, 1,</p>

				14, 16, 20. But after excavation, the two nests left could be counted. The number of eggs varied from 1 to 23 and the average being 14 eggs per nest
To Protect and monitor nesting females, their eggs, and hatchlings				Five nests were protected and monitored around Lake Kinkony. All nests were found between November 2017 and January 2018. 74 eggs were protected and any hatchlings had not been monitored.
To release hatchlings from wild nests to increase the wild population at the Lake of NPA Complex Mahavavy Kikony				During the hatch period there was enough rain cause of Tropical Cyclone, so the babies can open their nests. After Eliakim cyclone (March 2018) all nests were excavated by local field assistant and project leader. Release hatchlings from wild nests did not carry out because all hatchlings were not found in nests. Because of the ELIAKIM cyclone's inundation which have been passed at the Boeny region, the absence of hatchlings in the nest were obvious. But, there were 18 eggs infertile in one of five nests and others, small pieces of eggs were found there.
To supports the local Associations in order to continue to sustainably manage Lake Kinkony and their satellites Lakes				Asity Madagascar as local manager of this site, local association in Makary village called VOI Vorofaly, and association of fishermen in Katondra in satellite Lake of Kinkony are the key partner of this project. This project supported certain activities of local association in order to continue to sustainably manage Lake Kinkony and their satellites lakes as monitor and awareness of fishermen so as to be able to stop illegal exploitation as use of mosquito net for capture of fish and catch of species in hard core. It is formed by forest of phragmites in middle of island. This project carried out also awareness of farmers who live near of nest place in order to participate

			<p>the participatory action research. That why one villager man in Makary at Anjanamborona analagnana Riceland could protect one female of Rere which laid their eggs to the forest near of Lake Kinkony. This first action leded another stakeholders to start the protection of this turtle. After this outstanding event, more fishermen brought some turtle to our team field for measuring, marking and monitoring. Protection of phragmites in hard core of this Lake was same work of this project and local association through awareness of farmers in order to stop burning all plants in there and interdiction of fisherman so that they had no access in there. Then, at the end of this project, there were fishermen and farmers to call me and said they have discovered another satellite lake of Kinkony which have a good population of Rere which is needed verifying.</p>
<p>To motivate the local community to be involved in Rere conservation.</p>			<p>Villagers was paid for each nest they found and received half of the money when the nest is found and the rest after the nest has hatched. This method is as a short-term measure. The risk over the long-term is that people come to rely on the financial compensation, so if it is stopped they revert back to harvesting the eggs. That why, we must search another way for solve the persist problem. The turtle eggs and both sex of this animal are not important in the culture of the local people, they eat just for food, then that can sometimes be addressed by providing other/different protein, etc. as an alternative – but I appreciate that is difficult in the Lake Kinkony area, which is remote and communities are generally poor. Another way around that is to develop alternative food sources</p>

				right there, like breeding ducks.
To identify the main factors for the decrease in the population of the species at the Complex Wetland Mahavavy Kinkony Wetland				<p>Most of the small populations of <i>E. madagascariensis</i> inside the NPA-MKC is under pressure from collection and consumption by impoverished local communities (Veloso et al., 2013). Both sexes, eggs and all age classes of the turtle are consumed. Thanks to involve local population in Rere conservation through participatory research or each nest which has been seeing is paid, local population in village of Makary, Katondra and Ampanihy are motivated to protect this critical endangered freshwater turtle.</p> <p>Moreover, due to climate change, phragmites growing around Lake Kinkony suffered an 80% decline between 1949 and 2008 (Andriamasimanana R. and Rabarimanana M.; 2011). This is significant as it is a preferred habitat for <i>E. madagascariensis</i> during the dry season.</p>
To deliver recommendations to improve the applied conservation strategy of <i>E. madagascariensis</i> at the NPA Complex Wetland Mahavavy Kinkony.				<p>More scientist have recommended as Gerald Kuchling, Chris Bank that Community Conserved Area (CCA) should be established in there which can monitor and control the Rere captured accidentally by fisherman during dry and rain season. Then breeding ducks must be implemented in each CCA for motivate local population in order to stop eating Rere meat and eggs. Restoration of its preferred habitat during dry season as phragmites is needed and strongly recommended.</p>
Additionally, scientific knowledge from the research will help conservationists and Protected Area managers to adopt				<p>This project has been presented in front of existing organization in Boeny region in order to disseminate the result.</p>

better strategies to better address conservation issues not only for the species, but also for the entire biodiversity within the New Protected Area				
Furthermore, this project would serve as reference for future projects at National level				

2. Please explain any unforeseen difficulties that arose during the project and how these were tackled.

A lot of fishermen know this critical endangered turtle is protected by The Malagasy law that why they exploit illicitly the big headed turtle. For the first time, they hesitated to involve in protection of this animal after awareness of local population and association because they thought that we want to trap them. Mr JEANNOT who brought firstly this animal to our team field accepted with them about this topic. But the cooperation with president of local association (VOI VOROFALY) resolved easily this small problem through increasing the motivation including if someone found firstly nest or brought firstly any Rere captured accidentally would become local team field and received double compensation. That why he dared bring the Rere captured accidentally to our team field for measured, monitored and released into a same place. After that, local population knew, believed and trusted that we did not want them to fall into the net. That why they accepted to involve in big headed turtle conservation and then five nests were found.

