

## Project Update May 2024

### Introduction

Kenya's coastal forests occur as fragments (part of the coastal forests of Eastern Africa biodiversity hotspot) that are home to almost half of the country's flora and millions of people, thus a priority for sustainable conservation efforts. Except the larger fragments (e.g., Arabuko-Sokoke and Shimba hills) that enjoy government protection, the smaller fragments (averaging 6.7 km<sup>2</sup>) are either unprotected (individual or clan ownership) or protected by the local communities as sacred sites. Among the unprotected fragments, are three extremely fragmented limestone outcrops Cha Simba, Mwarakaya, and Pangani forests that offer refuge to rare, endemic and threatened plant diversity. However, the three fragments are rapidly degrading (from agricultural expansion, and limestone mining) and have witnessed limited habitat-based conservation efforts. Previously, while targeting *Streptocarpus ionanthus* subsp. *rupicola* (African violets), we observed the urgency for restoration and *in-situ* boosting of other threatened plant species' populations. We assume that the best approach to conserve threatened plants is through restoring their habitats while boosting their *in-situ* populations. Our project aimed to: 1) establish more *in-situ* recovery sites for the African violets (conservation reintroduction), 2) propagate and transplant over 7000 indigenous seedlings, 3) build capacity of local communities (through training local para-taxonomists and establishing nature-based livelihoods), and 4) establish conservation/management plan of the target fragments through Community Forest Associations (CFAs).

During the first phase of the project (implemented between December 2023 and April 2024), we conducted activities touching on the following key goals:

- a) Propagation of African violet seedlings.
- b) Mapping the level of habitat degradation within the three fragments/ Restoration Opportunity Assessment Mapping (ROAM).
- c) Indigenous seedlings propagation and transplanting.

### Activity 1: Propagation of African violet seedlings

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To initiate propagation of African violet seedlings, we collected leaves and a few seeds from three populations (Fig. 1). The leaves were prepared and set up for propagation in water and soil media (Fig. 2). In total, we set up over 800 individuals.



Fig. 1: *Collection of leaves, seeds and sorting them for propagation.*



Fig. 2: *Propagation of African violet leaves and seeds into water cans and transferring them into pots.*



## Activity 2: Indigenous seedlings propagation and transplanting

### 2.1: Seed Collection

The success of habitat restoration relies on genetic diversity within seedlings. We mobilised local communities within the target fragments and conducted seed collection exercises (Fig. 3). In conjunction, we supported local volunteers to collect more seeds for propagation. In total we were able to collect approx. 13kg of assorted seeds which were propagated in the nurseries.



Fig. 3: Seed collection, preparation/processing, and propagation. The seeds were collected, extracted (if need be), and dried using direct sunlight.

## 2.2: Propagation and tree planting

The germinated seedlings were repotted into potting tubes with manure and mixed with existing seedlings in the nurseries. Fig. 4 shows some of the seedlings we have propagated so far (we now have approx. 4500 indigenous seedlings from two nurseries). During this time, we also purchased assorted indigenous seedlings from local nurseries (from Kaya Chonyi and Kaya Kauma) which were used to transplant in December 2023 (Fig. 5). This was done to capitalise on the rains as we await our seedlings to attain transplanting size.



Fig. 4: Seedlings propagation in the nurseries.





Fig. 5: Tree planting activity conducted to establish a green wall in Pangani.

### Activity 3: Mapping the level of habitat degradation within the three fragments

To prioritise the correct areas for restoration, we first mapped the three target fragments through extensive surveys/field visits and recorded degradation occurrence. We set our reference points to be the areas where the main forests commence towards the human inhabited areas. We plan to begin restoration from the forest areas extending towards community farms. According to our surveys, the areas are highly degraded and consistent restoration activities are required. For instance, in Pangani, four degraded blocks were established and their area calculated (Fig. 6). In Mwarakaya, three degraded blocks were mapped (comprising only the major rock outcrops) (Fig. 7). In Chasimba, three degraded blocks were mapped and assessed (Fig. 8).

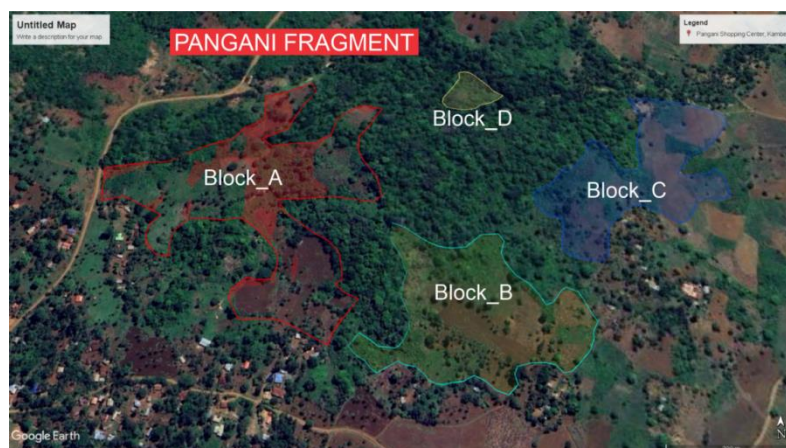


Fig. 6: Mapping degradation in Pangani. Block\_A (26.3 Acres), Block\_B (15.3 Acres), Block\_C (15 Acres), and Block\_D (1.6 Acres).

