# 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 jane@rufford.org.

Thank you for your help.

**Josh Cole, Grants Director**

| **Grant Recipient Details** | |
|---|---|
| **Your name** | Malcolm Soh Chu Keong |
| **Project title** | Conserving montane anuran and avian communities in Peninsular Malaysia: investigating the effects of habitat degradation and climate change |
| **RSG reference** | 17519-1 |
| **Reporting period** | 1 year |
| **Amount of grant** | £4400 |
| **Your email address** | malcolmsoh@gmail.com |
| **Date of this report** | 19 July 2016 |

**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 |
|---|---|---|---|---|
| Purchasing equipment for field study | | | Yes | All the needed field equipment has been purchased |
| Conducting recce trip to relocate previous sampling localities in 2002/3 and to find new ones within a third study site | | | Yes | Fulfilled the objectives of my recce trips. All my previous sampling localities were still present and this will allow me to make comparisons with my current study. |
| Conducting 1st field trip for data collection | | | Yes | My first field trip was rescheduled to 20th May to 16th June 2016 hence this report is an updated version. |

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

Finding suitable sites to survey in my new study locality Lojing Highlands. For instance, it was difficult locating a pristine forest site that had trail that was long enough for me to conduct my point counts and set up mist nets. As such I had to organise another recce trip (using expenses from my university) to revisit Lojing highlands.

Obtaining my field research permit also took longer than anticipated. However, I have collected my approved permit on the 19th May 2016.

Last, I also faced difficulties in bringing my DNA samples to Singapore for DNA library preparation and sequencing. The Department of Wildlife and National Parks in Malaysia has informed me that the molecular procedures must be conducted in Malaysia. As such my Malaysian collaborator and I had to search for another researcher who was willing to work with us. Thankfully we found someone! See below for more details.

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

At this stage it will be:

1. Working with local collaborators. I will be working closely with Dr Yeap Swee Keong from the University of Putra Malaysia for the population genetics chapter of my PhD project. Since I am relatively new to the field of molecular genetics, his guidance will be invaluable and I will be making use of his lab to conduct my molecular work.

2. Refining my methods. Since I last did my masters 12 years ago, methods for statistical analyses of ecological data have progressed. The Wildlife Study Design and Data Analysis workshop that I attended was very useful in that I learnt new methods to analyse my data. However, that also meant that I had to refine my field methods so that I can apply these analyses. For instance, in field surveys, it has become increasingly important to factor in the probabilities of detection since a researcher will not be able to record all the individuals or species in a study locality. Thus, for me to calculate detection probabilities for the species that I record, I will need to revisit the same study localities at least once.

3. Attending the Species on the Move 2016 conference in March this year at Tasmania. My application to present a poster about my project was accepted and it was a good learning experience as I had a chance to interact with researchers that has similar research aims. I also attended a preconference bioinformatics tools workshop. Specifically, I learnt how GIS data can be used to help answer questions in biodiversity conservation and how I should also consider other measures of diversity beyond species richness such as functional and phylogenetic diversity. I also attended a GIS workshop after the Conservation Asia 2016 conference. Thus, I will incorporate GIS data into my analyses and also see how the different diversity measures compare.

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

One staff member from the Department of Wildlife and National Parks will accompany me for all my field trips. He will learn field techniques in surveying birds and frogs that include point counts, mist netting and visual encounter surveys.

As mentioned, I will be working closely with Dr Yeap Swee Keong for my molecular work. And also with Dr Puan Cheong Leong who is my Malaysian collaborator. Both will be co-authors for any molecular publications arising from my research.

I am employing a local field assistant, Mr Daniel Kong, from the Malayan Nature Society to help with my sampling. I have also contacted WWF Malaysia to obtain data from previous bird surveys that they have conducted. From such surveys, we can determine how bird communities may have responded to increasing habitat degradation and climate change. To reciprocate, I will also share the data that I will collect.

**5. Are there any plans to continue this work?**

For now, there are six field trips to conduct in the course of a year. Beyond this, my external supervisor from the University of Southampton, Dr Kelvin Peh, is also getting a third year student to study the effects of predation in degraded montane forests using the same study sites as mine. He is also keen to have a Masters student to study how small mammals are affected by habitat degradation in montane forests using camera traps in the same localities. For both students, I will have a hand in their co-supervision.

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

I will present an annual update of my research to the School of Animal Biology in the University of Western Australia. I have already presented my research proposal last December and I am scheduled to give an update on the 2nd September 2016.

