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	Alfred Houngnon
Project title	Interplay between Men, Fire and Vegetation: Lessons for Developing Community Tourism and Preserving the Last Threatened Ewe-Adakplame Relic Forest in Benin
RSG reference	21167-B
Reporting period	November 2016 to December 2017
Amount of grant	£10,000
Your email address	quenh77@gmail.com
Date of this report	03 rd February 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
Local Community engagement				The originality of the process we adopted to engage scientists and non-scientists (locals) provided more enthusiasm than expected
Ewe-Adakplame Relict Forest investigation				Most of the forest habitats were sampled in addition to the explorations of Rufford projects from 2014 to 2015. It took 4 more months than expected due to density and accessibility
Computerizing and analysis of Vegetation data				The determination of taxa and repositioning in the new nomenclature (APG IV) were not easy
Sediment core extraction				There was no contact from the French laboratory that agreed to supervise the data analysis with the local team
Paleo-environmental reconstruction				Data were collected but no exploitation was done or valorisation
Restitution to locals				Each result as well as the difficulties were presented and discussed with local communities and scientists interested in our approach

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

Most of step took long more period and repetitions before achievements. The biggest and inexplicable surprise was the silence of the French laboratory of one of my referees. He did not react after the grant was awarded and the period of sediments extraction. Nevertheless he was the first who gave his approval, contributed to the budget and promised to assist the local team for data paleoecology data analysing. Unfortunately, Benin and neighbouring countries do not have such equipment for sediment analysis, dating and high-resolution image processing. We have not found either kind of paleo=ecological laboratory on the

African continent till now and those we contacted on others continents have not yet responded to our request.

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

1 - We have successfully tested a new method to raise awareness among local communities for an ambitious and attractive community tourism in common vision of biodiversity heritage conservation. This workshop of February 2017 at the National Herbarium of Benin, was a first citizen meeting with scientists and non-scientist to design a new dynamic and integrated model of conservation. It was also the first interactive and co-working forum.

2 - We have been able to establish for the first time in Benin, a complete list of vascular plants of Ewe-Adakplame Relict Forest. This list is available for the local community level and is therefore a technical baseline with special emphasis on endangered plant species and others that seem to have disappeared. The check list provides the chorology, the life forms, past floristic connection and the current status of some targeted tree. This information is important to better design a conservancy programme for community ecotourism. Most of habitats in the forest were sampled and 600 herbaria were described.

3 - With the local communities, we selected some native and endangered plants which present a beautiful architecture in order to integrate them in city garden embellishment and landscaping. This might contributes to the management and conservation of these range restricted vascular plants through urban areas. It's also the best way to contribute to the biodiversity heritage domestication while assisting rural communities to take advantage from vegetative propagation and nursery establishment activities to which they have been associated since 2014.
Among these patrimonial and priority conservation species, we have many phanerophytes such as: *Mansonia altissima, Ceiba pentandra, Nesogordonia papaverifera, Octolobus spectabilis, Pterygota macrocarpa, Sterculia tragacantha, Triplochiton scleroxylon, Blighia sapida, Blighia unijugata, Diospyros abyssinica* etc. that have been selected because of their imposing architecture but also because they do not present any sociological obstacle.

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

For the first time in Benin, rural people who are the depositary of plant biodiversity have accessed to plant collections at the national herbarium of Benin. They shared, contributed and gave their point of view on each of the samples collected in their forest. From this enriching experience, local leaders have been in touch of plant species with high conservation priority in Benin. They were at the heart of the debates. They are again motivated for the restoration of native trees of the Ewè-Adakplame Relict Forest that were presented by the national herbarium researchers as endangered plant species providing from their own forest. The local community involvement helped to collect 600 herbaria.

5. Are there any plans to continue this work?

Engage locals for green belt establishment with native tree around the Ewè-Adakplame forest relic, Benin

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

The project has already involved media, the production of short films, interviews on national broadcast and publicity materials focus on one ultimate goal: how to preserve and manage with rural the native and endangered trees hosted by Ewe-Adakplame Relict Forest in the Southern-East Benin? A first manuscript on the diversity of vascular plants is already submitted. A second manuscript is being prepared on the structural parameters and the regeneration stock.

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 Rufford Foundation grant was used throughout the actual length of the project. Field work started two months before the grant was awarded. It covered the entire planned duration of the project but unfortunately we did not obtain additional funding to achieve all the objectives in time.

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
1 Haglöf Mantax Precision Calipers for measuring big tree diameter (127 cm)	300	476	176	Unexpected local and international transportation cost
2 Plant Press Kit (for 171 Plant Press)	190	428	238	Exhaustion of the initial stock
2 Quadrats of metals (1 m²) to secure wild seed stocks counting areas.	15	49	34	More robust design than expected
4 metal bars of 10 meters long to secure areas of plant and regeneration counting	45	0	-45	Equipment deemed unnecessary following local adaptation
2 Flip-chart paper (Post-it Tabletop Easel Pad, 20 x 23-Inches, White, 20-Sheets/Pad) for the Workshops	50	166	116	Only this model remains in stock and the unit costs so much
Travel and local transportation (fuel) (transportation to fieldwork sites, Labs at	640	846	206	Travel costs have exploded due to the lack of specialist at the national level for

