

## 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. 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. 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](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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#### Grant Recipient Details

|                            |  |
|----------------------------|--|
| <b>Your name</b>           | Helen Thornton-Mutiso  |
| <b>Project title</b>       | Rare and Endangered Indigenous Tree Seed Bank & Mapping, African Forest, Kenya |
| <b>RSG reference</b>       | 8102-1   |
| <b>Reporting period</b>    | Jan 2011 to Dec 2012   |
| <b>Amount of grant</b>     | £6,000   |
| <b>Your email address</b>  | helen@african-forest.net   |
| <b>Date of this report</b> | 27.12.2012   |

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   |
|---|--------------|--------------------|----------------|--|
| <b>Seed Centre –</b>                                    |              |                    |                |  |
| Improvements to current seed storage area               |              | √                  |                | The seed storage area was improved with cupboards; although we did not have the budget to do the ceiling due to overspend on the drying shelter.   |
| Purchase of equipment                                   |              |                    | √              | Various equipment was purchased as per the budget and is in use. We have ordered the electronic scales but they are being shipped in from overseas, so should be with us in February.  |
| Provision of shade drying facilities                    |              |                    | √              | A shade drying shelter and racks were built and are in constant use.   |
| Improved Documentation                                  |              | √                  |                | The quality of documentation has improved, but still needs more work.  |
| <b>Scout Tree Mapping</b>                               |              |                    |                |  |
| Map reading and orienteering training                   |              |                    | √              | Training was done with three scout troops.   |
| Tree species identification training                    |              |                    | √              | Training was done with three scout troops.   |
| Field work to identify and map rare species             |              | √                  |                | Field work training has been done with two of the three scout troops but ongoing mapping still need to continue with all troops.   |
| Verification of species and collation of data           |              | √                  |                | Species verification and collation of data is still ongoing.   |
| <b>Community seed collector training</b>                |              |                    |                |  |
| Training in Identification and selection of seed source |              |                    | √              | We decided to train six local Rover/Ranger Scouts (aged from 20 to 54) rather than general community members as our seed collectors for several reasons, the first being that there is the organisational structure to oversee them, the second being that we thought it would be easier to gain access to the gazetted forests, where the best sources of seed are, and the third being that the scouts already have good training in camping and outdoor skills. Initial training was done, followed up by two training field trips, one to Chesumot farm in Kericho and |
| Training in criteria for tree seed collection           |              |                    | √              |  |
| Training in documentation records                       |              |                    | √              |  |
| Health and safety training                              |              |                    | √              |  |

|  |  |   |   |   |
|--|--|---|---|---|
| Provision of basic equipment for seed collection           |  |   | √ | one to a 500 acre Maasai community forest on the Marmanet river west of Naivasha. We had hoped to go into government forests but were then told that we needed permission from the Director of Kenya Forest Service. This was duly sort in writing in September 2012 but we are yet to receive a reply. We are hopeful we will be able to go into the forests next year.  |
| Apprenticeship field training                              |  |   | √ |   |
| <b>Operation of the Seed Centre</b>                        |  |   |   |   |
| Stocking of the seed centre                                |  |   | √ | The seed centre has had a throughput of over 1,000 kg of seed from 2011 to 2012. Species have increased to over 60, so slightly lower than target, but over 80 species of trees have been identified as seed source on the field trips and will be harvested when they are ready.   |
| Employing trained seed collectors                          |  |   | √ | We have discovered that collectors generally prefer to be paid for seed collected, so we now have 6 seed collectors working on this basis.  |
| Post harvest treatment, drying storage and ongoing testing |  |   | √ | This work is ongoing  |
| KEPHIS Certification                                       |  | √ |   | We applied for KEPHIS Certification but have since discovered that KEPHIS have not set standards for tree seed, so we were referred to KEFRI, the Kenya Forestry Research Institute. We had a meeting with them and they said we could register to be seed suppliers to them. KEPHIS have then come back to us in December 2012, requesting additional information. We are putting together the information for them and hope to be registered early in 2013. |
| Marketing of seed centre to local projects                 |  | √ |   | Due to the delays with KEPHIS, we have not yet started marketing seed in a major way although we have had several customers. However we have recently obtained a directory of tree nurseries, produced by Kenya Forest Service, which has over 5000 tree nurseries listed, so we want to begin contacting them.   |