As mentioned I have presented a poster at the Species on the Move 2016 conference. Please see this link to view the poster: http://f1000research.com/posters/5-228. I also conducted an oral presentation about my research on the 1 July 2016 for the Conservation Asia 2016 conference in Singapore.

http://media.wix.com/ugd/1aae6b_d8801568a45b4b6fabbcea027394885b.pdf (page 36)

I also aim to have different chapters of my PhD be written up for publication in scientific journals. Beyond journals, I may also publish in newsletters that influence policy decisions. For example, I recently published a paper on the forest fires in Indonesia for Royal United Services Institute (RUSI) Newsbrief on 22 January 2016. See

https://rusi.org/publication/newsbrief/indonesias-forest-fires-igniting-tensions-southeast-asia.

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

One year; one third.

**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 |
|---|---|---|---|---|
| Electronic venier callipers | 171.86 | 30.98 | 140.88 | Cheaper model and brand found (Avinet). |
| Nikon rangefinder Aculon AL11 | 110.47 | 265.20 | -154.73 | This model has a feature that allows me to calculate the height of trees which can be used as an environmental covariate. |
| Extech EN300 environment meter | 207.99 | 229.50 | -21.51 | |
| Densiometer | 67.93 | 69.05 | -1.12 | |
| Steel diameter tape | 25.97 | 26.40 | -0.43 | |
| Princeton Tec Apex rechargeable headlamp | 97.47 | 114.93 | -17.46 | An additional headlamp was bought for my field assistant. |
| 6 iButtons | 172.86 | 420.40 | -247.54 | Pitfall traps will no longer be deployed since it is logistically difficult in a hilly terrain. In place of this I have purchased 6 iButtons which are temperature and humidity loggers. These will gather long term and accurate weather data for habitat types that I am surveying. |
| ~~48 Pitfall trap poles~~ USB 1-wire adaptor | 46.09 | 14.34 | 31.75 | |
| USB Bluedot Receptor | 184.38 | 11.81 | 172.57 | |
| iButton Recess Fob and shipping costs | 19.21 | 46.74 | -27.53 | |

| | | | | |
|---|---|---|---|---|
| Surgical scissors | 9.60 | 10.00 | -0.40 | |
| Field trip- Car rental including insurance | 816.26 | 687.96 | 128.30 | The first field trip was conducted on 20 May to 16 June 2016. The accomodation costs were higher since the field trip spanned over the peak period (local school holidays). As such I made adjustments to save on meals, flight and car rental costs. |
| Field trip - Car fuel & toll charges | 96.03 | 46.80 | 49.23 | |
| Field trip - Return flight to Kuala Lumpur | 144.05 | 70.02 | 74.03 | |
| Field trip - Accomodation | 816.26 | 1238.73 | -422.47 | |
| Field trip - Meals | 816.26 | 577.03 | 239.23 | |
| Recce - Car rental including basic insurance | 192.06 | 194.30 | -2.24 | |
| Recce - Car fuel & toll charges | 72.02 | 36.87 | 35.15 | |
| Recce - Return flight to Kuala Lumpur | 72.02 | 96.09 | -24.07 | |
| Recce - Accomodation | 168.05 | 183.69 | -15.64 | |
| Recce - Meals | 96.03 | 42.87 | 53.16 | Meals were less costly than anticipated. |
| **TOTAL** | 4402.87 | 4413.71 | -10.84 | |

Bank exchange rates used: 1SGD to 0.58GBP and 1MYR to 0.2GBP

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

The next important step will be to conduct the field surveys to collect data. In between field surveys, I will be conducting a systematic review of conservation research conducted on montane forests in Southeast Asia. I will also be attending a GIS course in July 2016 and join other workshops that are relevant to my research.

After my fieldwork, I will analyse the data and write up my thesis. Later, I will write papers based on different chapters of my PhD for publication in scientific journals.

**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. The RSGF was acknowledged as a funding source and the RSGF logo was used for the Species on the Move 2016 conference poster that I presented and oral presentation at the Conservation Asia 2016 conference. I have also updated my research profile in the University of Western Australia to credit the RSGF as one of my funding sources and included a link to my research at the Rufford website. Please refer to this link: http://www.science.uwa.edu.au/research/postgraduate?malcolm.soh

**11. Any other comments?**

I will like to apply for the 2nd Rufford Small Grant to fund further fieldwork.

Left: Golden-throated Barbet - a montane bird in Peninsular Malaysia. Right: *Hylarana banjarana* - an endemic montane frog in Peninsular Malaysia. Photo by Daniel Kong.