

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	Yamil E. Di Blanco
Project title	Population assessment of the Giant armadillo (Priodontes maximus) in the Chaco region: establishing the first long term study in Argentina
RSG reference	20502-1
Reporting period	February 2017-January 2018
Amount of grant	£5,000
Your email address	yamil_db@yahoo.com.ar
Date of this report	02/02/2018

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
<p>To understand how landscape features affect Giant armadillo presence and persistence.</p>				<p>During the period February-December 2017 I carried out five field campaigns. The first campaign, in March 2017, was centralised in the Copo National Park, where I surveyed, together with a field assistant, different roads and trails within the study site. In the following campaigns (the second in May, the third in July-August, the fourth in September-October, and the last in November-December 2017) both Copo and Impenetrable National Park were visited, according to my proposal. A total of approximately 100 km of pathways and roads were covered at each site and during each campaign (see Fig. 1). In both sites, we were capable to confirm the presence of the species by recording numerous giant armadillo burrows in different sectors of the protected areas (Fig. 2). In Copo, and according to transects travelled, the activity of the species seems to be concentrated on the area near the southeast boundary and in the northwest, while it was not recorded in the southwest zone of the park, where settlements of five local inhabitants are present. At El Impenetrable National Park we also recorded numerous giant armadillo burrows, especially in the central zone of the park (see Fig. 1). At the moment I am processing satellite Images using Geographic Information Systems (GIS) to demarcate habitat types and measure landscape covariates at a local and regional scale (e.g., distances to human</p>

			<p>settlements, to water sources, to roads, etc.). I will conduct occupancy analyses aimed at assessing which of these factors affect the probability of occupancy of the species.</p> <p>I also have projected one more campaign by the end of February 2018.</p>
<p>To assess the role of the giant anteater as an ecosystem engineer, by evaluating the use of Giant armadillo's burrows by other medium- to large-size vertebrates.</p>			<p>In all five campaigns, camera-traps were placed near the burrow entrances that appeared to have been recently excavated (probably <1 month). A total of seven cameras were placed in Copo and four in El Impenetrable. These were active 24 hours a day for an approximate period of 1.5-2 months (until following campaign). Photographic records of Giant armadillos (Fig. 3) and other species using the Giant armadillo burrows were obtained (Fig. 4).</p>
<p>To disseminate the results of this study</p>			<p>These preliminary results were presented at the "First Conference on Conservation of the Semi-Arid Chaco", (Northeast Technical Delegacy <i>Delegación Técnica NEA</i> of the National Parks Administration of Argentina, NPA, www.parquesnacionales.gov.ar), held in Ingeniero Juárez, Formosa, in September 28-30, 2017. This report will also be used in the Biodiversity Information System (www.sib.gov.ar) of the NPA.</p> <p>Camera-trap photographs of giant armadillos and other interesting species (e.g., Figs. 3-4) were printed and showed to local inhabitants within (Copo) and near (both) study sites. Informal talks were engaged with these local people (around 15 families) to promote better understanding of this species and to inform about its associated conservation problems. Some talks were held in conjunction with park rangers from the protected areas, and others were more personal.</p>

			<p>I presented two reports to NPA, where I summarised the main findings of my project.</p> <p>I also had the first meeting with National authorities (Ministerio de Ambiente y Desarrollo Sustentable: MAyDS, ambiente.gob.ar), to whom I presented my project.</p>
--	--	--	---

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

One of the biggest difficulties was logistical, especially in the rainy season, where access to study sites was very difficult due to the large amount of water and mud on the roads (Fig. 5). Luckily, this was a joint campaign with other researchers (specialised in the study of the jaguar *Panthera onca*), and with the help of park rangers, we were able to carry out the campaign successfully (although not all the planned locations were visited).

On the other hand, many roads and pathways were closed at the start of the project (and even now some still are) so we spent a lot of campaign time waiting for the protected areas staff to open roads, or us opening pathways using machete and chainsaw.

