

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. 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. 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

Final Report Form	
Your name	Hugo Ignacio Coitiño Banquero
Project title	Study of the impacts generated by national routes in the mammal populations in Uruguay
RSG reference	13764-2
Reporting period	December 2015
Amount of grant	£4897
Your email address	hcoitino@gmail.com
Date of this report	

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
Identify the most affected species by road-kill			More than 2000 road kills were recorded, 1332 were mammals belonging to 16 species. The most affected species were skunks (<i>Conepatus chinga</i>) (32%), followed by pampas fox (<i>Lycalopex gymnocercus</i>) (12%), crab eating fox (<i>Cerdocyon thous</i>) (11%) and opossum (<i>Didelphis albiventris</i>) (7.5%).	In the future we consider necessary to investigate the causes that might explain why those are the most affected species. It's necessary to evaluate population size and relative abundances on the road-kill hot spots.
Evaluation of the sites that present a higher rate of mortality			A map showing the density of accidents was developed and sites with higher mortality were identified by the QGIS program.	It is necessary to implement a long-term monitoring program to accurately identify the most "problematic" sites and take action to mitigate the impact. However, primary study shows that protected areas such as Laguna de Rocha, Laguna Garzón, Cabo Polonio and Cerro Verde presents high mortality of animals in the surrounding areas. The same is happening on the Ramsar area of Laguna Merin that is a wetland area of international conservation.
Determination of the deadliest	We couldn't get relevant information due			This made us think about how animals' dispersion could change due to

<p><i>period of the year</i></p>	<p>to climate instability in this year. Extreme weather events did not allow to do field trips every month.</p>			<p>extreme weather events (droughts or floods) that are occurring in Uruguay, and if these events can lead to an increase in the probability of road kills.</p>
<p>Development of a long-term monitoring program.</p>			<p>When the project began a blog was created (impactorutasecobioy.blogspot.com.uy/). The aim is to integrate society in to the project. A basic information form was designed and made available, therefore anyone who encountered a road-kill could share the information and it could be incorporate it to the project. Road-kills records (from our surveys and people who provide information) are display on the online map. The map shows the species and the name of the person that provided the record. This helps to involve the society to this project. A cell phone application is being developed to facilitate collaborators to share information of the roads. Such application will be ready to be used in 2016.</p>	<p>Due to the good response we had from the society we are considering to implement a monitoring network in which volunteers sample a route close to their residence on monthly basis. This way will allow us to obtain standardized information of kill-roads throughout the country.</p>

			<p>To date, several people from different parts of the country have joined the project. Another initiative that took shape at the beginning of the project was a call for volunteers for the field trips among college students, as a result more than 20 students participated.</p>	
<p><i>Society dissemination and awareness about the importance of biodiversity loss by deaths on the roads</i></p>			<p>A training workshop for volunteers was held, where the project was presented and guidelines on how to identify animals were given.</p> <p>Now we are also developing a book guide so anyone who reports a road-kill can identify the species recorded.</p> <p>A brochure, was developed and distributed to public and private institutions as well as all interested person</p> <p>Finally the project had such an impact at national level that several interviews in newspapers, radio and television were made, in which the team had the opportunity to present the project and explain the situation of diversity loss on the country's roads. We also met with various government agencies that were interested in the project, such as the</p>	

			National Directorate of Environment and the National System of Protected Area.	
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2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).

As mentioned above, the weather played a trick and at certain times made it difficult to carry on with monitoring. Although the first months of the year Uruguay went through a major drought later episodes of heavy rain occurred for several months making it impossible to perform some of the censuses planned.

This led us to ask for an extension to Rufford in order to be able to accomplish another sample in the summer which we could carry out successfully.

As a result of the unexpected weather in which most of the surveys were conducted, we were contacted by researchers of Atmospheric Sciences to analyze the effects of extreme events in both temperature and precipitation on vertebrate populations.

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

A relevant issue for the country was pick up after more than 15 years without any research on the issue. Rufford support was crucial to materialize the project successfully. One thing that happened and let us know the importance of working on this theme is the call of various media such as newspapers, radio, and television. This took us by surprise because we didn't expect that project would take such relevance in the media. The interest of the National Directorate of Environment and the National System of Protected Areas in the work being carried out and the data were recompiled for the project also emerged.

2) It was possible to meet the goals we set, despite some problems that arose as mentioned above. We recorded a significant number of dead animals which were mostly mammals. This allowed us to generate baseline information that will be of use for planning new projects and analyze possible mitigation measures. This will begin by holding meetings with government entities involved in this subject.

