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	Fanuel Kawaka
Project title	Integrating Local Community and Schools in the Conservation of Wild Orchids in Kenya
RSG reference	27181-D
Reporting period	January 2019 to December, 2019
Amount of grant	£10,000
Your email address	fkawaka@tum.ac.ke
Date of this report	January, 2020

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
1. Recruitment of community/school participants				1. The project recruited eight local schools and five community-based groups (CBGs) to participate in the project. 2. These schools and CBGs were selected based on their interest in conservation programmes and proximity to the adjacent forest. 3. The research team mentored the participants to form Wild Orchid Conservation Groups and school Orchid Conservation Clubs.
2. Surveys/wild orchid inventory				1. Selected schools and community participants joined the research team in the forest surveys and random timed walks. 2. During the surveys the participants were trained on orchid identification, re-establishment and rescue.
3. Training, sensitization and awareness creation				1. The training, sensitisation and awareness sessions reached a population of 4300 learners beyond our target of 4000 in eight schools and 650 local community members living around. 2. Wild orchid conservation materials, brochures, technical manuals, reports and short video clips were shared with the participants during the workshops. 3. The participants listened to expert talks and lectures on human activities that promote sustainable orchid and forest biodiversity conservation.
4. Nature trails, gardens and seed banks				1. The rescued orchid tubers, cuttings and seeds were used to successfully set-up local community and school *ex situ* nature trails, gardens and seed banks. 2. Some schools had shorter third term and therefore we could not easily

				access those schools.
5. Landscaping and naturescaping				1. The plants were successfully planted in pots, vessels and flower beds along school streets, classrooms and designated community sites to form lawns.

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

1. End of the Year National Examinations:
During third term, participating schools were doing their end of year national examinations and therefore could not actively engage in the project activities. After consultations with the school head teachers, County Director of Education officials and the research team agreed to re-schedule the project activities to continue later immediately after exams.

2. Access to the Research Funds:
There was a delay in accessing/releasing the funds from the university account that interfered with the timely execution of project activities as outlined in the work plan. However, the research team revised the activities to ensure that all project objectives were successfully achieved.

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

1. Surveys/Wild Orchid Inventory:
During the survey the project team collected information on orchid diversity, distribution, conservation status/needs and mapped the out exact locations of wild orchids that require rescue. In addition, data on orchid genera, species, diversity, abundance, morphological characteristics and host plant species were recorded. All rescued orchids were used to establish community/school nature trails, gardens and seed banks.

2. Training, Sensitization and Awareness Creation
The project team organised a successful a 1-week conservation workshop for the local community and schools that focused on orchid conservation through training, sensitisation and awareness creation. The workshop served as a platform for the local community leaders, learners and teachers to discuss and share their local environmental/conservation issues. In the workshop, orchid conservation training materials, brochures, technical manuals, reports and short video clips were shared to enhance awareness among 4300 learners/teachers from local schools and 650 community members.

3. Nature Trails, Gardens and Seed Banks
Local schools and community adopted and currently use rescued orchid tubers, cuttings, seeds and propagated orchid seedlings to establish *ex situ* nature trails, gardens and seed banks. These wild orchid nature trails and gardens also serve as

demonstration centres and plots for the local community and other schools. Extra propagated and hardened plants are regularly taken back to the natural forest for re-establishment and re-stocking to support *in situ* forest conservation.

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

The current project focussed on building the capacity of the local schools and community living around the Mau Forest Complex (MFC) on orchid conservation, setting up nature trails, home gardens and seed banks. To ensure sustainability and successful community and school ownership/uptake of the project, we worked with 4300 learners and 650 community leaders who played a critical role in the formation of Wild Orchid Conservation Clubs and Wild Orchid Conservation Groups respectively.

The initial schools and communities from our previous projects provided planting materials. In addition, the wild orchid clubs and groups shared with us the steps that they had taken to minimise and reduce destructive activities such as logging and charcoal that threaten the survival of wild orchids in the forest. The community can now rely on the wild orchids planted in their own home gardens and nature trails for food and medicinal use. The strategy has reduced pressure on overharvesting and overexploitation of wild orchids from the forest. The project therefore has not only promoted orchid conservation but also improved the local community livelihood. The wild orchid school clubs and community groups are currently selling clean planting materials to the other local residents to set up home gardens and nature trails thus earning income.

