## 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. 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** | Noëlle Gunst |
| **Project title** | Census, socio-ecology, and population genetics of ebony leaf monkeys (*Trachypithecus auratus*) in Bali: implications for the species' conservation status in Indonesia |
| **RSG reference** | 12.03.10 |
| **Reporting period** | January – December 2010 |
| **Amount of grant** | £6000 |
| **Your email address** | noelle.gunst@gmail.com |
| **Date of this report** | July 4, 2011 |

**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 provide an updated density and mapping of ebony leaf monkey populations within the West Bali National Park (WBNP) by using repeated line-transect sampling with GPS, counting the number of groups per km²,and estimating a mean density over a large area by extrapolation with the "Distance 5.0" software | | | √ | As initially planned, we conducted repeated line-walking transects throughout WBNP. Walking transects consisted of walking at a constant speed of 2 km/h along a series of transects located in different areas within Prapat Agung Peninsula (8 different transects, each measuring 4 km and being walked 10 times, i.e. a total of 80 transects). Given the current situation and management of WBNP (with a main road built across the park, between Cekik and Teluk Terima), we decided to complement our data set by adding "driving transects", consisting of counting monkey groups by driving a motorbike at a constant speed of 15 km/h along this main road (91 additional transects in total, each measuring 12 km). For each of these two types of repeated line-transects (namely "walking transects" and "driving transects"), we counted the number of sightings of ebony leaf monkey groups and collected the GPS coordinates of each sighting. We believe that this methodological addition allowed us to provide a better assessment of the overall density of ebony leaf monkeys, by taking into account, not only wild/forest-dwelling groups, but also populations living in the vicinity of anthropogenic areas. A detailed final report with quantitative results will soon follow. |
| To evaluate the species' activity and ranging patterns by measuring the size and the differential use of several groups' home ranges, their daily movement distance, and their activity budget | | √ | | Given the difficulty to follow several non-habituated groups of ebony leaf monkeys, we decided to refocus our research efforts on a particularly endangered population type and we systematically studied a group of ebony leaf monkeys living in a fragmented and disturbed area (i.e. a small patch of plantation forest, measuring approximately 700 m long and 250 m wide), and surrounded by agricultural fields, savannah habitat, roads, villages, and a few |

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| | | | | forest fragments that may function as dispersal corridors. We believe this decision makes perfect sense in a conservation-related project. |
| To assess the population structure of the species by documenting the frequency distribution of group sizes, and the frequency distribution of group compositions in terms of age and sex classes | | √ | | For each repeated line-transect, we counted not only the number of sightings of ebony leaf monkey groups, but also the number of individuals observed in each group. These data provide an estimation of group size in this species. Regarding the assessment of group compositions in terms of age and sex classes, our data are preliminary. The reason is that the surveyed leaf monkeys were completely non-habituated to human presence. Most individuals we encountered during our transects systematically dropped from their trees to the ground and disappeared into the bush before we could determine their age and sex. |
| To collect faeces samples as a source of DNA for the analysis of population genetic structure. | | | √ | We collected a series of faeces samples from the resident group as a source of DNA for an analysis of population genetic structure. This analysis will be conducted by our research collaborators at the Primate Research Center of Udayana University. |
| To stimulate further survey on this endangered primate species as a way to promote conservation awareness | | | √ | Before starting our field project, we gave a presentation of our objectives and data collection methods in front of WBNP staff (namely, the manager, local park rangers, and administrative officials). During the course of our field survey taking place in the wet season (February – July 2010), we showed them our data on the occurrence of illegal logging within the study site. In order to investigate the effect of such environmental disturbance, they decided to conduct a complementary survey of leaf monkeys at the same site during the dry season (August – October 2010). We are in the process of comparing and compiling our final results in what will be the first scientific article about the current status and conservation of this primate species in Bali. |

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

Based on the information obtained from a previous researcher who carried out a survey in the West Bali National Park several years ago, we had initially planned to rent an accommodation at the WBNP's headquarters, that is within the limits of the park. This would have allowed us to stay very near our study sites. However, upon arrival, the park authorities informed us that the headquarters' lodging had recently been renovated to be mainly used by park visitors and tourist groups. Consequently, the daily rent fare had dramatically increased and was largely beyond our initial accommodation budget. We then realised we had to relocate outside the park, in the nearest village (Gilimanuk), and find a daily means of transportation from this village to the park. After talking with the park manager and staff, we solved these two unexpected issues. First, a park staff (tourist guide) accepted to rent us a room inside his house at Gilimanuk for several months. Second, another park staff (tourist guide) rent us a motorbike so that we could drive daily from our house to the park, as well as across the trails within the park limits.

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

a) The combination of two types of repeated line-transects (namely "walking transects" and "driving transects"), allowed us to provide an accurate assessment of the overall density of ebony leaf monkeys within Prapat Agung Peninsula, which is considered a priority area in terms of conservation in the West Bali National Park. While collecting field data on ebony leaf monkeys (our focus primate species for this project), we also collected, for the first time, detailed data on the density and geographic distribution of another sympatric primate species: long-tailed macaques (*Macaca fascicularis*).

b) By taking into account, not only wild/forest-dwelling groups of non-human primates (ebony leaf monkeys and long-tailed macaques), but also populations living in the vicinity of anthropogenic areas (e.g., a small patch of plantation forest, surrounded by agricultural fields, savannah habitat, roads, and villages), we intended to contribute to the local communities' awareness of the complex and sometimes problematic interactions between human and monkey populations, which makes perfect sense in a conservation-related project.

c) For the first time in this protected area, we collected detailed data on the occurrence of illegal logging within the study site. We hope this information will be used by the park authorities to prevent such detrimental impact.

