

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	Li Li
Project title	Study on the Alpine Birds of the Nomadic Landscape in the Eastern Qinghai-Tibetan Plateau: Evaluating the Ecological Impact of Recent Pasture Land-use Changes
RSG reference	14933-1
Reporting period	May 1 st , 2014 – June 30 th , 2015
Amount of grant	£5700
Your email address	li.li@wildlife.uni-freiburg.de , antelopelili@gmail.com
Date of this report	July 20 th 2015

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 reconstruct the land-use change process in Nyanpo Yutse from the 1970s to the present			✓	Through oral history study, we developed grassland using regime of the study community from the 1970s to the present and mapped land-use intensity for each seasonal pasture in the 1970s, 1985, 1994, and 2014.
To identify patterns in land cover change in Nyanpo Yutse		✓		Due to challenges of working with Landsat time series, we separate this objective into two parts. Firstly, we analysed the present land cover distribution pattern by using Landsat 8 imageries. We detected the significant pattern of grassland degradation in high altitude pastures (>4300 m). The next step is to develop algorithm trying to detect the patterns of two major changes of the study area: grassland degradation and shrub expansion.
To carry out breeding season bird survey under different land-use regimes in Nyanpo Yutse			✓	We used the stratified sampling method and set up 140 bird sample points. During the breeding season of 2014, we conducted three replicates of standardised 10 minute bird point counts in the 140 sample points.
To analyse habitat structure for alpine birds in Nyanpo Yutse			✓	We used three small UAVs and took high-resolution ortho-images for all bird sampling points with a radius of 200 m. With the images we classified habitat land-cover types and analysed habitat configurations and habitat diversity for each bird sampling point.
To develop community conservation plan for alpine birds		✓		We identified key habitats for local endemic birds, e.g. pink-tailed bunting, Tibetan bunting etc. Meanwhile, we conducted interviews to local community members and recorded birds of local conservation interest. Through the interview we found though local community are willing to protect birds based in their Buddhist belief, they have little knowledge regarding bird species in the existing in the region, especially for passerine birds. During the project course, we found the major threats

				to alpine birds and bird habitats are from the ongoing planning of mass tourism in the region and the infrastructure development following the master plan. We are planning to develop policy brief regarding bird conservation to tourism management bureau.
To understand the ecological function of plateau pika in Nyanpo Yutse		✓		Together with bird sampling, we counted pika burrows and active pika burrows (by revisiting the site) in the 140 sampling sites within a 2 m* 10m transect belt. However, the study scale seemed to be small to understand the correlation of pika and habitat or bird diversity. We did find a significant positive correlation of plateau pika burrows with snow finch species, especially the rufous-necked snowfinch and white-rumped snowfinch.
To communicate the results with local decision makers		✓		Thanks to the extension of the project, we were able to come back to Nyanpo Yutse in the summer of 2015 and communicate our findings with government officials at county and township level. We delivered the key information that the current landscape structure is experiencing the legacy effect of intensified land-use in the 1970s and 1980s. The pasture privatisation policy has resulted in the loss of pastoral mobility and contributed to the current richness distribution of birds. The mass tourism under planning will become the main threat to alpine birds in Nyanpo Yutse. However, the original plan was to report results to the Sanjiangyuan Nature Reserve Management Bureau. We haven't formally communicated with the bureau since we have got the chance to work for the second field season and the work is ongoing. After finishing the supplementary collection of the relevant field information on birds and pasture management change, we will still develop a policy brief to the bureau in written form.

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

During project course, in 2014, Qinghai Province launched the tourism development plan for the Nyanpo Yutse region. And following the plan, constructions of cement roads started in the study community and caused extreme access difficulties to both winter and summer grassland. Meanwhile, the intensive infrastructure establishment and potential impacts of future mass tourism become the main threat to local bird communities and habitats.

