Final Evaluation Report

Your Details	
Full Name	Cornelius Mulili Kyalo
Project Title	Habitat-based approach to sustainably conserve African violets and other threatened plants housed in three irreplaceable karst habitats in Coastal Kenya.
Application ID	41820-B
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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
Habitat restoration - through native seedlings propagation, transplanting and mitigation of human-driven threats.				a) To prioritize the correct areas for restoration, **we mapped and identified degraded areas within the three target fragments**. Our reference points were the areas where the main forests commence towards the human inhabited areas. According to our size estimates, we can reclaim/restore a total of 125 Acres; Chasimba (34.4), Mwarakaya (33.2), and Pangani (58.2) to return original forest forms. b) **Approx. 29kg of assorted indigenous tree seeds were collected** (through general seed collection sessions and also supporting volunteers to collect seeds). c) A total of **10,123 indigenous seedlings were propagated** in the nurseries. d) A total of **6,234 indigenous tree seedlings were transplanted** in Cha Simba, Mwarakaya, and

				Pangani habitats. e) So far, our monitoring session in January 2025 exhibit approx. **75% success/survival of seedlings in the wild**. f) To enhance habitat restoration, the following steps could prove positive; • Agroforestry - we identified the need to plant fruit and high-utility trees within farms (to increase forest cover and reduce pressure on natural fragments). • Site protection/management and more tree planting is required. • Promotion of ecotourism is critical in boosting local community support (as an incentive to benefit from nature).
***In-situ* recovery of the African violets** - through massive propagation and establishment of *in-situ* populations/recovery sites.				a) We propagated **over 2800 leaves of which 1700 re-sprouted into African violet seedlings** (due to a week-long rains, some leaves got damaged/rot). However, we have set up other 1500 leaves for continuous propagation. b) We **established two *in-situ* recovery sites** (considering potential threats, local

				community agreement, ease of access for nurturing, and availability of volunteer management) and transplanted 1500 African violet plants (the seedlings are doing well in the wild now 9 months down the line). c) In Mwarakaya, we resorted to conduct *in-situ* boosting of the extant population (planted 116 individuals) and support watering by locals. d) We have **identified two other *in-situ* sites with the potential to host the African violets** - we plan to use the seedlings in the propagation centre to create more *in-situ* recovery sites in the next phase.
Build local communities capacity for conservation - through training local para-taxonomists, establishing forest management committees, developing a conservation/management plan, and promoting alternative livelihoods (apiculture and sale of				a) We **trained 12 para-taxonomists** on: classification of plants, biodiversity in relation to man, data collection tools (specimen collection, ecological data recording), assessing degradation, and forest navigation. b) We **established a community apiary** to help the locals earn income and mitigate destructive income sources e.g., charcoal

seedlings).				trade. However, only 4 of the installed 10 beehives have been colonized so far. We attribute this to weather extremes and little knowledge of the locals on bee trapping. c) We also **promoted commercial forestry** by facilitating the local communities to propagate mass seedlings for sale. So far, the locals have sold 2100 seedlings to restoration partners within the coastal Kenya. d) We **gathered baseline data on the present conservation status** of the three fragments. e) We **established two fragment-based conservation/management committees** (in Chasimba and Pangani). In Mwarakaya, we are yet to attain that stage since the unity of the locals is merely starting to form. f) We plan to establish a management committee in Mwarakaya and merge the three into one CFA in the next phase. g) We plan to expand apiculture venture by intensive community training, installing more hives in other fragments, and commercializing it.

2. Describe the three most important outcomes of your project.

a) ***Established two in-situ recovery sites for the African violets*** **-** as the extant populations of the African violets continue to face threats from all corners, conservation of this species should encompass diverse approaches. In the last three years, we have battled proposals for a limestone mining project that could flatten the entire Cha Simba habitat. Thus, it dawns on us that the lose of the African violets (one of the most iconic plant species in coastal Kenya) could just happen in a single day. After considering all approaches, the future of the African violets relies on increasing the number of populations (in safer fragments) in the wild. Therefore, for sustainability, we selected two recovery sites (considering potential threats, local community agreement, ease of access for nurturing, and availability of volunteer management) outside the extant populations and transplanted 1500 African violet plants (the seedlings are doing well in the wild now 9 months down the line). Additionally, the propagation of more seedlings is ongoing to establish more recovery sites.

b) ***Expanded habitat restoration*** - since the African violets are highly hit by loss of ideal ecological conditions (due to degraded habitats, especially loss of vegetation), habitat restoration is one of the key approaches to reverse this trend. To improve the three habitats, we identified the areas for restoration (through degradation mapping), conducted massive propagation of indigenous seedlings, and transplanted 6,234 indigenous seedlings in degraded areas. Positively, the restoration efforts included other threatened plants to boost their *in-situ* populations.

c) ***Launched a community-based habitat management strategy within the fragments*** **-** the conservation of indigenous forest fragments (especially those located within community surroundings or community-owned) relies on the participation of the local communities. Over the years, our conservation efforts have been challenged by lack of community support or divisions among the locals. However, through the introduction of economic incentives (apiculture and commercial nurseries), intensive training, we have managed to achieve to a greater extent the successful goodwill of the communities. We established two fragment-based conservation/management committees (in Chasimba and Pangani). In Mwarakaya, we are yet to attain that stage since the unity of the locals is merely starting to form. We plan to establish a management committee in Mwarakaya and merge the three into one CFA in the next phase.

