Final Evaluation Report

Your Details	
Full Name	Wang Weiyi
Project Title	Providing critical scientific knowledge to inform ecological restoration in and around the Giant Panda National Park, A case study in Wanglang, China
Application ID	30721-1
Date of this Report	2022.2

1. 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
Spatial and elevational distribution of different land-cover types in and around GPNP				We are still in the process of procuring and processing high-resolution remote-sensing data on land-cover types in the region.
Bird community composition associated with major land-cover types in and around GPNP				

2. Describe the three most important outcomes of your project.

a). Bird survey in and around the Wanglang National Reserve in summer 2020 (avian breeding season) and winter 2021 (avian non-breeding season), across an elevation range of 821 to 3123 m and four mainland-cover types: cropland (n = 127), native forest (n = 221), mix-culture plantation (n = 173) and monoculture plantation (n = 33). A total of 3815 individuals belonging to 186 bird species were recorded.

We observed seasonal differences in bird abundance across the four land cover types. In the summer field season, we recorded 1763 individuals belonging to 146 species, with the following percentage distribution of individuals among different land-cover types: cropland: 41%; native forest: 26%; mix-culture plantation: 31%; monoculture plantation: 3%. In the winter field season, we recorded 2052 individuals belonging to 99 species, with the following percentage distribution of individuals among different land-cover types: cropland: 51%; native forest: 17%; mix-culture plantation: 27%; monoculture plantation: 5%.

b). We observed elevational differences in bird abundance across the four elevational bands we delineated. In the summer field season, 20.7% individuals were detected at elevations < 1000 m, 45.83% at 1000 to 1500 m, 17.58% at 1500 to 2000 m, and 15.88% at > 2000 m. In the winter field season, 21.23% individuals were detected at elevations <1000 m, 59% at 1000 to 1500 m, 17.15% at 1500 to 2000 m, and only 2.49% at > 2000 m.

c). We observed clear elevational patterns of different land-cover types in and around Wanglang GPNP, with cropland and plantations dominating the lower elevations, and native forests mostly remaining at higher elevations.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

It was difficult to detect birds in dense forests. Therefore, we recorded bird calls during each 12-min point count to aid with bird detection and subsequent identification.

4. Describe the involvement of local communities and how they have benefitted from the project.

We got in touch with local forestry governing bodies and the management body of the Wanglang Nature Reserve before conducting this project, who kindly provided logistic support for our surveys. Once we finish our formal data analysis (expected in the first half of 2023), we plan to share our bird survey results and research conclusions with these local stakeholders. We expect that our data and findings will provide them with a better understanding of local fauna and will help to inform more effective planning of ecological restoration.

5. Are there any plans to continue this work?

Yes, building on knowledge we obtained from this project on the biodiversity profiles of different land cover types in the study region, one of our ongoing projects is assessing the socioeconomic factors that predict the establishment of plantations in this region, including barriers to the restoration of native forests by rural households.

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

These results will be published in peer-review journal papers and will also be shared with the governing bodies of Wanglang National Reserve and the local forestry administration.

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

According to our preliminary dataset, lower-elevation areas (<2000 m) support more birds than the higher elevations, especially in the winter. Therefore, lower elevation areas around the Wanglang National Reserve (which covers an elevational range of 2320 – 4891m) have high potential for the conservation of birds, particularly those that depend on native forest habitat. Those areas tend to be highly degraded and consist of heterogeneous landscapes, the main land cover types being cropland and mixed culture plantations. There is therefore considerable need and potential to restore these land covers to native forest habitat to benefit the local avifauna. For this reason, it would be key to understand the opportunities and barriers to changing land cover in the region, particularly the socioeconomic factors underlying rural households' land-use decision-making. In addition, whereas our current study focused on quantifying the numerical measures of bird communities (species richness and abundance), it would be important to further understand what ecological traits (dietary guilds, foraging strata, migration status) can predict birds' association with different land-cover types, and what environmental factors (microclimate, food resources) underlie such association, in different seasons.

Gaining such (more) mechanistic understanding can provide valuable insights on how best to design and implement ecological restoration in landscapes heavily impacted by anthropogenic disturbances as represented by the areas around the Wanglang Nature Reserve.

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

Not yet, because we are still in the process of analysing field data. We will highlight The Rufford Foundation's support when we publish our study in peer-reviewed journals, as well as in the popular outreach articles we plan to write once we publish our study.

9. Provide a full list of all the members of your team and their role in the project.

Dr. Hua Fangyuan (Peking University)
Supervisor of this project. Advised and guided me in design and implementation of all aspects of this project.

Dr. Que Pinjia (Chengdu Research Base of Giant Panda Breeding)
Co-supervisor of this project. Advised and guided me in bird community surveys.

Ren Xiaotong
Field crew. Assisted me with fieldwork.

10. Any other comments?