

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	Do Van Truong
Project title	Conservation of the gymnosperm species in Pu Luong Nature Reserve, northern Vietnam
RSG reference	21398-1
Reporting period	January 2017 to January 2018
Amount of grant	£5000
Your email address	dovantruong_btn@yahoo.com
Date of this report	15 January 2018

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
To determine the diversity of gymnosperm species in Pu Luong Nature Reserve				Provided a checklist of gymnosperm species occurring in Pu Luong Nature Reserve including species composition and distribution. These databases will represent the biodiversity value of the area.
To assess the conservation status of gymnosperm species in Pu Luong Nature Reserve				Assessed the conservation status of globally and nationally threatened gymnosperm species in accordance with the criteria of IUCN Red List (2017), CITES, Vietnam Red Data Book, Decision N. 32. Furthermore we found out the reasons of population decline. This scientific evidence is not only useful for government authorities and decision makers to make reasonable conservation policies and plans but also good for conservationists to do further research.
To build appropriate conservation model for some threatened gymnosperm species and make recommendation which will help responsible authorities making priority conservation plan to conserve the threatened species in this area and develop conservation activities in future				Built an ex-situ conservation model for two most threatened gymnosperm species (<i>Pinus kwangtungensis</i> and <i>Taxus chinensis</i>) in Pu Luong Nature Reserve. We also provided recommendations for responsible authorities to conserve the threatened species in this area.
To raise awareness among decision maker, responsible authorities, scientific staff in the nature reserve, and local people on biodiversity conservation				Organised a workshop and an exhibition about the diversity and conservation status of gymnosperm species in Pu Luong Nature Reserve with participation of decision makers, responsible authorities, and scientific staff in the nature reserve, and local people.

To improve conservation skills for scientific staff, forest rangers and local people				Organised a training course about conservation skills for scientific staffs in the nature reserve and local people such as how to determine the species, assess the conservation status and use the necessary equipments for investigation and monitoring.
To provide specimen collections and other information (photos, reports,...) of recorded gymnosperm species for the related institutions (university, institute, herbaria and museum)				Distributed the collected specimens and field photos to the related institutions such as Vietnam National Museum of Nature (VNMN) and herbarium of Pu Luong Nature Reserve for exhibition and further references.

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

At the primary plan, we will build up an ex-situ conservation model for some threatened gymnosperm species in Pu Luong NR by seed propagation. We, however, could not collect any mature fruits at the studied time, but still found some seedlings nearby mother trees. It seems that some species do not fruit annually. As a short-term research, we decided to build up an ex-situ conservation model for *Taxus chinensis* by cutting-propagation and for *Pinus kwangtungensis* by growing up the seedlings.

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

- Provided a updated checklist of gymnosperm species and an assessment of conservation status of gymnosperm species in Pu Luong Nature Reserve according to international and national criteria (IUCN Red List, CITES, Vietnamese Red Data Book,...). These databases not only contribute important information about diversity and conservation status of gymnosperm species, propagating capacity of some threatened species for scientific staff of Pu Luong Nature Reserve, but also are useful for decision makers and managers to make reasonable conservation policies and plans.
- Built up an ex-situ conservation model for *Taxus chinensis* by cutting-propagation and for *Pinus kwangtungensis* by growing up the seedlings, and provided recommendations for responsible authorities to conserve the other threatened gymnosperm species in this area. The initial outcomes will be basic for further studies.
- Improved knowledge and increased awareness of local people, pupils, responsible authorities and staffs in Pu Luong Nature Reserve on important value of conservation and development of gymnosperm species in particular and plant biodiversity in general. These outcomes from the current projects will largely contribute to change their unexpected attitudes and actions.

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

Thai, Muong, and H'Mong are ethnic groups living in Pu Luong NR and their livelihood still depends largely on the nature resources. However, H'Mong community is very small here, so we only involved Thai and Muong in most activities within this project. They shared information on distribution of gymnosperm population, habitat and ecological characters, and they joined with us during the field investigation to record and collect the samples for this project. Additionally, local communities were fully involved in all training courses and workshops about conservation during the project.

Benefit that local people receive from project:

Their awareness of important value of gymnosperm species in particular and plant diversity in general increased significantly. Additionally, their knowledge on biodiversity conservation has been improved. Under this project, they were also trained the skills to use the necessary equipment (GPS, camera and binoculars) for field investigation and monitoring.

Furthermore, local communities also understood and recognised themselves that the gymnosperm species is very important and these populations have been extremely declined by their unexpected attitudes and actions. So they have to conserve and develop them for young generations. If not they will not have those plants any more.

5. Are there any plans to continue this work?

Further studies on conservation of gymnosperm species, especially conifer species in Vietnam is necessary. A short-term research does not cover all conservation gaps. So we have a plan to continue this work. By the way, we will focus on transplant and growing of samplings of *Taxus chinensis* and *Pinus kwangtungensis* to the ex-situ conservation site. We will also collect the seeds of these species and other threatened gymnosperm species in this area for breeding efforts. Additionally, we will access generative process of in-situ conservation population after integrated solutions.

