

## Project Update: December 2020

Although African violets are perhaps the most spectacular plant species on earth, they are extremely threatened in nature due to increasing habitat loss. Here, we sought to enhance conservation of this rare species in Kenya through a community-based approach. In the first phase, we conducted successful field surveys in the three project sites (Cha Simba, Mwarakaya and Kachororoni) and established the current status of African violets in the field. This included roughly estimating the population sizes, present threats and ecological status of each population.

The field survey was conducted in November and December 2020, during the short rains in Kenya. As a result of the rains some parts of the populations were inaccessible due to the thick and bushy vegetation. Further, due to the small sizes of the population extent and the thick vegetation, we used the random survey approach to collect the information. However, we achieved the objective to a greater extent.

**The status of African violets in Cha Simba:** This population occurs in a largely rocky area covering approximately between 200 x 200 m to 300 x 200 m extent. However, not all parts of the area have African violet individuals as the species is confined only to the ecologically suitable parts (well shaded and wetter areas). Further, we established that the population is characterised by a patchy distribution nature, spread across the rock. The number of individual samples across the patches varied, greatly influenced by the soil moisture and protection from sunlight. The well-shaded and wet patches comprised dense clustering of the individual plants while drier and most parts of the population housed very few individual plants. Since some parts are not accessible, we estimate that this population comprise not less than 2000 individuals and is largely stable, although consistent monitoring will be more informative.

Phenology - during our field survey, most individuals were vegetative, with a few mature ones flowering and some juveniles emerging around the patches.

General population assessment - the deep and thick areas of the population house fresh and lively individuals while the edges appeared relatively scorched due to the dry conditions and lack of shade which is a requirement for African violets survival.

Associated species - in Cha Simba, the population comprised many other plant species. However, some of the most common plant species recorded in patches frequented by African violets were; *Impatiens* spp, *Croton* spp (at the edges), *Caparis* spp, Msasa, Mgandi and others.

Observable threats - the population is characterised by tourist activities, including visits by school children to take photos. It was noted that these children damage African violets unknowing of their value. Further, since the habitat occurs on private land, crop cultivation has led to bush clearance, leaving only the inaccessible areas (**Figure 1G, I**). Invasive species such as *Lantana camara* dominated the habitat edges, and this is a threat to the survival of other plant species in the area.



**Figure 1:** The status of African violets in Cha Simba population. A, a photo showing the entire population; B, a cluster of African violets individuals on a rock crevice; C, an African violet individual thriving well in the wet part of the population; D & F, a field team member conducting census of the number of individuals in a patch; E & H, the field team during field investigation; G & I, representation of agricultural threats facing this habitat.

**The status of African violets in Pangani rocks (Mwarakaya):** This population occurs in a relatively small rocky area covering approximately 100 x 50 m extent. However, the population has lost vegetation to a large extent, leaving the individuals of African violets exposed to sunlight and hot conditions. During our field investigations, we observed few patches hanging in the rock crevices, only in the inaccessible parts of the rock (**Figure 2A, B**). There was only few well-shaded patches, that are protected by one big tree (**Figure 2C**) and that area comprised dense clustering of the individual plants. Since some parts are not accessible, we could not give a reliable estimate of the number of individuals. However, we plan to visit the population in the dry season (probably in February) and establish more on the ecological conditions.

