

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	Jasper John Obico
Project title	A first assessment of patterns of genetic diversity and connectivity of the last remaining forests of Cebu (Philippines)
RSG reference	20207-1
Reporting period	November 2017–February 2018
Amount of grant	£ 5000
Your email address	jasper.obico@pg.canterbury.ac.nz
Date of this report	20 Apr 2018



1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.

Objectives	Not achieved	Partially achieved	Fully achieved	Comments
 Fieldwork to collect data and specimens to be able to determine the genetic structure and connectivity between the forest fragments in Central and southern Cebu using genetic data from Tetrastigma loheri and Lepeostegeres cebuensis and compare the patterns of genetic diversity and connectivity between two species Fieldwork to collect data and specimens to be able to determine if T. loheri is composed of one or more taxa 				 We collected 62 silica-dried tissue samples and 34 herbarium voucher specimens of <i>Tetrastigma loheri</i> from the four fragmented forests included in the project. For <i>Lepeostegeres</i> <i>cebuensis</i>, we collected 64 silica and four voucher specimens from the forest of Nug-as. Contrary to our expectations, the latter species was only encountered in Nug-as forest and can therefore not be used to determine the genetic structure and connectivity between the focal fragmented forests. We collected 25 silica-dried tissue samples and 55 voucher specimens of different <i>Tetrastigma</i> species including <i>T. loheri</i> from Bataan, La Union and Benguet provinces in Luzon, and from Leyte. These collecting sites are the type localities of <i>Tetrastigma loheri</i> and morphologically similar <i>Tetrastigma</i> species. In addition, my
				team members collected four additional specimens and tissue samples of <i>T. loheri</i> at three localities in Negros island.
3. To conduct a capacity building training workshop for the stakeholders in Cebu				3. In collaboration with Cebu Technological University - Argao and the Philippine Biodiversity Conservation Foundation, we conducted a field botany workshop in Nug-as, Alcoy, Cebu from 5th-9th January 2018. This was aimed at augmenting the skills of the participants who are involved in biodiversity conservation in Cebu and other parts of the Philippines and at training a new generation of plant conservation biologists. Twenty-three



	people coming from academia,
	government institutions, NGOs, and a
	people's organisation participated.
	Among the workshop topics were
	plant identification and recognition of
	select families, documentation and
	preservation of plants, principles of
	botanical nomenclature, and
	collecting botanical field data.

The grant was requested to finance fieldwork for the taxonomy and conservation genetics aspects of my PhD project at the University of Canterbury. Genetic data will be generated from the collected specimens and several downstream analyses will follow. My colleagues and I also organised a workshop to support local conservation efforts through capacity building.

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

Following elections in 2016, there was a change in the leadership at the Department of Environment and Natural Resources (DENR) and a new Secretary was appointed in 2017. This caused a long delay in obtaining the Memorandum of Agreement (MOA) between the DENR and the University of Canterbury. The MOA was necessary for our application for a Gratuitous Permit (GP) to collect plants in the Philippines. The MOA was eventually signed and the GP was approved in September 2017. For this reason, the fieldwork that was initially scheduled for November-December 2016 was rescheduled to start in November 2017. The workshop was held in January 2018.

We only were able to collect specimens of *Lepeostegeres cebuensis* in Nug-as forest. It might be that *L. cebuensis* is absent in the other fragmented forests or very rare. We therefore decided to only use *Tetrastigma loheri* to study patterns of genetic diversity and connectivity between forest fragments in Cebu.

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

1. We successfully collected specimens of *Tetrastigma loheri* in Cebu for the conservation genetic component of my project. This is an important outcome, because the presence of *Tetrastigma loheri* in the four forest fragments in Cebu supports our hypothesis that *Tetrastigma loheri* is a common species in Cebu forests, although this is not the case for *Lepeostegeres cebuensis* which we only found in one fragmented forest. The collected specimens are needed to address the conservation genetic questions of my PhD research. Answers to these questions provide information that can help conservation managers to make informed decisions about protecting the Cebu forest fragments. Conservation, has not been widely utilised yet in conservation efforts in the Philippines, particularly in Cebu.