5. Are there any plans to continue this work?

Yes. We plan to set up an orchid house at the Kenya Forestry Service station in Kericho County. The orchid house will serve as a resource, learning and information centre for the local community, schools and conservation stakeholders. It will also be used as a rescue centre for wild orchids. The local KFS station has pledged in kind support to the initiative by proving land adjacent to their nursery to set up the Wild Orchid House.

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

The project team has always been and will continue to share our results through the following avenues:

1. Brochures, posters, technical manuals and information booklets to be shared with the local schools, learners, the community and relevant conservation stakeholders.
2. The collaborating partners have been requested to avail the same publicity materials in their institutional libraries.
3. Publicise our findings through local community radio and television to increase conservation awareness.

4. Project stakeholders and partners have also been requested to link the project reports, findings and publicity materials on to their institutional websites to increase national and international online awareness and visibility among users.
5. Publications in scientific journals, online magazines and social media forums

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 university confirmed receipt of the 2nd booster grant in January 2019. The project activities started in February 2019 as outlined in the work plan. To ensure successful implementation, the research team revised the activities so that all the objectives could successfully be achieved by December 2019.

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	Rufford Budgeted Amount	Actual Amount	Difference	Comments
SCHOOL VISITATION AND RECRUITMENT					
Transport Four-wheel drive vehicle hired for 2 days	120		120		No variation
Subsistence and accommodation for 4 scientists for 2 days	360		360		No variation
Subsistence and accommodation for 1 driver for 2 days	70		70		No variation
Refreshments for students/pupils and teachers in 6 schools	180		180		No variation
Subsistence and accommodation for 2 students for 2 days	140		140		No variation
COMMUNITY VISITATION AND RECRUITMENT					
Four-wheel drive vehicle hired for 2 days	120	120	120		No variation
Subsistence and accommodation for 4 scientists for 2 days	360	360	360		No variation
Subsistence and accommodation for 1 driver for 2 days	70	70	70		No variation

Refreshments for 3 community groups	120		120		No variation
Subsistence and accommodation for 2 students for 2 days	140	140	140		No variation
	SCHOOL FOREST/FIELD SURVEYS				
Transport (Larger Van) for 6 days	480		480		No variation
Subsistence and accommodation for 4 scientists for 6 days	1080	1080	1080		No variation
Subsistence and accommodation for 2 undergraduate students for 6 days	420	420	420		No variation
Lunches and refreshments for students and teachers for 6 days	360		360		No variation
	COMMUNITY FOREST/FIELD SURVEYS				
Transport (Larger Van) for 6 days	480		480		No variation
Subsistence and accommodation for 4 scientists for 6 days	1080	1080	1080		No variation
Subsistence and accommodation for 2 undergraduate students for 6 days	420	420	420		No variation
Lunches and refreshments for 3 community groups for 6 days	360	360	360		No variation
	NATURE TRAILS, GARDENS AND SEED BANKS				
Preparation of demonstration plots	435		435		No variation
Orchid seedling procurement	340		340		No variation
Setting up school nature trails, seed banks and gardens	550		550		No variation
Maintenance of the nature trails, seed banks and home gardens	395		395		No variation
	LANDSCAPING AND NATURESCAPING				
Flower beds and vases	380		380		No variation

Seedlings	220		220		No variation
Casual labourers	360		360		No variation
Flowerpots	230		230		No variation
CAPACITY BUILDING					
Hiring for workshop venue for 8 days	240	240	240		No variation
Lunches and refreshments for community and schools for 8 days	960	960	960		No variation
Transport for schools (Larger Van) for 4 days	320	320	320		No variation
Transport for community (Larger Van) for 4 days	320		320		No variation
Subsistence and accommodation for 4 scientists for 8 days	1440	1440	1440		No variation
Subsistence and accommodation for 2 students for 8 days	560	560	560		No variation
Training materials	430	430	430		No variation
Training brochures, posters, video clips, and t-shirts	390	390	390		No variation
Training technical manuals and information leaflets	380	380	380		No variation
REAGENTS					
Agar	250		270	+20	Prices were higher than budgeted amount by 20
Liquid nitrogen	375		400	+25	Prices were higher than budgeted amount by 25
PUBLICATIONS AND REPORT WRITING					
Stationeries (Reams of paper)	270		255	-15	Prices were discounted by 15
Photocopying services	250			-250	
Printer	225		195	-30	Prices were discounted by 30
Cartridge	160		150	-10	Prices were discounted by 10
Pens, erasers and pencils	190		190		No variation
PROJECT COORDINATION					

