

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	Viviane Zulian
Project title	Monitoring and Conservation of the Vinaceous Parrot in Western Santa Catarina, Brazil
RSG reference	19835-1
Reporting period	July 5 th , 2016 – April 12 th , 2017
Amount of grant	£ 4994
Your email address	viviane.zulian@ufrgs.br
Date of this report	July, 30 th , 2017



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
Statistical estimate of A. vinacea's abundance in focal area, Western Santa Catarina.				We obtained population size estimates for 2016 and 2017 based on 180 counts of all eight roosts known for the focal area (Fig. 1).
Improve knowledge of species geographic distribution within focal area.				Thirteen days of active searching and contacts with locals returned three new roosts in <i>Campo Erê</i> , <i>Entre</i> <i>Rios</i> , and <i>Quilombo</i> (Fig. 2). We started with five and ended with eight roosts.
Understand whether parrots move between roosts within the same year.				Parrots appear to move between roosts because numbers in different roosts vary non-synchronously throughout the non-breeding season. Minimum counts coincide with beginning and end of period, but there is much unpredictable variation in between. Evidence still rather weak.
Determine the best time of the year to find non- breeding parrots in roosts.				Based on 2016 observations, the best time is February to June; however, 2017 counts for that period did not peak in the same months. We believe the ideal sampling time is not as predictable as we expected. Need to continue sampling in a 5- month window.
Maintain and share web tool for compiling count data.				The web tool is up and functioning, and we have advertised it in every opportunity of speaking publicly about our project. Its use will expand as we get local teams to contribute count data.
Interactions with local community of landowners/residents. Training local students to count parrots.				We trained 27 local observers, visited 35 resident households and stayed in frequent contact with three landowners. One landowner and one student who collaborated most frequently with us received the bird guide/binoculars package.



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

The biggest challenge was the optimization of fieldwork under unpredictable parrot movements. Our 2016 observations (from December 2015 to July 2016) revealed activity at roosts only between January and June but lots of variation in between. Considering that February 2016 had the highest aggregate count, we decided to count in 2017 between the months of February and June, but, retrospectively, we wonder whether we should have counted in January because residents reported abnormally high activity around roosts in that month, something that we did not see in 2016. Unpredictability of where and when parrots will concentrate is a motivation to keep sampling for a period of 5, rather than 3 months. To achieve this with available resources, we halved the size of the counting team from six to three between May and June 2017. Since it takes three people to complete one count, halving the team made it impossible to get simultaneous count replicates, but we still replicated the counts by observing in the evening and in the morning of the next day. This optimisation challenge can be overcome in the future through closer collaboration with observers that reside near roosts. During this project, we set up a WhatsApp group through which we frequently shared updates on count results and odd observations made by residents and ourselves. In total, we obtained 17 records of parrot presence from six local residents that stayed frequently in touch with us. In the future, we would like to equip the most dedicated local observers so that they can perform counts with their own team of three observers and share the results with us via the web tool.

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

1) Numbers: We now have statistical estimates of the number of vinaceous parrots for Western Santa Catarina (WSC) in 2016 (941±50, mean±standard deviation) and in 2017 (1131±38). Assuming homogenous density across the range of the species, the WSC estimates result in global population estimates of 4,128 and 4,881 for 2016 and 2017, respectively; the 95% credibility intervals for these two estimates overlap and range from 3,686 to 5,245.

2) Map: Our regular encounter of parrots and discovery of new roosts in WSC firmly include the area in the geographic distribution of the species. WSC was formerly considered outside the distribution. We are communicating this finding to the IUCN, with a request for updating the 'extant' map.

3) In-site capacity: Our network of observers now includes people who live within less than five miles of parrot roosts, two of them are equipped with binoculars and field guides, and frequently send us information about parrot activity around their roost via a WhatsApp list that now includes 18 people that contributed to our work and/or showed interest in parrot conservation. The list includes counting trainees and local residents, some of which are also landowners.

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

We see our local community as composed of two types of people: 'locals' from WSC and local from the immediate vicinity of a roost, i.e. someone who can visit a roost



without having to leave his or her routine. Of the 27 people that we trained to count roosts during this project, 16 are from WSC and 14 of them live near roosts. Nine of the 27 are college students who benefitted mostly by learning. They learned a sampling design that accounts for imperfect detection and learned about an endangered species of parrot from their region. Beyond the educational work, however, we aim to establishing connections that may lead to groups of local people monitoring parrot roosts and promoting conservation in our absence. For this reason we invested time in interactions with local residents that are more likely than college students to live in the region long-term. In all, we met people in 35 households near roosts, conversing, asking about location of parrot roosts and sharing general natural history information. Two of these people became frequent members of our counting teams—one lottery storekeeper and one farmer/landowner. They received the binoculars and bird guide kits budgeted in the project (Pictures 1 and 2). Four more of these local people showed enough interest to send us information about parrot observations via WhatsApp.

