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	Renzo Giudice
Project title	Monitoring and forecasting the deforestation that will be caused by the new Interoceanica Highway in the Peruvian Amazon
RSG reference	81.09.08
Reporting period	November 2008 – February 2010
Amount of grant	£ 6,000
Your email address	renzogiudice@gmail.com
Date of this report	March 8th, 2010

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
Parameterize DINAMICA EGO for Madre de Dios province, including population centres, topography, roads, etc.			X	Acquiring the necessary spatial data required contacting many public (e.g. Agriculture Ministry) and private (NGOs) institutions, which had developed this information. This proved to be time consuming and also showed that there is no single repository of the regional spatial datasets. Moreover, some of these datasets presented geographical discrepancies, such as the location of population centres. Thus, some shapefiles were re-edited by merging, deleting, or creating features to solve the problem. At this stage, all datasets had to be transformed from shapefiles into raster-files format using a GIS package (ArcGIS 9.3), as this is the only spatial data format that the software DINAMICA EGO supports. In addition, a field validation of the location of population centres was necessary. This required a field trip that covered all the Interoceanica Highway from Cusco to Madre de Dios (the Frankfurt Zoological Society collaborated with me by providing a truck and personnel) and a boat trip on the Las Piedras River.
Run "business-as-usual" simulations of deforestation in the absence of conservation.			X	A "business-as-usual" (BAU) scenario implies here: (1) that the historical deforestation rate is maintained constant across time; (2) that all spatial variables remain the same in terms of location and number (e.g. protected areas); and (3) that the effect that these variables have on the allocation and amount of new deforestation remains equal as that observed during the calibration period (years 2000-2005). Thus, strictly speaking, the BAU scenario could not represent a scenario of no conservation. It is only <u>new</u> protected areas that are not considered. Having said that, I successfully run a BAU scenario for the study area. This shows how new deforested areas spread across the landscape, mainly in the vicinity of the Interoceanica Highway (IOS), if no further conservation actions are taken.
Validation of baselines at UFMG			X	Baselines were discussed with Dr Britaldo Soares-Filho and his team. As a result, I incorporated

				different trends (linear, exponential, and logistic) in the relationship between population growth and deforestation rate growth. Finally, ` only the exponential and logistic were considered.
To add action plans from conservation organisations in Peru, to run new scenarios, to educate the organisations in DINAMICA and in the results, and thus, to start the process of projection, feedback, planning, and coordination.			X	The Frankfurt Zoological Society and the Iniciativa iSur were contacted regarding this objective. Both provided spatial information about their current conservation efforts; the former concentrates mainly on lakes where populations of giant river otters (*Pteronura brasiliensis*) occur; the latter focuses on an area adjacent to both the new Interoceanica Highway and the Tambopata National Reserve. These two spatial areas were incorporated into the land cover change model so as to evaluate the amount of future deforestation that could happen inside of them. In addition, the Alianza Andes Tropicales (http://www.alianzaandes.org/), WWF-Peru (http://peru.panda.org/), AIDER (http://www.aider.com.pe/home/) and ACCA (http://www.acca.org.pe) separately requested presentations about the project and are evaluating the results to incorporate them in their conservation efforts. Similarly, and considering the potential use of such models in the definition of deforestation baselines against which to compare the additionality of REDD (Reducing Emissions from Deforestation and forest Degradation) projects in the region, I have been supporting the Regional Government of Madre de Dios in the process of establishing a REDD working group. (But see note below).
To provide a visualization and forecasting tool to guide conservation efforts. Such a tool will allow conservation organizations to set down clear predictions about the effectiveness of their conservation interventions, and thus, to receive regular feedback about their performance in an ever-changing environment.			X	As explained above at least two NGOs are already using the generated spatial information to inform their conservation efforts. I am still looking forward to contacting more organizations to continue the process of feedback information.

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

(1) The exchange rate of sterling to dollars once the funds were received (February 10th, 2009) was significantly lower than when the budget was designed (from 1.98 USD to 1.44 USD) in April 2008. This caused a relative increase in the costs of every item in the budget. Fortunately, a good relationship with WWF-Perú, FSZ, and ACCA allowed their provision of logistic contributions (accommodation, transportation, and a desk) during some phases of the research. As it is always expected, funds were spent as cost-effectively as possible.

(2) There are at least two other institutions working with land change models for the same region, which could generate different and contradictory results. Although not strictly a direct difficulty that I had encountered, this situation must be taken into account by coordinating future application of the results. This is why I have been involved in the establishment and development of the Madre de Dios REDD working group, which seeks to coordinate actions related to the assessment of: (1) the historical deforestation rates; (2) future deforestation baselines modelling; and (3) carbon stocks in Madre de Dios Province.