Communication, Internet, Postage	150		150		No variation
TOTAL PROJECT BUDGET (£)	**16180**	**10000**	**16180**		**No variation**
	National Commission for Science, Technology and Innovation (NACOSTI): £4,000				
	Total In kind Support: £2,180				
	TOTAL RSG Booster Grant: £10,000				
	Note: We received £10,000 from Second Booster Grant, £4,000 from NACOSTI and £2,180 in kind support from different stakeholders.				

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

To ensure sustainability, continuity and local community ownership for the project, the next important to set up an orchid house that will serve as a resource, learning and information centre for the local community, schools and conservation stakeholders. In addition, the orchid house will provide ecotourism services to the local conservation stakeholders by providing alternative source of livelihood to local community which is more sustainable. Ecotourism will help conserve natural resources, especially biological diversity, maintain sustainable use of resources, promote ecological experience to local tourists, conserve ecological environment and gain economic benefits to the entire local community.

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?

Yes. In all the workshops and meetings with the county officials, local schools and the community, the Rufford Foundation logo was well displayed. The project team explained that the project was supported by the Rufford Foundation 2nd booster grant. The Rufford Foundation logo was used on the following:

1. All reports and publications on the conservation status of orchids in Kericho forest.
2. Germination protocol for orchids.
3. Brochures, posters, technical manuals and information booklets
4. All the equipment and laboratory reagents purchased with funds from the RSG had stickers with RSG logo on them.
5. Rufford Foundation logo was during the community capacity building and awareness activities with RSG logo printed on t-shirts and all the stationary materials.
6. Further we will use the RSG logo and give acknowledgement on any future publications resulting from this work.
7. All school and community nature trails, gardens, seed banks, landscaping and naturescaping had posters acknowledging support from Rufford Foundation booster grant.

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

Project Leader, Dr Fanuel Kawaka
Dr. Kawaka has extensive experience working with local community and schools in promoting the conservation of wild orchids and forest biodiversity in the MFC. He provided oversight and leadership during the project implementation and management. He further provide expertise during capacity building, propagation, establishing nature trails, gardens and sustainable utilization of forest resources.

Plant Breeder, Ms Emmah Owidi
Ms. Emma ensured that orchid germplasm was safely collected and transported from the field. She helped the safe banking of the seeds/germplasm for future research activities.

Conservation Scientist, Benson Obwanga
Mr. Obwanga has long term experience in offering multi-sectoral research capacity. He will be instrumental in drafting community /school conservation materials such as brochures, publications, reports, posters and training manuals. He also ensured that the materials are freely accessed through online libraries for learning and teaching.

Taxonomist, Mr. Polycarp Chagona
Mr. Chagona is an orchid taxonomist. He provided expertise in orchid identification, developing propagation protocols, processing voucher specimen and rescuing wild orchids.

Kenya Forestry Service (KFS) guards and wardens
KFS are the legal custodians mandated to take care of all protected sites and forests in Kenya. They gave the research team free access to the forests and provide security during forest and field surveys.

Local community and schools
The community and schools were the main stakeholders and beneficiaries because the project aims at integrating them in wild orchid and forest conservation programmes.

Undergraduate Students
Students from the Technical University of Mombasa and Laikipia University were trained on practical field based ecological and conservation research.

12. Any other comments?

On behalf of the entire research team, local schools and community, conservation stakeholders and collaborating institutions, I wish to thank Rufford Foundation for the generous financial support to the wild orchid conservation project in the MFC. We look forward to further working closely with RF and other conservation partners to ensure ownership, sustainability, continuity and local community ownership for the project by setting up an orchid house that will serve as a resource, learning and information centre for the local community, schools and conservation stakeholders. The orchid house will provide ecotourism services to the local conservation stakeholders by providing alternative source of livelihood to local community which is more sustainable.