

The Rufford Small Grants Foundation

Final Report

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

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. 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. 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 <u>jane@rufford.org</u>.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Dr Sansareeya Wangkulangkul
	Building capacity in amphibian research and conservation in
Project title	peninsular Thailand
RSG reference	11157-1
Reporting period	February 2012 to June 2013
Amount of grant	£6000
Your email address	wsansareeya@hotmail.com
Date of this report	June 2013



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. Workshop to explain the objective, outcomes, and activities of the project in order to promote anuran* conservation with the staff of Tarutao National Park			✓	Two workshops took place: (1) in Prince of Songkla University (PSU) and (2) in Tarutao National Park. The first was attended by about 20 undergraduate and postgraduate students from the Faculty of Science. The latter workshop included seven staff from Tarutao National Park and 10 students from PSU. The theme of both workshops was developing an understanding of the anuran diversity and of the threats of fungal infection. All participants had a good attitude to the project and were committed to supporting our future work (Figure 1).
2. Training the staff of Tarutao National Park and the students of Prince of Songkla University in anuran taxonomy, identification of anuran disease and anural ecology			✓	 We had a very successful training programme for the students from PSU and the Tarutao National Park staff with the identification of anurans. We also educated them in anuran ecology and fungus <i>Bd</i> disease. We provided a guide sheet to anuran diversity in Tarutao National Park based on a dichotomous key and photographs (Figure 2). The staff of national park and the students followed the guide sheet in identifying the common species of the anuran during field survey (about 80% success in identifying the common species) (Figure 3). According to post-training interviews, the staff of Tarutao National Park indicated that they plan to develop their knowledge and pass it on to high school students and visitors who are interested in anurans. PSU will continue to monitor their achievements and will develop the guide sheets. After workshop, the trained students from PSU will develop their knowledge and demonstrate as technical assistants to the next generation of undergraduate students. They can also assist in future student camps and with research in further surveys and project.
3. Field studies on Tarutao island for taxonomic identification of amphibians species, collection of voucher			✓	1. Some very interesting data relating to anuran taxonomy (including morphology, measurements, skin colour) were collected. The tissue for DNA samples and morphometric data of were also collected during the field study. Following the first



samples for genetic and	survey, we have set up a tissue collection in the
morphometric analyses,	PSU museum for future studies of anuran
recording of mating call	molecular systematics.
for bioacoustic	2. The staff of the national park and the students
comparison and	now have a better under-standing of anuran
collection of skin swab	biology compared to previously. They well
samples for diagnosis of	understand the potential dangers to anuran
amphibian chytrid fungus	populations/diversity of the <i>Bd</i> fungus disease.
	Many have committed to monitoring local
	amphibian populations and reporting any
	occurrence of <i>Bd</i> , both in their study and home regions
	3 A new form of brown stream frog Hylgrang
	eschatia (Chalconota group) was discovered in
	Tarutao Island Based on a sample size of 11 it
	had differences in morphology and metrics from
	the same taxon observed elsewhere in the SE
	Asia. Further study will provide a better
	understanding of the distribution pattern and
	taxonomy of the <i>Chalconota</i> group.
	4. The project provided an ideal opportunity to
	train one master's degree student in anuran
	diversity. In consequence, PSU student, Mr.
	Tshering Nidup from Bhutan is currently studying
	"The diversity of amphibians in Tarutao Island,
	Satun Province with the comparative study of
	Hylarana eschatia between Tarutao and
	Peninsular Thailand" (Figure 4). His study focuses
	on the amphibian diversity of Tarutao Island and
	includes biological data such as the morphological
	description of each species, metric data on their
	size, and acoustics (the breeding calls of the
	anuran). The acoustic data are currently being
	incorporated into a database held in the PSU
	Wuseum. Indeed, the comparative study of
	Hyldrana eschalia belween Tarulao and
	peninsular mananu win provide a better
	choice in popingular Thailand and will be included
	in an overview of the <i>Chalconota</i> group in
	Southeast Asia His field survey in Taruatoa was
	therefore partly funded by Rufford Small Grants
	Foundation and partly by PSU Graduate School
	5. As a result of our outreach programme within
	PSU, we have now attracted two interested 3 rd
	year undergraduate students. Ms. Lalita Sriorn
	and Mr. Phurichote Phuripan, who plan to study
	anuran taxonomy for their master's degree.