(3) One important issue to take into account is the fact that such projected baselines might not be the best approach for developing REDDS projects in Peru, considering its low historical deforestation rates. Projecting increasing deforestation baselines to show what would have happened in the absence of REDD projects in a given area turns out to be mere speculation. It might be more convenient to work with a national deforestation reduction goal and then to monitor and account deforestation, and thus CO_2 emissions, from specific areas. Having said that, deforestation forecasts, such as the ones developed in this project, could still be used to determine the location of the most vulnerable areas of becoming deforested, considering the scenarios proposed.

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

1. Deforestation forecasts, considering both its temporal and spatial allocation, were produced for south-eastern Peruvian Amazon.
2. A new map of settlements, as well as an estimated population growth trend, were produced for the study area.
3. The results are being considered by two NGOs (iSur and Frankfurt Zoological Society) and the Madre de Dios REDD working group, to guide and support their conservation initiatives in the region.

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

The output maps that iSur has received are being used to start developing a REDD project in its area of influence. This project would eventually deliver direct economic benefits to the local communities inhabiting this area. As one of the key premises of a REDD project states, local communities must be compensated for at least the opportunity costs of foregoing the economic activities that would have caused the land cover change, and thus the carbon emissions, whether the REDD project had not been established (e.g. agriculture, cattle, logging, etc.). In addition to the opportunity costs, the

project itself needs to generate sustainable economic benefits from economic activities that will convince the local communities to engage themselves in such a project.

5. Are there any plans to continue this work?

Yes, there are plans to continue. DINAMICA EGO, the software that was used to develop the deforestation forecasts has been continuously updated at the UFMG. This allows now to integrate other models, such as forestry and agriculture rent models, to estimate the opportunity costs of implementing REDD or, more in general, any conservation project that will avoid or reduced deforestation. However, I have started to work directly with Dr Soares-Filho and his team to develop such models for the Madre de Dios province, which precludes me, at least for the time being, to continue my work independently.

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

I have already begun to share my work with public as well as private organizations. A talk was given in May 11th to the Madre de Dios REDD working group to present all the results and the possibilities for further research and improvement of the methodology.

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

November 2008 – December 2009. Although the project was supposed to have started in August 2008, a delay in the receipt of my application caused that, when approved, funds were not received until February 2009. Nonetheless, I travelled to Madre de Dios in November 2008 to acquire population data at the regional office of the *Instituto Nacional de Estadística e Informática* (INEI) and to interview NGOs managers, who initially informed me about which were the main causes of deforestation (at the time) according to them. With this information I decided which spatial variables to include in the model and analysed the relationship between population and historical deforestation (2000-2005) growth trend.

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
Materials	650	1059.01	-409.01	Exchange rate used for all = £1 = $1.44
Airfare	1300	789.58	+510.42	I covered the airfare UK-Lima with personal funds. When the difference was positive, this was used to cover other items.
Work at UFMG	1200	530.13	+669.87	I stayed less time than expected.
Field work in Madre de Dios	1560	2414.21	-854.21	Airfares were very high at some points of that year, which increased the budget fort this item.

Work in Lima	1290	1238.97	+51.03	I covered the £31.9 with personal funds.
Total	6000	6031.9	-31.9	

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

As mentioned before, coordination among researchers, NGOs and the government, both national and regional, is central to the potential success of the REDD scheme. Attention must be paid to the possibility of generating different and contradictory results, specifically regarding future deforestation baselines, which could cause higher expectations of the amount of economic benefits that the REDD scheme would produce. Similarly, having a large number of individual projects, each one measuring its effectiveness relatively to individual baselines could generate a scenario in which the accountability of reductions will be impossible. Finally, the potential impacts on high-biodiversity-low-carbon areas should be evaluated, as deforestation would be displaced from REDD project areas (i.e. leakages) and taken into account when developing individual projects.

Therefore, the main next step to assure that a research such as this one, which aims to eventually support REDD projects, will succeed, is to promote the coordination among public and private institutions, specifically regarding the development and analysis of deforestation baselines.

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?

YES. When talks were given to present the objectives, methods, and results of the project the logo of RSGF was used in every single slide or in the first and last slides. At the end of each presentation it was clearly stated that it was thanks to RSGF funds that the undertaking of the project was possible. Similarly, several maps were produced during the course of this work, which had the logo of RSGF on them. These were distributed among public and private conservation institutions in the region and in Lima.

11. Any other comments?

I am sincerely thankful to RSGF for providing me its trust and funds to develop my research. I believe that such spatial analysis of deforestation could be really useful for the effective and efficient planning of conservation in the Amazon Basin.