2. We were also successful in collecting specimens of *Tetrastigma* species at their type localities for the taxonomy component of my project. The *Tetrastigma* species included in my study were originally collected from their type localities almost 100 years ago. I went back to these type localities hoping to collect specimens for genetic analyses and morphological study. It was fortunate that I was able to find specimens of these species in the forests where they were first discovered such a long time ago. Some of these species are only known from these type localities. Confirming the presence of these remaining forest patches to nature conservation.

3. The workshop was a success. Participant feedback was positive and many of the participants have remained in contact with me and my colleagues after the workshop. I am convinced that the workshop achieved its goal of transferring relevant skills and knowledge to a new generation of conservation biologists and renewing their interest in botany and Philippine biodiversity. I am therefore hopeful that the participants will continue to pursue botany-related courses or other professional opportunities in conservation in the future.

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

The local communities played a significant role in the project. Local officials and field guides ensured safety and assisted during plant collecting. My interaction with them provided an opportunity to share the importance of my project and how this might benefit their communities. It allowed them to realise the value of the remaining forest in their respective localities and the need to protect them.

The workshop part of the project was co-organised and hosted by Cebu Technological University in Argao, a local university. This provided this university with an opportunity to expand their involvement in conservation efforts in Cebu through education. The support staff during the workshop included community leaders and members of Kapunungan sa Mag- uuma sa Yutang Lasangnon sa Bulalacao (KMYLB), a People's Organisation whose members are forest wardens and custodians of Nug-as forest in Alcoy. They participated in the workshop as valuable sources of biodiversity information to the participants and took part in discussions about the importance of grassroots conservation initiatives. The workshop also provided an opportunity for members of the KMYLB to learn the science behind their vast knowledge of the Nug-as flora, to extend their collaborative network and to strengthen relationships with local universities and conservation NGOs. The workshop also contributed to the local economy of Nug-as and helped develop strategies to further strengthen their ecotourism and educational tourism programme.

5. Are there any plans to continue this work?

I would like to continue the conservation genetics aspect of the project by replacing *Lepeostegeres cebuensis* with *Garcinia rubra*, a common forest species that we often encountered during our fieldwork in Cebu. This would enable the comparative conservation genetic analyses that I originally planned, but that had to be



abandoned, because the distribution of *Lepeostegeres cebuensis* proved to be more restricted than foreseen.

The success of the training workshop in Cebu can serve as a template for similar workshops in the future. There are a few participants who have requested us to conduct a similar workshop elsewhere in the Philippines.

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

This project is part of my PhD work with Dr Pieter Pelser at the University of Canterbury. Partial results will be presented at least at our Annual Biology Conference at the university this year in New Zealand. I will also provide updates about my project through social media like Twitter. Preliminary data and publications resulting from the results of the project will be disseminated to stakeholders. When I go back to the Philippines after my PhD study, I will present the results of my study at my home university and in a local conference such as the one hosted by Biodiversity Conservation Society of the Philippines.

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

The Rufford grant was used for a period of 3 months. As mentioned earlier, the fieldwork and workshop were delayed because of a change in the leadership at the DENR which caused a delay in securing collecting permits.