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

a) ***Drought*** - due to dry conditions, the established recovery sites demanded extra care. This is because the transplanted seedlings had not gained adaptive ability when the rain season ended. To tackle this challenge, we purchased medium-sized drums to store water and supported local volunteers to regularly water the seedlings in the wild.

b) ***Recurring mining threat*** - after we successfully halted a limestone mining project in 2022, other proponents also came up with a different project targeting the same localities. This demonstrates the undying quest for the karst outcrops limestone deposits endanger the highly-valued biodiversity. To tackle this, we wrote to the National Environmental Management Authority (NEMA), demonstrating how such project could be detrimental to biodiversity and disregard the years of conservation milestone. The case is pending in court as we prepare testimonials to prove in court.

c) ***Opposition from a section of local custodians in Pangani*** - after we established a tree nursery in Pangani forest fragment, there emerged a minor division from a section of the custodians of the fragment (arguing some members have more benefits than others). Since this is linked with family wrangles, we involved the local Chief who invited both parties for negotiation. We are glad we managed to harmonize the situation and gain the goodwill of all parties.

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

To ensure a smooth implementation of our project, the local communities were the centre of operations to advance their capacity as environmental stewards. First, we expounded on the journey so far and what the project has achieved and the existing gaps (that the present project sought to tackle). Afterwards, we trained the locals on the propagation of African violets, and together, we scouted for suitable sites to establish recovery sites for the African violets (two locals donated parcels of land where we established other populations of African violets). Upon identification of suitable sites, the locals fully participated in transplanting the seedlings and weekly watering. Additionally, the local communities nurtured both the indigenous tree nurseries and the African violet propagation centre, ensuring the project is

sustained. Thus, through our interaction during this project's implementation, the local communities have benefited highly in the following areas;

a) *We have build their capacity on environmental conservation* - we have trained 12 para-taxonomists who are now equipped with basic skills in; plant identification, habitat mapping, data collection (ecological), ecotourism, etc, skills which are useful as they engage with research scientists in the future.

b) *Short-term employment* - during our project implementation, we worked with local community members (local guides, nursery attendants, seed collectors, etc) through the entire duration, earning them some income.

c) *Nature-based livelihoods* - the established nurseries serves as sources of income for the locals through sale of seedlings (last year, we connected the community nurseries with other restoration partners who purchased some seedlings). Further, we have established a beekeeping pilot venture that is now slowly starting to work out (4 hives have been colonized by bees) and we expect to expand this venture (through technical training, adding more hives, and commercializing the products).

5. Are there any plans to continue this work?

Yes, I am motivated to apply for the next round of funding (2nd booster grant) to achieve the identified prospects arising from this project. During the 1st booster grant, the following gaps are identified;

a) Although we managed to collect baseline data about the conservation status of the target fragments and established forest management committees, **a comprehensive management plan for the sites is urgent** (we plan to conduct wide consultations, invite partners/stakeholders for open discussions, and gather expert opinions). We expect this management plan to have regulation on resource utilization.

b) The African violets and other threatened plants are not yet out of danger - although we have achieved much on ensuring a future for the African violets and other threatened plants, they are yet to enjoy protection until **we boost their presence in multiple localities**. We plan to establish other recovery sites (for the African violets), and target direct propagation for other critical species (*Cola porphyrantha, Euphorbia wakefieldii, Uvaria faulknerae*) for *in-situ* boosting.

c) It is clear that the sustainable conservation of the community forests relies heavily on the economic status of the local communities. Thus, **we plan to expand our**

incentives (establish apiaries in the three fragments, regularly support them with nursery supplies, and value-addition of apiculture).

d) Ecotourism is an unexplored conservation incentive - the target fragments all enjoy a rich cultural/natural heritage (attraction for rock climbers, cave enthusiasts, photographers, plant lovers, bird watchers, and spiritualists). However, this tourism potential lies unexplored. We plan to fully **survey the sites and develop a map of nature trails, posters clearly pointing out unique features** e.g., threatened plants. We expect this to give sense to conservation by making the locals guard highly the natural heritage. In conjunction, the trained para-taxonomists will be offered further training on ecotourism and other topics to serve as guides.

e) Citizen science education is lacking - although the locals are aware of their localities' conservation potential, they lack the technical knowledge of how to understand nature. **We plan to introduce the use of digital tools of conservation** e.g., iNaturalist among the young generation to boost connection with nature. This tool will be used to enhance a rapid inventory of the biodiversity/plants within the sites.

