

Final Evaluation Report

Your Details	
Full Name	Mercy Nelima Ndalila
Project Title	Community restoration of a fire-degraded landscape in Mt Kenya Forest
Application ID	42170-2
Date of this Report	03 April 2025

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
Map and identify priority fire-degraded sites for restoration			√	Field reconnaissance and Sentinel satellite images were used to map out priority area for restoration. I conducted field reconnaissance on 01 March 2024. The chosen site within Ragati Forest (Nyeri County) was a fire-affected indigenous forest stand largely consisting of mature Meru Oak (<i>Vitex keniensis</i>) trees. The site also happened to be near an area previously restored by Kenya Forest Service (KFS). This proximity is helpful during tree maintenance and monitoring.
Mobilise local community to restore the degraded areas through their community representatives			√	Over 50 community members of Ragati were involved in the different stages of planting (site preparation and tree planting). Effort was made to ensure different community members participated in different activities, taking into account gender balance. In the first stage, the site was cleared by 19 community members on 03 March 2024 due to the extensive cover of Mauritius thorn (<i>Caesalpinia decapetala</i>) and an unknown <i>Croton</i> sp., which are both invasive species. A few days later, sticking and pitting were done, where 11 members were engaged in each of the two activities. After the pits/holes, a month passed for the holes to be ready for planting, coinciding with the onset of rainfall. This wait ensures that the holes are optimally prepared for transplanting in terms of soil moisture. During tree planting on 05 April 2024, 25 people participated, including Kenya Forest Service officers, where around 2.5 hectares of the fire-affected site was revegetated with 2,000 indigenous tree seedlings.

Revegetate the site with the most appropriate tree species for the landscape			√	As aforementioned, we planted 2,000 tree seedlings from three indigenous species, covering 2.5 hectares on 05 April 2024. The three species were <i>Prunus africana</i>, <i>Olea africana</i> and <i>Teclea simplicifolia</i>. Since Ragati Community Forest Association (CFA) did not have already propagated native tree seedlings (available trees were mostly exotic), the CFA had to buy seedlings from individual CFA members. We would have wished for more variety in tree species, but the ones planted were the only species available at that time. Also, tree planting was largely dependent on availability of rainfall, which had just started, so further delays would have compromised the planting.
Build the capacity of the local community groups in firefighting and fire management			√	Twenty-two people were trained in firefighting on 07 November 2024 in Ragati. From the total, 19 people were members of Ragati CFA, with 37% of them being women while the rest men. The training was provided by Mt Kenya Trust (MKT), an NGO that plays a key role in fire management and wildlife conservation in Mt Kenya. The training involved both theoretical and practical learning. This is the second time MKT has been involved in my projects and I greatly appreciate their participation.
Monitor seedling survival in the reforested areas against potential disturbances		√		This has partially been achieved through CFA protecting the site from animal disturbances (e.g., elephants) by placing downed debris at the edge of the restoration site and through occasional patrols. Discussions on seedling maintenance and care are being finalised between CFA leadership and Kenya Forest service (KFS). Since the site is near an area previously restored by KFS, KFS had assured us that weeding and maintenance would be done along with the other site. This has not yet started due to delays in funding from government. As an alternative, Ragati CFA members proposed cultivating food crops

				between the seedlings (under the PELIS programme) in order to address the challenge of weeding as well as receive income from sale of farm produce. Initial reports show that this proposal has been agreed upon with KFS but has not yet started. PELIS in full is Plantation Establishment and Livelihoods Improvement Scheme. We are aware of the ecological consequences of farmer-managed restoration, but at this stage, it is the most viable route to ensure seedling survival. Once PELIS has been initiated, then monitoring of tree growth and survival rate can start. Seedling survival rate is hard to determine at this stage because of the weed problem, but an early indication from observation of a few sections shows a survival rate of 60%. Restoration success for the entire site can only be accurately measured 1-2 years after the PELIS programme (which takes three years) is over.
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2. Describe the three most important outcomes of your project.

- a) Approximately 2.5 hectares of fire-affected forest revegetated with 2,000 indigenous tree seedlings
- b) Twenty-two members of the local community in Ragati trained in firefighting in order to be better prepared for future fires.
- c) Livelihood of some CFA members improved as a result of sale of seedlings (determined through anecdotal evidence)
- d) Improved knowledge on restoration of fire-degraded forests, including how high-intensity fires result in spread of invasive plant species, which can affect restoration success.

