Project Update: October 2022

Introduction

African violets are facing imminent threat from increased climate change impacts and destructive anthropogenic activities, evidently due to their narrow ecological niche. Although some conservation efforts have been implemented in the past (established threats, mobilised community for awareness, and developed propagation mechanisms), the species is still facing threat of extinction. Here, we sought to expand our conservation actions by mitigating common threats facing African violets in the study sites: juvenile mortality (by establishing a rescue/propagation center), habitat degradation (propagating indigenous seedlings), and community awareness. In the last 5 months, we have achieved the following:

1. Established a rescue center (to propagate African violet plants).
2. Established a tree nursery.
3. Conducted field investigations (to monitor recruitment vs survival rates).

Activity 1. Establishment of a rescue center

To create a suitable environment for African violets, we constructed a propagation centre (Fig. 1), with regulated conditions (controlled light, humidity, etc.). This room will be used to nurture rescued juveniles (from unfavourable localities in the wild), propagate collected seeds, propagate harvested leaves, and conduct further research on African violets.

Fig. 1: Establishment of a propagation center. *A - Carpenter cutting wood pieces into required sizes, B - the project leader confirming the height measurements for the propagation shelves, C - Propagation shelves fitted into the propagation room, and*

D - Propagation shelves fitted with plywood partitions and clear polythene for light regulation.

After the structure was established, we propagated leaves in plastic cups and placed them on the shelves (Fig. 2), avoiding direct sunlight.

Fig. 2: Leaf propagation inside the propagation room. *A - Project leader preparing propagation cups (soiling and watering), B - Leaves propagated in plastic cups, C & D - Propagated leaves placed inside the shelves.*

Activity 2. Field Investigations

Using walk over surveys (Fig. 3), we conducted field investigations to identify and mark patches for data collection. Target patches were characterised by mature individuals, and first observations were made a month after the onset of rains in the area. Unlike previous years, the area received substantial rainfall (running approx. 3 months). However, despite this heavy rain, recruitment was inconsistent across the populations (perhaps due to long periods of drought since 2017). For instance, despite searching Kachororoni population for several days, we could not encounter the African violet plants (including in sites previously recorded in 2020/2021), a worrying indicator that a looming extinction of African violets is happening. However, Chasimba and Mwarakaya populations recorded relatively high recruitment after the rains.

Fig. 3: Some field team members during the field investigations. *A - Project leader together with young locals during a demo activity, B - Project leader onlooking inaccessible African violet patches on cliffs, C - Project assistant with a neighbor/partial owner of Chasimba habitat during a survey, D & E - Project assistant collecting new recruits (those growing in exposed and unsuitable localities) into plastic dishes (for nurturing in the propagation center).*

During the field investigations, we also collected new recruits of African violets (individual juveniles growing in unfavourable conditions such as exposed to sunlight, on soil media in the forest, re-sprouts in dense clusters (to ease competition), on footpaths, etc.) and transferred them for nurturing in the propagation centre. It is expected that upon improvement of habitat conditions, we will take them back into the wild after attaining a size able to withstand wild conditions.

Activity 3. Indigenous seedlings propagation/Nursery establishment

African violets have been reported to survive under narrow ecological requirements, wet and shaded conditions. However, the present distribution is characterised by fragmented, dry habitats and intense human encroachment. Therefore, community-based restoration of the habitats will make them suitable for African violets. Therefore, we established one tree nursery (second one undergoing construction) to propagate indigenous tree seedlings that will be transplanted in the degraded patches. The propagation targets local plant species (especially endangered, rare, useful tree species) since they are adapted to the local environment, are useful and returning them may re-build the wild habitats for long-term conservation. To achieve local support and involvement, we involved the communities in the process of seed collection, propagation and nursery establishment. Some of the collected seeds include *Milicia excelsa* (drought-resistant and timber species), *Melia volkensii* (a fast-growing drought-resistant tree indigenous to East Africa drylands), *Vangueria* spp, *Vitex payos* and *Moringa oleifera* (drought-resistant and economically important plant), among others.

Fig. 4: Recruitment of African violets seedlings in the wild. *A, B, C, D & F - New recruits on rock crevices in different populations, E - Rescued juveniles for nurturing, and G - New recruits on soil along foot paths.*

Fig. 5: Nursery establishment and indigenous seedlings propagation. *A - Project leader and community members measuring size of nursery, B - Constructed nursery with initial seedlings, C - Raised sowing bed with plastic liner and river sand, D - Some*

collected seeds preserved in zip lock bags, E - Youth participation in seed collection, and F - Project leader identifying a seed in the field.