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

The results of our current work will be shared to my colleagues and students at Vietnam National Museum of Nature, Vietnam National University of Forestry and other institutions. Additionally, these results will also be used for conservation exhibition at Vietnam National Museum of Nature where often hosts the students, pupils and visitors for understanding the biodiversity of Vietnam. Especially we were kindly invited to present this research results at the 7th National Conferences on Ecology and Biological Resource which took place on 21th October 2017, Hanoi, Vietnam.

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 timescale fixed the current period granted by the Rufford Foundation grant, but one-year research does not fit with actual length of the project. As more studies on conservation efforts still need to be continuous.

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
Domestic travel costs (from Hanoi to the headquarter) (4 times)	1000	1000	0	
Food	800	800	0	
Local travelling by motorbike	500	500	0	Supported by Vietnam National Museum of Nature
Accommodation	500	500	0	Supported by Vietnam National Museum of Nature
Payment to local team for participating project's activities at study sites such as field surveys, consultative workshop, training course.	500	500	0	
Plant identification	500	500	0	
Payment to local team for breeding and looking after saplings	1000	1000	0	
Photo design and making banner for photo exhibition	200	200	0	
Miscellaneous (medicines, communication, newspapers, alcohol, shoes, chemical, photocopy, banner prints, express).	500	500	0	
Data analyses and writing report	500	500	0	

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

There are three important things need to be continuously carried out: (1) the performance of integrated solutions for the promotion of natural generation; (2) transplantation and growing of samplings of *Taxus chinensis* and *Pinus*

kwangtungensis from nursery site to the ex-situ conservation site; (3) collecting the seeds of threatened gymnosperm species in this area for breeding efforts.

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?

The Rufford Foundation logo was fully used for all our materials produced in relation to this project. We used it for producing presentations and banner during the workshop, training course, and conferences at Pu Luong NR, Vietnam National Museum of Nature, and 7th National Conferences on Ecology and Biological Resource. So all our colleagues, students at Vietnam National Museum of Nature and Vietnam National University of Forestry have well known that this project was supported by the RSGF, and they are expecting to apply other research projects to the RSGF in future.

During the course of our work, we provided materials upon request by the RF.

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

The research team involved the botanists, conservationist, forest rangers, local technical staffs and local people who are specialists on the research subject and well-understand this forest area, including:

Dr Do Van Truong, principal investigator, a botanist and conservationist at Vietnam National Museum of Nature. Dr. Truong was a key member of the project who mainly organized and conducted all activities in relation to this project.

Prof. Dr. Tran Ngoc Hai is a senior lecturer/conservationist, deputy-head of Faculty of Environment and Forest Resource Management, Vietnam National University of Forestry. He was a key researcher, guided the conservation researches and made useful recommendations for conservation plan.

Dr Nguyen Quoc Binh is a researcher/botanist who is head of Department of Biology, Vietnam National Museum of Nature, Vietnam Academy of Science and Technology. As a key researcher for this research, he participated in both the fieldwork and plant identification.

Bui Van Huong MSc. is a conservationist who is based at Department of Nature Conservation, Vietnam National Museum of Nature, Vietnam Academy of Science and Technology. He contributed his great experiences to breed and build an ex-situ conservation model.

Nguyen Ba Tam MSc. is a technical staff/conservationist at the research site, Pu Luong Nature Reserve who is head of Department of Scientific Management, Pu Luong Nature Reserve. He joined in numerous of PRA surveys and coordinated the local conservation activities (training course, workshop and propagation).

Local people (villagers and forest rangers: **Ha Van Ha, Nguyen Van Quan, Nguyen Van Binh, Ha Van Tuyen, Ha Van Truong**) who have good knowledge about the flora of Pu Luong Nature Reserve, were significantly assistant for the conservation activities, especially in fieldwork, workshop and training courses. Additionally, the pupil and teacher from the primary schools of Co Lung and Lung Cao communes involved in the training course and public exhibition.

12. Any other comments?

The RF is very useful and important for researchers in developing countries, especially young researchers to support their studies and increase capacity building. Furthermore, the RF is largely contributing to efforts into biodiversity conservation in the world. However one year research project is a very short term to complete the conservation researches. It would be great if The RF could support us to continue more conservation researches of gymnosperm species in Pu Luong Nature Reserve in particular and in Vietnam in general.



Presentation at primary schools



Fieldwork



Growing up of *Pinus kwangtungensis*



Cutting propagation of *Taxus chinensis*



Illegal logging of *Taxus chinensis*



Illegal logging of *P. kwangtungensis*



PRA work



A dead tree of *P. kwangtungensis* by thunder



Taxus chinensis



Mature individual of *P. kwangtungensis*



Mature individual of *Amentotaxus argotaenia*



Last mature individual of *D. imbricatus*