

## Final Evaluation Report

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Your Details	
Full Name	Emily Jepkorir Kiplagat
Project Title	Ethno-botany & Conservation: Incorporating Traditional Herbalists and Local Schools in the Management & Conservation of Medicinal Plants, Baringo County-Kenya
Application ID	24563-2
Grant Amount	£5000
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Date of this Report	1/30/2020

**1. 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
To incorporate at least 50 traditional medicinal practitioners in conservation of medicinal wild plants and enlighten them about their role in promoting conservation of medicinal wild plants.				At least 50 traditional herbalists were involved in the project, engaged in conservation education aimed at sustainable utilisation and harvesting patterns of medicinal wild plants, conservation of biodiversity, significance of indigenous knowledge documentation and knowledge sharing, etc.
To incorporate at least 1000 young scholars in conservation of medicinal wild plants and educate them about ethno-botany and its application in plant conservation.				At least 1000 young scholars from seven schools were involved in the project activities, educated about ethno-botany and its application in plant conservation and engaged in practical opportunities for environmental conservation through tree planting, excursions in forests to see the different tree species and reconnecting with the natural forest environment.
To undertake community awareness for the conservation of medicinal wild plants, associated habitats and artificially propagate 2500 seedlings of medicinal wild plants, transplant through re-forestation and agro-forestry programs.				At least 4000 locals were sensitised about the significance of conserving medicinal wild plants and associated habitats. At least 2500 seedlings of medicinal wild plants were propagated, 1537 have matured, and 550 have been transplanted.

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

The unforeseen difficulties that arose during the project include the following;

- a) I experienced health issues which limited my ability to be in field and coordinate activities. It became necessary for some project activities to be put on hold for some time. The health issues passed, and the project activities resumed, and implementations run smoothly to completion.
- b) The information on “drug preparation and administration” that was to feature in the document i.e. THE PLANTS THAT SAVE US required further consultations to establish the community rights reserved to the information including public sharing. This issue is still under deliberations and the information was intentionally omitted from the document until when community concerns are fully resolved.

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

The most important outcomes of the project include the following;

- a) THE INCORPORATION OF TRADITIONAL MEDICINAL PRACTITIONERS IN CONSERVATION OF MEDICINAL WILD PLANTS: The team members worked and engaged with at least 50 traditional herbalists to promote the conservation of medicinal wild plants. To ensure a clear understanding of the scale and complexity of the threats to medicinal wild plants, the education sessions explored important issues learnt from the previous project; that most of medicinal plants were obtained from wild, that herbal remedies are enjoying widespread popularity, that the roots and bark are major parts widely employed by local healers in drug preparation, that threats to the destruction of medicinal wild plants is high as this limits the natural/wild plants regeneration, that dependency of traditional herbalists on fresh materials with limited chance of preservation aggravates the decline of rare medicinal wild plants. In order to establish appropriate constructive resource management techniques, discussions were organised in groups focusing on the following concerns: what are the reasons behind the depletion of wild populations of locally available medicinal wild plant species?; which species are of particular concern (based on threats) and that should be given priority for conservation action?; and what can be done to ensure the effective conservation of locally available medicinal wild plant species?. In addition to this, the traditional herbalists were enlightened about their role in conservation of medicinal wild plants and their associated habitats. They were sensitised to address the conservation of medicinal wild plants, advocate for protection of their habitats/biodiversity and practice sustainable harvesting practices/patterns. Traditional medicinal healers were informed that they have the responsibility to improve the local traditional healing practices through knowledge sharing, and raise their involvement in society for the conservation, restoration and sustainable use of medicinal wild plants. The team is working to form collaborations with Baringo County Government, NGOs, CBOs and relevant stakeholders for sustainability of the project during the phase out period to facilitate follow ups trainings for seed collection, propagation and agroforestry/reforestation programmes and linking traditional healers with resource persons e.g. agricultural extension

officers and forest officers to ensure active participation in conservation and a better understanding on biodiversity issues.