3. Explain any unforeseen difficulties that arose during the project and how these were tackled.

As aforementioned, an unexpected consequence of a wildfire is rapid spread of invasive plant species and weeds. Following the October 2022 Ragati fire, the Mauritius thorn spread in the fire-affected zone, extensively covering the area a few months before the restoration. I did not have full knowledge of the situation, which meant that removal of the weed was the first step before any tree planting. While we endeavoured to remove as much of the unwanted vegetation, there were remnants which would need to be weeded out at a later stage in order for the restoration to be successful.

Due to the short period between receiving funding and tree planting (because of the onset of rainfall), there were some compromises that we had to make, such as not having a large variety of tree species as planned; and not disposing cleared

debris away from the site during site clearing. This means that there was a chance that the weeds would come back in future. Consequently, the community strongly preferred farming between the seedlings for the first three years (under the PELIS programme), which is controversial, but they suggested that it was the only way for the seedlings to have a chance against the weeds. Another option would be spot weeding of the seedlings but it would not solve the largescale weed problem. As at now, discussions are being concluded and that has meant that monitoring the restoration has not yet started.

4. Describe the involvement of local communities and how they have benefitted from the project.

This project fully involved the local community around Ragati Forest in Nyeri County. Over 50 community members were involved in the different stages of planting, from site preparation to tree planting, with 25 locals participating in the latter. Additionally, community members, through Ragati Community Forest Association, were trained in firefighting and fire management by Mt Kenya Trust, where a total of 22 local members participated. The training involved both theory and practical skills in order for the community to be better prepared to address future fire risk in the area. Ragati CFA will also be involved in tree maintenance and monitoring.

5. Are there any plans to continue this work?

Yes, I plan to conduct restoration in other fire-degraded areas within Mt Kenya, such as within Ontulili forest, taking into account lessons learnt from this project.

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

I will write a scientific paper once monitoring is complete. I will also share the final report with local government agencies and stakeholders.

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

The next step is to initiate monitoring of the restoration through conducting biannual vegetation surveys. Ragati CFA members and I will be conducting monitoring for two years. However, there is need to conduct weeding before any monitoring starts.

Another step is to organise a stakeholders' forum in future, to share findings related to my two projects, including the need for a national fire management policy.

8. 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?

Yes, the Rufford Foundation received publicity and its logo used during my PowerPoint presentation at a fire-related stakeholders' conference within Tsavo Conservation Area. The conference occurred on 21 August 2024 in Voi town.

9. Provide a full list of all the members of your team and their role in the project.

1. David Nduhiu - Secretary of Ragati Community Forest Association. He was the main contact person for the community and provided the linkage with other CFA members. He was also the key organiser during the reforestation and firefighting training.

2. Martin Kiama - Community Liaison Officer at Nature Kenya (NK). He provided guidance during on-the-ground activities relating to restoration. He also played a big role in resolving occasional conflicts between community members.

10. Any other comments?

I would like to thank the Rufford Foundation for yet another opportunity for funding. This funding was crucial, given the challenges conservation agencies and local communities face with regard to wildfires. The funding provided solutions to the wildfire problem by restoring forested areas that were damaged by fires, and by building the capacity of community members in firefighting and fire management. It might be hard to assess restoration success for now, but we might have some more idea in a few years after the monitoring commences.

The previous funding was a success as I was able to publish a peer-reviewed paper related to the project. The Rufford Foundation was also acknowledged as the main funder in the paper. See the below link for details.

<https://fireecology.springeropen.com/articles/10.1186/s42408-024-00326-3>

SUPPORTING IMAGES (as separate attachments)

Photo 1: A section of Ragati forest damaged by a wildfire in October 2022. Photo was taken in the same month of the fire.

Photo 2: The chosen restoration site (in Photo 1) being cleared off weeds.

Photo 3: Ragati CFA members and KFS staff posing for a photo during tree planting in Ragati forest.

Photo 4: Ragati CFA members receiving instructions during tree planting on 5 March 2024.

Photo 5: Mercy planting a tree in Ragati forest. Notice the presence of weeds nearby.

Photo 6: Members of Ragati CFA receiving practical firefighting skills from Mt Kenya Trust.

Photo 7: Ragati CFA members demonstrating the different firefighting methods during the firefighting training.