

The Rufford Foundation Final Report

Congratulations on the completion of your project that was supported by The Rufford Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. The Final Report must be sent in **word format** and not PDF format or any other format. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. Please note that the information may be edited for clarity. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to jane@rufford.org.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Gustavo Adolfo Castellanos Galindo
Project title	Mangroves as providers of ecosystem services in the Tropical Eastern Tropical region under the influence of climate variability
RSG reference	13918-B
Reporting period	April 2014 – July 2015
Amount of grant	£11,814
Your email address	gustavo80@yahoo.com
Date of this report	August 31 th 2015

1. Please 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
1. Determine the temporal patterns of mangrove habitat use by fish and crustaceans in two climatically contrasting areas: southern Colombian Pacific (very humid) and the Tumbes Mangal National Sanctuary (very dry)		X		I was able to collect information on the ecology of mangrove fishes in the two proposed study areas. A significant amount of primary data was collected in the Colombian Pacific, whereas the data in Peru has been collected mostly from secondary data in grey reports. I am still aiming to continue collecting more primary field info in Peru in the upcoming months.
2. Produce and compare socio-ecological loop models of the two mangrove ecosystems incorporating scenarios of climatic variability			X	I was able to use loops models to analyse the two social-ecological systems. A substantial amount of information on the effects of climatic variability on mangrove-associated resources in the two areas was collected (see poster presentation in webpage). A document presenting these results in underway for publication in a peer review journal.
3. Quantify the economic contribution of mangrove-associated resources to fisheries yields in the two areas and explore how this contribution could be affected by climatic variability			X	Linked to the objective two, a preliminary assessment of ecosystem services (fisheries production) provided by mangroves in the two study areas was accomplished. The document in preparation will deal with this aspect in detail.
4. Identify flagship species that could provide basis for future conservation			X	I have carried out interviews and choice experiments with mangrove resource users in both social-ecological systems

actions in these two areas				in order to see which species associated to mangroves are better candidates to raise awareness on the importance of protecting mangroves. These results are being contrasted with previous attempts to identify these species in Colombia and Peru.
5. Provide a basis for the understanding of the functioning of mangrove socio-ecological systems under climatic variability with application to other mangrove areas in the Tropical Eastern Pacific region		X		The project has made initial steps to understand how mangrove social-ecological systems function in two contrasting areas of the Tropical Eastern Pacific. However, further attempts should aim at obtaining more quantitative methods to understand ecosystem functioning.

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

Exploring a new study area always poses difficulties. In this case, getting to know the system in northern Peru (Tumbes) took a bit more time than expected. Fortunately we made at the end very good links to the local NGO Tumbes Silvestre and the work got facilitated. Now we have plans with this NGO to continue working in projects related to mangrove conservation in Peru.

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

1. The project was able to raise the profile of the mangrove social-ecological systems in the tropical Eastern Pacific at different local, national and international fora.

2. I was able to collect comparative data from contrasting mangrove sites in a relatively understudied region. These data and information will be prove very valuable for stakeholders in the region and those in charge of decision and policy making for sustainable resource use and conservation.

3. I consider a very valuable experience that people (mangrove resource users) from Colombia and from Peru got to know different systems, cultures and people in other regions

having the same problems, but also trying to solve them. This kind of knowledge exchange is promising a valuable in conservation.

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

In Colombia we worked closely with the local Afro Council “Esfuerzo Pescador”, with whom we carried out all the fieldwork and outreach activities planned in the project. The local Afro council is nowadays an example of how empowered communities can lead local conservation initiatives with the facilitation of other stakeholders in the Pacific coast of Colombia. We are currently supporting different initiatives with this council to make artisanal fisheries more sustainable. This is having direct benefits for the people living in this area. The leader of this council had the opportunity to visit Peru and gain very valuable knowledge on how other cultures live in mangroves and how they protect this ecosystem. The leader also witnessed experiences that failed and this has also been valuable.