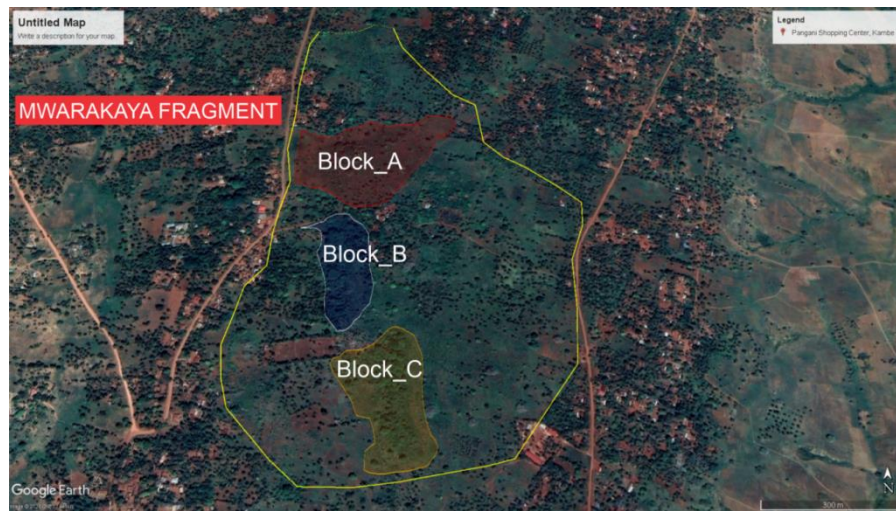


Fig. 7: Mapping degradation in Mwarakaya. Block\_A (15.6 Acres), Block\_B (6.9 Acres), and Block\_C (10.7 Acres).



Fig. 8: Mapping degradation in Chasimba. Block\_A (12.1 Acres), Block\_B (8.5 Acres), and Block\_C (13.8 Acres).



### *Other activities*

Apart from the major project activities, we managed to record video clips (Fig. 9) touching on different aspects, including stories of local volunteers who are doing seedlings propagation, captured challenges they face and support they might need, and we interviewed some locals on the benefits they have obtained from conservation initiatives in their localities. We hope to compile more clips and produce a story of locally led conservation in the areas.



*Fig. 9: Filming the stories of local conservationists in Kilifi. The videos will be used to document the journey, challenges and request for support towards forest conservation.*

## Prospects/ Subsequent plans

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Having achieved the above activities, we plan to continue with phase 2 from this month. Here, we target to conduct activities on the following.

- a) ***In situ* translocation of the African violets** - we will first transplant the propagated African violets in three *in-situ* recovery sites. Then, we will propagate more African violet seedlings in the nursery (for transplanting towards the end of the year).
  - Identify/mark three suitable sites.
  - Prepare groves/crevices.
  - Transplant the first batch of African violets.
  - Collect and propagate more leaves and seeds.
- b) **Habitat restoration**
  - **Seed collection and propagation** - out of the target 8,000 indigenous seedlings, we have already propagated over 3000 in the community nurseries.
    - We will support more locals to collect seeds and propagate them in the nurseries.
    - We will install mist propagators for faster and enhanced germination.
    - We will pot the germinated seedlings from the beds.
  - **Propagation of threatened plant species** - propagation of challenging species such as *Cola porphyrantha* will be tried using various techniques.
  - **Tree planting exercises** - we plan to conduct at least five tree planting sessions (approx. 600 seedlings/session) at the degraded patches (approx. 50 participants/session).
- c) **Build local community capacity for conservation**
  - **Establish the present conservation/habitat status of the fragments** - during the previous field visit, we noted the urgency to gather baseline data on the conservation status of the target fragments before developing a conservation/management plan. Thus, field evaluation visits will be conducted to determine the status for followup consideration. This rapid assessment will also target to collect supporting data for KBA review process.
  - **Establish fragment-based management committees** - one major goal of our project is to establish a Community Forest Association (CFA) in the area. However, there is need for grassroots awareness and community support for this task. Therefore, we plan to start by establishing fragment-based committees to handle local issues before forming a larger CFA. This involves conducting three open sessions with the locals to share and form management committees.