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

The WBNP authorities (the manager: Pak Joko, and many park rangers and tourist guides including Pak Hery and Pak Eko) have been involved at various levels of our research and conservation project, right from the beginning. Pak Joko kindly gave us permission to a daily access the trails and facilities inside the park, including spending some nights in the remote area of Brunbun sanctuary to facilitate our survey there. All the park staff, and particularly Pak Hery, were always eager to show us around new areas and share information about local fauna and flora. For all these reasons, we are very grateful to Pak Joko and his team.

From a research/conservation perspective, we are confident that our survey data and written report will be used by the park manager and staff 1) to provide updated information to the visitors about the current conservation status of ebony leaf monkey (but also long-tailed macaque) populations, 2) to raise local communities' awareness of the necessity to preserve their wildlife, and 3) to promote active and local conservation measures in order to avoid illegal logging. From a financial perspective, the park services also benefited from our project in the form of park fees, motorbike rental, and room rental to park staff (please see above for details).

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

In the more or less near future, several focused studies could/will be conducted in the WBNP, as a direct follow-up on the current research/conservation survey. These studies may/will address the following questions:

1) What is the short-term impact of tourist activities (i.e., guided tours in Prapat Agung Peninsula), particularly during the dry season, on the habituation, ranging patterns and density of ebony leaf monkeys?
2) What is the mid-term impact of the occurrence and prevalence of illegal logging activities in the WBNP on the ranging patterns and density of ebony leaf monkeys?
3) On a longer-term, how the ranging patterns and density of ebony leaf monkeys may be affected by the living activities (e.g., agriculture, pastoralism) of local villagers living inside the park (e.g., in Sumberklampok village, where we conducted our survey on a group of ebony leaf monkeys living in a plantation forest area) as well as religious activities (hindu gatherings in local temples located within the limits of the national park)?
4) What will be the broader and longer-term conservation impact of the educational programs initiated by the WBNP authorities and directed to Balinese primary school pupils, high-schoolers, and university students?

We also hope that our survey on ebony leaf monkeys will be used by students from Udayana University (and particularly students under the supervision of our Balinese colleague and sponsor, Dr. I Nengah Wandia) as a launching pad for future primate censuses in the area.

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

A detailed report of our survey (addressing the points mentioned in section 1.) will soon be sent to various local, regional, and national authorities, including the WBNP authorities, the Balinese Governor services, the Ministry of Interior/Domestic Affairs (Kementerian Dalam Negeri), and the Ministry of Research and Technology (RISTEK). Our report and further ideas for possible future collaborations will also be addressed to our primatologist collaborators (Dr. I Nengah Wandia and Dr. Aida Rompis) from the Primate Research Center at Udayana University, Bali.

Finally, we are preparing at least two manuscripts to be submitted to conservation and/or primatology journals (e.g. "Primate Conservation" and "International Journal of Primatology).

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

The RSG was used over the following period: January-December 2010. This period included administrative and logistic arrangements, followed by the conservation activities related to the proposed project, such as field data collection, meetings with park rangers, and field data analysis. Overall, this period corresponded to the one-year project anticipated. More particularly, given the project actually started in January 2010 (i.e. we were already in Bali when we applied), and considering that the funds were made available in July 2010, the funds received from the RSGF were also used to cover some of these project-related expenses already incurred. It should also be noted that the initial plan to conduct a survey in the county of Tabanan was replaced with the non-initially planned study focused on a group of ebony leaf monkeys living in the vicinity of anthropogenic areas (e.g., a small patch of plantation forest, surrounded by agricultural fields, savannah habitat, roads, and villages), which makes perfect sense in a conservation-related project. We did pay a short visit to the region of Tabanan and based on discussions with local people (who told us that the ebony leaf monkeys were elusive and difficult to access there), we decided not to pursue with a survey in this region.

**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 |
|---|---|---|---|---|
| One air ticket Paris (France) – Denpasar (Bali) | £720 | £720 | 0 | Not applicable |
| One-year Indonesian visa | £95 | £95 | 0 | Not applicable |
| One-year research permit | £230 | £230 | 0 | Not applicable |
| Accommodation | £2,950 | £3,310 | - £360 | Unexpected and longer stays in Denpasar due to administrative delays (research permit and Indonesian driving licence for motorbike) |
| Meals | £1,180 | £1,090 | + £90 | Meals slightly less expensive than budgeted |
| Salaries for field assistants | £1,310 | £900 | + £410 | After paying a park ranger to show us around WBNP, we obtained permission from the park manager to circulate within WBNP without a park ranger |
| Equipment and supplies related to daily field research (including a refrigerator to store biological samples, and a rental motorbike to access the park) | £1,120 | £1,100 | + 20 | Unexpected discount on the long-term renting of the motorbike |

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| Miscellaneous expenses (e.g., transportation between field sites, rental car to bring back the biological samples and the refrigerator to Denpasar, internet connection, cell phone to communicate with park authorities) | £330 | £355 | - £ 25 | Transportation slightly more expensive than budgeted |
| **Total** | £7,935 | £7,800 | + £ 135 | |

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

As a follow-up on our research/conservation project, the most important next steps are the following:

- Evaluate the impact of various environmental disturbances within the limits of the national park (including illegal logging activities, local agro-pastoral activities, as well as tourist and religious activities) on the ranging patterns and density of ebony leaf monkeys.
- Continue and diversify the local educational programs in relation to wildlife conservation in the WBNP.

**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 will definitely mention the generous support from the RSGF in the acknowledgements section of each of our coming manuscripts (soon to be submitted for publication in conservation and primatology journals), as well as in any conference where our project findings will be presented.