3. Briefly describe the three most important outcomes of your project.

- a) Local population have been involving in conservation of *Erymnochelys madagascariensis* through Rere captured accidentally was not eaten by fishermen and another stakeholders as farmer did not burn phragmites of hard core in Lake Kinkony's islet because it is as preferred habitat of this species. Since stakeholders involved in Rere conservation, local association was supported through protection of Lake Kinkony's hard core and awareness of fishermen. So, local association was satisfied with the support from this project and it wisely continues to manage Lake Kinkony and their satellites Lakes.
- b) Nests of females and their eggs were protected and monitored.
- c) Recommendations to improve the applied conservation strategy of *E. madagascariensis* at Lake Kinkony was delivered thanks to collaboration form both international herpetologist as Gerald Kuchling and Chris Bank who know very well the conservation of this species. Phragmites restoration of hard core

in Lake Kinkony's islet is strongly recommended and breeding ducks is needed also for farmer.

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

This project used the citizen science participatory action research method for searching for the wild nests with local villagers in order to involve the local communities. It also supported the activity of the local conservation Association, because they already have a relation with Rere conservation such as promoting fisherman awareness that why we could introduced Rere protection.

For ensure that those people did not eat Rere meat and eggs, the locale people was recompensed in order to protect the eggs during the period of incubation so villagers were paid for each nest they found and received half of the money when a nest was found and the rest after the nest has been hatched.

5. Are there any plans to continue this work?

Yes, I have had any plans to continue this work.

Local manager of this site as ASITY Madagascar or ex-Birdlife of Madagascar is interested with bird so conservation specific action of *E. madagascariensis* have never seen in there that why the project nest protection and population evaluation of the critically endangered big-headed turtle or the Rere (*Erymnochelys madagascariensis*) at Lake Kinkony was implanted there. Local population in Lake Kinkony have been involved in Rere conservation that is the one of the greatest opportunity of this project that why we should to continue this work.

Although this project has engaged local communities through participatory action research or villagers will be paid for each nest they found and receive half of the money when the nest is found and the rest after the nest has hatched. This method is a positive conservation tool and as a short-term measure. The risk over the long-term is that people come to rely on the financial compensation, so if it is stopped they revert back to harvesting the eggs and to eating Rere captured accidentally. There is a best solution to develop alternative food and income sources right there as implementation of breeding ducks, because there are smaller snail freshwater on the Lake Kinkony's coast which is the one principal raw material for ducks' food.

For avoiding extinction local, long-term conservation of this critical endangered freshwater turtle should be implemented, as establishment of Community Conserved Area (CCA) and development of Locally-based on monitoring tool (LbM).

We still need to develop a community-based on sustainable mechanism for restoration preferred habitat of this small population, of critically endangered species such as the big headed turtle. Phragmites conservation in hard core of Lake Kinkony should be implemented also in order to restore the preferred habitat of this animal and others critical endangered autochthones fish as *Paretroplus dambabe*

(CR), *Paratilapia polleni* (CR), *Paretroplus petiti* (CR), and local endemic endangered bird as *Amaurornis olivieri*.

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

Publication of results in workshop with Civil Society Organisation Environmental in Boeny region was already started the dissemination our results. For this ongoing project, dissemination of results with the NGO will be continued. And we will carry out the dissemination at Mahajanga University also because since the first project we have collaborated with Vice-President who is the one herpetologist of this University and with option EBHS (Environment and BioHydroSystem) which is interested with freshwater species. We will share to the international herpetology journal the next results of this project as scientific article.

Government agencies recommended during the first project, they were able to provide us any permit in order to facilitate the implementation of any project if the applicant gives any summary report to them that why this project's results will be shared in a summary report that will be given to government agencies participating in the project.

We continue to share our results with fisherman and farmer through talks and posters on X-Banner.

7. Timescale: Over what period was the grant used? How does this compare to the anticipated or actual length of the project?

It was an 11 months project because the timescale anticipated of this project was started on August 2017 and was supposed to end on June 2018. But the fund was received on September 2017 and because of heavy rain was late in January, so we were able to hatch at April after ninety days that why it is an extension of one month.

