

## The Rufford Small Grants Foundation

### Final Report

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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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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#### Grant Recipient Details

<b>Your name</b>	Ivonne Cassaigne Guasco
<b>Project title</b>	Effects of restoration and concentration of natural prey as a mitigation action to reduce predation on livestock by jaguars and mountain lions in Sonora, Mexico
<b>RSG reference</b>	14291-1
<b>Reporting period</b>	January 2014-January 2015
<b>Amount of grant</b>	£5994
<b>Your email address</b>	icassaigne@hotmail.com
<b>Date of this report</b>	February 9, 2015

**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
Determine predation rates of livestock by pumas and jaguars		√		Our projected time to follow our individuals was shortened due to the illegal killing of both of our jaguars, but we gathered enough information to still determine predation rates by kill sites (found by the GPS coordinates of the collared animals). We are still on the final phase of analysing scat to complete the full information for the predation rate (we are doing it by identifying the species eaten by DNA analysis).
Test if good densities of prey decrease livestock depredation			√	After releasing the peccaries and placing deer feeders we found 50% reduction of calves predated by pumas and jaguars, at the same time that deer and peccary predation increased.
Show ranchers the results of the study			√	We held a meeting with local ranchers where we presented our results and in general they agreed they had actually seen less predation where there was more prey. We also gave another talk at the local university where many kids of ranchers and future biologists for some of those ranches attended. To both meetings we also invited the natural protected areas commission and local livestock department. However, to keep informing ranchers, this is still an on going activity that will take more strength once I have published our results and we can print information for the ranchers.

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

We placed five collars for pumas from which two failed a few weeks after, and one more after 4 months. Another female lion was killed and eaten by a male lion leaving us with less data so we had to reduce our field time in order to be able to split the same amount of time for each period. However, the information of kill sites combined with the one from scat will still be enough to show depredation rates.

We also had a problem at the DNA lab with one reactive that is use to extract DNA from bones so we are now repeating all the process which is not a problem for obtaining the results but it has delayed the information for the analysis and increased the costs.

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

- a) So far, with the kill data information we have prove that jaguars and pumas do kill livestock but at much less rate than what ranchers believed and what it has been reported in the past for jaguars in this area.
- b) We confirmed that livestock depredation decreased when native prey populations increased. (We presented these results to all the local ranchers who agreed that they have experienced fewer difficulties with livestock depredation where they have more native prey).
- c) We showed with the GPS kill sites, that jaguars and lions scavenge very often and therefore a diet study based on scat (like a previous study in the area) would show livestock as part of their diet in a higher percentage as they wouldn't be able to differentiate between an animal killed or an animal scavenged.  
\*Although not part of the original objectives we have recorded the home range for the two jaguars in this area, which has never been documented before as this is the first time satellite collars have been placed on jaguars in the North of Mexico.

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

For this project we hired a local technician who is actually still helping placing camera traps in northern areas to detect presence of jaguars.

We established a link with the owner of the ranch and the director of the local University (University of Moctezuma) to enrol students in more conservation projects at his ranch.

We also established relationships with neighbouring ranchers that are becoming more tolerant to the presence of predators in their ranches and we plan to get more peccaries for their ranches. When the female jaguar was killed we spread the word at the national media and gave part to the authorities, therefore the environmental department (officials) went to the area. Although the case is still open and is going very slow, local ranchers from northern areas, where we have placed now some more camera traps, have asked our field technician that they want to know how to deal with a jaguar predating livestock, as they don't want to kill one and end up in jail. So, at one point we are showing that natural prey is important to reduce depredation on their livestock, and in the other side, we also sent the message that there can be consequences when they unlawfully kill these animals. Combination of attending the needs of the ranchers and reinforcing the law may represent the solution for the conservation of predators in the long term.

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

Yes, we want to seek for funds from the government to bring more peccaries to this area, to other ranchers that have seen the benefits of not killing wild prey but are now in need of increasing local populations (we have placed camera traps at some of these ranches and they have none or very low abundances of peccaries, which were very abundant 10-15 years ago).

We also want to expand our study area northern and southern to detect important corridors for jaguars. We have already started with this.

We are also already planning a synchronization of cattle as the first step of good cattle management with some of the local ranchers as another alternative to reduce their losses due to depredation.

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

At cattle association meetings and with the livestock management department of the government, along with the wildlife department to co-work in programs that reinforce the protection of native prey.

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

RSG was used on the last year of the project, however we have got delayed on the scat analysis results due to a problem with a reactive at the lab.

**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
Capture drugs and vet equipment (Nov-Dec 2013)	425	425	-	
2 ATS satellite GPS collars	3780	1890	1890	One collar was used to re-collar the female jaguar. We went to the field in two more occasions and were not successful at capturing more animals, which added to the illegal killing of the female jaguar on February 28 <sup>th</sup> 2014, forced us to reduce our kill site expected data. We decided to use the money assigned for the other collar to pay for costs of DNA scat analysis (partially as we still need to purchase more equipment to be able to finish).
DNA equipment analysis	Not in the budget but total cost is 3280	1890	1390	Used this from what was assigned for one of the collars. We are looking for funds to complete the costs.
Technician support for scat collection and kill site	907	907	-	

investigation				
Capture supplies (2 trap alarms, cable, lures, Nov 2013)	456	456	-	
Deer food	426	530	104	Deer feeders had some problems working with pellets or partial corn and only worked with whole corn, which was a bit more expensive and increased its price from the time we calculated the budget.
<b>TOTAL</b>	5994	<b>6,098</b>	104	1 MXN was 0.0516 GBP at the time we used the Budget.

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

Work with government departments that can incorporate our results to their programs. At the moment we are already working on a proposal for the livestock department and have showed the need of a programme to re-populate native prey in two meetings to the natural protected areas commission. At the end the goal is to improve cattle management and protect natural prey by means of government programmes and example of the ranchers we are working with.

It's also important to focus efforts on lands that are part of the corridors of jaguars, therefore detecting these corridors is also an important future step.

### 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?

We hadn't produce yet the materials we plan, but I did incorporate your logo at the presentations we gave for the ranchers and at the local University in Moctezuma Sonora. My first publication is still being reviewed but will acknowledge RSGF (I estimate it to be publish by August of this year). I plan two more publications and my degree thesis that will also make such acknowledgment (estimated by Dec 2015-January 2016). The materials after those publications will be for ranchers at the livestock association meeting, which will include your logo.

### 11. Any other comments?

My sincerely gratefulness to Rufford Foundation for supporting this and so many other studies that can help the conservation of wildlife. By giving this support you allow students from all over the world to keep walking forward to protect species and to keep hope, as there is always someone that will help and someone that will care.

During my research the female jaguar was killed by a person who apparently places poison to kill every carnivore that crosses his ranch. The male jaguar was killed 4 months after the female, by drug dealers in another area. The collar of the female from this study allowed us to provide evidence for authorities to open a criminal investigation which is still on course. This is a small example of why research that provides tools for coexistence of wildlife with humans or that decreases the impacts of humans to nature is urgent. Thanks again for your support.



GPS Cluster showing a kill site