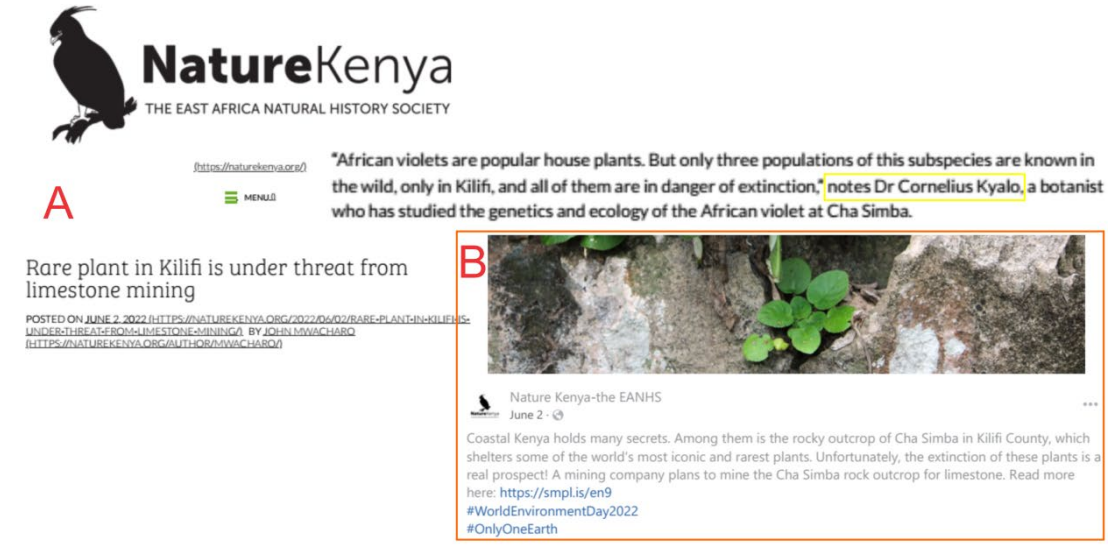
Activity 4. Awareness campaign

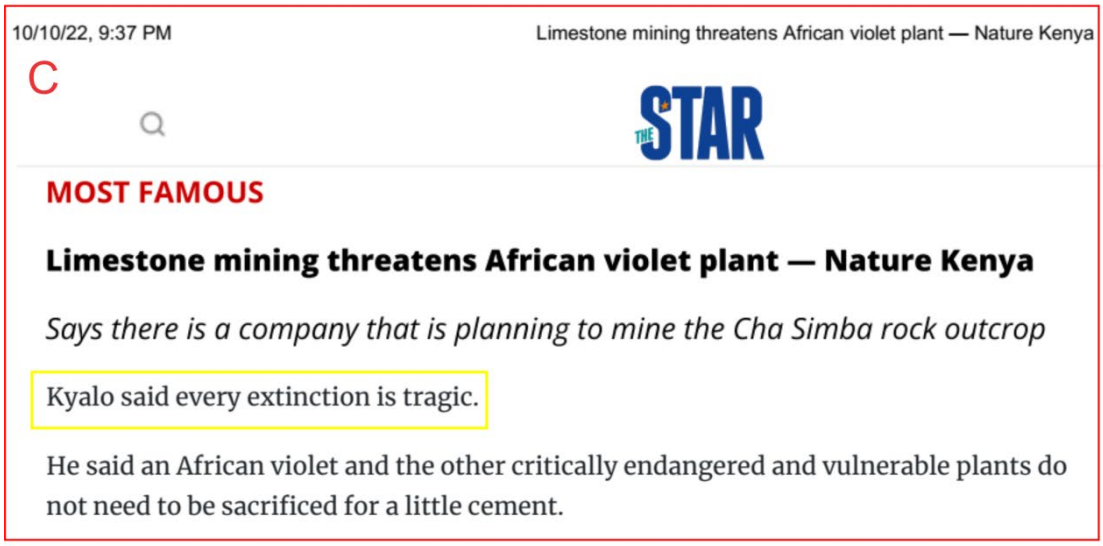
Environmental awareness campaigns are a long-term plan and activity for conservation projects. This is because technology, development, and human encroachment is expanding on a daily basis. For instance, early this year, an investor proposed to mine limestone in Chasimba rocks, a vital refuge for African violets and more than five other endangered plant species. Unfortunately, the proposed project did not do thorough Environmental Impact Assessment to understand the area, or rather ignored the biodiversity aspect. As a result, we came across the proposal and launched an objection campaign (led by conservation NGOs such as Nature Kenya, Cave Exploration Group of East Africa, National Museums of Kenya, among others). Having worked for years in saving the African violets, I could not sit back and watch a sudden loss of a species I have dedicated my efforts towards its survival. Therefore, I joined other conservationists and made my comments/contributions on that course, and we managed to halt the proposed project (although the campaign is still on). Below are some of the contributions I made to the campaign published in different media networks.

