# SEED SOURCE SURVEY AND MAPPING REPORT

*Figure 1 A Harugana madagascarensis laden with fruit*

## INTRODUCTION;

The seed source assessment exercise was implemented to systematically evaluate the availability of tree species at the Nalumuli site and determine their suitability as viable seed sources for conservation and restoration initiatives at the Greater Outdoors. The activity aimed to generate reliable, site-specific data to guide informed decision-making for restoration, enrichment planting, and nursery development at both the Greater Outdoors and Nalumuli sites.

As part of the activity, a comprehensive seed source assessment and mapping process was undertaken, incorporating provenance identification and tracking. This approach enabled the structured documentation and analysis of target species, ensuring that only ecologically appropriate and genetically suitable seed sources are prioritized for conservation use.

### Activities Implemented

The following key activities were undertaken during the seed survey exercise:

- Identification and documentation of existing seed sources, including recording species present, geographic location, accessibility, and general health status of trees at the Nalumuli site.
- Verification of species identity and provenance, with attention to varietal integrity to ensure alignment with restoration and conservation objectives.
- Assessment of viable mother trees, including evaluation of tree maturity, health condition, and overall suitability for seed collection.
- Development of a preliminary phenology calendar, outlining expected periods for flowering, fruiting, seed availability, collection, and utilization.
- Identification of priority indigenous species suitable for restoration and enrichment planting at the Greater Outdoors and Nalumuli sites.
- Assessment of species suitability for nursery development, including identification of species with sufficient indigenous seed availability and those requiring external sourcing due to observed gaps.

### Objectives of the Activity

The seed survey was guided by the following objectives:

- To identify, document, and map priority indigenous seed sources, capturing information on species composition, provenance, spatial distribution, health status, and accessibility.
- To assess the availability, viability, and seeding potential of mother trees, including considerations of seed maturity, seasonality, and anticipated yield.

- To determine priority species and seed availability for restoration, enrichment planting, and nursery development at the Greater Outdoors and Nalumuli sites, while identifying sourcing gaps that may require external support.
- To generate practical and actionable guidance for seed collection, protection of critical seed sources, and effective integration of collected seed into nursery operations and restoration activities.

**SURVEY IMPLEMENTATION;**

The seed sourcing and mapping assessment was conducted over two field periods, from 22–24 December 2025 and 29–31 December 2025, amounting to five days of fieldwork. The assessment was carried out at the Nalumuli Farm in Buikwe District and covered two blocks: a larger block of approximately 129 acres and a smaller block of 31 acres, resulting in a total surveyed area of about 140 acres.

The exercise was implemented in collaboration with local site personnel and focused on the identification and mapping of indigenous tree species with seed sourcing potential. Field observations aimed to determine tree maturity and suitability as seed sources using established indicators such as tree height, diameter at breast height (DBH), and reproductive cues including the presence of flowers, fruits, seed litter, seedlings, and wildlings on the forest floor. These indicators were used to classify trees as mother trees or potential future mother trees, providing a basis for informed seed collection and conservation planning. All tree species were identified and confirmed using a combination of distinct morphological characteristics, locally recognized names, and cross-referencing with standard tree identification manuals. Final verification was undertaken through collaborative identification and confirmation with the Tooro Botanical Gardens Herbarium, ensuring taxonomic accuracy and reliability of the species records.

**FINDINGS;**

A total of 56 tree species were identified within the survey area as shown in table 1, the majority of which represent remnant vegetation from the original forest cover prior to disturbance. The presence of both coppice regrowth and naturally regenerated individuals indicates ongoing natural recovery processes, driven by seed dispersal, soil seed banks, and other forest ecological dynamics. This pattern suggests that, despite past disturbance, the site retains a high ecological resilience and regeneration potential.

The general health condition of the trees was good, with no observed cases of disease, pathogenic infection, or severe pest infestation during the assessment period. This overall vitality enhances the site’s suitability for seed sourcing, as healthy parent trees are more likely to produce viable and genetically robust seed.