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

Obtaining maps proved quite difficult. We had to write to the Chief of General Staff of the Army, who kindly furnished us with two Kenya Survey Maps for Nakuru and Gilgil. Maps of this scale are

not available to buy in Kenya. However they were 1:50,000 Scale, which is not really detailed enough for mapping individual trees. We needed to scan the maps and then print them out as 1:25,000 for the orienteering training. For the tree mapping field trips, we blew them up to 1:10,000, which worked quite well. However there was a discrepancy between my own GPS, Google Earth and the Kenya Survey maps, of about 300m NNW on the UTM grid reference system, which made it difficult to confirm positions!

Our plan was to work with our local scout troops, from Mbaruk and Kasambara for ease of local training and mapping. However, we later found out that they were 'militant' troops, i.e. they had not paid their scout dues, which created some issues with the District Scout Commissioner. We also realised that the enthusiasm of the Scout Master is of critical importance to the project, as it involves them putting in their time and effort to go with the scouts on field trips as the scouts are all aged between 14 and 18. I also worked with a troop from Muleleshwa, about 30km away, who had an extremely enthusiastic Scout Master, who even helped us with out taxonomy and tree identification training, but we am yet to obtain maps for that area, so it was difficult for them to do their field work. We are still trying to obtain the additional maps. We also had to get clearance from the schools each time we wanted to train the Scouts and do field work.

In future, we plan to work just with very enthusiastic troops and Scout Masters, even if they are a bit further away, as that is the only way to ensure ongoing mapping exercises. The other option is to train the older Rover Scouts in orienteering, and have them carry out the mapping exercise, as they are all over 18, and as they are being trained as seed collectors it will be of benefit to them to do the mapping exercise, as it will identify trees for seed source for them.

The other difficulty that arose was gaining access to the gazetted forests in our area. We had planned to do three field trips with the Rover Scouts, to Bahati, Eburru and Kipipiri Forests, all of which are managed by Kenya Forest Service. Three of the Scouts were all ready to go for a 5-day trip to Bahati Forest, we had contacted the head of the CFA (Community Forest Association) a few days before the trip, who told us she would clear everything with the local DFO (District Forest Officer.) But on the morning of the trip she said the DFO had told us to contact his zonal manager, which we duly did, but he told us to contact head office. We called one of the deputy directors of Kenya Forest service, who told us we must apply in writing to the Director. This we did in September, and we are still waiting for confirmation!

So luckily we have friends in Kericho, Kim and David Martin who have a large tea estate, which also happens to have some large tracts of indigenous forest, so after a quick call to them, they kindly agreed to host the scouts for their field training. Over 40 species of indigenous trees were identified, and the Rover Scouts also did flower and seed surveys while they were there, so we now have a calendar of when they can go and harvest the different species.

The second field trip went to a Maasai community forest, on the Marmanet river. We have been working with NBSI (Naivasha Basin Sustainability Initiative) to do training and supply seedlings for anti-erosion and riparian reforestation projects, and one of the project areas contains this forest. The community kindly agreed for the Scouts to go there for their field training. We also trained an additional four local community members so they are planning to start collecting for us as well. Over 35 distinct indigenous tree species were identified in this forest, although it is primarily a cedar forest (*Juniperus procera*).

Another difficulty encountered was the issue of trying to orienteer in thick forest, in areas where there are little or no reference points. For the field training with the scout troops, which we did in

our local area, we actually had to walk along the railway line counting culverts to ascertain a start point for the riverine forest, but even then it was difficult for the Scouts to pace distances. GPS's would have made the whole exercise much easier!

Finally for species identification, the samples and the Scout recall of the size and shape of tree made for an imperfect record, and so on the second seed collector field trip I sent the Scouts with my camera, which greatly assisted, so some cheap cameras would have been beneficial for field work.