Due to the difficult transportation conditions caused by road construction, we spent additional budget in vehicle maintenance, including replacement of two burned engines, hiring motorcycle to get into the winter grassland valley. However, we completed planned project activities despite of the transportation difficulties.

We assumed that the main threats to local birds and bird habitats were caused by local communities' land-use. However, it turned out that the large-scale tourism plan (ca. £5 million investments in the year of 2014 alone) will soon bring the biggest disturbance to alpine birds in the Nyanpo Yutse region. The official planned 20% increase of visits in 2014, which will hit up to 250,000 individual sightseeing tourists to Nyanpo Yutse. The impacts to the alpine landscape and wildlife are significant and poorly evaluated. We hope to address this issue in the next step by presenting bird richness changes before and after the road constructions of relevant sample points, and develop policy brief to decision makers at the Golok Prefecture level.

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

Firstly, we developed the land-use intensity index for Nyanpo Yutse region which standardises grazing disturbance by different domestic animals and in different seasonal pastures. This methodology is under the process of publishing. Using this index, we compared historical land use intensity changes in the study village of Nyanpo Yutse, and mapped the pasture land use regimes in the 1970s, 1985, 1994 and 2014. It will become the first quantitative study on the land use change's impacts on biodiversity in Nyanpo Yutse. The results demonstrate pastoral management changes from the 1980s to present have caused grazing mobility loss, and resulted in uneven land use intensity across the landscape.

Secondly, we identified local-scale bird richness hotspots, and mapped key habitats for regional endemic bird species, e.g. pink-tailed bunting (*Urocynchramus pylzowi*). The results showed that comparing to grassland, shrubland in Nyanpo Yutse generally maintain the high level of bird diversity, and shrub protection should be prioritized.

Thirdly, we detected the pattern of grassland degradation using the newest Landsat imageries and found that grassland at high altitudes is more vulnerable to intensified land use and climate change. The results were published in the International Journal of Applied Earth Observation and Geoinformation.

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

The oral history study involved 24 key informants from the local community especially three eldest herdsman of the village. The land use change history of the study community was very carefully documented, and the interviews were shared with the village for their own archive. Besides, villagers of different age groups were interviewed for their opinions of bird protection, especially regarding birds they like the most. However, the survey showed that local villagers had little knowledge of passerines.

Our study also applied UAVs to take high resolution images of the village. We printed out the map in A0 size and gave the images to the villages. To our surprise, they used the map to settle pasture conflicts of the village basically because when pastures were privatised in 1994, there were no GPS devices or high resolution maps to draw clear boundaries. Generally, the maps were the most welcomed outcome by the community.

5. Are there any plans to continue this work?

Yes. Definitely we want to continue our work in Nyanpo Yutse. And we plan to follow up with the following questions:

1. How will infrastructure and tourism development influence birds and bird habitats in Nyanpo Yutse? We are carrying a second breeding season bird survey right now in Nyanpo Yutse, and will compare the results of 2014 and 2015.
2. We want to expand the study of plateau pika, and study the dispersal of the species at the regional scale. Through interviews, many herders complained that pastures were very good in the 1980s until plateau pika came and caused the degradation of grassland. However, we question this statement because plateau pika are unlikely to choose high grass habitat.
3. We have detected the present grassland degradation pattern of the Nyanpo Yutse region using remote sensing methods, and we would like to continue working with Landsat time series and try finding the patterns of grassland degradation process.
4. We would like to keep communication with local government officials and decision makers and report on our findings.

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

We plan to share the results with three main parties: the science community, local nomadic villages and government officials at county and prefecture levels.

We have already published two papers and expecting to publish another two papers regarding land use changes' impacts on grassland degradation and bird diversity distribution. We have also made two oral presentations at landscape ecology congress in Portland this year.

We have already shared original map of land cover and oral history records with the study village. After data analysis being finished, we will deliver the land use change maps and oral history interview transcriptions with the village for their own historical documentation.

