

## The Rufford Foundation

### Final Report

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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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
Your name	Laura M. Vargas
Project title	Population ecology of the jaguar ( <i>Panthera onca</i> ) in the Amazonian Forests of Colombia
RSG reference	20871-1
Reporting period	Final report
Amount of grant	£5,000
Your email address	lmvogg@gmail.com
Date of this report	04/06/2018

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
Link the jaguar with ecosystem traits				So far it is possible to associate the jaguar with some habitat characteristics that were measured in the field, however I continue to analyse other variables on a larger scale that may be influencing the species in the Amazon.
Verify population status of the jaguar				It was possible to verify that what is described by the literature is correct regarding the small population of jaguars in Amazonian ecosystems, extrapolating by the captures in the cameras; however the suspicion persists in my case, that it is not due to the type or suitability of habitat, but to the historical pressure that the species had for the indiscriminate hunting and the traffic of skins.

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

One of our goals was to monitor the species all year long throughout the sampling area, we knew it would be difficult primarily because access to the sampling spots would be flooded, but we didn't count with most of the cameras breaking down at the beginning of the rainy season. The Amazon presents very big challenges in working with wildlife, so we could not miss the opportunity to make the most of the work we could achieve with the remaining equipment. We rearranged the surviving cameras, to sample as much area as possible in the remaining time, and we managed to complete the sampling in 43 stations of the 60 initially scheduled.

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

In this project it was possible to establish that the jaguar population is still very low, for what we would expect from an Amazon forest. But it is possible to explain it by the slowness of the recovery of the populations of these animals. The exploitation of jaguar by the exorbitant hunting occurred during the 1950s is still reflected in the current populations.

It was possible to confirm during this project that the jaguar avoids all places of possible confrontation, and is usually present in more isolated areas, with little traffic of tourists or hunters, while looking for areas with large bodies of water, and open spaces, although this does not limit it to be present in the densest areas of the forest. During the sampling it was not possible to verify reproduction, since there was no presence of puppies in the records obtained, however it was possible to verify that one of the registered individuals, a female, was hunted by tourists. Although, it is not probable that the hunting of these animals is something frequent, since it is strongly repudiated by the inhabitants of the region, the little control of the authorities and the little fulfilment of the environmental legislation in Colombia in general, and in Leticia in particular, makes the formulation of long-term conservation projects very complicated, if there is no agreement between the parties.

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

During the whole project, people from the local community were involved, to undertake the sampling and take advantage of their knowledge of the forest and the region. Participants were given 6-months training prior to their participation, in the use of GPS, cameras, maps, camera traps, and methods of taking samples in the field, measuring variables, etc.

These people are trained to work on any environmental project that requires the skills learned, and to continue with the project later if it is the case

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

Simultaneous with the jaguar project, we have in the research group a constant monitoring of an area of 12 km<sup>2</sup> of forest, for almost 5 years. This project will continue, since it is important to monitor what happens with the forest in the area where the research is being carried out, but which is shared by thousands of tourists who come to know the jungle and stay in the biological station.

However, to continue monitoring the jaguar on a large scale as we did in this project, many resources are needed to support researchers and technicians in the field, as well as the guides, and the ability to be constantly buying cameras, since the Amazonian climate deteriorates them very fast. However, with the research group we are constantly looking for resources to be able to continue with jaguar monitoring, in the largest possible area.

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

The results of this project will be shared with colleagues during the Colombian zoology congress in December of this year, and possibly also at the Rufford meeting in the Galapagos Islands in January 2019. In addition, all the results obtained will be published in my master's thesis as peer-reviewed scientific papers.

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

2016										
Jan	Feb	Apr	May	Jun	Jul	Ago	Sept	Oct	Nov	Dic
2017										
Jan	Feb	Apr	May	Jun	Jul	Ago	Sept	Oct	Nov	Dic
2018										
Jan	Feb	Apr	May	Jun	Jul	Ago	Sept	Oct	Nov	Dic

This is the time scale of the project, starting in February 2016 with the exploratory phase and training of the working group. The field phase was carried out from September 2016 to December 2017, completing a little more than a year of sampling. Initially the scheduled sampling time was 1 year, with the proper functioning of all equipment, and without setbacks with the work group.

However, as mentioned in a previous point, many of the equipment was damaged in April, during the rainy season, so we had fewer cameras to install and the sampling was delayed a couple of months.

Rufford's funding came in June 2017, and lasted until the end of the year, in December the cameras were collected and the field phase was terminated (orange).

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
Field materials	203	194	9	
Transportation	266	266	0	
Salary for guides	390	2000	1610	The budget was increased to this item in order to ensure the field guides for the entire field phase
Field backpack	40	0	40	
Photographic camera	0	0	0	
External hard drive (Data storage and management)	190	190	0	
Tablet (Data analyses)	145	0	145	
AA Batteries	575	600	25	
Field notebooks (water resistant)	57	0	0	
SDMemory cards (For camera use)	587	200	387	

Phyton Master Lock (for camera security)	296	0	296	We decided the cameras where too far to be at risk of theft
Bushnell camera traps	2251	1550	701	We bought 10 of the 20 budgeted cameras, the remainder funds were transferred to guides salaries.

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

The most important steps to follow are the association of organisations interested in the protection of the species, for the implementation of a long-term monitoring that allows to verify the health of the populations in this and other parts of the Amazon. It is important to do this, since the Amazon is the last habitat available on a large scale for the species on the continent. Throughout the rest of its distribution its habitat is severely fragmented.

As the population growth of this species is somewhat slow, less conventional mechanisms of conservation could be implemented, ex-situ reproduction, monitoring focused on the reproductive season to verify the number and state of health of the puppies, and even satellite tracking of some individuals, that finally allows us to confirm the area they really need, and the prey species that must be protected to favour the jaguar.

The penalty for hunting does not work in Latin American countries because of the low commitment of the authorities, but strategies of appropriation of this species and others in danger could be implemented by the communities, as a cultural patrimony, and as a tourist and natural attraction. Create associations with the tourism companies present to promote sustainable tourism, which allows them a possibility of growth through training and avoid informal tourism, which is the most harmful to the ecosystem and indigenous communities.

**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?**

So far I have not used the logo of the Rufford Foundation, more than to present the progress of the project in the national university of Colombia, but will be present in the presentations that will be made in the congresses mentioned in December of this year and January 2019.

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

**Laura M. Vargas** - Project Coordinator and data analyst

I was in charge of training the participants in the field trips, preparing equipment and programming each departure, structuring the sampling, data analysis and publication

**Gabriel Colorado** – Supervisor

Supervise the proposed protocols, verify methodologies, and publish results

**Miguel Arkangel (Bora Ethnicity)** – Field guide and technician

In charge of data collection, installation of cameras, measurement of environmental variables

**Rosendo Yukuna (Yukuna Ethnicity)** – Field guide

Field assistant, assist in data collection and installation of equipment

## 12. Any other comments?

It was a great privilege for me to realise this project, an immense learning opportunity and I will always be grateful to Rufford for allowing me to carry it out to the end.