 6. Data and photographs collected during the study in now being incorporated into a book on amphibian diversity in the peninsular Thailand. This publication, led by Dr Sansreeya Wangkulangkul, is currently in preparation. It will be published under names PSU Natural History Museum, Rufford Small Grants Foundation and the Faculty of Science, PSU. 4. Develop a support network of international amphibians' specialist 4. Develop a support network of international experts have participated in both the workshops and field research: Dr. Judit Voros, amphibian specialist in the <i>Bd</i> fungus disease, was a keynote speaker at the workshops in PSU and Tarutao National Park. Her presentation illustrated the threats of <i>Bd</i> fungus worldwide and the potential threat in Thailand (Figures 5, 6). As part of Rufford project, a sampling programme was initiated. This led to the first record of the disease in (peninsular) Thailand in a natural population of anurans. The discovery was published in the free access journal, <i>Herpetology Notes</i>. Olivier S. G. Pauwel, a herpetologist with many publications on Thai amphibian taxonomy of Thai-Malay peninsula bent to egeckos. Dr. Trenton W. J. Garner; an amphibian specialist in the <i>Bd</i> fungus disease was invited to be referee of this project. Dr. Annemarie D. Ohler of the Muséum National d'Histoir Naturelle, Paris, France, a specialist in the <i>Bd</i> fungus disease was invited to PSU. She gave a short training course on amphibian taxonomy, was invited to pSU. She gave a mater's degree student from Bhutan, Mr. Tshering Nidup (Figure 8) has focused on anuran diversity in Taruto National Park her suftor and yab and Taruto National Park. Her eraitipating in public documentary on ampublic norservation Maday Dan Taruto National Park her profect PSU web pare Malay Dan Taruto National Park. Her profect PSU web pare				
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	(http://www.psu.ac.th/node/5070)
	(2) a live interview with the radio station, FM88
	(3) seven newspaper articles in Thai language.
	(4) a poster at the 17 th European Congress of
	Herpetology in Budapest, Hungary.
	(5) a manual of <i>Bd</i> disease in peninsular Thailand
	will publish with free download in our webpage.

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

There were no significant unforeseen difficulties and in general the activities and outcomes of the project exceeded that which was proposed. One additional activity, a workshop in Ardang Island (a smaller island within Tarutao National Park), was cancelled as Park staff claimed that it was not their duty to attend. This contrasted strongly with the interest and enthusiasm shown by the staff in Tarutao Island itself.

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

a) Capacity building in anuran taxonomy, ecology and conservation in the staff in the main office of Tarutao National Park and within the students of PSU.

This outcome fulfilled the primary purpose of the project which was to promote anuran conservation and research in peninsular Thailand.

The greater understanding of staff from Tarutao National Park on anuran taxonomy, identification, ecology and natural and man-made threats will lead to a deeper understanding of the needs and processes of conservation. Now, they are equipped with knowledge and keys to monitor anuran population changes and any potential declines from the disease. We wish finally that they can convince the staff from other national park stations to become interested in similar conservation programmes in the future.

The participating students have a much better understanding of anuran conservation and diversity. The workshops and field work introduced them to the subject and created enthusiasm to undertake research on anurans in peninsular Thailand. Those trained as part of this project can pass their knowledge to the next generation of students; they can also become teaching assistants in the field biology classes for undergraduate student of PSU; and they can participate as research assistants in the on-going Department of Forestry project entitled "amphibian and reptile survey in southern Thailand".

b) A support network of international amphibian specialists and a local network of anuran researchers and conservationists in peninsular Thailand.

Many international amphibian specialists were invited to be an instructor, guest speaker, or referee of the project such as Dr Judit Voros, Olivier S. G. Pauwels, Dr Trenton W. J. Garner and Dr Annemarie D. Ohler. Together, they have vast experience and numerous contacts in the international scientific community, which they freely shared with staff and students of PSU and with the staff of Tarutao National Park. Outcomes included joining an informal network with an interest in chytrid fungus in anurans. This has already resulted in one international, collaborative paper, "First record of the amphibian chytrid fungus, *Batrachochytrium dendrobatidis* in Thailand".



The staff of Tarutao National Park and the staff and students of PSU are a pilot group and focal point of a local network, which is committed to passing on knowledge to colleagues and all of those who are interested, either directly or indirectly, in anuran conservation.

c) The discovery of new scientific knowledge relating to anuran diversity in Tarutao National Park.

As a result of the field surveys, a greater understanding of anuran diversity in Tarutao National Park was achieved. A highlight of this was the discovery of a new form of the brown stream frog (*Hylarana eschatia*; a member in *Chalconota* group), which was found on Tarutao Island. Currently, a PSU master's student, Tshering Nidup from Bhutan, is studying this taxon and will produce a publication for a peer-reviewed scientific journal.

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

Our first main target audience was the staff of the main office of Tarutao National Park. This community of workers is responsible for the conservation of all biota within the protected area. It is anticipated that the training undertaken by these individuals (in anuran taxonomy, ecology and conservation) will lead to a deeper understanding of anuran conservation and the technical skills to monitor disease outbreaks and any potential decline in anuran populations. In addition, they can develop their knowledge to educate high school students who attend camps in the national park, as well as a range of other interested visitors (members of the public). We wish eventually that they can convince the other national park staff members to become interested in the conservation programme.