- b) THE INCORPORATION OF YOUNG SCHOLARS IN THE CONSERVATION OF MEDICINAL WILD PLANTS, EDUCATION ABOUT ETHNO-BOTANY AND ITS APPLICATION IN PLANT CONSERVATION: At least 1000 young scholars from seven schools were involved in the project activities, educated about ethno-botany and its application in plant conservation. The selection of those were engaged in practical opportunities for environmental conservation through tree planting and excursions in forests to see the different tree species and reconnecting with the natural forest environment. Through the education sessions, the project team members inculcated positive values to school children on environment and developed right attitudes among pupils/students towards environmental conservation, established values and concerns among pupils/students towards environmental conservation. The project team members also provided various practical opportunities of environmental conservation through tree planting and excursions in local forests for the young scholars to observe the different tree species (including medicinal plants and edible wild fruits) and reconnect with the natural forest environment. In addition to this, the team members developed links between traditional healers who expressed willingness to teach the younger generations about people, plants and healthcare. This helped to bridge the gap existing of “knowledge transfer” because this passing generation of the aged holds an expansive but quickly dwindling wealth of medicinal plant knowledge and modernisation has created a lack of interest in the majority of the younger generation to be entrusted as the keepers of indigenous plant knowledge.
- c) PRODUCTION OF “VOL. 1: THE PLANTS THAT SAVE US”, AN EDUCATION DOCUMENT FEATURING PHOTOGRAPHS OF MEDICINAL WILD PLANTS, PART (S) OF THE PLANT USED AND DISEASE/AILMENT TREATING: The Tugen living in Baringo County-Kenya have for a long time relied on edible wild plant species (including medicinal and edible fruits). These floral species continue to form the most important local survival strategies. However, these plants have suffered notable disregard from research and conservation plans. The Rufford Foundation through this project enabled the team members to define the cultural domains of the Tugen Community in Baringo County and study the peoples’ perceptions of their intimacy with nature. In order to see medicinal wild resources through the eyes of the resource users, the team worked with the locals who are the custodians of medicinal wild plant knowledge and documented the medicinal wild plants, associated indigenous knowledge and their contribution in biodiversity conservation. As a step to link biodiversity conservation directly to local people’s values and behaviour, the team developed “Volume 1 of THE PLANTS THAT SAVE US” as an educational output to change the cultural perspectives of local people and encourage them to promote/contribute in resource management and conservation. The document will be shared with local schools and distributed within the local community to improve the people-conservation interface which in the past

had been neglected due to a lack of appreciation of the application of traditional botanical knowledge (TBK) in plant and habitat conservation.

**4. Briefly describe the involvement of local communities and how they have benefitted from the project.**

THE LOCAL COMMUNITIES: The main aim of this project was to increase the capacity for community-based plant conservation locally. Hence, from the beginning, the team involved the local community who are the custodians of medicinal wild plant knowledge. The team recognised that local people are a valuable asset in this ethno-botanical study due to their knowledge of native plants and their uses. This project promoted the participation of local communities in protection and conservation of medicinal wild plants in areas where they occur. The education component in this work sensitised the local communities:

- a) That they have a responsibility to maintain the maximum possible diversity of locally available medicinal wild plants.
- b) That some medicinal wild plants can be managed in their natural habitats, e.g. by in-situ conservation.
- c) That in other species, seeds, saplings, cuttings or other parts of the plant can be collected for propagation in home farms and gardens, i.e. ex-situ conservation.

This project strived to bridge the information gap that exists about medicinal wild plants which have great potential to contribute in promoting biodiversity conservation. The local communities were encouraged to practice domestication or management based on the species overall usefulness i.e. as a shade tree, medicinal value, cultural value, availability of propagating materials and convenience of growing. The project educated the local communities that they have the responsibility to maintain, popularise, protect, conserve and improve the accessibility of a wide range of medicinal wild plants for both the present and future generations.