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

Increased seed range and stock levels at the seed centre, plus identified trees for seed source of over 80 species, these will be collected during 2013, according to when they are ready.

Discovery of an endangered species, *Osyris lanceolata* (East African Sandalwood) 1km away, seed will be harvested in a few months. Discovery of several other species we are still waiting for species verification on.

Interest in the project from various sources; we were filmed by Al Jazeera for their Earthrise programme <http://www.aljazeera.com/programmes/earthrise/2012/04/20124201637690142.html>; we have also been approached by a company called Tree Global, ([www.treeglobal.com](http://www.treeglobal.com)) who are interested in setting up a high performance tree research facility at our nursery, who were very excited about the bio-diversity resource available from the seed centre, and Total Kenya, who run a programme called the Total Eco-Challenge, a tree planting challenge, have shown great interest in assisting in supporting the project (see question 5 for more details.)

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

In our local area, 24 school-age scouts and their Scout Masters have received three lots of training, which has increased their knowledge and their appreciation of their local environment and tree species. We have furthermore trained six Rover Scouts in seed collection, and of those, two, Wilson and Jackson have been extremely keen, and are actively collecting seed on a regular basis, three more have done some seed collection, and only one dropped out, so this is giving the five an income source, and a new career. We are hoping that the Maasai we trained will commence collecting soon. There was an issue with the elders who manage the forest as they thought that the forest management should be receiving income from the seed as they are collected. We told them that this should not be a problem, and that they should arrange for this between themselves, we are still awaiting news of the outcome of these discussions.

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

As far as we are concerned, this work has only just begun! Along with training the Rover Scouts as seed collectors, we also want to work closely with the CFAs (Community Forest Associations) for each of the gazetted forests nearby that we wish to identify trees in and collect seed from, as well as with local community members for group forests, like the Maasai on Marmanet River. For ease of continuous observation, and assessment of the optimal time to harvest seed, it is critical that communities close to the forests are engaged in this work.

We have been in discussions with Total Kenya and Total Le Fondation in Paris to assist with funding for a fully equipped seed centre, with refrigerated storage, a laboratory, and packing equipment to

enable us to produce 100 tree seed packs for distribution through the Total Petrol stations. (Total runs a programme called the Total Eco-Challenge, a tree planting challenge, which has over 5,000 entrants, most of who have tree nurseries.)

For more information on the Eco-Challenge please see: [http://www.total.co.ke/os/oskenya.nsf/V5\\_OPM/61CB8A199866F014C12570B5002180A8?OpenDocument](http://www.total.co.ke/os/oskenya.nsf/V5_OPM/61CB8A199866F014C12570B5002180A8?OpenDocument)

If this is successful, we are hoping to continue with Rufford funding for the Scout and seed collector training, equipment for seed collection, tree identification, mapping and field work, which we would then be able to expand the scope of the project more rapidly, to cover greater areas, and train more Scouts and local community members.

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

For the mapping and tree identification, this will be shared with relevant landowners, and also at a later date with Kenya Forest Service and KEFRI, (Kenya Forestry Research Institute.) For the time-being this can be done as points on the 1:10,000 blown up maps, as per the map attached. Going forward, and once we have more data for a wider area, we hope to be able to create an overlay on Google Earth, such that the information is accessible to all who are interested. To this end I should be meeting with the Head of Google Kenya sometime early this year. In this manner, anyone who is interested in seeing individual trees will be able to search in their local area and pinpoint the location of rare and unusual trees.

The main 'fruits' of the work, the actual harvested seed, will be available to all tree nurseries, farmers and anyone else interested in growing trees from seed.

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

The RSG was used over a period of 24 months. This was against an anticipated project of 12 month duration.