Apart from the interactions with private individuals, we also kept in close touch with the environmental management team of a tree farming company that lets us into their land to count parrots, 'Madeireira Palma Sola S/A'. We sent them a formal 'scientific visit' report for every parrot count in their area. Such documents are useful for the company's environmental compliance record.

5. Are there any plans to continue this work?

Yes. I started this project as a Master's student, completed my thesis with the WSC abundance estimation work and, in January 2017, was accepted to a PhD programme at the same university and with the same advisor to continue working on *Amazona vinacea* monitoring and conservation. I am due to finish my PhD in early 2021 with a project that aims to combine my own data with a variety of other sources (including citizen science sources) to redraw the geographic distribution of *A. vinacea* and to produce yearly estimates of its global abundance. The geographic scope of my PhD project is the whole distribution of the species, but I will continue looking at WSC as a testing ground for testing field-sampling techniques and ways of collaborating with local communities. In practice, my PhD project entails continued sampling (and search) of WSC roosts, development of local teams of observers, articulation with observers from other parts of the range, and integrated statistical modelling of systematic monitoring and citizen science data. The main focus will be on finding roosts, counting them, and integrating information from the whole range into statistical assessments of the population size and geographic distribution.

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

We plan to share results with three types of public in mind: academic, wildlife management, and local community. In the academic front, we will submit a paper about the abundance of vinaceous parrots. In May 2017, while I was in the US learning modelling techniques with a research team that produces statistical maps of species distributions (Prof. David Miller, at Penn State University), my advisor, Gonçalo Ferraz, attended the annual meeting of the National Plan for the Conservation of Vinaceous



Parrots (led by Jaime Martinez and Nêmora Prestes). There, he advertised our monitoring approach and shared preliminary results of this project. Seeing an opportunity to collaborate, he offered to prepare a joint paper of our WSC results and results from national plan roost counts. Their counts use an older, in our view less reliable, methodology but cover the whole range of the species. We are finalising a manuscript that will be submitted to a peer-reviewed journal (and shared with RSG) before the end of August 2017. For now, we attach my MSc thesis manuscript, which contains the most important results (Appendix 1).

On the wildlife management front, once our manuscript is ready, we plan to contact the IUCN, the authors of the vinaceous parrot account in the Handbook of the Birds of the World Alive, and a group of Brazilian wildlife management authorities. The latter group includes the leader of the National Action Plan for Parrot Conservation, at the federal Instituto Chico Mendes de Conservação da Biodiversidade, and the wildlife conservation sectors of the environmental management departments from each state overlapping the species distribution. In each case, we will try to not just send the manuscript but also establish a conversation about what we can do to aid each entity's efforts in the conservation of vinaceous parrots.

Finally, on the local community front, we are already sharing key results with the WhatsApp group mentioned in #2 and #3. Provided we have enough resources, we would like to prepare a slide show and information flyer to distribute in schools and CTG's (sort of farmers' country clubs that are important social hubs in the region). Even if we have very limited resources for this, we would at least do it in the two municipalities of Palma Sola and São Domingos, were we have the most reliable collaborators.

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

We used grant money to cover the expenses of one roost-searching trip in April 2017 and six sampling trips, in July 2016 and February-June 2017. In the proposal, we planned to sample in June 2016 and February-April 2017. We ended up using other resources to sample in June 2016 and used RSG funds to add an extra sampling trip in July 2016, which helped us confirm that July is no longer a good time of the year to visit roosts. Then, in 2017, when we started to work in February and understood that Parrots were not appearing in similar numbers on the same locations as in 2016, we decided to cut the size of the sampling team to a half and extend the sampling until June. This resulted in us preparing this report approximately 1 month later than we expected, but improved our estimation of parrot numbers, since May 2017 returned the highest count of the season.