Links:

https://www.the-star.co.ke/news/2022-05-05-limestone-mining-threatens-african-violet-plant--nature-kenya/
https://naturekenya.org/2022/06/02/rare-plant-in-kilifi-is-under-threat-from-limestone-mining/

https://www.thefreelibrary.com/Limestone+mining+threatens+African+violet+plant+--+Nature+Kenya.-a0702631622





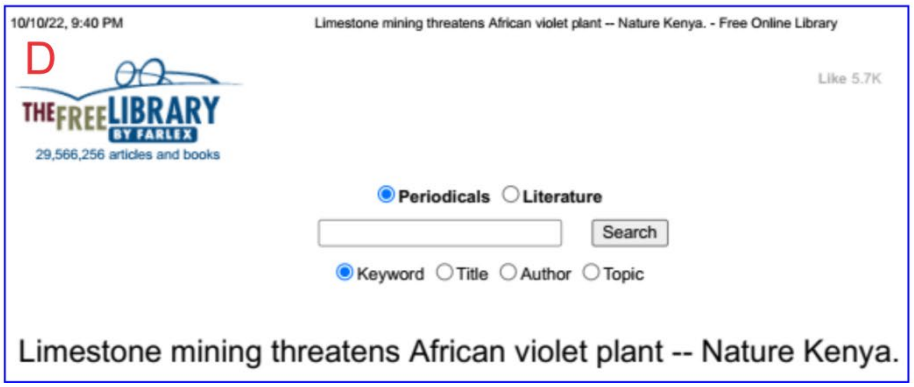
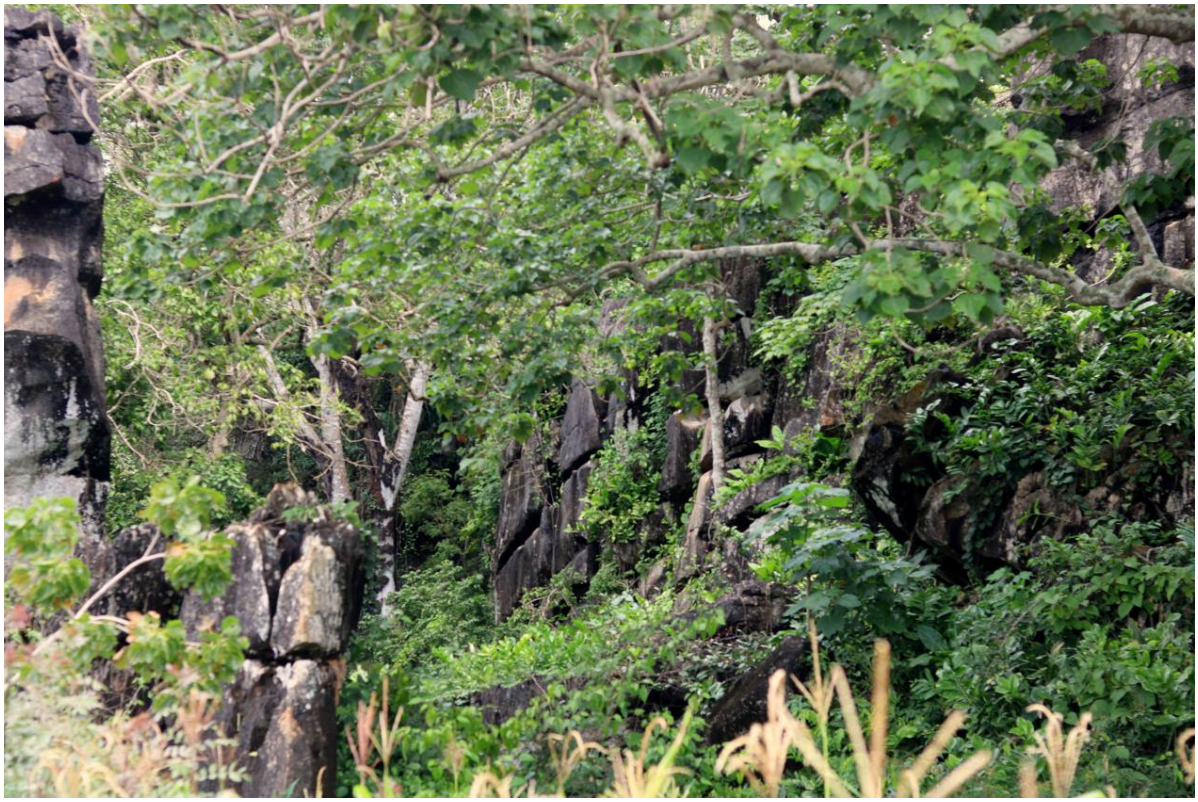


Fig. 6: Media campaign comments published in diverse media outlets. *A - Published in Nature Kenya website, B - Published in Nature Kenya Facebook page, C - Published by the STAR Newspaper, and D - Publication in an online repository.*

Recruitment of new African violet juveniles on rock crevice. © *Cornelius Kyalo*



Chasimba habitat. © *Cornelius Kyalo*

Tree felling in Mwarakaya habitat for charcoal burning. © *Cornelius Kyalo*

Rare *Milicia excelsa* (Mvule) tree spotted in Chasimba habitat. © *Cornelius Kyalo*