# 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** | Ndikubwimana Innocent |
| **Project title** | Spread of exotic tree species into the natural forest, Case study of *Pinus patula* in Nyungwe National Park |
| **RSG reference** | 21029-1 |
| **Reporting period** | December 2016 - January 2018 |
| **Amount of grant** | £5000 |
| **Your email address** | ndijmc@yahoo.fr |
| **Date of this report** | February 15th 2018 |

**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 |
|---|---|---|---|---|
| Mapping 3 stands of exotic trees - *Pinus patula* within the Nyungwe National Park | | | | We conducted field expedition to collect GPS data of exotic stands in order to display them on the map of Nyungwe National Park, these coordinates are useful for any other park management action. |
| Collecting data on spread of *Pinus patula* using 4 transects set on each of the stands in the direction North, South, East and West | | | | Line transects of 1 km long were set using ARC GIS software. |
| Analysing data to understand how do *Pinus patula* spread from their original stand towards the natural forest. | | | | Data analysis and consultations with the academic supervisors go on as the academic period ends by the year 2018. |

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

During this project, we did not encounter relevant difficulties, though collecting field data was not an easy task due to the terrain of mountain rain forest we were working in, we managed to achieve it.

Analysing data using R-studio which is a new tool to us, together with the fluctuation of the academic calendar which is going on; no major challenge was noticed so far.

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

For this project, we have achieved different outcomes but the most important include the following:

1. Providing to park management the GPS coordinates on three exotic tree stands of *Pinus patula* which is an important package to park management for any action. Nyungwe management is willing to map all sites of exotic and invasive species in order to plan for measures to address that situation; so that this project lies to that action.

2. Though the data analysis is not yet finalized and confirmed by the University of Rwanda academic board, the rate of *Pinus patula* spreading into the natural montane rain forest of Nyungwe is intended to guideline management action to address the issue of exotic tree species which constitute a threat to park biodiversity.

3. As these exotic stands were planted by a NGO before Nyungwe become a national park, this project incites the government institution in charge of forestry to working more closely and carefully with its NGOs so as to mitigate any activities likely to harm the natural environment.

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

The local community was involved in different levels of implementations of this project. They were employed during field activities (field reconnaissance surveys on stands, collecting GPS data of three exotic stands, opening transects, field data collection on transect, transport) and were involved in providing facilities and logistical supply. These communities did benefit from this project through payments as they have been actively involved, they also did benefit field skills about methods of field work for research purpose.

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

Yes of course, this study aims to understand how the exotic trees are likely to impact on the natural forest so that, as in Nyungwe, there is a wide range of exotic tree species including *Eucalyptus* and *Acacia* species among others there is ways to investigate their respective spread and impact on the soil. So that I have a plan to investigate other aspects of exotic tree species on the natural forest of Nyungwe as I have explained.

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

- The results of my work are highly important and useful for protected area's biodiversity conservation; so that I will share a presentation to the conservation forum which is a platform gathering all the conservation actors and partners at the country level.
- I will share the results with the University of Rwanda's faculty, as well as to different audiences including seminars.
- I will also share the findings to Tropical Biology Association (TBA) of which I am an alumni member with the purpose to posting them on their website so that the findings can be more accessible to the TBA website users.
- I will write up a paper and publish it through the national and international journals.

**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 grant itself was used over 12 months (December 2016-December 2017) of my field activities. This period lies with the length of the project which was sufficient; beyond that period, I am using my own resources to finalize the data analysis.

**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 |
|---|---|---|---|---|
| Costs for field data collection on location of exotic trees' stands, mapping exotic stands and setting transects using Arc GIS, opening transects and plots on the stands | 1800 | 2300 | +500 | The physical status of the Nyungwe montane rain forest made the field work expectably longer, reason of an extra cost. |
| Cost for data collection on spread of *Pinus patula* along the transects and plots | 1200 | 1200 | 0 | Data collection along the transects and plots was well done, no challenge was encountered. |
| Cost for field work facilities (transport) | 2000 | 2000 | 0 | No challenge occurred about transport cost |
| **Total** | **5000** | **5700** | **+500** | The difference was contributed from my own earnings. |

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

As way forward, the dissemination of this project's findings to different audiences especially the environmental conservation activists is important; Conducting further related research to better understanding different aspects of impact of exotic and invasive tree species to the natural habitat is also important.

**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?**

Yes, I used the Rufford Foundation logo on my research proposal presented to the University of Rwanda for validation, on doorpost of my office, on proposal submitted to RDB to apply for the research permit, on the vehicle that facilitated my field activities.

I branded Rufford in workshop training I attended January 2018 organised conjointly with the Cyamudongo project / Koblenz University in collaboration with Rwanda Development Board while talking about threats to biodiversity which include exotic and invasive species.

**11. Any other comments?**

This project was very important and helpful for Nyungwe National Park management actions because exotic trees is ranked among the major threat to the natural forest.

However, as this project did focus on *Pinus patula*, which prior result reveal its spreading behaviour is not very high; Nyungwe National Park management need to undertake studies on other exotic tree species so as to be sure on which species to address as priority.

I am thankful to the Rufford Foundation for its initiatives to support conservation research activities.