#### **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  |
|--|-----------------|---------------|------------|---|
| Air tight seed storage containers        | 1,250           | 944           | -306       | The planned Lock'n'lock containers were too small to hold enough seed, so larger cheaper containers were purchased.   |
| De-pulping and seed extraction equipment | 354             | 188           | -166       | 2nd hand concrete mixer was too expensive, so ndiri's (giant pestle and mortars) were purchased instead, which were cheaper.  |
| Electronic scales                        | 250             | 413           | 113        | We had problems finding the correct scales within the budget, so bought some cheaper ones first, and then ordered proper one's recently which should be with us early in 2013 |
| Heat sealer and plastic for seed         | 417             | 386           | -31        |   |

|   |       |       |      |   |
|---|-------|-------|------|---|
| packing                                     |       |       |      |   |
| Drying shelter and racks                    | 500   | 746   | 246  | More expensive than anticipated.  |
| KEPHIS Certification                        | 584   | 645   | 61   | Was Ksh 75,000 not Ksh 70,000   |
| Improve seed storage building               | 300   | 158   | -142 | Bought some 2nd hand cupboards instead of shelves, due to overspend on drying shelter, was not able to do the ceiling.          |
| Books and manuals for seed collectors       | 67    | 67    | 0    |   |
| Basic seed collecting equipment             | 333   | 301   | -32  |   |
| Field training expenses trainer & travel    | 125   | 243   | 118  | Field training was done at locations further than anticipated, hence increased costs  |
| Map Printing for Scouts                     | 105   | 30    | -75  | As the Kenya army provided four copies of each map, this reduced the cost to scanning, printing and laminating                  |
| Subsistence for orienteering trainers       | 50    |       | -50  | The students from Reading University who did this training did it for free  |
| Books and manuals for Scouts                | 83    | 68    | -15  |   |
| Basic orienteering equipment                | 83    | 93    | 10   |   |
| Specimen collection equipment               | 83    | 98    | 15   |   |
| Travel and meals for Scouts during training |       | 192   | 192  | This was an unbudgeted amount, but necessary, as some Scouts travelled from long distances                                      |
| Subsistence for species verifiers           | 165   | 100   | -65  | Francis Gachathi, KEFRI taxonomist (retired) is coming in January to check all the specimens collected, so this is a provision. |
| Seed collectors                             | 834   | 1148  | 314  | More seed collected than planned.   |
| Post Harvest Treatment                      | 417   | 557   | 140  | More seed processed than planned  |
| TOTAL                                       | 6,000 | 6,327 | 327  | Exchange Rate KSh 120 to £1, rate at Jan 2011, when money was exchanged to Ksh.   |

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

From the perspective of ensuring good seed source, which should theoretically be collected from at least 30 mother trees, each at least 50m apart from each other, it is critical that we can begin to access the gazetted forests, where it is more likely to be able to find such a range of trees. We have already been in discussions with KEFRI such that we come up with guidelines for the collection of seed from rare and endangered species, as even in the forests, we may only find two or three of a rare species, and thus in order to be able to propagate it, we will have to take seed from what we find.

During the course of the project, we have realised that no one is collecting seed from the majority of the gazetted forests, which is a lost opportunity, both in terms of biodiversity resources, and in terms of potential income generating activities for the local communities. We would like to work closely with Kenya Forest Service and the Community Forest Associations to remedy this situation.

What we have also realised is that for tree identification, mapping and seed collection from forests, the whole exercise will be made much simpler and easier with the use of GPS's and cameras.

### **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?**

The RSGF Logo was used on our website and on our 6' x 8' African Forest signboard on the main Nairobi Uganda highway. It was also used on all the training materials for the Scouts and seed collectors. When the project was filmed by Al Jazeera, I repeatedly mentioned RSGF, but they unfortunately cut all references to brand names, which as we later found out, is part of their policy.

### **11. Any other comments?**

I would like to take this opportunity to warmly thank Rufford Small Grants Foundation for their support of this project, and also for their kind understanding and patience when the project took longer than anticipated.

As mentioned above this project has only just begun, there is a huge amount of work still to be done to help with the wide-scale propagation of rare and endangered species, to ensure the future of those species and that biodiversity is conserved for future generations. I hope to try and achieve this with continued support from Rufford!