Last and the most important, we want to further strengthen our communication with decision makers at county and prefecture level. Especially regarding the potential impacts from mass tourism, and hopefully we could develop manuals for tourists to reduce their disturbances to the unique alpine pasture landscape and wildlife habitats in the Nyanpo Yutse region.

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 grant was used from April 2014 to June 2015, and we applied for 2 months extension of the project. Since got another funding for 2015, we were able to come back to the field and share the preliminary results with local communities and decision makers in the second year.

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
International travel: Freiburg-Beijing return flight for one person	600	607	-7	Berlin-Beijing Return Airfare: 625 EUR Freiburg-Berlin Shuttle bus: 27 EUR Berlin-Freiburg train: 101 EUR
Domestic travel: Shanghai-Chengdu return flight for one person Chengdu-Nyanpo Yutse shuttle bus, Chengdu Transportation	300	538	-238	Shanghai-Hefei: 188 RMB Hefei-Chengdu return: 1670 RMB Hefei-Shanghai: 239 RMB Shuttle bus: 1890 RMB Transportation: 1597 RMB
Vehicle rental	2100	1885	215	Vehicle rental for four months: 18500 RMB Aba to Nyanpo Yutse: 700 RMB Nyanpo Yutse to Chengdu: 350 RMB
Fuel cost and vehicle maintenance	700	630	70	Gas: 2285 RMB Car repairing: 4250 RMB
Field assistant subsidy	900	444	456	4600 RMB
Meals and field food supply	800	765	35	7930 RMB
Field accommodation	200	280	-80	2900 RMB
Equipment: Olympus LS-3 Digital recorder for oral history interviews	0	164	-164	203 EUR
Printing and field supply	100	394	-294	4086 RMB
Total	5700	5707	7	Exchange rate in May, 2014: 1 GBP = 10.37 CNY 1 GBP = 1.24 EUR

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

The most important next steps are to keep on monitoring mass tourism impacts on the alpine habitats and wildlife, to try reducing possible habitat destructions and wildlife consumption by irresponsible tourists would be important. However, due to the closed decision making procedure, it would be very difficult to influence the tourism planning, however, we should definitely try to communicate with local governments and communities of the bad examples/impacts of mass tourism and try to convince relevant stakeholders by providing hard data evidence on biodiversity changes and facilitate experience sharing with other tourism regions.

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?

We acknowledged the Rufford Foundation in all presentations we made during the project period, e.g. presentation made at the 9th IALE (international association of landscape ecology) World Congress in Portland, presentation made at the Swiss Federal Research Institute WSL.

Furthermore, we acknowledged the Rufford Foundation in two peer-reviewed papers for your generous support of the field work in the summer of 2014

Fassnacht, F. E., Li, L., Fritz, A. (2015). "Mapping degraded grassland on the Eastern Tibetan Plateau with multi-temporal Landsat 8 data—where do the severely degraded areas occur?" *International Journal of Applied Earth Observation and Geo-information* 42: 115-127.

Bürgi, M., Li, L., Kizos, T. (2015), *Exploring links between culture and biodiversity: studying land use intensity from the plot to the landscape level*. Manuscript submitted for publishing

11. Any other comments?

We would like to thank the Rufford Foundation again for providing financial support to this project. And due to your generous help, we are able to carry out the project with relatively high quality outputs of the first year. Therefore, in the second year we were able to get another small grant to further develop the work.

I personally think and believe that small-scale projects that the Rufford Foundation helps are extremely important. It supports young and passionate conservationists to carry out their own ideas and try out their own conservation plan. Small projects tolerate mistakes and imperfections. Though the project design and implementation may not be perfect, but experiences gained in the project is especially precious and will benefit conservation in the long run. Comparing to large-scale research or conservation programmes, small studies and projects are especially flexible to tackle emerging conservation issues and important for capacity building for the ecologists and conservationists for the future.