Importantly, over 90% of the recorded species were indigenous with one being globally endangered (*Milicia exelsa*, Mvule) and another being nationally rare (*Lovoa spp*, Nkoba), underscoring the conservation value of the site and its relevance for native species restoration initiatives. Only four of the 56 species identified were exotic, and of these, two displayed invasive tendencies. However, their current densities were low, spatially limited, and do not pose an immediate ecological threat. With regular monitoring and targeted management interventions, these species can be effectively controlled to prevent further spread.

Overall, the species composition and health status of the vegetation indicate that the site remains ecologically functional and presents a valuable resource for sustainable seed collection, biodiversity conservation, and landscape restoration planning.

*Table 1. Inventory of Tree Species Identified Within the Survey Area*

| No | Name | Origin | Growth form | Size | Tally | Seed source potential | Notes |
|---|---|---|---|---|---|---|---|
| **1** | *Albizia grandibracteata* (Nongo) | Native | Tree | Mature | Common | Confirmed mother tree | There are many mature individuals across the farm, accompanied by coppice growth, most of which exhibit fruiting and seed-producing potential. This indicates that the site is a viable source of seed for the species. |
| **2** | *Albizia zygia* (Nongo) | Native | Tree | Mature | Common | Confirmed mother tree | The species is present on the farm with numerous mature trees, several of which show signs of previous fruiting, suggesting they could serve as a viable seed source. |
| **3** | *Alstonia boonei* | Native | Tree | Mature | 9 | Potential mother tree | The trees of this species recorded on the farm were not fruiting during the survey. Their potential as mother trees should be checked by revisiting during the fruiting season. |
| **4** | *Anthocleista grandiflora* | Native | Tree | Mature | Common | Confirmed mother tree | This species is among the most abundant on the farm, with the majority of individuals fruiting. These trees could serve as a reliable seed source for the species. |
| **5** | *Anthocleista schweinfurthii* | Native | Tree | Mature | Common | Confirmed mother tree | The species is one of the most abundant on the farm, with most trees currently fruiting. These individuals could provide a dependable source of seed for the species. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **6** | *Anthocleista vogelii* | Native | Tree | Mature | Common | Confirmed mother tree | This species is among the most abundant on the farm, with the majority of individuals currently fruiting, suggesting it could serve as a reliable seed source. |
| **7** | *Antiaris toxicaria* (Kirundu) | Native | Tree | Mature | 2 | Potential mother tree | Only two individuals of this species were found on the farm. They may serve as a seed source, but seed production needs to be confirmed during the fruiting season. |
| **8** | *Bridelia micrantha* (Katazamiti) | Native | Tree | Mature | Common | Confirmed mother tree | This species is common on the farm, with numerous fruiting individuals, indicating a reliable seed source. It is also ecologically important, serving as a food source for wildlife, particularly birds. |
| **9** | *Broussonetia papyrifera* (Nkulaido) | Exotic | Tree | Mature | Common | Not suitable | This species is common on the farm, with many seedlings and saplings around, suggesting potential as a seed source. It is mainly suited for agroforestry applications and is not recommended for restoration planting. |
| **10** | *Canarium schweinfurthii* (Muwafu) | Native | Tree | Mature | Common | Confirmed mother tree | The species is abundant across the farm, with many fruiting individuals, making it a viable source of seed. In addition, the fruits serve as an important food source for both wildlife and humans, rendering the species exceptionally valuable for restoration planting. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **11** | *Cordia millenii* (Mukebu) | Native | Tree | Mature | 1 | Not suitable | Only one individual of this species was found during the survey. Although it was not flowering at the time, it could serve as a mother tree; however, it does not provide a viable source of seed for long-term use. |
| **12** | *Croton macrostachyus* (Musogasoga) | Native | Tree | Mature | 9 | Potential mother tree | Only a few individuals of this species remain, primarily coppices from the remnant forest. These may serve as a seed source, but seed availability should be confirmed during the appropriate season. |
