

## 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>           | Kathelyn Paredes Villanueva   |
| <b>Project title</b>       | Isotopic characterization of forest species to verify regional provenance of Bolivian timber. |
| <b>RSG reference</b>       | 18670-1   |
| <b>Reporting period</b>    | 2016-2017   |
| <b>Amount of grant</b>     | £5000   |
| <b>Your email address</b>  | kathypavi@gmail.com   |
| <b>Date of this report</b> | February 6, 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   |
|--|--------------|--------------------|----------------|--|
| <p>The objective of this project will be to characterise <math>^{18}\text{O}</math> and <math>^{13}\text{C}</math> isotopes ratios among the sample sites of <i>Cedrela odorada</i> and <i>Cedrela fissilis</i> and determine the level of differentiation for tracing origin purposes. To achieve this objective the following activities were established:</p> |              |                    |                |  |
| Sample collection from Cobija, Riberalta, Rurrenabaque, Yapacaní, Monteagudo and Villamontes   |              |                    |                |  |
| Sample collection from Bajo Paraguá, Guarayos, Concepción, Roboré and Espejos  |              |                    |                |  |
| Tree rings dating to determine which year to include on the analysis   |              |                    |                |  |
| Cellulose extraction of the tree rings dated and selected  |              |                    |                |  |
| Weighing and preparation of cellulose extracted for isotopic analysis  |              |                    |                |  |
| Visit to the Leicester Environmental Stable Isotope Laboratory, University of Leicester, UK and pilot analysis   |              |                    |                |  |
| Analysis of $^{13}\text{C}$ and $^{18}\text{O}$ of cellulose extracted from wood samples   |              |                    |                | This analysis is being done at the moment.   |
| Statistical analysis   |              |                    |                | As the fieldwork and cellulose extraction took more time than expected the statistical analysis will be done from March, 2017 onwards. |
| Writing and publishing of results  |              |                    |                | The document is partially written at the moment as the analyses are still running.   |

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

Although most of the difficulties were foreseen during the planning of the project, the rarity and continued harvesting of the species made it difficult to locate them confidently beforehand; in some cases extra effort and attention were required as the difficulties were more challenging than expected. Some of these difficulties were: heavy rain events caused roads inaccessibility and the bad conditions of certain roads led to car problems which needed to be fixed in the field; some trees were hard to reach because of thick vegetation and other obstacles (fences, rivers, steep hills) and some were located in remote areas; the inaccessibility to these areas led to drastic changes in our planning (spending the night camping or driving back during the night); the distance between the trees was sometimes so large that we could not finish the fieldwork within daylight therefore we continued sampling in the dark; some trees happened to be located in nature reserves or communities sensitive to disturbances hence permission needed to be requested. All these difficulties required additional time and resources.

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

- 1) One paper published in an international journal.
- 2) Derive data from *Cedrela*'s isotopic distribution and description of timber tracing methods in Bolivia, to be used for legal procedures by local authorities.
- 3) Stable isotopes represent a potential and useful methodology to trace timber since they hold non/manipulable data which characteristics can later be used as a reference species population's database. Holding this methodology a high potential to identify logged endangered species, our aim is to test its applicability for *Cedrela* species and assess their resolution of differentiation among species populations. In addition, according to the level of discrimination among trees and their geographical relationship, we will give support to the institutions in charge of timber harvesting and regulation by providing information about the origin of suspicious timber.

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

During fieldwork we identified, contacted and hired people on the communities to guide us and help us on the collection of samples. Discussion and permission from the representatives of the communities were held when necessary. The assessment and experience from the local people were important to identify the small remaining populations of *Cedrela* around the communities.

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

Yes, we are aiming to run similar analysis for other endangered and commercial species in Bolivia to support harvesting regulations.

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

A meeting will be organised in order to present the results to stakeholders and institutions. Discussions held will help better integrate the existing and proposed control strategies.

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

The period of the RSG grant was from January 2016 to January 2017. Although more time is needed for the analysis and writing of results, the most difficult and challenging parts of the project were achieved during the period of the grant.

**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  |
|--|-----------------|---------------|------------|---|
| Subsistence allowance in the forest  | 3121            | 3121          |            | For sampling in other locations not included in the RSG budget, a complementary grant supported the subsistence, travel and car renting expenses. |
| Travel to local sample sites in Santa Cruz: Bajo Paraguá, Yapacaní, Concepción, Espejos, Villamontes, Guarayos, Roboré and Monteagudo. | 258             | 258           |            |   |
| Car renting for transporting samples within the forest only for 5 days for 11 trips (Total=77 days of fieldwork).                      | 1621            | 1621          |            |   |
| <b>Total</b>   | <b>5000</b>     | <b>5000</b>   |            |   |

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

Sharing the results and knowledge with stakeholders is an important final step of the project. In addition, testing its applicability in the Bolivian control system is also important. To improve our control system, more species and complementary traceability methods should be included in future analysis.

**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?**

No, results has not been shared or presented yet. We will use it during our meetings and workshops with stakeholders.

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

**12. Any other comments?**

During the sampling and laboratory work we noticed that other sites and species could be added to our analysis. Also, the cellulose extraction and data analysis could be enhanced depending on the time and precision required for each traceability case. More funding may be needed to test these variables.