3) The Uruguayan society response to the project was very good. As soon as the project was communicated in various media many people contacted us to collaborate, mainly giving us information on road-kills. From there the project began to strengthen and we received data on animal's 'road-kills from different parts of the country.

Finally, this project allowed us to approach other projects in this field on an international level and generated future collaboration opportunities with researchers

from other countries, such as Brazil. We were also invited to participate in the organization of the First Latin American Congress of Biodiversity and road infrastructure which will be held in October this year (<http://www.cibiv.com/>).

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

As mentioned, many people recognized the importance of the project and immediately lend their support. One of the objectives of the project was to create a monitoring network where the society has an important role in it. The creation of the map and the online form allowed people to more easily provide the information. The online map is a key element, as each record incorporates the name of the person who registered the animal it is an incentive for the volunteers and makes them part of the project.

Also, as the project evolved more collaborators were incorporated, becoming more than 50 people at the end of the year. They did get the brochure that was developed and making inquiries about some activities that arose. The comments made by them were taken into account improving both the prospectus and the activities undertaken.

5. Are there any plans to continue this work?

Our goal is to continue with this study due to its importance of national and international level but also by the commitment of the people who work with us. At the end of 2015 began planning for new work in 2016:

- Make a comparative study between two routes (Route 9 and 8) since both routes have a high traffic but it's different in its spatial and temporal distribution - Start to monitor the route 109. This route is unpaved it is a rock path but last year the government began to restore it and they are planning on pavement it on the future. We plan to start monitoring this route now in order to have comparative information before and after the asphalt is paved, since both vehicular traffic and the average speed of movement of cars is expected to increase

-We will continue to strengthen the collaboration with to achieve a more fluid exchange of information. In this regard, we plan to implement a monitoring methodology in different domestic routes; a monthly date will be set which in surveys of 50-70 km around the places of residence of people who are commit to the project. This will enable to, on the one hand involve more the society in the project and on the other hand obtain standardized information on road-kills.

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

The project results will be disseminated through a technical report to different government, promotional material bodies such as brochures for the general public, presentation of results at national and international conferences through exhibitions and in the media. The possibility of traveling to each department where and make a presentation with the results for volunteers also arises. There will also be published in refereed journals.

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

RSG funding is used throughout the project (March 2015 to February 2016). What we have achieved with this project would not have been possible without the support of RSG. Their support allowed us to create this new area of research in the country.

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
Equipment (digital camera, GPS, batteries, battery charger, rechargeable batteries)	893	890	3	
Per diem	798	800	-2	
Fuel	1076	1080		
Rental car	1680	1700	-20	
Education materials (paper sheets, handouts, books, posters)	350	350		
Inputs	100	100		
TOTAL	4897	4920	23	The difference was due to the change in prices of some items

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

From this year and with the data obtained from our project we plan to get new funding to continue with the proposals that we set for 2016. If it is possible my personal idea is to present my third RSG and other technical team members may also be submitted to an RSG as a first experience writing a project.

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?



The RSGF logo was used in various instances as: workshops, brochure (see annex), reports for government agencies and annual magazine of the NGO ECOBIO Uruguay.

The RSGF was also named in the various media to which we were invited; it is in the project blog permanently and in social networks. Also, the logo will be used in the two conferences that we will be assisting in this year: "First Latin American Congress of Biodiversity and Road Infrastructure" which will be held in Brazil in October, and in the fourth Uruguayan Congress of Zoology to be held in December this year at the University Center of Regional Este (Maldonado, Uruguay). Similarly, it will be use in scientific publications elaborate plan this year.

11. Any other comments?

We want to thank RSG for the support.

As I mentioned before, without their support we would not have been able to carry out the whole project.

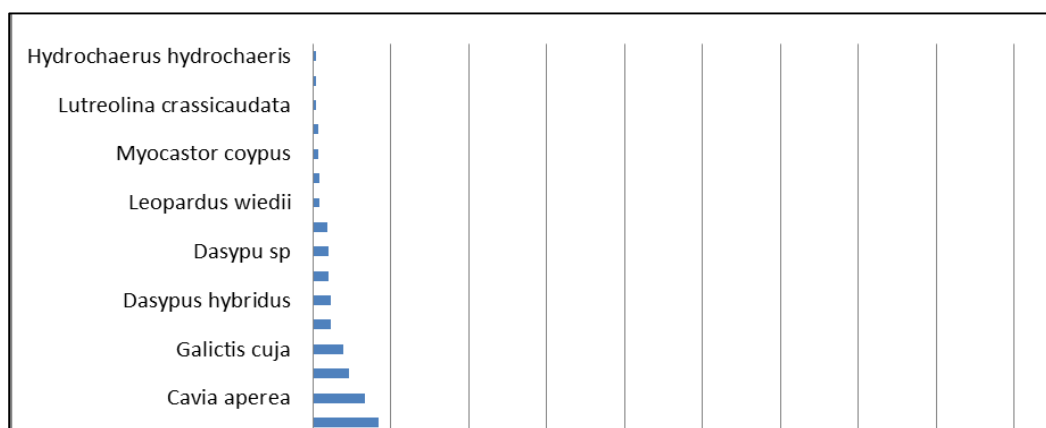
We hope to count on your support again in a third RSG to be apply.