We were not able to buy the budgeted camera-traps yet, as we had stock from our institute. In the coming months we will be making a joint purchase of camera-traps with other projects (e.g., jaguar project) to facilitate the transaction and replace the missing equipment (two cameras). We will buy a total of 12 camera-traps, of which four will be paid with the remaining Rufford funds.

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

The most important outcome of this project, and especially of this first year, is that the bases of a long-term project were established. We confirmed the presence of giant armadillos in both protected and surrounding areas, where we recorded abundant evidences of the species activity. Also, we had success in photographing giant armadillos and other species using their burrows. I personally learned a lot and became for familiar with the species (e.g., how to better identify their burrows and the age of these excavations).

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

The preliminary results of this project were shared in the "First Conference on Conservation of the Semi-Arid Chaco", a conservation conference in the area where the species occur. Here, many local people working in conservation of the region were involved. Likewise, we disseminated our results to protected areas authorities, and, at least part, of the local inhabitants. The giant armadillo is starting to be

considered as a flagship species in both Copo and El impenetrable National Parks. Park rangers and authorities “use” this species as a brand for both areas. This is especially important for El Impenetrable National Park, because this area was recently implemented (in 2017, as this Giant Armadillo – Chaco Region Project). We are jointly designing promotional materials, such as flyers and posters, for El Impenetrable National Park to promote the care of species, especially charismatic species such as the Giant armadillo.

5. Are there any plans to continue this work?

Absolutely. This was the first year of a planned long-term project. I am starting my career as a researcher of the CONICET, and the study and conservation of the giant armadillo is the main long-term activity approved to be carried out in this position. In addition, I’ve got an award from the Galicia Bank and Williams Foundation (<http://www.galiciasustentable.com/banca/online/sustentable/web/BancoGaliciaSustentable/Ambiente/FondoparalaConservacionAmbienta>) to work for a period of one year (2018), which ensures the continuity of the project for at least another year.

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

After I analyse the first year data, I will use the information collected to write a comprehensive report which includes analysis of potential mitigation measures applicable to giant armadillos in Argentine Chaco region. I will attend meetings to present this documents and materials to all relevant authorities (NPA, MAyDS, provincial authorities). I will coordinate the first workshop with local and national authorities to establish guidelines and responsibilities for the developing of a management and conservation plan for the giant armadillo in Argentina. I will also produce scientific publications and presentations in national and international scientific and conservation meetings. I opened a Facebook page where I share all activities and news of this project (www.facebook.com/TatuCarretaChaco).

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

Rufford's funds were used during the period previously proposed of 1 year; from February 2017 to February 2018 (the remaining funds will be used for the 6th campaign at the end of February 2018). I still have to execute the purchase of camera-traps, which resulted insufficient for the six units proposed, so we'll soon only acquire four units with these funds.

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
Meals and occasional lodging during field work (six fieldtrips) for me and an assistant	200		730	I underestimated the value, and maybe the amount, of food items.
Fuel to travel in a 4wd car every two months to study sites and internal movement	900		980	Other institutions covered part of these costs, so we expended around the mount proposed.
Vehicle maintenance	400		180	Vehicles used were new we did not have mayor problems. We used this amount to pay part of a new set of tires.
6 camera traps, Reconyx HC500	2400		2003	This is the amount remaining that will be use soon to buy 4 camera-traps (Camera trap Reconyx HC500 unit = 451 £ sterling), plus import expenses and delivery.
Batteries (AA rechargeable, for 20 camera-traps)	500		420	
40 SD Memory cards	200		192	
GPS	300		265	
Tent and other field equipment	100		230	
Total	5000		5000	

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

My next step is to finish the first year of survey, with the last campaign by the end of this February 2018. I need to finish entering data collected and GIS work to perform analyses. Preliminary results of the first year of study will be reported to protected areas, provincial and national authorities, and will be published in a peer-review journal, as also presented in a conference or scientific meeting. During 2018 I will continue with campaigns every 2 months. In addition, I am planning to extend the survey to other areas, centred in two other protected areas of lower level of protection and different jurisdiction (Provincial Parks Loro Hablador and Fuerte Esperanza, in the province of Chaco; see Fig. 1). This will allow me to compare more contrasting situations. The realization of the first workshop to establish a draft of guidelines for the conservation of the giant armadillo will be an important next step.

