

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	Gebre-micael Fisaha
Project title	Plant diversity and ethnobotanical study of medicinal plants in the general environs of Guassa Mountain, in Menz Gera District, North Shewa Zone of Amhara Region, Ethiopia.
RSG reference	21813-1
Reporting period	April 2017 to May 2018
Amount of grant	£5000
Your email address	gmicael29@gmail.com
Date of this report	May 14/2018

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
Document the plant species in Menz Gera District and produce a checklist of the plant species in the study area				Yegana, Gajlo/Sregedel and Chigure (new added from the proposal) remnant natural forests were studied. 222 species belonging to 74 families were identified. Those forests contain very important endemic and indigenous species which are very important economically and ecologically.
Assess plant species diversity, structure and community types in Yegana and Sregedel remnant natural forests, Menz Gera District				The average diversity of the forests is 3.12 and evenness 0.9 indicates good diversity and very high evenness even if they are remnant natural forests around inaccessible areas of the district.
Analyse natural regeneration status of indigenous tree species in Yegana, Sregedel & Chigure remnant natural forests				The general regeneration status of trees in the forests is poor but needs further study for the indigenous tree species independently since they are highly important economically and ecologically to the local area biodiversity conservation and abroad.
Document human and animal traditional medicinal plants and associated indigenous knowledge of Menz Gera District				Out of 20 kebeles (smaller administrative units in Ethiopia) 13 kebeles were sampled. 154 species belonging to 68 families were collected from 290 general informants and 52 key informants.
Document information on medicinal plant parts used, modes of remedy preparation, routes of remedy administration and dosages				Both in human and animal traditional medicine leaves, roots and seeds are 1 st , 2 nd and 3 rd most dominant used parts respectively. Oral, dermal and nasal are the most common routes of administrations.
Determine the conservation status and threats of the traditional medicinal plants and remnant natural forests				Very high demand for agricultural and grazing lands, forest resources for firewood, charcoal, timber, construction, free grazing and selective cutting for different

				purposes are the main threats for the remnant natural forests sustainability.
Assess marketability of traditional medicinal plants in the district markets				Three potential markets of the district were assessed at different times. Most of the plant market is for medicine, spice, cultural ceremony decoration, agricultural utensils and firewood for cash collection to their livelihood. It also needs to survey Sunday church market.
Identify availability and assess distribution of traditional medicinal plants within the plant community types identified in the study area				Most of the traditional medicinal plants were collected mainly from the remnant natural forests, farm lands and home gardens. Those inaccessible remnant natural forests are sources of medicine for traditional medicine healers and seeds for nurseries.

NB: - We have full data for each activities but it will be disseminated after published

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

There was no as such big difficulties, but since the remnant natural forest is found in inaccessible areas it was quite difficult to put 20 x 20 m sampling quadrats and most of the seasons were covered by fog and snow. But I was very beneficial by being I am from farmer family and the local field guiders were highly dedicated and cooperative and we were looking for relatively conducive condition as a result we did it well.

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

3.1. The whole ecological and medicinal plants check list of the district were documents which will be a good asset for the best management policy development of the district especially for the restoration of degraded area to produce seedlings which are suitable for the local area. One paper which is entitled "*Plants composition, structure and natural regeneration status of Chigure remnant natural forest, North Shewa zone, Ethiopia*" will be published as proceeding in the coming few months since it is already presented in the 5th international symposium of Debre Berhan University, Ethiopia. The whole floristic structure of the remnant natural forest shows poor natural regeneration and needs to further study for the endemic and indigenous tree species individually for conservation intervention.

3.2. The whole floristic structure of the remnant natural forest shows poor natural regeneration due to high population growth with high demand for settlements, agriculture, grazing land and cash for their livelihoods. Most of the factors for poor regeneration is free grazing and selective cutting for agricultural utensils. Most of the endemic and indigenous tree species such as *Juniperus procera*, *Hagenia*

abyssinica, *Ekebergia capensis*, *Olea europaea* L. subsp. *cuspidate*, *Podocarpus falcatus*, *Prunus africana* etc. in the remnant natural forests are highly important for the economic and social value of the local community so it needs detail study for concrete action since they are highly threatened.

3.3. Assessment of the traditional medicinal plants in the forest, home garden, farm lands and field grazing areas and marketing of the medicinal plants were done. Potential medicinal plants and associated indigenous knowledge were found which can be a good candidates for in-vitro anti-microbial test. Those plants will be selected for further characterization, medicine development and conservation of the plants and associated indigenous knowledge. Most of the medicinal plants were sold at market for different purposes other than medicine like spices, firewood, furniture materials, agricultural utensils, cultural belief, timber etc.

Figure 1: Life stages of the forest tree species as a representative; a- mature tree, b- Sapling, c- Seedling



Left: *Podocarpus falcatus*. Right: *Ekebergia capensis*



Left: *Podocarpus falcatus* sapling. Right: *Juniperus procera* seedling

Figure 2: Some threats of the natural forests (Photo by_Gebremicael Fisaha, 2017)



Left: Forest product marketing. Right: Selective cutting



Left: Agricultural utensils. Right: Agricultural expansion.