Annexe

Common name	Scientific name	Abundance
Zorrillo	<i>Conepatus chinga</i>	422
Zorro sp	<i>Zorro sp</i>	163
Zorro gris	<i>Lycalopex gymnocercus</i>	156
Zorro de monte	<i>Cerdocyon thous</i>	151

Comadreja mora	<i>Didelphis albiventris</i>	101
Sin identificar	<i>Sin identificar</i>	95
Liebre	<i>Lepus europaeus</i>	53
Mano Pelada	<i>Procyon cancrivorus</i>	42
Aperea	<i>Cavia aperea</i>	33
Gato montes	<i>Leopardus geoffroyi</i>	23
Hurón	<i>Galictis cuja</i>	19
Tatú	<i>Dasyus novemcinctus</i>	11
Mulita	<i>Dasyus hybridus</i>	11
Peludo	<i>Euphractus sexcinctus</i>	10
Mulita o tatú	<i>Dasypu sp</i>	10
Roedores pequeños	<i>Rodentia</i>	9
Margay	<i>Leopardus wiedii</i>	4
Guazoubira	<i>Mazama gouazoubira</i>	4
Nutria	<i>Myocastor coypus</i>	3
Lobito de río	<i>Lontra longicaudis</i>	3
Comadreja Colorada grande	<i>Lutreolina crassicaudata</i>	2
Coati	<i>Nasua nasua</i>	2
Carpincho	<i>Hydrochaerus hydrochaeris</i>	2

Graphic abundance of mortality



Prospectus disclosure

Equipo técnico:

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 Agustina Serrón, Ma. Ángeles Pérez Lazo,
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Agradecimientos.

Colaboradores

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Colaboran



Financia

Nuestras carreteras y su impacto sobre la fauna silvestre



Todos sabemos que las carreteras son infraestructuras que nos benefician ya que nos permiten comunicarnos y hacernos llegar a diferentes partes del territorio. Y que son estructuras claves en el desarrollo de un país.

Sin embargo, la sociedad no conoce la otra "cara de la moneda", es decir, los impactos que generan estas infraestructuras de manera directa e indirecta sobre el medio natural.

Acá nombramos los efectos más importantes:

Fragmentación de hábitat: provoca la división de poblaciones de animales, haciéndolas cada vez más pequeñas en número.

Efecto barrera: impide la movilidad de los animales, lo que limita la dispersión y colonización a otros ambientes.

Efecto borde: por el simple hecho de estar la carretera algunos animales no se acercan a las mismas disminuyendo el territorio para su supervivencia.



Margay (*Leopardus wiedii*) atropellado

Atropellos de fauna: es el impacto más visible y medible. Este efecto genera el mayor impacto en la biodiversidad ya que mueren miles de animales al año.

Los medianos y grandes mamíferos son los más afectados por las carreteras ya que son especies que necesitan de grandes extensiones de territorios para sobrevivir y son grandes caminadores diarios.



¿Por qué es importante disminuir la mortandad de animales en nuestras rutas?

Los ecosistemas son cruciales en la sobrevivencia del ser humano. Brindan servicios y bienes tales como: los nutrientes del suelo para poder cultivar, proporcionan materiales para la vestimenta y los medicamentos, controlar eventos extremos del clima como las inundaciones y también nos brindan espacios de recreación e investigación, entre otros.

La biodiversidad forma parte de los ecosistemas y son una pieza clave para mantener el equilibrio de los mismos sin deteriorar dichos servicios y bienes.



Por su parte, los mamíferos cumplen funciones importantes como dispersores de semillas, polinizadores, controladores de plagas, entre otras.

Muchos países desde hace varios años investigan acerca del impacto de las carreteras sobre la biodiversidad y se han generado estrategias para disminuir la mortalidad. Sin embargo, en Uruguay hay muy pocos trabajos en esta temática siendo el último en el año 1997.