TRADITIONAL MEDICINAL PRACTITIONERS: The traditional medicinal practitioners received education, sensitisation and recognition. They were educated that documentation of their knowledge of wild plants is missing, has been overlooked, marginalised or neglected, especially as differentiated by the inter-generational nature of how this indigenous knowledge is passed on. They were sensitised that documentation of TBK is intended to:

- a) Safeguard this vital resource and knowledge before it is lost through the various changes in land use and traditional practices.
- b) Promote habitat for resource conservation and to preserve the local indigenous knowledge base.

Through this involvement, the traditional medicinal practitioners indeed concurred with us that modernisation has encroached on traditional practices and eroded the local knowledge. Westernisation has brought the introduction of new plant species,

and indigenous plants are now suffering a double tragedy, genetic erosion and loss of traditional knowledge on how to grow, manage and utilise them.

**THE YOUNG GENERATION:** The young generation received education about medicinal plants, ethno-botany and its application in biodiversity conservation. The traditional medicinal practitioners joined the project team members to educate the young scholars to discard any false information that medicinal wild plants are inferior. They were encouraged to take initiative to grow, manage (those in wild), and preserve their habitats and ecosystems, to promote and keep alive indigenous knowledge about medicinal wild plants, local names and pass this knowledge onto other young children and document. They were sensitised to spearhead local engagement in agro-forestry and reforestation activities and to continually demonstrate that a rich floral diversity of medicinal wild plants located near or in a school/home compound would improve the health of the local community.

**THE LOCAL BUSINESS PEOPLE** also benefited from the project in one way or another. The printing of both educational and advertisement materials was done in towns/centres within the study areas in Baringo County. The food and soft drinks consumed during project implementation was purchased locally. Vehicle and motorbikes hired including fuel purchase was done locally. Local labour was used during tree nursery construction and also materials for construction were also locally purchased.

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

Yes; the education sessions which involved relevant stakeholders, interested parties and traditional healers involved discussions on the future of medicinal wild plants based on the following critical issues:

- i. What are the reasons behind the depletion of wild populations of locally available medicinal wild plant species?
- ii. Which species are of particular concern (based on threats) and that should be given priority for conservation action?
- iii. What can be done to ensure the effective conservation of locally available medicinal wild plant species?

The discussion enabled the establishment of appropriate constructive resource management techniques (discussed further in question 9 of this report). Based on this, the project team will organise follow up meetings to assess the elements identified and determine possible plans to develop:

- i. Rationale for scaled-up action to reduce anthropogenic threats to medicinal wild plants and associated habitats.
- ii. Strategic actions to mobilise agroforestry/reforestation initiatives on a scale that would have a meaningful impact on local challenges for biodiversity conservation.
- iii. Local priorities for conservation of the most vulnerable medicinal wild plants based on the species of particular concern for conservation priority/action.

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

- a) The project results about Tugen ethno-medicine have greatly generated interest from many scholars across the globe. I have shared this data to fellow scholars/researchers/conservationists through email; others have accessed through the Rufford Foundation website. Over 20 high impact papers have been published on ethno-botany, conservation, clinical microbiology; medical virology etc. and uploaded to [www.academia.edu](http://www.academia.edu).
- b) The results of this work were shared with the participants during the seminar undertaken at Kenya Forestry and Research Institute, Marigat-Baringo County. A detailed report will be shared with the Baringo County Government. Also, this was recognised as the county of great diversity which is in the process of documenting indigenous knowledge among its communities. The documented medicinal indigenous knowledge of the Tugen community will therefore be used for education on culture, heritage preservation, plant and habitat conservation etc.

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

The Rufford Small Grant was used from June 2018 to November 2019. In comparison to the anticipated length of the project, an extension of 6 months was experienced due to the unforeseen difficulties and challenges that arose during implementation.

