

## The Rufford Foundation

### Final Report

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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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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Grant Recipient Details	
<b>Your name</b>	Lucas Bianchi
<b>Project title</b>	Climate Change in Northern Patagonia: Influence of environmental conditions on <i>Fitzroya cupressoides</i> (alerce patagónico) growth patterns.
<b>RSG reference</b>	4f7a8e-1
<b>Reporting period</b>	May 2018 – May 2019
<b>Amount of grant</b>	£4,994
<b>Your email address</b>	<a href="mailto:lbianchi@unrn.edu.ar">lbianchi@unrn.edu.ar</a>
<b>Date of this report</b>	10 June 2019

**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
Shipping and importing the equipment				We have many problems with this objective. Finally achieved but with ~3 months later than expected. Delaying all the other objectives.
Setting up the dendrometers station to measure the diameter increments at high temporal resolution.				We finally achieved this objective during March 2019, at the end of the growing season.
Micro-core sampling every ~15 days to perform histological analysis of the developing xylem.				As we set up the dendrometer station at the end of the growing season, we will collect the micro-core samples the next growing season (from November 2019 to March 2020).
During the dormant season (April through July 2019), to analyse the growth patterns of <i>F. cupressoides</i> under different environmental conditions along the complete 2018-2019 growing season.				We need data gathered during one growing season to achieve this objective, therefore we will analyse the growth patterns of <i>F. cupressoides</i> under different environmental conditions after the end of the next growing season (March 2020).
To write a first technical report for the National Park authorities and to print factsheets and fliers to be distributed among tourists.				We need data gathered at least during one growing season to achieve these objectives, therefore I will write the technical report after the end of the next growing season (March 2020) and elaborate and disseminate the factsheets the following summer (from November 2020 to March 2021).

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

The only difficulty we had was the delay, due to bureaucratic issues, in importing and shipping the equipment to set up the dendrometer station. Although we planned some delay and initiated this process with several months in advance, we could not manage to receive all the equipment with enough time (before the growing season).

This inconvenience caused a delay in the start of the other tasks and, therefore in obtaining results and achieving objectives. However, it should not be an impediment to accomplish the objectives of the project in the next year.

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

For the reasons explained above, I do not have data about growth patterns of *Fitzroya cupressoides* yet. Therefore, I do not have results directly related to the species conservation. However, I consider the following outcomes the most important and encouraging:

**a. Setting up the station**, this was the main objective in which all the others are based on.

**b. Discovering stumps and logging residues of *Fitzroya cupressoides* harvesting.** The stumps and logs provide material for future dendrochronology analysis about past *Fitzroya* forests use and management and the relationships between Alerce growth patterns and the environment. These results will be the input for new conservation studies of the species.

**c. Links for new collaboration opportunities.** Thanks to the work initiated with this grant, I have contacted laboratories and specialists, from Argentina and France, with whom I will be able to start a collaborative work to expand the knowledge about *Fitzroya* conservation and other topics related to my research interests.

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

Due to the reasons explained above I do not have data about growth patterns of *Fitzroya cupressoides* yet. Therefore, I did not had the opportunity to perform activities involving local communities. However I expect to do it after the end of the next growing season and during the following summer (from March 2020 to March 2021).

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

My plans are to continue with studies related to *Fitzroya* conservation, as described in the original proposal, 1) "This project is expected to last 28 months, from May 2018

through July 2020" and 2) "after the completion of the project, I plan to maintain the weather and dendrometers sensors registering information for a total period of 10 years to provide a long-term record of *F. cupressoides* growth that allow an evaluation of the relationships climate-tree growth at decadal scale".

Besides, due to the delay already mentioned, by July 2020 I will have results from only one growing season. For this kind of studies it is recommended to have more than one season of data. For this reason, I consider reasonable to extend the project to July 2021 and continue with this work to include one more growing season in the analysis.

I also plan to continue with this work by elaborating new research projects based on the material we have discovered (stumps and logging residues) and the links with could build with other researchers (from Argentina and France) thanks to the opportunity given by The Rufford Foundation grant.

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

Just after submitting the present report, I will add a 'Project item' in my ResearchGate site ([https://www.researchgate.net/profile/Lucas\\_Bianchi](https://www.researchgate.net/profile/Lucas_Bianchi)). I also plan to build a personal website where I will disseminate all my work including this project and the corresponding updates.