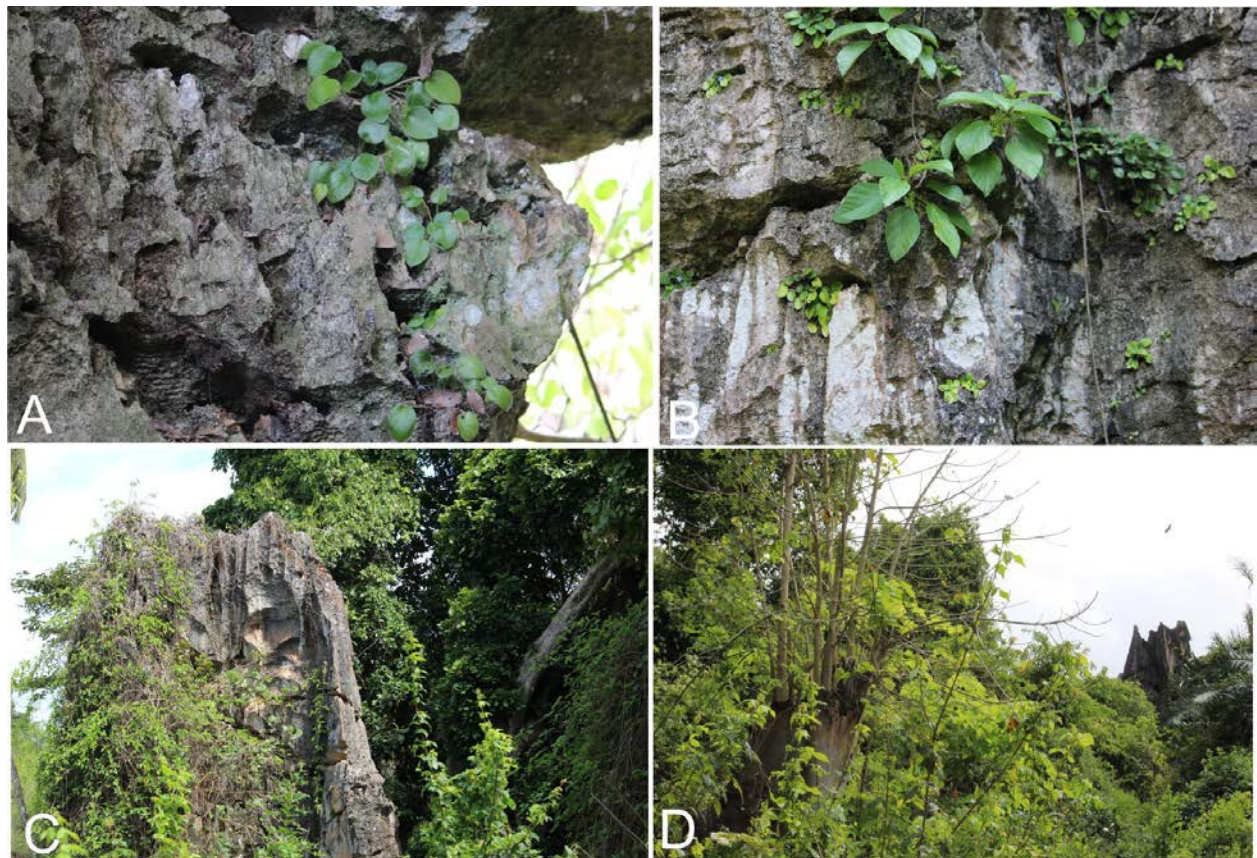
Phenology - during our field survey, most individuals were vegetative, with a few mature one's flowering and some juveniles emerging around the patches.

General population assessment - the entire population appeared relatively scorched due to the dry conditions and lack of shade which is a requirement for African violets survival.



Associated species - the population comprised many other plant species. However, the most important species to the African violets is a locally known Mfunda tree that accounts for almost the entire shaded area. Therefore, it is important to highlight how eliminating this plant would mean to African violets and other under-story plants.

Observable threats - the most observable threat in the Pangani rocks is crop cultivation by the landowners. Further, the locals graze their livestock in the habitat, unaware of the importance it holds to the African violets. In preparation for the rainy season, the locals burn bushes to prepare for cultivation and this has led to decreased forest and increased grassland in the area.



**Figure 2:** The status of African violets in Pangani rocks, Mwarakaya population. A, B, patches of African violets growing on rock crevices in the area; C, an image showing the shading by Mfunda tree and D, a representation of deforestation in the population.

**The status of African violets in Kachororoni:** Kachororoni is considered the largest habitat in which the African violets occur in Kenya. This is partly because the area is largely a riverbank, making it inaccessible or useful for agricultural activities by the locals. This has ensured its continued existence and ability to harbour the African violets. However, like in other populations visited, not all parts of the area have African violet individuals as the species is confined only to the ecologically suitable parts (well shaded and wetter areas). It is unfortunate to note that this population is exhibiting a great



declining trend, making it hard to establish the population size as the species has become rare. Further, due to very steep terrain and thick vegetation (**Figure 3E**), we could hardly explore the entire area and consistent monitoring will be more informative.

Phenology - during our field survey, most individuals were vegetative, with a few juveniles emerging, raising a question of the recruitment rate of this population.

General population assessment - the population seems declining and the quality of the habitat is growing poor with time (**Figure 3D, E**). The degrading habitat quality is highly attributed to human activities including charcoal burning and tree felling. This trend was evidenced by the relatively scorched individuals due to the dry conditions and lack of shade.

Observable threats - the most observable threat in Kachororoni is charcoal burning and tree felling by the adjacent community (**Figure 3B, C**). Further, climate change could be attributed to the dry conditions and exposed habitat witnessed (Figure 3D, E), making the habitat less suitable for the African violets.



**Figure 3:** The status of African violets in Kachororoni population. A, African violet individual on a rock crevice; B, C, illegal deforestation activities in the area for charcoal burning; D, E, the degraded habitat quality due to human activities and climate change impacts; F, the steep terrain alongside the riverbanks of Rare river; G, H, the project leader during field investigations and I, part of the project team for Kachororoni population.