The Rufford Foundation
Final Report

Congratulations on the completion of your project that was supported by The Rufford 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	Eli Christian
Project title	Bringing back the Galapagos racer to its former historical range on Floreana Island
RSG reference	20259-1
Reporting period	20-Sep-2016 to 20-Sep-2017
Amount of grant	£5000
Your email address	galapagosracer@gmail.com
Date of this report	24 October 2017

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
Establish the number of sexually mature individuals that can be translocated without affecting the on-site viability of the populations.				*Based on my estimate of 3088 individuals on both islets, I propose that a harvest rate of 20-30 mature individuals per year, over a 10-year period is unlikely to affect the local recruitment of the species, yet it will result in the establishment of a third population on Floreana Island. This estimate is based on a revision of studies on Caribbean snakes inhabiting similar environments at comparable densities. This information was not available prior to my work as there were no estimates of population size.
Formal assessment of Galapagos snakes under IUCN threat categories.				These assessments are ongoing, at present six evaluations have been uploaded to the Red List database (iucnredlist.org) via the representative for Ecuador at the IUCN (Dr Diego Cisneros-Heredia). We are currently reviewing the entry for *Pseudalsophis biserialis* to better reflect its status as a result of my work on the species.
Training to rangers of the Galapagos National Park on snake handlings techniques in the field.				My team and I provided training to eight park rangers from the Galapagos National Park during eight field visits. This was a very successful component of the project and more rangers have enlisted to learn the same capture, handling and measuring techniques in coming fieldtrips.

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

The project progressed as planned and received a lot of support from the Directorate of the Galapagos National Park from its onset. The only minor difficulties

with the project were days unfavourable for snake capture and monitoring but these didn't represent a major obstacle to complete the objectives of the project.

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

1) My project provided the first population estimate for a Galapagos snake in over 100 years of studies on these reptiles. This forms the basis for conservation planning.
2) My project also revealed basic aspects of their diet which consists mostly of geckos and lava lizards. With this information, a new project is being developed formally assessing the abundance of these food resources on potential sites for reintroduction.
3) The most important outcome is the increased interest in these reptiles from rangers to scientists and the wider community, with another two field projects planned in the coming years.

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

The ranges from the Galapagos National Park were very grateful for the opportunity to participate in this project and their field skills have increased. These training sessions were so successful that a workshop to train a larger number of rangers in the works, possibly in early 2018.

5. Are there any plans to continue this work?

Yes, Dr Luis Ortiz-Catedral (listed in the team section) will expand this project over the next 5 years as I move into other areas to advance my own career.

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

My supervisor Dr Luis Ortiz-Catedral and I are working on a couple of scientific publications and a reintroduction plan for the species. I am also presenting the results of my work at local conferences.

7. Timescale: Over what period was The Rufford Foundation grant used? How does this compare to the anticipated or actual length of the project?

The bulk of the grant was spent at the beginning of the project (November 2016) as I purchased airfares, and field gear. The remaining funds were spent during between January and July 2017 to cover the cost of local transport to islets and per diem allowances.

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
Return flight Auckland-Galapagos	2300	2300	0	Economy Airfare Auckland-Santiago-Quito-Galapagos Islands for Eli Christian.
4 Backpacks for park rangers	450	450	0	4 Heavy duty, rain-proof backpacks for rangers: Walter Chimborazo, Bolivar Guerrero, Christian Pilamunga and Angel Ramon
4 Pairs of boots for park rangers	270	270	0	Heavy-duty all terrain boots for tramping across lava fields: Walter Chimborazo, Bolivar Guerrero, Christian Pilamunga and Angel Ramon
300 L of fuel for Speed boats to access field sites and pick up field crew	400	400	0	Fuel used in the boat La Molme
2 x Solar Monkey Chargers	150	150	0	2 units for charging gear in the field
4 Portable outdoor lights	80	80	0	4 portable units, rechargeable
25 nights accommodation while not in the field (basic accommodation for team of 6 in Puerto Ayora, Galapagos Islands)	600	600	0	Three units (2 people each) were booked for periods while team was not in the field.
Per diem allowance for field crew	750	750	0	This per diem allowance covered the food during fieldtrips and was enough for a team of 6 on 180 field days.

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

The most important next step is to characterize the fine scale habitat preferences of Galapagos racers. During my work we noticed a strong association between racers and thick cacti patches, as well as shrubby areas near bird colonies. I suspect this is related to the local abundance of prey but were unable to text this in the period of the project. These fine-scale analyses will be essential to identify the best areas to reintroduce the species. These and other priority areas of work are discussed in the Translocation Plan currently being developed.

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

Yes, to date there has been a story about the Galapagos snakes in general featured in MONGABAY LATAM (In Spanish) (https://es.mongabay.com/2017/05/galapagos-la-culebra-floreana-misterio-va-camino-resolverse/) The Rufford Small Grants is featured as one of the project supporters.

11. Please provide a full list of all the members of your team and briefly what was their role in the project.

Eli Christian (Massey University): My role was to collect data in the field and ensure that each snake was safely processed. I also had as duties data keeping, training of field assistants and analysis and preparation of results.

Dr Luis Ortiz-Catedral (Massey University): Luis was in charge of logistical support in the field, preparation of quarantine, preparation and translation of permits, translation in the field, training on snake handling. Luis is also running from now on the snake research program in the Galapagos Islands.

Christian Sevilla (Galapagos National Park): Chris facilitated support of boats and even a helicopter to transfer field crew to field sites. He also coordinated safety operations and received training in the field.

Walter Chimborazo, Bolivar Guerrero, Christian Pilamunga and Angel Ramon (Rangers from the Galapagos National Park). Each of them participated in the field during captures of racers and learned the safe methods to capture, hold, and measure snakes. They had limited experience implanting transponders also.

Other rangers that received training include: **Marcelo Gavilanes, Danny Rueda, Andrea Loyola and Wilson Cabrera.**

12. Any other comments?

Once again I would like to extend my gratitude to the Rufford Small Grants Programme which has helped me laid the basis for a reintroduction of the Floreana racer onto Floreana Island and has also help me reinforce my interest in wildlife conservation.