The second target is the student community in PSU. The training can focus attention on anuran studies and promote further research and conservation projects in the future. All trained students can act as ambassadors promoting anuran conservation throughout Thailand.

5. Are there any plans to continue this work?

We plan to expand this project both within Thailand and to the neighbouring country of Myanmar. Within Thailand, we have already had some informal links with Hala Bala Wildlife Research Station (Figure 9) and received a very positive response to our proposed future research and conservation initiative. In Myanmar, we are currently exploring with the Universities of Mandalay and Yangon the opportunities of developing a training programme to promote anuran conservation. This is especially important as there is currently virtually no programme of amphibian research in the country and the situation concerning possible outbreaks of chytrid fungus and other fungal infections is not known.

In addition, we would also like to invite a researcher from Microbiology Department, Faculty of Science, Prince of Songkla University to jointly develop a simple technique for fungal detection. The developed technique aims to be easier and cheaper than molecular technique used at the present. If a simple and cheap testing technique can be developed (Figure 10), it will permit a variety of end-users to join the monitoring programme, including local government officers in research stations and national parks also it can become part of well-supervised local school projects.



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

We are sharing our results through a range of media:

- 1. One webpage in Thai hosted on the PSU website (<u>http://www.psu.ac.th/node/5070</u>) it includes a summary of the activities of the staff of Tarutao National Park and the PSU students, especially the workshop concerned with *Bd* fungus disease (*Rufford Small Grants Foundation name included in English and Thai on the webpage*)
- 2. One webpage in English and Thai, which includes information about the amphibian team at PSU and its activities and projects this a permanent webpage on the Faculty of Science, PSU website (RSGF logo and name included) http://www.biology.sci.psu.ac.th/index.php?option=com_content&view=article&id=119&Ite mid=53
- 3. A live interview local radio station, FM88 also concerned with *Bd* fungus (*RSGF mentioned in the discussion*)
- 4. Seven newspaper articles, included general information about the project and especially the threats from disease and the need for conservation representative examples are attached (*RSGF name included in Thai*)
- 5. A multi-authored publication in a peer-reviewed international journal concerning the detection of *Bd* fungus in Thailand (*RSGF acknowledged and thanked*)
- 6. A manual on anuran disease (RSGF logo included)
- 7. A laminated field guide to the amphibians of Tarutao (Figure 2) (RSGF logo included)
- 8. A poster outlining the outcomes of the project will be presented at the 17th European Congress of Herpetology in Budapest, Hungary (*RSGF logo and name included*)
- 9. We are also in contact with a TV company 'Daily News' about a possible documentary programme (*will try to ensure that RSGF is acknowledged*).

The Rufford name and/or logo has been included prominently in all appropriate places.

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

The RSG grant was spent over 14 months. The actual schedule followed the proposed schedule.

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	Actual	Difference	Comments
	Amount	Amount		
Additional equipment for field work	110	135		
Flashlight, batteries, spare bulbs	137	187		
GPS and high-resolution map	183	183		
Field equipment	1173	1148		
Per diem for university team whilst in Tarutao	1135	1135		
Per diem for Tarutao National Park staff whilst on	329	329		
project				
Hire of pickup truck and fuel	686	903		
Hire of boats for field surveys	412	445		



International travel	1020	638	
Workshops	354	355	
Final report production	61	60	
Incidentals in field	200	282	
Incidentals in laboratory	200	200	
TOTAL	6000	6000	

The exchange rate is 50 Baht per 1 Pound sterling: 15 June 2012

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

The important next steps of this project are:

- 1. Continuing developing skills, awareness and enthusiasm amongst staff of Tarutao National Park and in the current and future generations of undergraduate and postgraduate students in PSU.
- 2. Expanding the programme to Hala Bala Wildlife Research Station, Narathiwat, Thailand.
- 3. Incorporating the Universities of Mandalay and Yangon into the programme in order to actively promote capacity building in amphibian conservation and research in Myanmar.
- 4. Developing a cheap test for the *Bd* fungus in collaboration with Microbiology Department of PSU.
- 5. Completing publications on anuran disease and anuran diversity, including the monograph on "Amphibians in peninsula Thailand".

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

Yes, RSGF was/is acknowledged in all the websites, radio interviews, newspaper reports, academic and popular publications, including reports, papers and information sheets. Please see Section 6 for all details.

Furthermore, any future publication or documentation that uses the data or information from this project will have the RSGF logo or name, as appropriate.

11. Any other comments?

We would like to sincerely thank the Rufford Small Grants Foundation for your kindness and support of this project.