

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	Fabio Leonardo Meza Joya
Project title	Assessing roadkill events to reduce wildlife mortality in roads of the Mid-Magdalena Valley, Colombia: Mammals as study case
RSG reference	18847-1
Reporting period	December 2017 to January 2018
Amount of grant	£4990
Your email address	fleonardo78@gmail.com
Date of this report	5 th February 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
Project socialisation				We socialised our project with local NGOs, universities, decision makers, drivers, research groups, students, and other interested groups.
Wildlife-vehicle collisions surveys				We have successfully completed a year of roadkill surveys.
Roadkill diversity				We recorded a total of 419 roadkilled mammals belonging to 12 species. In addition, we recorded 303 roadkilled animals (13 amphibians, 144 reptiles, and 146 birds).
Variable effect evaluation				We used multiple logistic regression to determine which landscape and roadway characteristics were important in the occurrence of roadkill.
Spatial distribution of roadkills				We identified 18 roadkill hotspots using the 2D HotSpot identification analysis.
Functional connectivity analysis				We identified areas with high connectivity (some related to roadkill hotspots), which are important for mitigation measures.

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

The most difficult task was to get in contact with the local environmental authority Corporación Autónoma Regional de Santander (CAS), who never responded to our requests or attended our invitations to scheduled events. However, we communicated with the Instituto Nacional de Vías (INVIAS), the entity responsible for conducting policies, strategies, plans, and programmes related to the country's public road infrastructure. In addition, we are working on an impact mitigation plan for the studied route. This information will be shared with the CAS.

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

1. Contributing to the understanding of the potential factors promoting spatial and temporal mammal roadkill patterns, identifying mammal roadkill hotspots and areas of high functional connectivity for species in the study area.
2. Becoming a part of a national network for the monitoring of wildlife-vehicle collisions (i.e., Recosfa), sharing our results with stakeholders, and collaborating with the national entity responsible for conducting policies, strategies, plans, and programmes related to the country's public road infrastructure (i.e., INVIAS).
3. Raising public awareness about the urgency and importance of wildlife conservation on national roads, through environmental education and outreach activities in schools, universities, research groups, stakeholders and local communities.

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

Believing that citizen science is a key approach to reduce wildlife roadkills, we structured a phase of the project based on environmental education and public awareness through several communication activities with universities, schools, local NGOs, research groups, environmental police, transportation companies, students, and teachers. From these activities, we began to recruit local people to involve them actively in our research, collecting roadkill data during their journeys and sharing them with us via social media:

- 1) Facebook (<https://www.facebook.com/atropellamientofaunacolombia/>).
- 2) Email (colombiaendemica@gmail.com).
- 3) Recosfa app (<http://www.recosfa.com/?p=97>).

The most compelling benefit for local communities was to gain understanding about the ecological, economic, and cultural value of wildlife. Through educational actions, local people learned about the importance of wildlife not only locally but at a larger scale. These actions were warmly welcomed by local communities who recognised that local conflicts between roads and wildlife were negligible and became aware of the importance and benefits that comes from nature conservation activities.

5. Are there any plans to continue this work?

Continuation of this project is essential at this stage, now that Colombia's Fourth Generation (4G) road infrastructure programme is starting; this is the largest project of its kind in Latin America today. This programme involves 47 projects spanning 8,000 km of roadway and 3,500 km of four-lane highways, the latter was identified by our project as the road type with the highest wildlife mortality rate in Colombia.

Although this programme involves the implementation of roadway mitigation measures, studies that rigorously evaluate the sites for implementation of such mitigation actions are non-existent. In addition, the lack of government and institutional resources and legislation, the difficulty of monitoring of wildlife roadkills and, as a result, the existing roads and those that are currently being built still represents a latent threat to our defenceless biodiversity. To continue our future research, we need your continued help to estimate and mitigate the impact of roads on our wildlife.