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
Return air travel for Barcelona: New Zealand- Manila	700	758	58	
Cab from-to Rolleston and Christchurch International airport for Barcelona	61	69	8	
Return air travel: Manila-Cebu for Obico and Barcelona	129	145	16	
Per diem for Obico in Cebu (6 days workshop + 16 days fieldwork)	1238	760	-478	See note 1
Per diem for Barcelona in Cebu (6 days)	338	74	-264	See note 1
Labour for porter and guide for 20 days plant collecting in Alcoy, Tabunan, Dalaguete, Argao (16 pounds for 2 pax per day)	320	149	-171	See note 1
Food for 20 days plant collecting in Cebu for	534	96	-438	See note 1



Obico, porter and guide (8.9 pounds per pax				
per day)				
Return land travel: Manila-Pampanga. (This was	16	15	-1	
changed to Manila-Bataan trip)				
Return land travel: Manila -Sorsogon. (This was	48	10	-38	
changed to Manila-La Union trip)				
Return bus and ferry: Manila-Batangas pier-	33	18	-15	
Mindoro (This was changed to Manila-Benguet				
trip)				
Return air travel: Manila -Butuan (for Agusan	64	56	-8	
del Norte, Mindanao trip). (This was changed to				
Manila-Leyte trip)				
Per diem for Obico in Pampanga, Sorsogon,	675	527	-148	See note 1
Mindoro, Agusan del Norte (12 days during				
plant collecting) (This was changed to Bataan,				
La Union, Benguet, Leyte)				
Labour for porter and guide for 12 days plant	192	68	-124	See note 1
collecting in Pampanga, Sorsogon, Mindoro,				
Agusan del Norte (16 pounds for 2 pax per day)				
(This was changed to Bataan, La Union,				
Benguet, Leyte)				
Food for 12 days plant collecting in Pampanga,	320	128	-192	See note 1
Sorsogon, Mindoro, Agusan del Norte for Obico,				
porter and guide (8.9 pounds per pax per day)				
(This was changed to Bataan, La Union,				
Benguet, Leyte)				
Local transport in Pampanga, Sorsogon,	128	58	-70	See note 1
Mindoro, Agusan del Norte for porter and guide				
(32 pounds per site) (This was changed to				
Bataan, La Union, Benguet, Leyte)				
Processing of local permit to collect plants	37	61	24	
(Cebu, Pampanga, Sorsogon, Mindoro,				
Agusand del Norte) (This was changed to				
Bataan, La Union, Benguet, Leyte)				
Shipping of collected plants to New Zealand	80	110	30	
Fieldwork supplies and teaching materials for	87	109	22	
the Cebu workshop				

Note 1: Fieldwork expenses were lower than budgeted due to the selection of different field sites and a shorter duration of fieldwork than originally planned. Exchange rates used: 1 NZD = 0.51 1 NZD = 37.504 Philippine Peso

Note 2: We decided to collect Tetrastigma loheri and other similar species from their type localities, hence there were changes in the selection of collecting sites for the taxonomy component of my studies.



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

I think an important next step would be to keep the momentum of enthusiasm going for the participants in the workshop. As the cliché goes, strike while the iron is hot. I am thinking about keeping in touch with them through social media by sharing resources and updates on plant biodiversity conservation and trying to facilitate relevant discussions that would keep them engaged and motivated. In addition, I think that it is important to create more training, mentoring and research opportunities for Cebu-based conservation NGOs and universities, especially those that have collaborative efforts with international experts and local communities. There is considerable interest in such projects, particularly because they result in the data that is so desperately needed to inform conservation management, but also because they provide young Filipino researchers with opportunities to learn skills that enable them to advance their careers and thereby more effectively contribute to taking on the mounting biodiversity challenges that the Philippines is facing.

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?

I used the logo in my presentation at the Annual Biology Conference at the University of Canterbury in New Zealand and in my PhD Confirmation report. During the training-workshop in Cebu, I displayed a banner that shows the Rufford logo and made regular announcements of Rufford's major support for this project during the program.

11. Any other comments?

I am very grateful to the Rufford Foundation for funding the fieldwork component of my PhD project. It also helped me in my professional growth. It gave me the opportunity to learn life skills during the fieldwork, meet like-minded people who are involved in biodiversity conservation work in the Philippines, and teach people and share our passion for conserving Philippine plant biodiversity during the workshop.