10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

Yes. The Rufford Foundation logo was used in presentation at the "First Conference on Conservation of the Semi-Arid Chaco", organized by the National Natural Reserve Formosa, the Northeast Technical Delegation of the NPA, in Formosa province, Argentina, September 2017. It was also presented in the Rufford Small Grant Workshop "Challenges and opportunities for conservation in Argentina in the face of 21st Century globalization scenarios", organized by the Miguel Lillo Institute, of the National University of Tucumán and the Regional Ecology Institute of CONICET, in Tucumán province, Argentina, October 2017.

11. Any other comments?

Thank you very much. I couldn't have started this project without the help of Rufford Small Grant. Anything else you need, please don't hesitate to ask me.

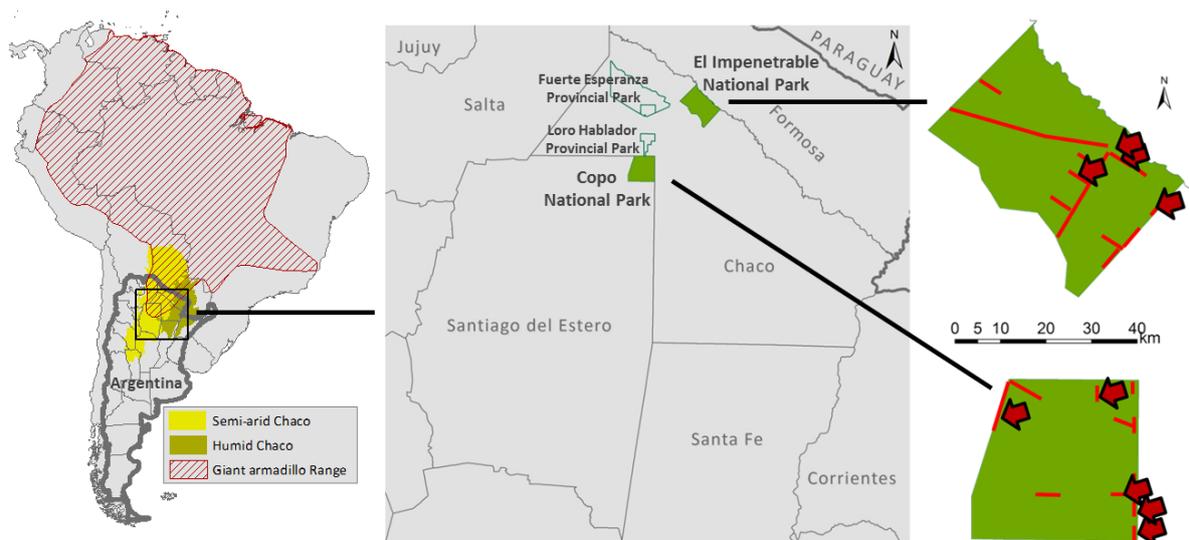


Figure 1. Study sites and Giant armadillo records. To the left is indicated the distribution range of the Giant armadillo in South America, and the Chacoan region. In the centre, the location of the study sites: El Impenetrable National Park, to the north, in the province of Chaco, and Copo National Park, to the south, in the province of Santiago del Estero. To the right is a detail of the sites and schematic paths and roads that were used as transects. The arrows indicate the places where Giant armadillo burrows were recorded.



Left: Figure 2. Giant armadillo burrow in Copo National Park. Photo: Verónica Quiroga. Right: Figure 3. Giant armadillo photographed by camera-trap in Copo National Park.



Figure 4. Different species using the Giant armadillo burrows, photographed by camera-traps in Copo (b) and El Impenetrable (a, c and d) National Parks: (a) white-lipped peccary *Tayassu pecari*, (b) collared peccary *Pecari tajacu*, (c) yellow armadillo *Euphractus sexcinctus* and (d) ocelot *Leopardus pardalis*.



Figure 5. Main entrance road to El Impenetrable National Park during the rainy season. Photo: Verónica Quiroga.