8. Budget: Provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Taxi-brousse for project leader Tana- Majunga-Tana	35	35	0	
Taxi in Majunga- Tana	25	25	0	

Taxi-brousse for project supervisor Tana- Majunga-Tana	35	0	+35	Juliette Velosoa is as supervisor of this project was always busy during field work of this project that why she did not come to there but she gave up to get in touch me through suggestion by telephone.
Oxcart rental Majunga-Mitsinjo	96	96	0	It is a car rental no oxcart
Oxcart rental Mitsinjo-Lake Kinkony	84	120	-36	A lot of people on Lake Kinkony do not know to identify very well this species above all sub-adult, not adult that why they saw or captured each turtle, they called our team to verify.
Boat rental for crossing rivers en route.	80	300	-220	A lot of satellites lake in Lake Kinkony is accessed by Boat only during rainy season. More turtle are captured by fisherman and farmer during this season and we must go to verify that if it is a Rere or not.
Pirogue rental at Lake Kinkony	200	180	+20	We had a cheap price if we did not have any skipper.
Accommodation for 4 night at Majunga ;10 night Mitsinjo	154	176	-22	Exceed two night at Mitsinjo
Batteries, notebooks, candles, markers, wire for traps, alcohol, GPS, formalin, cotton, etc.	400	400	0	
Two local research assistants	1200	1200	0	
Cook for 5 months	600	600	0	
Local nest monitors	300	300	0	
Field camps & villages	330	330		
Ravelojaona Audlin	840	840		
Meetings and Special Events	620	420	+200	We could not to organise a special event because this fund is limited.
TOTAL:	4999	5022	-23	

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

These next steps are very important because it has an aim to strengthen existing conservation programmes through establishing a community-based on sustainable conservation mechanism "Community Conserved Areas (CCA)" to promote

conservation of critical habitats of the Madagascar big headed turtle. This gives the community an opportunity to manage their own resources and a platform to engage their leaders. The community being custodians of natural resources, strengthening the level at which they engage their leaders is important. Local association VOI VOROFALY has been involved in monitoring of habitat of this turtle through providing information on available threats and participating in the nest of Rere counts.

The following objectives of this ongoing project are:

- To establish a Community Conserved Area (CCA) and define the roles of the community and other stakeholders in the conservation of the Rere and its habitat. Communities play a big role in conservation of natural resources and they need to take responsibility in the conservation of critical biodiversity.
- To create awareness on the plight of the Rere amongst the community. The Rere is well known among the locals however, not all the locals know the magnitude of the threats it is exposed to as well ways in which to curb such threats.
- To develop a Locally-based monitoring tool (LbM) to promote community participation in research and conservation of the Rere at Lake Kinkony. Together with the community we will develop a tool to monitor and report on the resource use, health as well as threats to the resource and together suggest ways of combating the threats.

This ongoing project has a specific objectives:

- To train fisherman that will be able to safely mark all Rere captured accidentally by their own net at CCA which will be managed by existing local association. Any turtles accidentally captured in nets, etc. should be reported/taken to the field teams and local associations (not killed and eaten).
- To improve capacity of local population and fisherman to monitor nests of *E. madagascariensis* in order to increase rate of nest protected.
- To train fisherman, farmer and other stakeholders to breed ducks as an alternative food source to eating turtles because, eggs and both sexes of Rere are not important in the culture of the local people, they eat just then for food (protein). After training tool in breeding, more baby ducks will be distributed for create a new source of income for Kinkony communities.
- To strengthen phragmites plantation activities of local people in the core area of the Lake, which is the preferred habitat of *E. madagascariensis* during the dry season. Methods for monitoring and evaluating the phragmites will also be provided

10. 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 used it during dissemination of project's results in front of NGO in Boeny region. All materials that we produced within this project contained Rufford Foundation logo as posters which was presented in front of local association and people.

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

Dr Gerald Kuchling, Adjunct Senior Lecturer, School of Biological Sciences M092, in University of Western Australia is my international referee who is an expert in the species that I am hoping to work on. He was able to comment on our methodology and the needs of the species in terms of long-term conservation. He recommended the next steps of this project.

Juliette Veloso is an only woman scientific Officer for Rere conservation of Big-headed Turtle in Durrell Wildlife Conservation Trust which was our supervisor. She facilitated a communication between me as project leader of this project and ASITY Madagascar as manager of the NAP Mahavavy Kinkony Complex. She provided me more approach method of Malagasy villagers and applicable method for monitoring of small population as in Lake Kinkony. She trained me about *E. madagascariensis* identification and nest monitoring. Her continuous helping facilitated my work to carry out this project.

Ravelojaona Audlin was my project assistant supported for data collection in field herpetology and analysis of data.

Bemaro Renel who is the Founder President of our NGO AIDEM travelled to Lake Kinkony to take photographs for the posters and also designed the posters.

Alexandre and **Zisy** were the both local research assistants which started nest protection and assured awareness of fisherman to bring any turtles accidentally captured to report or take to the field teams and local association.

12. Any other comments?

Captive breeding is mitigated of small population but it is very expensive and needs to be studied carefully. So it is avoidable if possible as it is certainly expensive and consumes a lot of time. It is far better to protect turtles in the wild, through protecting their habitat, if that is possible at all – and better long-term outcomes too.



Local people do not eat Rere by customs of his ancestors, involved in this project



Presentation of project's results in front of civil society organisation in Boeny region



Excavation