

## The Rufford Small Grants Foundation

### Final Report

Congratulations on the completion of your project that was supported by The Rufford Small Grants Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. 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. 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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

Grant Recipient Details	
<b>Your name</b>	Gopalasamy Reuben Clements and Laurie Hedges
<b>Project title</b>	The population status of big cats in a threatened wildlife corridor in Peninsular Malaysia
<b>RSG reference</b>	13311-2
<b>Reporting period</b>	18/04/13 – 17/04/14
<b>Amount of grant</b>	£5,000
<b>Your email address</b>	<a href="mailto:reuben@myrimba.org">reuben@myrimba.org</a> , <a href="mailto:laurie_hedges@hotmail.com">laurie_hedges@hotmail.com</a>
<b>Date of this report</b>	17/04/13

**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
Conduct data collection in the field (April - November 2013).			Yes	62 camera trap stations (with opposable camera traps) were set over an area of approximately 150km <sup>2</sup> for a total of 6 months, which was the level of effort that we aimed to achieve for the corridor.
Obtain density estimates for tiger, leopard and clouded leopard (November - January 2014).		Yes		Reliable population density estimates were achieved for leopard (the first in Malaysia) and clouded leopard using spatially explicit capture-recapture. However, this was not attempted for tigers even though several individuals were detected, since constraints on the maximum study area would have led to inaccurate results for this species. Nevertheless, data concerning tigers is being used to support our lobbying effort for improving the protection of the corridor and these numbers are being shared with other researchers for IUCN red list threat assessments.
Lobby for better protection of Kenyir (January - March 2014).		Yes		Our reports of an active encroachment camp were passed to government enforcement personnel, who conducted a raid, but could not capture the trespassers. Our findings on the concerning level of encroachment into the forest were shared with relevant government departments and the two most power decision makers in the state, the Sultan and Chief Minister. Our proposals to improve protection measures (such as anti-poaching patrols) are being considered by the state government. A surveillance group to patrol the highway bisecting the corridor is being set up to improve the probability of detecting encroachers for government enforcement personnel.

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

Shortly before commencing the project, we realised that it would be unfeasible to try to achieve a population estimate for tigers in the corridor (Photo 1). This is because the total size of the study area could not be expanded to cover a sufficiently large enough region of suitable habitat to achieve

statistically robust results for this species. However, detections of tigers was still collected and is being used as part of our lobbying efforts with the state government. In addition, this data has been shared with other researchers for IUCN Red List threat assessments. Furthermore, a new project focusing on achieving a population density estimate for tigers is currently underway in an adjacent region (<5km away at its closest) and due to conclude in 2014. Thus it was more prudent to focus the design of the project solely on leopard and clouded leopard.



*Photo 1: One of the endangered Malayan Tiger individuals photographed in this project.*

Another difficulty encountered was the response time it took between informing the authorities of encroachers being encountered in the forest, and when a response was actually effected. However, we now have a detailed insight into the timeline of events between information being passed on and the enforcement team actually entering the forest. This has allowed us to identify areas in the process that can be streamlined and improved upon to enable a much swifter response in the future. This is necessary if suspects are to be successfully apprehended to reduce the level of encroachment.

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

1. Achieving a baseline density estimate for leopards and clouded Leopards in the Kenyir Wildlife Corridor – This will enable us to determine long-term population trends and assess the effectiveness of protection measures taken in the region. We have shown in principle, that melanistic leopards can be monitored with confidence (Figure 1). We were able to demonstrate that alternative methods to identify individuals (such as using scars or body shape) would have been ineffective in comparison and may have led to inaccurate and misleading results. Thus we are able to caution other researchers against the use of these methods.



*Figure 1: Examples of photographs of melanistic leopards taken with the camera forced into using the infrared flash and using the daytime colour mode. Both photos were taken using RECONYX HC500 (Inc., Wisconsin) camera traps*

2. The collection of information on poaching activities – Our presence in the forest allowed us to

document the level of encroachment in Kenyir and provide information to the relevant governmental departments (Photos 2 and 3). On one occasion this resulted in a raid being instigated on a poaching camp (Photos 4 and 5) and on another separate occasion, an arrest of an encroacher.



*Photos 2 and 3: Poaching activity of animals was recorded through signs of snares and photographs of men with guns. In total, encroachers were detected on 94 occasions, often carrying large sacks.*



*Photo 4: Abandoned camps were detected throughout the forest. It appeared that no attempt was made on the part of the occupants to cover their traces.*



Photo 5: Government enforcement team and Rimba biologists (Laurie first row extreme left and Wai Yee first row extreme right) shortly before a raid on an encroachment camp was made. The raid was unsuccessful in apprehending suspects but the operation led to valuable insights into the timeline process between encounter of the poachers, relaying of information to the team and instigation of the raid. This insight has enabled us to streamline the process for future operations.

3. An insight into the ecology of both species in Malaysia – This project has provided the first population density estimate for leopards and one of the first for clouded leopards in Peninsular Malaysia. Logistic regression models also revealed an effect of habitat clearing on habitat use by the population of clouded leopards in the corridor (Figure 2).