**8. Budget: 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. It is important that you retain the management accounts and all paid invoices relating to the project for at least 2 years as these may be required for inspection at our discretion.**

Item	Budgeted Amount	Actual Amount	Difference	Comments
Transport i.e. bus fare for project team members to and from the study areas in Baringo (£60 * 4 team members for 4 round trips)	£240	£240		
Communications cost i.e. purchased "WIFI internet" (£20), 5 flash disks (£16 * 5 flash disks), and airtime/data bundles (£10).	£110	£110		
Tree nursery establishment i.e. materials for construction (£225), labour during	£859	£759	-£100	



construction/wages for gardener throughout the project period (£305) and maintenance materials purchased e.g. watering cans, spades, pliers, binding wires, hammers, nails etc. (£229)				
Insurance: Personal insurance for team members (£20 * 5 team members), First Aid Kit (£30), and basic medical drugs used during project implementation (£15)	£245	£145	-£100	
Education and training (£350) involving traditional herbalists, education sessions and practices (£250) involving young scholars and community sensitization and awareness creation (£300) involving for local communities.	£800	£900	+£100	The budgeted amount did not factor in food and soft drinks which were necessary during the education sessions. An amount of £100 was borrowed from the funds saved from tree nursery establishment.
Printing cost and stationery i.e. toner purchase for HP Laser jet P100 used to print and photocopy project's educational and awareness materials (£160), purchased basic stationery e.g. pencils, pens, notebooks and A4 rim papers (£100)	£160	£260	+£100	Many of the education and awareness materials were printed and in different formats depending on the target audience. This resulted in extra cost of £100 which was borrowed from the funds saved from insurance.
Local transport in study areas i.e. 1 vehicle (4WD) and 5 motorbikes hire. Purchased fuel used during project implementation i.e. (1 4WD vehicle £30 * 10 Days), (motorbikes 5 * £40 Days), and £150 for fuel (Diesel) purchase.	£450	£650	+£200	An extra amount of £200 was incurred for local running i.e. vehicle, motorbikes hire and fuel (Diesel) whose prices kept fluctuating. This impacted on the budget and an extra amount of £200 was borrowed from the savings from agro-forestry and re-



				forestation activities.
Printing of project's advertisement and publicity materials (£45 * 6 banners), 100 posters @ £66, 50 leaflets @ £34, 50 t-shirts @ £110 and 50 kangas @ £110	£576	£396	-£180	
Accommodation for project team members (£400) and small subsistence given to traditional herbalist assisting the project team (£190).	£354	£590	+ £236	The extra cost was covered by £56 borrowed from agro-forestry/re-forestation budget and £180 borrowed from savings in printing project's advertisement and publicity materials.
Purchased 6 pieces of power extension cables (6 * £8) used during education trainings	£50	£50		
Reforestation involved several activities e.g. Consultations with stakeholders and local communities, assessing areas where seedlings would be transplanted, transporting seedlings and the transplanting exercise. Agro-forestry activities involved selecting farmers, education, awareness creation and sensitization on alternative sources of energy etc.	£1156	£900	-£256	
<b>TOTAL</b>	<b>£5000</b>	<b>£5000</b>		Notes: <b>£1=Ksh. 126</b>

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

The goal of this project is to achieve sustainable use of medicinal wild resources and ascertain the future of medicinal wild plants and their associated habitats in Baringo County. The project to this far has made significant progress towards that goal by documenting the TBK and incorporating the primary users of medicinal wild plants (traditional healers) as well as the future users/custodians/managers (the young generations). I feel that the next important step is a solid plan to implement conservation behaviour and bring about change.

Looking ahead, the following are some of the constructive resource management techniques identified during the project.

