

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	Martín de Jesús Cervantes López
Project title	Conservation of amphibians and reptiles in a tropical biodiversity hotspot: The importance of landscape patterns
RSG reference	24642-1
Reporting period	April-November 2018
Amount of grant	£4,900
Your email address	mjcervantes@cireco.unam.mx
Date of this report	27/03/2019

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
Understand the ability of amphibian and reptile species to use different types of coverages in the landscape (fragments of mature forest, secondary forests, African palm plantations and cattle pastures).				The fieldwork corresponding to this objective was completed. The data base is ready and all statistical analyses were completed. We are now writing a first draft of the first scientific paper.
Determine the extinction thresholds for these two groups (i.e. the amount of forest cover needed to avoid extinction).				This objective is in process. We have completed the database, but we have not finished data analyses.
Describe the spatial distribution of the species in the different geomorphological units of the ecosystem				Data collection for this objective will take place from April to September 2020.
Workshop with local communities				The workshop with local communities will be carried out after completing the project, approximately in September 2020.

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

Two difficulties arose during the development of the field work:

- 1) We excluded surveys in corn fields (locally called 'milpas') because local people burn the fields twice a year, but different fields can be burned at different periods, thus making very difficult to control this confounding factor in our analyses. So we decided to change corn field to secondary forests, which represent a common antropogenic land cover type in the Lacandona rainforest. We finally sampled old-growth forest patches, secondary forest patches, cattle pastures, and oil palm plantations.

- 2) We delayed surveys in continuous forest to the next year (April-September 2020) because of logistical problems (the motor boat was not available), and because I have my candidature exam this year (August 2019) and I need to spend more time working on the thesis manuscript. But I will do this lacking field work next year.

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

- 1) In the 20 sampling sites (total effort = 1420 h for two people) we recorded 1,434 amphibians belonging to 24 species and 11 families (Appendix 1) and 2,835 reptiles distributed in 42 species and 14 families. Both types of forest cover (old-growth forest fragments and secondary forests) shared 67% of amphibian species (16 species) and 45% of reptiles (19 species) with agricultural lands (oil palm plantations and cattle pastures). Of the total species registered in the different coverages, 21 species (32%) are included under a risk category by the Mexican Government or the IUCN Red List, where 13 (20%) of these species were recorded in the forests, 10 (15%) in the secondary forests, 7 (11%) in the oil palm plantations and 11 (17%) in cattle pastures.
- 2) The number of amphibians differed among vegetation covers, being higher in palm plantations than in the rest of land covers. The diversity of amphibians also differed among land covers, where the secondary forests were the sites with lower diversity. The number of reptiles was higher in forest fragments than in secondary forests, but did not differ with palm plantations and cattle pastures. The diversity of reptiles was similar in all land covers.
- 3) A large proportion of amphibian and reptile species were present in the agricultural cover. However, species composition of these two groups differed between forest and agricultural fields, possibly because some species does not have the capacity to survive in habitats other than old-growth forest.

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

The participation of local communities was very positive. Local people is quite open to collaborate with us, and everyone gave us the permits to work on their lands. My field assistant enjoyed the fieldwork a lot, and learned a lot about how to manage and identify amphibians and reptiles. I talked with a lot of local people about these animals, as they are generally misunderstood, and local people usually think that most species are dangerous. So I believe than my talks helped to change a little bit the mind about this ecologically relevant group of species. Also, part of the financial support received from The Rufford Foundation was used to pay a salary to by field assistant, thus contributing to supplement local economy, and allow this person and his family not to be pushed to dedicate themselves to agricultural practices that result in land-use changes.

5. Are there any plans to continue this work?

Yes, I plan to continue this work, as I will carry out a second field work during the next year (April-September 2020) to meet the third objective of the project. Also, I will carry out environmental education workshops with local communities. Finally, I will finish all data analyses to write several scientific papers on the topic and my PhD thesis.

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

I will share my findings through scientific publications, academic conferences and workshops with local people. Information will also be shared with a local NGOs (Natura y Ecosistemas Mexicanos A.C.) to increase the impact of the study.

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 Rufford Foundation grant was used to cover various expenses of the first field trip, which allowed one-third of the project's work to be completed.

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
Terrestrial transportation Morelia-Lacandona (Fuel and toll booths) ¹	£130	£130		
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Fuel for transportation in the field study sites (£ 0.65 per liter)	£600	£800	+£200	The increase in the cost of gasoline in the study region, caused that more money for gasoline will be dedicated
Payment for a field assistant in the Selva Lacandona (£ 15.08 per day x 230 days) ²	£2,250	£1,800	-£450	The remaining money will be used to pay the field assistant during the next field work
Accommodation in the Lacandona region	£470	£450	-£20	
Food	£720	£550	-£170	
Snake anti-venom kits	£500	£500		

Workshop material	£100		+£100	This money will be used for the next field work
Total	£4,900	£4,360	-£540	Remaining funds to be used for continuation of fieldwork

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

Finishing all field work and data analysis, writing all scientific papers and my PhD thesis, attending academic meetings and organizing a workshop with local people

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?

For the moment, I have only used the logo in my project presentations.

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

The members of my work team are the following: Dr. Víctor Arroyo-Rodríguez, Dr. Ellen Andersen, Dr. Rodrigo Macip Ríos and Álvaro Soriano López.

Dr. Arroyo-Rodríguez, is my formal doctoral advisor, and has contributed more directly to the theoretical and practical development of the project.

Dr. Andresen and **Dr. Macip Ríos** have been in charge of supervising and supporting the development of the project.

Álvaro Soriano López was my field assistant and contributed to support the records of the amphibian and reptile communities and to contact local people to ask for permits.

12. Any other comments?

There are no words to express how grateful I am with the Rufford Foundation for the support given to the realization of the project. Without the support, it would have been difficult to cover all the expenses.

Thank you.