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

The results of this project have been presented to local NGOs, environmental police, decision makers, students, and other stakeholders in several local, regional, and national events:

1. We socialised our project as a free chair on wildlife roadkill held at Instituto Universitario de la Paz, the most important university in the direct area of influence of the project. Barrancabermeja, Colombia.
2. We presented our project during the III Seminario de Biodiversidad y Conservación de Especies Amenazadas: Ambientes Urbanos. Asociación Colombiana de Ciencias Biológicas. Bucaramanga, Colombia.
3. We presented our project in the I Simposio de Ecología y Conservación. Universidad Nacional de Colombia. Medellín, Colombia.
4. We presented our project in the I Simposio Atropellamiento de Fauna y Medidas de Mitigación. Instituto Tecnológico Metropolitano. Medellín, Colombia.
5. As collaborators of the Red Colombiana de Seguimiento de Fauna Atropellada (<http://www.recosfa.net/>), we shared our results through this network's website.
6. We shared our results with the INVIAS (Instituto Nacional de Vías), the entity responsible for conducting policies, strategies, plans, and programmes related to the country's public road infrastructure.
7. We shared flyers, Christmas cards, adhesives, and brochures designed to raise public awareness about wildlife roadkill in Colombia.
8. We also created a Facebook fan page as an alternative way to share our results and to raise public awareness between our followers (<https://web.facebook.com/atropellamientofaunacolombia/>).
9. We made several sensitisation campaigns and educational activities in schools and universities to involve interested parts (e.g., NGOs, students, teachers, local people, etc.) in the protection of the wildlife.

10. We are working on a mitigation plan to be shared with the local environmental authority (Corporación Autónoma Regional de Santander).
11. We are also working on a research paper that will be published in an international peer reviewed journal.

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 project timeline was from 1st November 2017 to 31st January 2018, but we are looking for additional funding to continue with our work during 2018. Our actual schedule was slightly different from our pre-planned schedule, which was programmed for 18 months. The whole amount of the grant was spent during this period.

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
Communication	£200	£470	£+270	The difference was covered by NGO Colombia Endémica.
Rent a digital camera	£0	£0	£0	Item not requested to RF.
Rent a GPS	£0	£0	£0	Item not requested to RF.
Rent a car for monitoring trips	£2,600	£2,748	£+148	The difference was covered by NGO Colombia Endémica.
Accommodation during monitoring trips	£1,040	£1,135	£+95	The difference was covered by NGO Colombia Endémica.
Food for team members during field work	£700	£1,228	£+528	The difference was covered by NGO Colombia Endémica.
Car stickers (educative material)	£200	£500	£+300	We also printed out flyers, Christmas cards, and brochures. The difference was covered by NGO Colombia Endémica.
Meeting with involved groups	£200	£230	£+30	The difference was covered by RF using the remaining money from bank charges.

Radio talk show	£0	£0	£0	Item not requested to RF.
Bank charges	£50	£21	£-29	The difference was used to cover the remaining cost for the meetings.
Physical space and facilities	£0	£0	£0	Item not requested to RF.
Total	£4,990	£6,332	£1,342	1 £ Sterling = \$3,390 COP

The difference between planned and actual budget was mainly due to the exchange rate to Pounds Sterling for Colombia at Aug 07,2016 04:58 UTC (**\$3,971 COP**), when the proposal was sent to RF.

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

The expansion of our project to un-surveyed road segments in Ruta del Sol is very critical because of the high wildlife roadkill rate of this national road. Another important point is to work on the prevention of human-wildlife conflicts and mitigation efforts through community awareness and the active participation of people in educational activities. As mentioned before, we started to share our results with the INVIAS (Instituto Nacional de Vías), the entity responsible for the Colombia's Fourth Generation (4G) road infrastructure programme, and we hope to continue collaborating with the decision makers by informing them about which segments of the road need to be prioritised (e.g., hotspots or areas with high connectivity) during the installation of measures to mitigate wildlife roadkill. These efforts should be reinforced with research on road ecology and conservation, the communication and collaboration between environmental authorities, local communities, NGOs, and relevant government agencies.

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, The Rufford Foundation logo was used in all educational and outreach materials (i.e., flyers, Christmas cards, adhesives, brochures, posters, and t-shirts), as well as during the presentation of our project in seminars and symposiums. Furthermore, the Rufford Foundation will be acknowledged in research papers.

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

1. Fabio Leonardo Meza Joya.
Role: Team Leader.
Activities: Coordinate, plan, and perform all the activities in accordance with the project plan.
2. Eliana Patricia Ramos Pallares.
Role: Researcher.
Activities: Support during field work, data management and analyses, environmental education activities, and preparation of scientific and science

dissemination papers.

3. Diana Marcela Cardona Ramírez

Role: Researcher.

Activities: Perform functional connectivity analysis, support in environmental education activities, and preparation of scientific and science dissemination papers.

12. Any other comments?

A summary report with the main results of our project is shown in a separate file.

