

Final Evaluation Report

Your Details	
Full Name	Idd Idd Shwe Zin (Ms)
Project Title	Distribution Patterns and Conservation Status of Red List Tree Species in Tanintharyi Nature Reserve (TNR), Tanintharyi Region, Myanmar
Application ID	24988-1
Grant Amount	£ 4960
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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 assess the current status and distribution patterns of IUCN red list tree species in TNR				The results indicate that we have surveyed 3 ha in the old growth forests of the TNR core zone and 1 ha of old growth forest in TNR buffer zone. We recorded 12 IUCN red list tree species in the study.
To study relationship among IUCN red listed tree species and their positions in accordance with ecological and human disturbance factors in TNR.				Non-metric multi-dimensional Scaling (NMDS) was applied to find the relationship among elevation, basal area, canopy closure, tree height, slope percent, footpath and the presence of red-listed tree species in four old growth forests.
To evaluate the primary and secondary uses of red list tree species for establishing a small nursery to support reforestation program in TNR				The social survey was conducted for 90 households (three villages x 30 households) in TNR buffer zone. We conducted a small nursery at the site of Forest Department in Kaleinaung sub township, Ye Phyu township.

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

During the data collection period, there was a heavy rainfall in TNR. In addition, the topography of TNR is very high and steep. The flash flooding of streams was very dangerous to move from one site to another. Under heavy rainfall period, 4 ha were inventoried, and we took more time to finish four sites. Rainwater damaged my camera during my data collection. However, we could manage by recording with my student's camera to take many photos. At the end of the day, we accomplished data collection process successfully.

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

1. One research paper will publish with titled "Distribution and Abundance of Red Listed Tree Species amongst the Old Growth Forests in Tanintharyi Nature Reserve (TNR), Myanmar" at open access journal.
2. We recorded 118 woody tree species with a DBH \geq 10cm and observed 12 red listed tree species in four different old growth forests of TNR. Noteworthy,

Dipterocarpaceae is the one of most dominant families for red listed trees in TNR old growth forests.

3. The highest species richness for red listed trees was recorded in site I while that of species richness for red-listed trees was lowest in site IV. The density of red-listed tree species was lowest in site IV while those of red-listed tree density was highest in site III. From NMDA analysis, the relationship among elevation, slope percent, canopy closure, tree height and the presence of red listed tree species in four sites were significantly different at $p \leq 0.05$. However, the number of footpaths was observed in all sites, but it was not a significant factor to the species composition among four forest sites.

4. What do you consider to be the most significant achievement of this work?

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

I worked with a team of four Karen ethnic people including one local taxonomist and the three undergraduate final students of UFES (University of Forestry and Environmental Science, Yezin) participated in this project. They are trained to use topography maps and apply inventory instruments, to measure tree diameters and tree positions. They had a good knowledge about the species compositions, stand structure and natural regenerations status about moist evergreen forests according to different sites in TNR. Moreover, they can improve and share their knowledge concerned with the conservation status of rare tree species and human interferences on the growth conditions of rare tree species (red listed tree species) and species compositions. These facts support their ways more attractive to become positive thinking and factors to support conservation and forest management in TNR. In addition, they also received direct monetary benefits from that because I employed them as paid data enumerators in the project.

6. Are there any plans to continue this work?

I would like to continue this project for natural conditions of red listed tree species, and it is very difficult to collect some seeds from mother trees of *Shorea gratissima* (Endangered) in the old growth forests. It is also necessary to conduct flora survey in areas at TNR eastern and northern parts to be reorganised the better understanding and distribution patterns of the IUCN red list tree species. Moreover, we will conduct the distribution patterns of red listed tree species in Alaungdaw Kathapa National Park, Myanmar.

For the reforestation programme, it is essential to conduct the research such as the germination percentage of rare tree species in Myanmar.

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

I shared these results to the researchers of Forest Department, University of Forestry and Environmental Science (UFES) and Forest Research Institute (FRI) in Myanmar and have already delivered my research results with Professor Mamoru Kanzaki,

Graduate School of Agriculture, Kyoto University, Kyoto, Japan. I am also trying to publish one research paper from this result. The first paper was under review process of Professor Kanzaki.

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

This Rufford small grant was used from August,2019 to July,2020. My project was started in August 2019 and July 2020 in TNR.

9. 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
Stationeries (Pens, pencils, marker pen, chalk, glue, files, notebooks)	40	40		
Plant collecting equipment (pruner, digger, plastic, bags, plant press, newspaper, corrugated cardboard sheets)	80	80		
Plant identification charges for one taxonomist at laboratory	100	100		
Plant identification (one Karen (local expert taxonomist) in the Field)	500	500		
Field equipment (GPS, Diameter tape, Blume Leiss, Plastic tape)	600	700	+100	Including battery charges.
Inventory field works for data collection for 5 persons at four different sites in TNR	1800	2000	+200	The price was changed.
Room Rental Charges at three villages for living cost	500	500		
Foods charges for 6 persons in the field sites and villages	1100	1200	+100	
Traveling cost for air ticket fare (Yangon-Dawei-Yangon)	200	200		
Traveling cost for bus ticket (Nay Pyi Taw-Yangon)	40	40		
TOTAL	4960	5360	+400	

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

The area of TNR is nearly about 170,000 ha and the study areas were selected at four sites at the western and southern parts of TNR. The other sides of TNR are very difficult to access within the forests because of armed ethnic conflicts between Karen and Mon groups. It is essential to conduct forest inventory for red listed tree species at the eastern and northern parts of TNR. In addition, it is necessary to explore the germination percentage of red listed tree species in the local communities' nurseries.

11. 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?

I applied logo of RFin my presentation at TNR project office (Forest Department's sub-office) when I presented my results of this research with the staffs (Range Officers and Rangers) and the Karen local people in TNR. I will acknowledge RF in my publication.

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

13. Any other comments?

I am grateful to the Rufford Foundation for their support to carry out my research. I will submit my research paper to an open access journal after I reviewed the comments from Professor Mamoru Kanzaki, Kyoto University in Japan.