Figure 3: Market survey for the forest product and medicinal plants (Photo by_Gebremicael Fisaha, 2017)



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

The local community were actively participating through the whole data collection as a field guiders, data collectors, data sources and by sharing their experience at

different hierarchies. The officials of the district were very committed to provoke the work by initiating and giving responsibilities for their experts at district and kebele level. The experts were mobilising and creating awareness for the local communities to participate at different activities of the research project. As a result all stakeholders were very positively and happily participating. That's why the research covers much aspects of problems. Such research is untouchable without the participation of the community since the data is from the community and the out puts will go back to them. Then finally accepted and confirmed with stamp by Debre Berhan University and Addis Ababa University will made available to the community for implementation of the recommendations and to use for their policy developments towards the sustainability of the remnant forests, medicinal plants and indigenous knowledge.

5. Are there any plans to continue this work?

Yes we have a plan to continue till community feels sense of ownership with scientific research based awareness creation workshops. This project is a PhD dissertation project and it is expected to come a lot of published papers and tangible out puts for the sustainable conservation and wise use of the forest products and associated biodiversity based benefits. Therefore we plan to continue the following basic points:

- I. Detailed assessment of natural regeneration status of the endemic and indigenous tree species of the remnant natural forests independently for the management action implementation based on their current status.
- II. Further studies of the traditional medicinal plants those of with high informant consensus value from the key informants for better benefit of the local community and attention of the traditional medicinal plants for sustainable use.
- III. A workshop arrangement in the district for the local community and other responsible stakeholders to present the research findings for creating awareness and taskforces from the local community for conservation action implementation and creating sense of ownership among the community.

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

We have planned to share the finding basically by presenting in symposiums, workshops, publications, sharing the papers in print form and presenting in every informal communications among all stakeholders. We have already started to do by presenting the research progress in Addis Ababa University workshop with some stakeholders and one parts of the paper which is vegetation ecology of Chigure remnant natural forest is presented in the 5th international symposium of Debre Berhan University to different stakeholders since those two institutions were helping the project financially in addition to The Rufford Foundation.

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 project was implemented from April 2017 to May 2018 according to the time allowed by Rufford Foundation. So the time scale was as planned by proposal and I can say we used the time allowed effectively but since this work is part of my

Dissertation it needs additional more time for doing more activities.

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
Binocular	400	400	0	
All-Terrain First Aid Kit	150	150	0	
Rocky® 16" Prolight snake boots	98	98	0	
Mountain Hard wear Lamina™ 35 32°F Mummy Sleeping Bag	130	150	-20	Little bit increment in cost up on time
Stationery items	90	120	-30	Cost fluctuation with time
Print and Copy of relevant literatures	150	150	0	
Power bank	250	250	0	
Hard disk drive	64	64	0	
Tents	160	140	20	By negotiation
Consumable (Batteries for torch and GPS)	125	100	25	
Per diem, Food and accommodation for researcher	1850	1925	-75	Time extended in the field
Per diem for field assistant and traditional healers	500	575	-75	Due to increment of their per-diem
Per diem for local field guide	410	410	0	
Per diem for field assistant	450	450	0	
Herbarium size plant press sets	173	100	73	The Herbarium helped me some press sets
Total	5000	5082	-82	

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

Biodiversity conservation research is not one time research for conservation and sustainable management so we planned to do a lot of research continuities in case of:

- Endemic and indigenous plant conservation approach by having rich data on each individual tree growth stages; and
- Knowing traditional medicinal plants from the community is not enough to use and conserve the plants rather it needs further detail studies of whether the local community knowledge is really effective according to they say or not; based on this in-vitro anti-microbial test of selected highly potential traditional medicinal plants we will conduct and then recommend for further studies on characterisation and formulation of modern drug. Such activities are very critical for manipulating the indigenous knowledge of the community for the benefit of the community and conservation of the plants.

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, I used the Rufford Foundation logo on the power point presentation during my progress report presentation in Addis Ababa University and it is presented by May 26th 2018 in the 5th international symposium of Debre Berhan University and it will be available at the proceeding and journal publication in the coming few days as indicating in the photos below. Moreover the logo has been introduced to different stakeholders during field data collection by printing as header. And I am always promoting Rufford Foundation in any ways formally and informally at all I speaks about my PhD Dissertation funders.

Figure 4: a. Acknowledgement part of my PhD progress report slides at Addis Ababa University; b. fist slide of Debre Birhan University international symposium presentation to be presented on May 25-26/2018 (Photo by Gebremicael Fisaha, 2018)



Figure 5: Evidences for the presentation of this project paper at 5th international Symposium of Debre Berhan University.



Presentation of my paper



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

Gebremicael Fisaha (MSc, PhD Candidate) --- Main Researcher for PhD Dissertation; Responsible for Proposal development, proposal defence, data collection, data analysis, writing up of scientific papers and finally addressing the finding to stakeholders.

Supervisors - They guides me in all round of the project work

Prof. Zemedu Asfaw - Main supervisor

Prof. Sebsebe Demsew - Co-supervisor

Dr. Ermias Lulekal - Co-supervisor

12. Any other comments?

I went to thank exceptionally to The Rufford Foundation, for financial support in addition to Addis Ababa University and Debre Berbre Berhan University to comfortably work my PhD project and hopefully we will work together until the end of this project and other projects. I appreciate Rufford especially Jane Raymond, Grants Administrator, Rufford Foundation for the unreserved assistance during the whole project starting the approval of the proposal, financial transfer and progress report receiving notification.