

Project Update: August 2023

The Ngong Restoration Project has a primary goal of rejuvenating and safeguarding the ecological diversity of the Ngong Hills forest region, achieved through a synergistic approach that engages a diverse range of stakeholders. This document presents a comprehensive outline of the project's undertakings, encompassing the assessment of native and non-native species, gathering of seeds, creating nurseries, community engagement, and initiating tree planting campaigns.



Figure 1 An image showcasing a designated segment of the Ngong Hills, where our proactive efforts have been channeled into tree planting endeavours and establishing the first community nursery in Ngong.



Figure 2 An open area in the forest that has been degraded; the site is composed of primarily dry vegetation.

Survey of Indigenous and Invasive Species

A survey was conducted, and our team meticulously compiled a comprehensive inventory of indigenous and invasive species within the Ngong Hills forest. This survey's primary objectives encompassed identifying existing species within the ecosystem and quantifying the invasive species' impact on the indigenous biodiversity.

Remarkably, our efforts yielded the recognition of more than 10 distinct tree species within the forest area, including but not limited to *Olea capensis*, *Warburgia ugandensis*, *Prunus africana*, *Croton megalocarpus*, *Vitex Kinensis*, *Cordia africana*, *Markhamia lutea*, and various species within the *Acacia xanthophloea* and *Vepris* genera.

Additionally, our observations underscored the prevalence of at least two expansive invasive species within the region. Regrettably, these invasive species have progressively gained dominance in the forest ecosystem, capitalising on the escalated degradation over time and displacing the native vegetation that once thrived in the area.



Figure 3 From Left clockwise: The team members assessing one of the invasive species, supported by a community member in the background; Teresiah capturing an image of farm animals grazing in the Ngong Hills forest and Photos 3 and 4 -The project team conducted a comprehensive survey of Ngong Hills forest to identify indigenous and invasive species. (Photos taken by members of the project team).

Threats



Figure 5a: Livestock Grazing Impact. © Teresiah Mungai. This image vividly portrays the concerning impact of livestock grazing within the forest. The presence of grazing cattle significantly threatens the forest's regrowth. Notably, the cattle target seedlings and young tree saplings, hindering their growth trajectory. As a result, the forest experiences a disruption in its natural succession process, posing a threat to the very essence of its sustenance. **Figure 5b:** Invasive Species Dominance. © Teresiah Mungai. This image shows a striking visual representation of the invasive species within Ngong Hills Forest. The invasive species, sprawled across a substantial section of the forest, exerts its dominance. This dominance, unfortunately, stunts the growth of indigenous species. The photograph underscores the urgency of addressing this issue to ensure the flourishing of the forest's native flora.

Education and Training

Through our successful engagement with the local community, particularly youth and women, we have provided essential training in critical activities such as seed collection, propagation, and seedling planting. This comprehensive training initiative has yielded a significant outcome: establishing Ngong's inaugural community nursery. Currently, the nursery is actively fostering more than 6,000 tree seedlings, and our ambitious goal is to elevate this number to a substantial 30,000. As we look ahead to the upcoming short rainy season, these nurtured seedlings are targeted to be distributed and planted across schools and community farms. This strategic effort symbolises our commitment to sustainability and holds the promise of cultivating a greener and more vibrant landscape for the benefit of all.



Figure 6a Community members being trained in tree planting and conservation. **Figure 6b** Tree planting with the masai elders from the upper Nalepo community.

Reforestation in Degraded Areas

With the onset of the rainy season, our collaborative efforts with the local community have yielded remarkable results. Using the innovative Miyawaki method, we have successfully planted over 3000 trees within a previously deforested open space in Ngong Hills. This area, once cleared due to deforestation, has now been revitalised through our strategic reforestation approach. Implementing the Miyawaki method introduced 10 distinct tree and shrub species, ensuring a diverse and resilient ecosystem.



Figure 8 Tree planting activities.