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
Car Rental	1520	1506	14	
Fuel for the Rental Car	540	1132	-592	We did more kilometres than we planned in the project.
Field trip food	1460	1244	216	
Field lodging	780	745	35	
Binoculars	520	140	380	We bought good binoculars (Busnell 10x42) for a good price and used the money saved here to pay for fuel.
Bird books	64	46	18	
Radio Batteries	60	0	60	We used radios with rechargeable batteries.
Printing and laminating maps	50	36	14	
Total	4994	4849	145	If RSG allows, we will use this amount in printing didactic materials for sharing results of project with local community.

The local rate exchange used: \pounds 1, 00 = R\$ 3, 93

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

Now that we have a tested methodology for monitoring vinaceous parrots with replicated counts and a local network of collaborators, we would like to aim for two main future developments: 1) Expand replicated counts beyond WSC; and 2) Start monitoring parrots during the breeding season. The first step, of expanding use of our methodology, involves two actions. One is to continue interacting with parrot researchers in other parts of the distribution and to engage them in our research. The joint manuscript is part of this action. Some researchers already started to apply our sampling approach (e.g. Kristina Cockle in Argentina) because they saw how replication is useful for quantifying uncertainty about monitoring results. The second step is to encourage local counting teams to monitor some of the WSC roosts on their own, thus freeing our team to go roost searching and counting beyond WSC. There are vinaceous parrots nearer to Porto Alegre (our city) than WSC; therefore, it would be efficient if we could delegate monitoring efforts to local teams in the far-away places and ourselves cover some of the roosts that are closer to us.

The second step, of monitoring Parrots during the breeding season, is a bigger challenge because parrots are harder to find then and because finding them touches on the sensitive but very important issue of nest poaching. If an unknown person shows up in a rural area asking about parrot nests, she/he will be most likely met with suspicion and obtain most unreliable information. Our emphasis on building rapport



with local people who leave near roosts is strategically important because they will be much more capable than we are to uncover information about nest locations. We already know at least three sites with nests in WSC and would like to very soon request the landowners' permission to have someone monitor breeding success at those sites. In the midterm future, we would like to design a conservation initiative that would make landowners proud of having parrots successfully breed in their land. They have a substantial power to stop poachers from entering their land and therefore great potential for improving conservation of the species.

Finally, while we strive to increase our presence and direct access to information in the field, we are already complementing this effort with an alternative path for obtaining information, which is citizen science data. The databases of WikiAves, Ebird, and Xenocanto have more than 1,000 records of vinaceous parrots over the whole distribution range. We are already combining data from these records with ours' and other researchers' roost counts. This will result in a revised distribution map, which we will submit to publication before the end of 2017.

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?

We used the Rufford Foundation logo in the four presentations that we did during the project (three of them in our university) and one at the annual meeting of the National Plan for the Conservation of Vinaceous Parrots. Every trainee and participant in our field sampling trips heard about Rufford verbally and informally, several times, because we are proud of having received RSG support and extremely thankful for the grant, which made a huge difference to our work. The Rufford Foundation will be acknowledged in every scientific publication stemming from this project and in the educational materials that we bring to the local communities. With your permission, we will print the logo on those materials as well.

11. Any other comments?

Please see below images and photographs cited in the text.





Figure 1. Monthly estimates of the number of *Amazona vinacea* individuals in WSC for 2016 and 2017. Gray lines show 95% credibility intervals around the estimated number of individuals.



Figure. 2. Study area of Western Santa Catarina (light gray) and regional forest cover (dark gray). The figure represents every patch of forest (excluding tree farms) with more than five square kilometers, according to the Brazilian Ministry of the Environment's Mapa de Cobertura Vegetal dos Biomas Brasileiros. Red circles show the location of all presently known WSC roosts with their name abbreviations: PS (Palma Sola), CE (Campo Erê), GT (Guatambú), SD (São Domingos), AL (Abelardo Luz), AG (Água Doce), QU (Quilombo) and IP (Ipuaçu).





Picture 1. Deizi Groth, biology student that we trained to count parrots receiving the bird guide/binoculars package.



Picture 2. Juarez Camera, landowner that we trained to count parrots receiving the bird guide/binoculars package.





Picture 3: A project's member counting parrots at Palma Sola roost area.



Picture 4: Vinaceous Parrot, the focal species of the project, perched near the roost area in Guatambu, Western Santa Catarina.





Picture 5: Team that did the parrot counts in April 2017.



Picture 6: Vinaceous Parrot's roost area of Guatambu, Western Santa Catarina.





Picture 7: Vinaceous Parrot's roost area of Ipuaçu, Western Santa Catarina that was found during the project.