En el año 2015 ECOBIO Uruguay retomó este tema relevando las rutas del este del país registrando miles de animales atropellados.

Para continuar el monitoreo de las carreteras y abarcar todo el país, creemos muy importante que las personas se involucren.



Tatu peludo (*Euphractus sexcinctus*) atropellado

La conservación no es cosa de los científicos solamente sino que la sociedad es una pieza clave para lograrla.

Ya se sumaron muchos colaboradores al proyecto lo que ha generado un fortalecimiento del mismo.

Súmate y participa en la conservación de nuestra fauna.

Contactanos: proyectorutasecobiouy@gmail.com

Mammal records road kill on the main roads east of the country

Registros de mamíferos atropellados en las carreteras principales del este del país

Leyenda

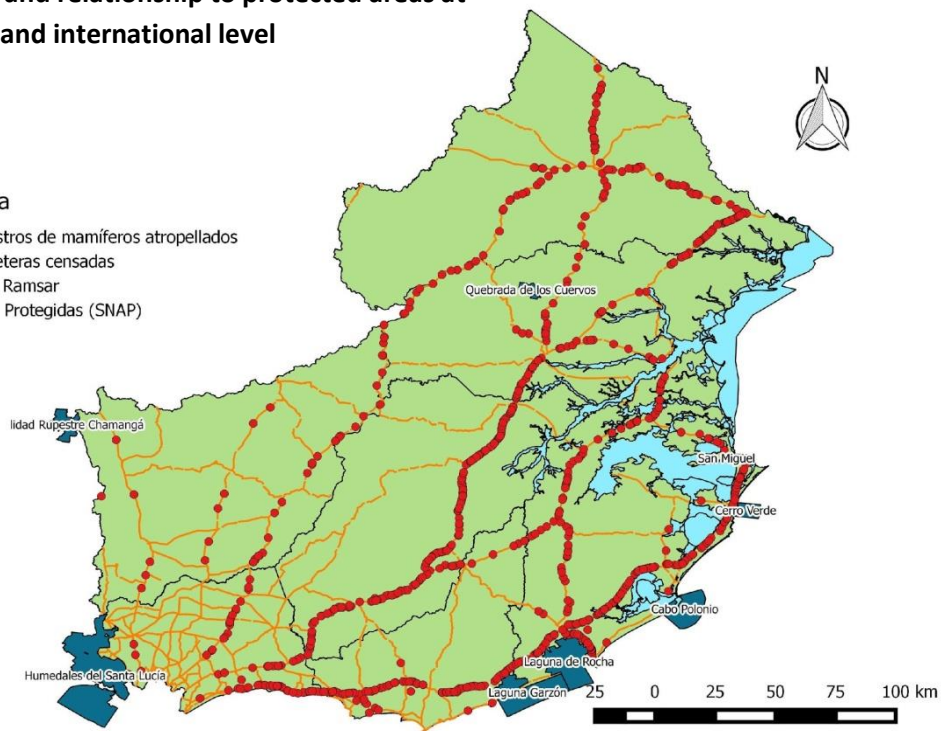
- Registros de mamíferos atropellados
- Carreteras censadas
- Área de estudio



Road kill and relationship to protected areas at national and international level

Leyenda

- Registros de mamíferos atropellados
- Carreteras censadas
- Área Ramsar
- Áreas Protegidas (SNAP)





Fox (*Cerdocyon thous*)



Zorrillo (*Conepatus chinga*)



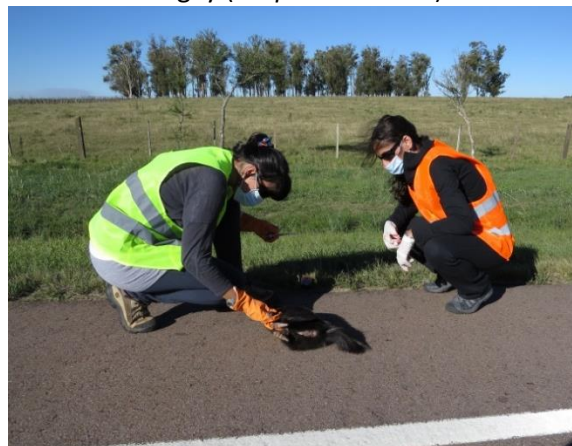
Weasel (*Didelphis albiventris*)



Margay (*Leopardus wiedii*)



Mano pelada (*Procyon cancrivorus*)



Making genetic sample