

Final Evaluation Report

Your Details	
Full Name	Cici Nurfatimah
Project Title	Movement Ecology of Javan Hawk-Eagle Based on Satellite Tracking
Application ID	34828-1
Date of this Report	7 December 2022

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
Tracking juvenile Javan Hawk-Eagle using ARGOS-GPS PTTs				We used two PTTs in this study. We hoped to collect data for a minimum of 6 months of observation. But what has happened is not in accordance with what had been planned. One PTT only worked for 3 months, while the other only worked for 2 weeks.
Movement behaviour				We used 3 months of observational data from one PTTs. We found new information in the form of daily flying behaviour, a wider home range than previous studies and specific use of the landscape at certain hours. However, because we only got data from one Javan hawk-eagle, we cannot make comparisons with other Javan hawk-eagle in our study.

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

- a).** Gain knowledge on how to use satellite transmitters to track wildlife movements.
- b).** Obtain new information about the size of the Javan hawk-eagle home range and preferences for the type of landscape used.
- c).** Discovering the factors that affect the performance of satellite transmitters in tropical areas with wet and always humid climates.

Successfully using an avian tracking satellite transmitter for the first time on a Javan hawk-eagle in the Mount Halimun-Salak National Park area is the most significant achievement. Because in general, observations using tracking technology in Indonesia are only applied to land mammals such as tigers, elephants, rhinos and primates. At first the Mount Halimun-Salak National Park had doubts whether this research could be successful or not. However, after Iskandar was successfully released, all parties are now sure that similar research can be continued. This research also opens the gates for us to network research collaborations with other national park areas as well as private zoos. We are assisting the Taman Safari Indonesia Zoo in training the use of PTTs and installing them on captive Javan hawk-eagle which they will release soon. In January 2023 we will help release the Javan

hawk-eagle in Meru Betiri National Park which will be fitted with PTTs by the national park.

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

The obstacles we encountered during the study period:

1. Our original plan was to use eagles that are in nature or that we can find in natural nests. However, we had difficulty in catching the eagles that were in the wild. We have tried several capture methods that consider the health and safety of the eagle. However, the efforts made were fruitless. Therefore, we switched to using the Javan hawk-eagle which was accidentally caught by residents around the research location and handed over to the eagle sanctuary for rehabilitation. We named this eagle Iskandar. We observed Iskandar's health for 3 weeks. In those 3 weeks we also assessed which locations were suitable for Iskandar's release.
2. Weather is one of the factors that hinders the process of determining the release location and release date. Mount Halimun-Salak National Park has very high rainfall. Field activities ran from January to February 2022 which is the peak of the rainy season in Indonesia. We work closely with a team from an eagle sanctuary that has experience in releasing raptors into the wild. This team really helped us in determining the appropriate release location with less difficult terrain. This was done with the consideration that the eagles should not be stressed during translocation from the sanctuary to the release location. We also monitored the weather forecast and managed to find a suitable day for the eagle release.
3. We had experienced confusion about using PTTs that we bought from vendors. This activity is the first type of research for us, so we are still in the learning process. We actively communicate with vendors to get technical clarity regarding the use of the tool. In addition, the eagle sanctuary team that helped us were quite familiar with similar tools but of the radio transmitter type. In this way, everyone can quickly understand the technicalities of using satellite-type tools.
4. We bought two PTTs from a vendor. PTTs A functioned only 3 months. PTTs B only worked for 2 weeks. Before we released the tool, we tested both first. PTTs B did not work properly during the trial period. We consulted with the vendor about this, and we sent PTTs B back to the vendor for inspection. The vendor stated that there was a manufacturing fault in the PTTs B and they repaired the PTT because it was still under warranty. Before we released, we retested PTTs B and it worked great. But after we plugged in the second eagle and released it, it only sent data for the first 2 weeks post-release. We managed to recapture the second eagle and took PTTs B to check. The PTTs B condition is totally dead, and the battery cannot be recharged. PTTs B is past the warranty period so the vendor cannot repair it. This makes us only rely on data from PTTs A for analysis.

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

We did not involve the local community directly in this research. However, we are working with a team from an eagle sanctuary belonging to a national park, some of whose members are former poachers who have a conservation awareness. We got a lot of knowledge from these ex-hunters about how to recognise the types of eagles, read the character of the landscape used as eagle habitat in the wild and so on. We share knowledge about this research method with them and explain what benefits can be obtained from this activity so that the eagle sanctuary is able to work even better in the conservation activities that will be carried out.

5. Are there any plans to continue this work?

This work is an initiation project. We still must collect as much data as possible about the movements of the Javan hawk-eagle in different habitat conditions all over Java. Java has different landscape characteristics ranging from west to east. So, we want to see whether the differences in landscape characteristics affect the way of survival of the Javan hawk-eagle in each region. The more information we obtain, it will help us in developing habitat suitability models for restoration and building new habitats as well as sustainable conservation management programmes.

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

The results of this research will be published in a scientific journal that is appropriate to the research topic.

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

The most important next step is to apply the results of this research to a viable conservation management plan. As an endangered animal, actions to save the Javan hawk-eagle must be carried out as soon as possible. However, we still need to collect as much information as possible about the movement of this eagle to produce a more effective and targeted conservation programme.

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?

Part of the results of this research were presented at the 28th International Ornithological Congress 15 – 19 August 2022, Kwazulu-Natal, South Africa which was attended online with the title Preliminary result of post-release monitoring of rehabilitated juvenile Javan hawk-eagle (*Nisaetus bartelsi*) tracked by satellite. I put The Rufford Foundation logo on the presentation slide.

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

Prof. Shozo Shibata (Kyoto University): main supervisor for my PhD.

Dr. Syartinilia (IPB University): co-researcher, data analysis.

Wardi Septiana: assisting in technical administration and research licensing.

Senjaya Mercusiana: eagle sanctuary team leader, site survey, pre and post release monitoring.

drh. Septi Dewi Cahaya: a veterinarian at the eagle sanctuary who checks the health condition of every released eagle.

Didi Saeful Mahdi: veterinary assistant.

Yovie, Hafidz Zufitrianto, Rachmat, Akha Saira, Arie: eagle handler, site survey, pre and post release monitoring.

10. Any other comments?

I am very grateful to The Rufford Foundation for the research grant it awarded me. The research I am currently doing is a continuation of my previous research in the master's programme. The biggest obstacle to being able to continue research with the method I'm currently doing is, of course, funding. Finally, with the help of the Rufford Foundation, I was able to realise the research plan that I had dreamed of for a long time. Of course, this research will not stop just because the funding has been used up. Currently the required data is sufficient to meet the requirements of completing a PhD. However, I have made plans to develop it into a postdoc program or in collaboration with a trusted local NGO. Hopefully in the future I can apply again for funding from The Rufford Foundation for a more advanced stage.