5. Are there any plans to continue this work?

Definitively. I have currently a postdoctoral application to the Humboldt Foundation in Germany that will follow up the work performed during this project. Furthermore, I am involved in different initiatives aiming at constructing a regional mangrove conservation vision in the Tropical Eastern Pacific. These initiatives are led by WWF and other NGOs and by the “Comisión Permanente del Pacífico Sur” a 60 year old intergovernmental body integrated by Colombia, Peru, Ecuador and Chile that seeks to protect and manage coastal ecosystems.

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

I (and my co-authors) have already participated in four international conferences where the results of the project have been disseminated. Local workshops greatly help to disseminate the project results and objectives at the local level. A blog (<https://mapes2014.wordpress.com/page/2/>) helped to disseminate the project at different levels. I hope to continue posting upcoming project results in this blog. Finally, the project outputs are expected to be disseminated among the scientific community via publications in relevant journals.

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

I used the funds from April 2014 to July 2015. The project was expected to span for 1 year, but due to delays with fieldwork in Peru the project extended for 4 additional months.

8. Budget: Please 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.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Stipend for undergraduate students (3 months in Peru, 3 months in Colombia)	600	300	+300	This amount was re-distribute it cover the travel costs of field assistants in Colombia to help in the collection of fish data
Salary for local guide (3 months in Peru, 3 months in Colombia)	654	654	-	
Airplane transportation Colombia (Cali-Guapi-Cali x 2 roundtrips x 2 persons)	528	648	-120	One additional person was taken to the field trip in Colombia
Maritime transportation Colombia (Guapi-Sanquianga-Guapi x 2 roundtrips)	380	380	-	
Terrestrial transportation to Tumbes (from Cali x one person x roundtrip)	232	300	-68	
Lodging in Sanquianga Colombia (2 persons x 45 days)	810	900	-90	One additional person was taken to the field trip in Colombia
Lodging in Tumbes, Peru (1 person x 90 days)	630	630	-	
Meals during fieldwork in Sanquianga (2 persons x 45	630	720	-90	

days)				
Meals during fieldwork in Tumbes (1 person x 90 days)	450	450	-	
Phantom DJI	750	800	-50	
Software Agisoft	350	350	350	
Workshops with stakeholders Colombia (two)	1000	1000	-	
Workshops with stakeholders Peru (two)	1000	1000	-	
Learning by exchange activity (person in Colombia and person in Peru)	1500	1500	-	Learning by exchange experiences were greatly facilitated by the NGO Tumbes Silvestre in Peru and the Espuerzo Pescador council in Colombia
Production of posters with results	1200	1200	-	A total of 500 booklets and 200 t-shirts were produced during the project. These materials have been distributed among locals in the two study sites and also at national and international forums related to mangrove conservation
Fuel cost for transportation Colombia and Peru	800	800	-	
Materials for field campaigns	300	300	-	
Total	11814			One pound = 3351.34 pesos (March 11th 2014)

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

I expect that the current approach to understand mangrove social-ecological systems can be used in other areas of the Tropical Eastern Pacific (Ecuador, Panama, Costa Rica). I would like to continue highlighting at local, national and international levels the importance that mangroves have for people in these coastal zones. Acknowledging this importance with ultimately help to prioritise policies to protect not only nature but also the livelihoods of the people depending on mangroves in these areas. I am now in the process of writing two

manuscripts derived from the data collected during the project. One will analyse differences in the social-ecological systems using loop models and the other one will compare the fish community structure of the two localities (southern Colombia and northern Peru). These manuscripts will be submitted to peer review journal in the near future.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

Yes, the logo was used in the posters and oral presentations presented at the four conferences where I (and my co-authors) showed results from the project (Youmares 2014 – Germany, London IUCN mangrove conference 2014- UK, Mangrove conference – Colombia 2015, Mangrove cockle conference – Esmeraldas Ecuador). I also used the RSGF logo in the outreach material that was produced (t-shirts and booklets) and these materials were advertised in the WWF Colombia webpage and social media.

11. Any other comments?

Updates of further project outcomes will be periodically posted at the blog:
<https://mapes2014.wordpress.com/page/2/>