Nursery Project

The nursery establishment serves as a vital resource for future tree-planting initiatives. This long-term commitment ensures a sustainable supply of native tree species for future restoration efforts. The nursery was constructed in collaboration with the local community.



Figure 9 Nursery establishment activities with the community members.

Seed Collection and Propagation Activities

Collecting seeds from native tree species has been an ongoing, strategic endeavour in alignment with the unique phenology of various tree species. This effort aims to ensure a consistent supply of seeds for future restoration initiatives. By training and equipping the local community, we are fostering their involvement in restoration activities during the

forthcoming rainy season and empowering them for future endeavours in ecological revival.

Building upon our successful seed collection and propagation, our next phase involves planting more seedlings in the forest, surrounding community farmlands, and within the surrounding schools. This multifaceted approach guarantees a broader reach and a lasting impact on the landscape.

Our current progress in the nursery is marked by the propagation of over 6,000 tree seedlings with an ultimate goal of nurturing and propagating 30,000 seedlings. These seedlings are destined for planting across schools and community farms, reinforcing the sustainable restoration vision during the upcoming short rainy season.



Figure 10 From left clockwise: Seedlings propagated in potting bags and Sprouting seedlings (Picture Credits to the Project team). These young plants symbolize the promise of a greener future and the dedicated efforts invested in their cultivation.

There are several drivers of land degradation in Ngong Hills Forest, but the underlying issue derived from our interaction with the community was highlighted as poverty. Cutting trees for firewood to prepare meals or sell to get income is one of the challenges. Another driver of degradation is the clearance of land for farming activities, grazing in the forest, illegal logging, human settlement and over-extraction of forest material for medicinal purposes.

To safeguard the forest, we incorporated fruit trees into the seed planting/propagation, including hush avocado, mango trees and lemon trees, both subsistence and cash crops. This initiative was implemented to encourage the farmers to grow and protect trees for the many benefits they hold. During the conservation training, we emphasised agricultural practices, including grafting lemon trees to improve quality and production. Fodder production was highlighted since the communities are majorly pastoralists to reduce the pressure on grazing in the forest. Community members were also encouraged to grow trees, highlighting their importance as windbreaks for crops and as a fence to line the edge of their homestead, which acts as a boundary as well as providing benefits including protection from runoff, especially during heavy rains, and provision of shading for their animals during the hot and dry season. The training also highlighted the importance of tree planting in the area, which will help to rejuvenate over 80 water springs, which have since disappeared due to encroachment and depletion of the forest. When speaking to one of the community members, they highlighted that they thought the forest was depleted due to the wind turbines at the top of the hill, oblivious to the impacts of climate change and human activities in the forest. During our survey, we also noted old trees that were falling. The unfortunate bit about Ngong Forest is the lack of succession. If tree recovery is not initiated, we could continue to witness fragmentation and loss of this forest.

In the eastern part of the hill, some areas within the forest were fenced due to ongoing restoration activities. Fencing of areas of restoration is vital to the success of tree growth in Ngong Hills. This is because fencing protects the trees from herbivory and destruction. As explained by the forester, fencing in this area is done for a minimum of 3 years while being monitored until the trees reach maturity and are self-sustainable.

Other challenges of the forest were due to prolonged drought that hindered sapling survival and lack of climate change information, thus lowering the adoption of tree planting as a mitigation measure.

Conclusion

The Ngong Restoration Project has made significant strides towards conserving and restoring the biodiversity of the Ngong Hills forest area. The project's success is attributed to the collaborative efforts of various stakeholders, including the local community, Kenya Forest Service, and dedicated project officers. By conducting surveys, establishing a nursery, organising tree planting sessions, and providing community training, the project has fostered a sense of environmental stewardship and empowered the community to engage in conservation practices actively. Moving forward, we aim to sustain these efforts and continue nurturing the nursery to achieve the long-term restoration goals for the Ngong Hills forest ecosystem and its environs.