f) There is need to **develop a plant inventory of the three sites** (for enhanced community knowledge), listing all plants, their photos, and ethno-botanical use.

g) Habitat restoration need more efforts - after establishing green walls around fragments, the locals now welcome more tree planting. Although our restoration efforts are yielding fruits (we are closing the degraded gaps already), we are yet to attain a good threshold on restoring the sites. Hence, **we now have set a target of 30,000 indigenous seedlings in the next two years.**

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

a) We plan to develop a booklet of key plant species in the sites, with both scientific and local names, photos, and ethno-botanical value. This will be useful to the local communities and school environmental education programs. In addition, we will produce posters in Swahili language for pasting within public places noticeboards e.g., schools, Chiefs' offices, etc.

b) We will share the technical report of this work with our partners (Dryland Biodiversity Consultants, Nature Kenya, and National Museums of Kenya) to reach conservationists and scientists.

c) Finally, we wish to publish a short documentary (and short highlight clips) on YouTube and other social media platforms for public consumption, highlighting the journey so far and our achievements towards plant conservation.

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

We have achieved great strides on matters conservation of African violets and other threatened plants in the coastal Kenya. However, there is still more areas that need our efforts. Moving forward, the focus is now shifting in the habitat-based conservation direction, with particular attention towards empowering the community to be the conservation stewards. Importantly, in the next steps, we need to prioritize the following;

a) **Developing a comprehensive management plan** covering the three target fragments. This will be done through conducting wide consultations, invite partners/stakeholders for open discussions, and gather expert opinion. We expect this management plant to have regulation on resource utilization.

b) **Boosting *in-situ* populations of selected threatened plant species**. Although we have achieved much on ensuring a future for the African violets and other threatened plants, they are yet to enjoy protection until we boost their presence in multiple localities.

c) **Local community empowerment for sustainable conservation** of the forests. The communities have exhibited strong participation in conservation with perceived incentives. We need to expand the apiculture venture, support the production of indigenous seedlings, and promote ecotourism (through training local guides, developing site-based maps/nature trails, plant posters, and documenting the sites' history as educative materials for tourists).

d) **Enhance citizen science**. To bring the locals closer to nature, they need to understand what surrounds them. We need to conduct plant inventories of the sites (and publish guide booklets) and conduct field based exposure sessions (training on the use of *iNaturalist* tool for documentation of biodiversity).

e) **Habitat restoration**. Restoration is a process that takes time and ought to be continuous. Having launched habitat restoration activities in the three sites, we target to rehabilitate the three sites by planting 30,000 indigenous seedlings in the next two years.

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?

The Rufford Foundation logo was used in data collection forms, publicity material (training banners), and regularly mentioned during the training seminars as a way of acknowledging the foundation for the financial support.

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

a) ***Dr. Cornelius Mulili Kyalo*** - the project Principal Investigator/coordinator tasked with coordinating all project activities (permit acquisition, materials preparation, project management, community training, leading field investigations, report writing, financial management, and creating partnerships with relevant stakeholders.

b) ***Mr. Joshua Mutisya*** - the project assistant tasked with regular site visits to monitor performance of nurseries, ensure transplanted seedlings are nurtured, organize community training sessions (logistics), and lead data collection and recording. He was also tasked with sorting the baseline data for conservation of the sites.

c) ***Mr. Martin Mjape*** - The local Chief for Pangani who played a role in creating community rapport, organizing public attendance in awareness and tree planting sessions, ensured security of the project team, and helped convinced locals who were unsure of our efforts.

d) ***Mr. Alex Kubambanya*** - a village elder and a project team member who played a role in mobilizing the locals/identifying participants of para-taxonomists training, training other local members, and hosting the apiculture station.

e) ***Mrs. Agnes Bongo*** - a project team member, data entry into field sheets, field survey guide, mobilized local members into seminars (especially women), and led seed collection and sorting activities.

f) ***Ms. Margaret Mpenzwe*** - a youth leader, project team member, a trainer on biodiversity conservation, played key role in mobilizing the youth, data collection, team leader, and involved in propagation of the African violets.

10. Any other comments?

On behalf of the entire project team, I would like to thank the Rufford Foundation for their great financial support towards the conservation of African violets. We began this journey during the 1st small grant (laid a foundation for the conservation of African violets), moved to the 2nd small grant (where we made greater strides in the rescue of the critically endangered species), and then came the 1st booster grant (where we have for the first time established rescue sites for the African violets in the wild, initiated habitat restoration, and began the journey to empower the locals to be conservation stewards). We wish to continue this partnership with the Rufford Foundation and advance our work towards supporting locals to lead conservation, introducing efforts to ensure management of the natural resources (utilization regulation), boosting *in-situ* populations of threatened plants, and promoting nature-man interactions.