Besides that, as stated in the proposal, I plan to share the data gathered and the results obtained with the National Park authorities through technical reports every year.

Finally, after at least two or three growing seasons I plan to publish a scientific article with the results obtained with this project.

In each case I will explicitly thank to The Rufford Foundation for the grant.

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

Most of the money from The Rufford Foundation grant was invested in buying equipment and during the first two field works at the beginning of the project. Remaining money will be used to edit and print factsheets, and to pay the park access fee and boat tickets. The only difference between the anticipated and actual length of the project is that some field trips planned for 2018-2019 are now scheduled for 2019-2020.

**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
Radius dendrometer sensors	2739	2046	-693	As I had to expend more money than expected in other items I decided to buy six dendrometer sensors instead of eight. I consider this will not cause loss of information.
Additional wires for the dendrometers	74	53	-21	
SP10 Solar Panel	163	89	-74	I bought a Solar panel and a battery made in Argentina, same quality as those in the original budget. They were cheaper mainly because I did not have to pay import taxes.
BP7 Rechargeable Battery	51	27	-24	
CS650 30 cm Soil Water Content sensor	213	446	+233	I bought two instead of one.
CS320 Pyranometer	267		-267	Both sensors are present in a weather station near the study site, so I preferred to not to buy them.
CM225 Solar Sensor Mounting Stand	25		-25	
Datalogger CR800	933	1378	+445	I bought a new and more expensive Datalogger model (CR100X).
Shipping and importing the equipment	309	274	-35	
Printing factsheets	220		-220	I will print the factsheets the next summer (November 2019 – February 2020)
Tripod w/Grounding Kit		150	+150	I forgot to include this item in the original budget
Park access fee and boat tickets to get to the site.		80	+80	Both used to be free for researchers but the regulation changed recently.
<b>TOTAL</b>	<b>4994</b>	<b>4543</b>	<b>-451</b>	
<p>From the original budget there is £451 left. I plan to spend £220 to edit and print factsheets, and to spend the remaining £231, mainly to pay the Park access fee and boat tickets to get to the site during future fieldworks, and some minor extra expenditures that may arise.</p>				

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

The most important next step is to fulfil unachieved objectives (see Point 1). None of them could be fulfilled due to the delay in the acquisition and installation of the dendrometers station. But I expect to complete them by the end of the next growing season (April 2020). When I will have information about *Fitzroya* growth and the environment for 1 year.

**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?**

Unfortunately, I do not have results to show or to be presented, for that reason I did not use the logo or give publicity to The Rufford Foundation. I plan to do it in the next weeks through my ResearchGate and personal websites. And next year, with some results, I will mention The Rufford Foundation in the Technical reports, Congress Conferences, and in any other publication related to this project.

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

**Ricardo Villalba** and **Ana Srur**, both collaborated in site selection and setting up the station. They will also collaborate in future data analysis and new projects in the study site regarding *Fitzroya* conservation.

**Sebastian D. Rossi** is helping me to design and conduct a study about how people relate to *Fitzroya* conservation. We are retrieving data from the Twitter and Flickr big data bases to assess the awareness that people have about the conservation of the Alerce and which are the main interests of tourists and local people about this iconic species.

Besides, during the next summer season, when people visit the *Fitzroya* forests, we plan to conduct surveys with visitors and evaluate their opinion and knowledge about conservation of the Alerce.

**Nora Audisio** together with **Sebastian D. Rossi** will help me to design the factsheets and with the dissemination of the results to tourists and local communities.

**12. Any other comments?**

In the original proposal we planned to finish with this project in July 2020. The delay in buying and importing the equipment and consequently in setting up the station made me have to postpone all the other activities based on the data obtained from this station. Although by July 2020 I will not have 2 years as was planned, I will have enough information to make preliminary analyses and produce a first technical report.

In addition, as mentioned in the proposal, "After the completion of the project, I will maintain the weather and dendrometers sensors registering information for a total period of 10 years to provide a long-term record of *F. cupressoides* growth that allow an evaluation of the relationships climate-tree growth at decadal scale". Therefore, I consider that besides the delay in achieving some of the objectives, the project is successful.

I want to highlight that thanks to the support given by The Rufford Foundation I have not only initiated this project, which I think is of great relevance for the conservation of the *Fitzroya cupressoides*, but also gave me the opportunity to lay the foundation of future studies and new collaborations, with other colleagues and labs, in this sense.