

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	Ming-Yu Liu
Project title	Interaction between free-ranging dogs and snow leopard in Tibetan Plateau, China
RSG reference	19181-1
Reporting period	April 2016 – April 2017
Amount of grant	£4990
Your email address	liumingyu0930@163.com
Date of this report	13 Mar. 17

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
Population size and distribution of free-ranging dogs are estimated.				We originally wanted to estimate the population size of free-ranging dogs in five temples, but in reality, we have done 16 temples, three towns, and six villages. By doing so, we can estimate the whole population size and distribution in the three rivers area in the next step after we get data for the following year.
Density of free-ranging dogs are estimated.				We changed the method from line transect to photo recapture since the latter is more accurate. We combined closed and open population models to estimate dynamics instead of using open population model only because we can acquire population dynamics of free-ranging dogs and density at the same time. For the open population model, we chose Jolly-Seber model, which needs data of 3 years.
Activity patterns of snow leopards and free-ranging dogs are estimated.				After preliminary data from five temples, we changed our initial plan from setting camera traps near five temples to three temples. That was because there were not enough data in Bama temple, and some of the cameras were stolen in Niandu temple. Thus, we put the rest of cameras in the other three temples. After reading some peer reviewed papers, we decided to

			set more cameras near these three temples in the following step, since we can acquire density of snow leopard if we have enough data. It could be valuable if we could compare density of snow leopards and free-ranging dogs in different places.
Dietary of snow leopard and free-ranging dogs are estimated.			At first, we wanted to analyse under microscope only. This method is suitable for most circumstances. For a few times, the hairs are too old that we could not see the patterns clearly. Thus, we used scanning electron microscope to analysis those hairs.
Suggestions and file for local government.			In Zadoi and Nangchen county, we have sent our suggestions and proposal for establishing shelters
Public education program			We have cooperated with Buddhists from Xiarihu temple, who are also members of Banmarentuo Nature Conservancy, to have wildlife education programme and tell people to adopt free-ranging dogs in one of their ceremony. The influence didn't last for a long time. We are going to have more of these activities with the help from Rinpoches of local temples.
Publish 3 papers produced by this work			The review was rejected by Biodiversity Science, and is re-editing now. The article about diet is waiting for response. And the article about activity pattern is still editing.
Semi-structured interview of local people			Local people's knowledge and attitude on free-ranging dogs were acquired. Basic information of wildlife and free-ranging dogs were acquired.

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

The weather was really a big problem for us during our field work. In autumn, winter, and spring, some roads were closed due to heavy snow or bad weather. At these times, we could only wait or go to other roads, which took more time.

Then, February is the Tibetan New Year, and May to June is their time for collecting *Cordyceps*, so we need licences to go to our research sites during those time periods, which took us some time. After that, in Sulu village, local people did not believe that we were researchers when we did interviews of them, so they did not answer our questions. As a result, we asked a local cadre to go with us.

Last but not the least, some of our camera traps and GPS collars were stolen. We told this situation to the staff of local temples and had a training session for local people on why we put collars and camera traps in these places, and how to use those tools. Local people agreed to help us change the batteries, SD cards of camera traps and recharge the collars. However, they did not do that and took off the collars in one site.

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

Some of the local people, communities, temples agreed and supported our research and wanted to join us to solve this problem.

We are the first to apply the method of counting animals by combining photo recapture and conservation drones.

For the data, we already have (activity pattern, home range and diet), we can prove there is competition between free-ranging dogs and snow leopard in Zhaxilawu temple.

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

Local people also think it is a problem that there are too many free-ranging dogs. That is because they are afraid that those dogs would attack the old and young, and are worried about disease transmission. They want to solve this problem but do not know how. During the study period, they wanted to help us with the GPS collar and camera traps. We wanted to start an adoption and sterilisation program, which will start in this summer. If this programme is successful, the problem of free-ranging dogs will be solved. The old could walk around the sacred mountains in the morning,

and the children could commute to school safely. And the threat of rabies and hydatid disease will be also alleviated.

5. Are there any plans to continue this work?

Yes. As I stated in the application, this work will last 3 years from the middle of 2016. For the next stage, we are going to continue our work as said in the comments in question 1. We will monitor the population dynamics of free-ranging dogs. Data of activity patterns, home range, and diet will be further recorded and analysed in order to have more detailed information. After reading papers, we decided to put more camera traps in Zhaqing village, so we could get density of snow leopards by individual identification. We are going to have a sterilisation programme in Juella village with the help of local government in June 2017 when the weather is a little warmer. And we are going to combine public education programme and an adoption programme in Xiarihu temple after sterilisation of female dogs. Local monks have agreed to chant for those families once a month who adopt dogs. We will publish the second version of brochure this year and want to send 2000 copies. After that, we have contacted a film maker who is also interested in free-ranging dogs. We will make a 20-minute documentary to introduce the origin of dog problem, the current situation, how to solve this problem, and what the public can do to help us. Interviews and questionnaires are also needed, as we want to know the local zoosanitary situation.

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

We already wrote three passages about the influence of free-ranging dogs and the solution on local magazines or blogs (for example: <http://voices.nationalgeographic.com/2016/08/12/understanding-dogs-to-protect-cats/>). With the help of Whitley Fund for Nature, SLT (Snow Leopard Trust), and Panthera, we are going to publish another passage. We will continue to send out the brochure we made to local people. And we will have public education program during their dharma assembly. After that, we want to publicise our documentary, and let more people join our work or help us.

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 RSG was used from April 2016 to February 2017. We anticipated to use this money from June 2016 to May 2017, so it began 2 months earlier and ended 3 months earlier. The RSG was used 1 month shorter than anticipated.

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
Field guide books, maps, journal articles and other printed materials	40	10	30	We borrowed all the books we could in our library.
Scientific/field equipment and supplies	3500	3838	338	We bought 3 more cameras for Zhaxilawu temple, where we found dogs chased snow leopard and bear away. We used £338 from RSG and £262 from SLT grant.
Camping equipment Car hire	300	0	300	We borrowed camping equipment from Shanshui Conservation Center, and we used the car from the center as well.
Workshops	200	92	108	Local temple offered us £108.
Outreach/education activities and materials (brochures, posters, video, t-shirts, etc.)	200	400	200	We planned to print 500 pieces of brochures and send to local people. However, they do like this brochure and we printed 1000 pieces in reality.
Field guides and drivers	500	400	100	We tried to hire one person as the driver, guides and translator.
Report production and results dissemination	250	250	0	
TOTAL	4990	4990		

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

We need to start sterilisation and adoption quickly and successfully, since one of the township government started to consider to kill all the dogs. However, killing is against their belief in ahimsa. We need to prove our solution is effective and is the wish of the locals.

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

Yes, we have added RSGF logo in every poster we made during all the conferences or summits. During the acknowledgement session, we thanked RSGF. And we told other researchers and conservationists to apply RSGF, including when we went to South Africa to attend Youth Forum for People and Wildlife, CITES, and Student Conference on Conservation Science in Beijing.

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

12. Any other comments?

We do want to apply for the 2nd stage grant.