- a) Collaborating with learning institutions, local communities, and local government agencies, NGOs, CBOs to ensure a continuous education, training and awareness creation for the conservation of medicinal wild plants.
- b) Collaborating with Kenya Forest Service and traditional medicinal practitioners to develop a long-term strategy of addressing overharvesting and selective harvesting through initiatives such as area zoning.
- c) Developing a plan for stakeholder cooperation in consultations with the Kenya Forest Service to impose restrictions and regulations to reduce commercial harvesting of rare/vulnerable medicinal wild plants.
- d) Collaborating with local communities to harness indigenous knowledge, i.e. existing taboos adhered by local people to live harmoniously with nature and address destructive harvesting such as indiscriminate illegal logging, slash and burn, excessive debarking and damaging the tap root system.
- e) Developing plans for in-situ conservation in order to ensure that representative wild populations of vulnerable medicinal plant species are maintained in core critical conservation areas in Tugen Hills, Lake Bogoria and Lake Baringo.
- f) Setting up buffer zones in conjunction with local communities i.e. buffer zones and ex-situ conservation to help maintain future options for supply of seeds and cuttings, cultivation of favoured species at buffer zones, imposing customary restrictions in resource areas where medicinal plants are used, seasonal restrictions for certain species, prevention of uprooting or debarking.

As the project coordinator, I have arranged follow-up meetings with my project team, relevant stakeholders and interested parties to brainstorm on the above techniques. This will be further improved and developed into a project proposal with the aim to:

- a) Develop rationale for scaled-up action to eliminate anthropogenic threats to medicinal wild plants and associated habitats and provide a key motivator to implement appropriate interventions where existing threats will be seriously circumscribed, reduced and minimised.
- b) Develop strategic actions to mobilise agroforestry/reforestation initiatives on a scale that would have a meaningful impact on local challenges for medicinal wild plants and biodiversity conservation.
- c) Initiate an integrated habitat conservation approach in which biodiversity conservation is an explicit objective of agroforestry and reforestation, and the latter are explicitly considered in shaping conservation strategies to ascertain the future of medicinal wild plants.

**10. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?**

The Rufford Foundation logo was used in many materials that were produced during the project implementation. This included education materials for traditional healers,

school children and the local community. There were stickers with RF logo in watering cans used in tree nursery, and the laptop used in education sessions. The educational materials, banners, posters, t-shirts for school children and kangas distributed to traditional medicinal practitioners had RF logo on them.

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

**Mrs. Edith Kirui**, a project team member. Edith assisted in project planning/ logistics, education programs for plant conservation and research, tree nursery establishment, school children participation in conservation education and community awareness and outreach campaigns.

**Ms. Dorothy Kiprop**, a project team member. Dorothy played a key role in engaging traditional medicinal practitioners in education/sensitization for knowledge sharing; about the significance of medicinal wild plants in the future of modern health care. Dorothy also acted as the project team medic and provided first aid for some team members who felt unwell in the field.

**Mr. Barnabas Bolo**, project team member. Barnabas helped in conservation education on ethno-botany and field excursions with school children, assessing areas where seedlings would be transplanted, selecting farmers to be involved in agro-forestry, education, awareness creation and sensitization on alternative sources of energy

**Mr. Amos Kosgei**, project team member. Amos assisted in many field activities, tree planting, and conservation education and in collecting photographs of medicinal wild plants for the production of Volume 1 of PDF-THE PLANTS THAT SAVE US that is currently available at the Rufford Foundation website.

**12. Any other comments?**

The project team would like to sincerely thank the Rufford Foundation for funding this project, as this has increased the local capacity for community-based plant conservation.

I must also thank the project team members; a dedicated team of conservationists, medical professionals, education officers and traditional medicinal herbalists who worked with me in the rural communities in Baringo and who sacrificed a great deal to ensure that this project is completed successfully.

I should thank the National Museums of Kenya for the scientific and technical advice provided during this project.

I must also thank the teachers of the schools involved in the project for their interest, patience and understanding during the project's ethno-botanical education activities and supporting pupils/students.