

The Rufford Small Grants Foundation

Final Report

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. 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	Luis Suarez
Project title	Identifying forest changes due to air pollution over Southern Amazon of Peru
RSG reference	5758-2
Reporting period	February 2011 to December 2011
Amount of grant	£5,908
Your email address	doctorozono@yahoo.com
Date of this report	July 03rd, 2012

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
Implementation of a site for pollution monitoring.		X		We need many more resources to implement a continuous monitoring system. Even though we consider that we implement our research group with enough equipment for doing basic research on ecology.
A research group for using satellite data for monitoring air pollution.			X	At the Alas Peruanas University at Huancayo we implemented a research group dealing with remote sensing focussing on data of land use cover and change and air pollution. We also complemented with Antarctic research project to install a server for processing Linux based programmes and models.
A web page for instructions and details about use of satellite data for conservation.		X		All the information is organised and prepared for publication including some booklets and posters. We are coordinating with the webpage of the university for implementing a special site but we still do not have the authorisation
Integration on MAP (Madre de Dios, Peru – Acre, Brazil – Pando, Bolivia) Initiative.	X			We were not able of direct contacting on representatives of MAP initiative. We could not assist to any MAP meeting for both reason they were not organised as often as previously and we were not aware of that.

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

The main difficulty was the lack of information on one the data logger that we installed in the forest. It was destroyed by insects. We were not able to deal with the recovery of the memory card. We lost at least 2 months of data.

Another important difficulty was the absence of political contacts for natural resources management in the local government of Madre de Dios. These were year very active because political changes and also because illegal mining that is destroying the forest. So these strong interests make very hard to find committed people in the government that can take care of our scientific results and recommendations about forest conservation.

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

- We have a detailed methodology about monitoring air pollutions and forest biogenic emissions and also we have instruments to continue with the research.
- We have implemented a university research group dealing with atmosphere – biosphere interactions and we made the first attempts to evaluate biochemical responses of trees in laboratory.
- We completed a field campaign in the Tambopata forest with cooperation of local and international researchers.

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

We tried to work with institutions dealing with local communities but they were very busy with social and illegal mining activities problems so it was not easy to find mutual points of interest.

5. Are there any plans to continue this work?

Sure, we are very interested in finishing the evaluation through a cooperation with Brazilian researchers about the effects of air pollution on physiological changes in forests. Also it includes an evaluation about the radiative budget changes in the Amazon region due to aerosol coming from forest fires. We need to have a more detailed evaluation on the causes of the changes in physiological aspects of trees. Our main proposal for a next step is the characterisation of changes of solar radiation components (diffuse and direct) with biochemical responses (flavonoids production, thickening of leaves, etc) of forest trees and plants.

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

We are close of a publication and also we will present our results in a national scientific meeting next August in Lima. Also, we are trying to consolidate our university research group in order to disseminate the experience that we gained.

Also we shared the results with local and national researchers during academic events and visits to our research group at Huancayo. We took advantage of our gained knowledge during the 2nd National School of Atmospheric Science at Huancayo city on August 2010 and 2011. In this event we could share our methodologies and the purchased equipments with university students that were the main participants.

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

The budget was used from February 2011 to December 2011

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.

Please note that this budget includes only RSG funds:

Item	Budgeted Amount	Actual Amount	Difference	Comments
Equipment	2030	1500		The additional weather station was not bought
Filters and chemical analysis of samples	1500	1700	-400	It increased because we made initial steps on analysing biochemical responses of plants.
Fieldwork and research assistant	650	1000		It increased because we finally have to hire two assistant for the fieldwork and transportation of electrical generator
Trips and transport services like courier	800	780		As planned but with no visits to MAP initiative
Food and logging during fieldwork	800	600		Almost like planned but with additional funds and support from ACCA
Office staff of the research group	200	400		As more students were interested more resources were needed
Total	5,980	5,980		

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

I think that we need to understand the ecophysiological responses and adaptation mechanisms that plants and trees develop to mitigate the adverse effects of a changing environment. Also, we need to complete the implementation of methodologies for evaluating biochemical responses of plants in the laboratory of my research group. It could give us important tools to evaluate adverse effects of factors like pollution or climate change.

Finally, we need to have more interaction with policy-makers.

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?

Sure, we use the logo in all the presentations that we do. Also, we recommended other colleagues to apply for a RSG grant.

11. Any other comments?

Thanks for the great support. Sorry, for the terrible delay. Hope to see you in Bolivia!