Final Evaluation Report

Your Details	
Full Name	Kurnia Ilham
Project Title	Assessing patterns of crop-foraging long-tailed macaque (*Macaca fascicularis*) in a farm, West Sumatra, Indonesia and its Management
Application ID	35029-1
Date of this Report	18 May 2023

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
Assessing temporal pattern of crop-feeding the long-tailed macaque				This study aimed to understand pattern of crop feeding long-tailed macaques. The preliminary analysis from camera traps shows that this macaque fed on crop almost daily. They visit farm area exclusively during morning (07.00 – 08.30) and evening (17.00 – 18.00). This pattern following to the human presence in the farm area. We also noted that crop feeding long-tailed macaques were not related to forest food availability. A more detailed analysis will be conducted later to verify this preliminary conclusion.
Monitoring crop-selection by monkeys and its nutritional value				Our observation and camera traps in the farm indicated long-tailed macaque targeting certain crops such as durian, cacao, papaya, banana, and jackfruit - these crops were more frequently eaten than others. A side issue is availability - to understand more detail in crop-feeding behaviour of the long-tailed macaque in our study area, we analysed the nutritional value. We already compared macro-nutrition of most frequently crop eaten by monkeys to wild fruits. Detailed results will be provided in final report
Monitoring crop-protection methods use and its effectiveness				Farmers have tried a wide range of traditional methods to protect their crops from the long-tailed macaque and other wildlife. Farmers feel that the protection methods were ineffective to reduce crop damage by macaque. In this study, we identified two main problems: 1). farmers were not properly setting the protection methods; and 2) traditional protection measures were not well maintained.
Assessing people perception and attitudes towards				While most farmers in our study area experienced crop feeding long-tailed macaques, they were likely to support

conservation				conservation. The main reasons were because most understand the macaque have a right to live. This is an important aspect in maintaining long-term co-existence between people and monkeys in this area. Long-term monitoring is urgently needed. Most farmers suggested compensation from the government or help to improve crop protection effectiveness.

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

a). I was able to predict the temporal pattern of crop feeding long-tailed macaque. This could be an opportunity to improve the effectiveness of current crop protection use by farmers in our study area (Fig. 1). I found that crop foraging events were more frequent in the morning before the farmer arrived at their farm, as well as in the late evening after farmers leave to go back home. I also found that the long-tailed macaque prefers some crops while crop foraging.

b). I was able to identify a wide range of traditional protection methods use by farmers and their effectiveness. A much used and most preferred technique is human guarding, despite it rarely succeeding in reducing crop damage. Passive methods such as traditional fencing, using dogs, suspending cans and scarecrows are also largely ineffective. However, I noted that the high crop losses in our study may reflect the inability of farmers to improve on past practices. Farmers may not be implementing the guarding method correctly or have not maintained other deterrent methods well. Additionally, all farmers in our study argued that, since they did not learn about crop protection in school or from the government, they were suffering being blindly invested in their ineffective protection efforts. (Fig. 2).

Figure 1a. Camera trap of photograph long-tailed macaque crop-foraging and crop damage.

Figure 1b. Crop damage.

c). I was able to understand people's experiences, perception and attitudes towards crop feeding long-tailed macaques in our study area and addressed conflict mitigation (Fig. 3). I found that the common concern for farmers related to the cost of crop damage is financial loss (and reduced income). In our study, however, many farmers experienced high levels of damage yet were still positive about the crop foraging long-tailed indicating a level of tolerance that is unusual in such situations. Nevertheless, farmers in our study area stated that they had killed macaques as a preventive measure, but the numbers appeared to be small and infrequent as killing the long-tailed macaque is not a viable long-term option and may only reduce the intensity of crop foraging. Farmers argued that primates have the right to live and asserted that crop foraging occurs because primate habitat has been converted to farmland and left them with little naturally occurring food sources. However, most farmers suggested compensation from the government or alternatively helping them finding solutions to reduce crop losses by the long-tailed macaque.

Figure 2. Photo of traditional protection method use by farmer.

Figure 3. Photo interview.

First, I conducted my study in place and time according to our project timeline and objective. Second, i success to bring positive vibe to local farmer when undertake this study. The problem of crop-foraging long-tailed macaque in our study area has lasted for many years, but no one has concerned this issue to help farmer to resolve this problem. Importantly, I gain trust the farmers of the important to conserve the long-tailed macaques and other wildlife in their surrounding farm.

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

There are some difficulties during the field work as follow:

1. Because we used a traditional method (visual assessment) in monitoring forest phenology, the result can be subjective. Although we have trained field assistants in monitoring fruit phenology in forest and on farms, there are some biased results. In addition, we cannot collect some other important data on wild fruit for the monkeys in order to analyse nutritional composition due to technical problem during collection (i.e., the height of the trees).

2. Unpredicted weather is a common problem during fieldwork. For some weeks we could reach our study area due to some dangerous landslides.

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

I actively involved farmers in my research. For instance, we have a monthly group discussion as a form of results sharing. I also conducted conservation education with local students (elementary school) to raise their awareness towards long-tailed macaques and other wildlife (Fig. 4).

Figure 4. Photo of focus group discussion with farmers and conservation education.

5. Are there any plans to continue this work?

Yes, we will continue the research but will focus more on finding alternative protection methods which not only help farmers reduce crop losses but also avoiding them having close interaction with the macaques. Further, we also focus on the prevalence of malaria parasites amongst long-tailed macaque population in different habitat types in Padang, West Sumatra.

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

We are analysing our data which will be published in the form of a technical project report, with due acknowledgement to The Rufford Foundation as the funding agency. Moreover, we will also publish our research in scientific papers journals.

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

1. Continue monitoring of crop foraging long-tailed macaque in our study area.
2. Evaluating the actual crop losses caused by long-tailed macaque in our study area.
3. Discuss our results with local government and relevant stakeholder to implement mitigation solutions.
4. Extending this study to other areas of West Sumatra, where the crop feeding long-tailed macaque are becoming a problematic issue.
5. Increasing people's awareness toward long-tailed macaque and other wildlife as well to local people through conservation education.

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?

Yes, we used RF logo in the awareness campaign, the final technical project report (in preparation).

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

Dr. Rizaldi: He contributed to study design and data analysis.

Radilla Utami: She contributed interview farmers.

Surya Pranta: He contributed to line transect and plant identification.

Taufiq Afdal: He contributed for set up the camera trap and analysis data from camera trap.

Muhamad Ansar: He has contributed to conservation education.

10. Any other comments?

Thanks to The Rufford Foundation for the support. This grant was a great help us to conduct our research in Padang, West Sumatra. We thank all the farmers who often help us and giving their 100% support during the project. We hope we can get grant for the 2nd application for our next projects.