University of Parakou – 50 litres of fuel per trips at £0.8 per litre for 16 trips or 1trip per month)				botanical identification and description
Stationery and consumables (printer, document for investigation)	250	425	175	We changed the ink cartridge twice because we printed our A3 posters ourselves with the newly purchased printer
1 Session for project presentation and local community engagement (November 2016)	50	323	273	Communication has cost especially for the mobilization of the various actors, including for the drivers of the small buses booked. It wasn't planned to take charge the trip of a national expert in participatory science to train participants on the issues of participatory research action and citizen sciences approaches we have initiated since 2014.
Ewe-Adakplame Relic Forest investigation (£5/person per day for 5 people during 90 days)	2250	3759	1509	Since 2014, we have carried out targeted collections. But in 2017, all the forest cover has almost been swept away. The stay was longer in the forest with the penetration of previously inaccessible islands of vegetation and incessant rain disturbances. This weighed heavily on a supplementary budget for feeding and health.
Vegetation data entry, compilation, analysis and results output at laboratoire d'Ecologie, de Botanique et de Biologie Végétale, University of Parakou, Benin	700	881	181	There were some botanical description that have cost because we have visited specialists from neighbouring countries like Togo, Nigeria and especially Ghana where some of Ewe-Adakplame Relict Forest species were represented.
Extraction of sediment samples using Russian courier and shipping to laboratory	2250	1516	-734	Sediments were collected without the planned supervision. No analysis was

				done
10 radiocarbon AMS dates from macrofossils or bulk samples	2700	0	-2700	No response from the partner laboratory in France
Outreach and ecotourism designing (4 large posters printing and local media diffusion: posters (£50 x 4) and media £60)	260	538	278	The posters are being edited and other Rufford posters have been placed in the town halls near the study area. Our team members are often invited to contribute to television programs concerning the conservation of plant biodiversity in Benin
Workshops (venue hire - £40/day x 3 days, projector hire x 3 days - £30 and food for 30 participants - £150)	300	511	211	The mobilization was stronger and popular, with unexpected visitors from Cotonou city and Abomey-Calavi township. For example, it wasn't planned to rent two small buses or reward local journalists from the Abomey-Calavi university campus.
Total	10000	9918	-82	The balance today is 377 £ sterling because there are ongoing activities such as the printing of posters that is not yet paid.

*** 1 £ sterling = 738.772 CFA Francs (2018-02-06/ 11:30 Ketou, Benin local time)**

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

1 - Establish two ecological and educational pathways that will intersect in the middle of the forest to channel and facilitate hiking. Both trails will be lined with nameplates to describe some interest species found naturally in order to facilitate visits

2 - Find a laboratory to finalise the paleo-ecological analyses to integrate in the ecotourism project, the historical dimension of humans and the forest over a long period.

3 - Build a village herbarium for native tree species restricted to Ewe-adakplame Relic Forest in Benin.

4 - Create a green belt of nearly 100 ha around the Ewe-Adakplame Relict forest to stop the forest periphery encroachment with emblematic species like *Celtis mildbraedii, C. zenkeri, C. prantlii, Triplochiton scleroxylon, Nesogordonia*

papaverifera, Mansonia altissima, Pterygota macrocarpa, Octobolus spectabilis and Sterculia tragacantha, Drypetes floribunda, D. gilgiana and D. aframensis, Ceiba pentandra, Octolobus spectabilis, Pterygota macrocarpa, Sterculia tragacantha, Triplochiton scleroxylon, Blighia sapida, Blighia unijugata, Diospyros abyssinica, Englerophytum oblanceolatum.

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?

During our all presentations or results sharing at the local level as central, a logo of Rufford Foundation on a poster or flyer to justify the source of our source of funding. There is also on each our equipment, a self-adhesive of Rufford.

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

Team members	**Role in the project**
Alfred HOUNGNON	Project leader, data collection, analysis and report writing
Daniel BOCOSSA	Is native from Ewe-Adakplame villages. He participated in data collection, especially in technical aspects related to GIS, tree spatial distribution and vegetation mapping.
Ghislaine Houeffa NAGNITVHEDE	She assisted in team accommodation and budget allowance
Bernard AKAN	Is a teacher in life and earth sciences; an active team member during the 1st RSG, he is a native of Ewe-Adapklamey village. He played the role of interpreter and was the principal speaker during the workshop.
Ambroise DOSSA	Local leader and a former village chief trackers and support for labor and accommodation
Gabriel AZONHIN	Hunter and tracker for traffic in EARF since 2014, He supported labor and plant identification
Chakirou LAWANI	National expert in participatory approach, he trained participants of workshop on participation aspects and advantage for conservation
Bertin Tiburce HOUNKEALA	Communication and media relay
David HOUNDENOU	He participated in floristic data collection
Brice GBECONNOU	He is assisting to models designing and realization of tourist circuits.

Jean-Claude TOBOSSI	Mapping assistance and landscaping
Ella GOMEZ	She assisted in private law and legislation aspects
Godfried GODJO	He assisted in management and conservation of natural resources
Maryse ZOMAHOUN	Human resources and planning.
Ansaynio KOKOYE	He has been in charge of investigations, transportation, people engagement and field travels

12. Any other comments?

Given Rufford's experience in supporting research projects around the world, I would like to suggest that the foundation develop a directory of research laboratories and equipment suppliers (if possible, reliable partners). This can facilitate analysis and speed in the acquisition of equipment especially for some applicants from the French-speaking area. Many thanks for The Rufford Foundation.

Fruit of Momordica charantia (Cucurbitaceae) in the dissemination stage in the Ewe-Adaklame forest (Ketou, Benin).

Fruit of Momordica charantia (Cucurbitaceae) visited by ants in the undergrowth of the Ewe-Adaklame Relict forest (Ketou, Benin).

Flower and attacked leaves of Hibiscus calyphyllus (Malvaceae) in the undergrowth of the Ewe-Adaklame Relict forest (Ketou, Benin).