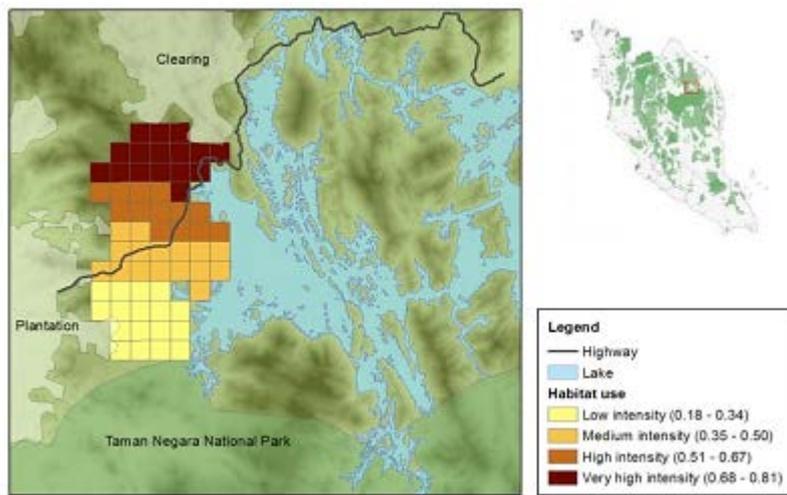


Figure 2: Model averaged habitat use of clouded leopards showing elevation and areas of mixed monoculture plantation and habitat clearing for a new dam.

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

During the project, we employed six people of the Tumiah tribe, who benefitted financially from working with us. Since then, almost all have continued to work for us on a separated research project, which has provided them with a stable source of income. By combating the level of foreign encroachment into the forests, we also hope that indigenous peoples of the Semaq Beri and Batek tribes, who traditionally used this region to gather forest products, may be able to do so unimpeded in the future.

**5. Are there any plans to continue this work?**

We plan to maintain a research presence in the Kenyir Wildlife Corridor and to conduct further camera trapping surveys to monitor the population trend of leopard and clouded leopard in subsequent years. These will follow the same study design and areas as with the last survey in order to be achieve comparable results, though they may be conducted over a shorter time period. Our efforts to lobby the government to enhance the protection of the corridor will also continue.

Currently, a new project focusing on achieving a population density estimate for tigers is currently underway in an adjacent encompassing forest reserves and a protected area (<5 km away at its closest point from the corridor) and is due to conclude in 2014.

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

- *18 November 2013*: Presented findings and proposal to gazette the corridor and improve protection to Sultan and Chief Minister of Terengganu (Photo 6).



*Photo 6: Chief Minister, Datuk Seri Ahmad Said (second from left) discussing the proposal of the corridor with Dr. Gopalasamy Reuben Clements (second from right).*

- *2013-14*: Conducted meetings with state government officials and wildlife department officers detailing the levels of encroachment into the forest.

- *March and April 2014:* Provided workshops and practical exercises to wildlife department officials on how to implement camera trapping research.
- *May 2014:* Results of population density estimates of leopard and clouded Leopard, as well as number of endangered Malayan Tiger individuals, will be submitted to the IUCN to update the information on their conservation status across in the region.
- *August 2014:* Final report of our findings will be compiled and submitted to the state government, detailing the results on our surveys of big cats in the corridor. Management recommendations have already been provided for the government's consideration, but the results of this project will be used to support the need for these to be implemented.
- *September 2014:* Two manuscripts submitted to scientific journals, concerning: 1) the population density estimates for the Leopard and Clouded Leopard, including the novel methods used to obtain them; and 2) the habitat use of both species. We also aim to share our findings with the international media outlet Mongabay (e.g. <http://news.mongabay.com/2013/0115-hance-blackpanthers>). Additional media coverage of our project would be desirable in order to generate publicity for our cause. We would be open to working with PTES on this.

**7. Timescale: Over what period was the RSG used? How does this compare to the anticipated or actual length of the project?**

The grant (in conjunction with another, separate grant) funded the fieldwork over a period of 6.5 months starting in May 2013. This was the anticipated length of the project.

**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
Fuel costs	305	855	550	The basic level of travel entailed in the project was severely underestimated. In addition many unforeseen long distance trips had to be made.
Living costs	2,645	3,000	355	The original budget was underestimated
Batteries	1,950	900	-1050	Prices for locally available packs of batteries were cheaper than anticipated.
Silica gel	62	22	-40	It was discovered used silica gel could be recycled and thus purchasing new packets was not needed
Contingency fund	936	1,463	527	A number of unforeseen costs were entailed in the project, for instance servicing and repairing the field car (a major source of expenditure), purchasing memory cards for cameras, purchasing field equipment such as hammocks etc.
<b>TOTAL</b>	<b>5,898</b>	<b>6,240</b>	<b>-342</b>	Exchange rate (MYR: GDP) = 1:0.21

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

The high level of poaching activity in Kenyir poses a severe threat to the big cats and other wildlife in the area. Also, there is a possibility that forests in forest reserves can be cleared for dams or monoculture plantations. Thus the next step is to continue to liaise with the local state government to lobby for the Kenyir region to be gazetted as a protected area, and for anti-poaching measures to be enhanced in the region.

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

We acknowledged RSGF as a donor of the project during our seminars. RSGF is also acknowledged on our website [www.myrimba.org](http://www.myrimba.org)