| **13** | *Croton sylvaticus* (Musogasoga) | Native | Tree | Mature | Common | Confirmed mother tree | A large number of individuals are present around the farm, with most currently flowering, suggesting they could serve as a viable source of seed for the species. |
| **14** | *Dracaena fragrans* (Luwanyi) | Native | Tree | Pole | Common | Potential mother tree | This species is common, especially as a boundary marker and for fencing poles. It offers potential as a source of planting material, particularly through vegetative propagation methods. |
| **15** | *Erythrina abyssinica* (Jirikiti) | Native | Tree | Mature | Common | Confirmed mother tree | The species is widespread on the farm, with many individuals serving as fencing material. The presence of flowering trees suggests potential for seed collection and for obtaining planting material through vegetative propagation. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **16** | *Euphorbia tirucalli* (Nkoni) | Native | Tree | Pole | 4 | Not suitable | Only a few individuals of this species were found on site, all too young to produce seed. They could potentially be used for vegetative propagation, but they do not constitute a viable source of planting material. |
| **17** | *Ficus brachypoda* (Mukokowe) | Native | Tree | Mature | Common | Potential mother tree | This species is common on the farm, commonly used as fencing material. Fruiting mature individuals serve as an important food source for wildlife and could provide planting material, especially through vegetative propagation methods. |
| **18** | *Ficus exasperata* (Luwawu) | Native | Tree | Mature | Common | Potential mother tree | This species is common around the farm boundaries, with fruiting trees observed. It is well suited for restoration planting, serves as an important food source for wildlife, and could provide a viable seed source. |
| **19** | *Ficus mucuso* (Kabalila) | Native | Tree | Mature | Common | Potential mother tree | This species is common around the farm, with the majority of trees fruiting. It could serve as a viable seed source and is ecologically important as a food source for wildlife. |
| **20** | *Ficus natalensis* (Mutuba) | Native | Tree | Mature | 2 | Not suitable | Only two mature trees of this species were found during the survey, neither of which was fruiting or flowering. These individuals could potentially provide planting material through vegetative propagation. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **21** | *Ficus sur* (Kabalila) | Native | Tree | Mature | 6 | Potential mother tree | Only a few individuals of this species were found on the farm, with most being mature and currently fruiting. These trees could serve as a viable seed source and provide an important food resource for wildlife. |
| **22** | *Funtumia africana* (Nkago) | Native | Tree | Mature | 28 | Confirmed mother tree | The farm has matured trees, most actively flowering and fruiting, suggesting they could serve as a viable source of planting material and seedlings for the species. |
| **23** | *Garcinia buchananii* (Musaali) | Native | Tree | Mature | 7 | Potential mother tree | Mature individuals of this species were found during the survey, but none were fruiting or flowering at the time. Their potential as a seed source should be confirmed by follow-up monitoring during the fruiting season. |
| **24** | *Harungana madagascariensis* (Mulilira) | Native | Tree | Mature | Common | Confirmed mother tree | The species is commonly found across the farm, with numerous mature fruiting trees as well as abundant seedlings and coppice growth. This indicates that the site is a viable and sustainable source of seed for the species. |
| **25** | *Jatropha carcus* (Kiroowa) | Native | Tree | Mature | 18 | Potential mother tree | This species is represented by only a few individuals on the farm, primarily coppices from vegetative propagation. These trees may provide food for wildlife and could be used as a source of planting material through both seed collection and vegetative propagation. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **26** | *Lovoa trichilioides* (Nkoba) | Native | Tree | Mature | 7 | Potential mother tree | Only a few trees of this rare species were found on the farm. These mature individuals have seed production potential and may serve as a viable seed source, which should be confirmed during the appropriate fruiting season. |
| **27** | *Macaranga kilimandscharica* | Native | Tree | Mature | Common | Confirmed mother tree | Many individuals are present around the farm, the majority of which were flowering, suggesting good seed production potential. The species is well suited for restoration planting, especially in wet and swampy habitats. |
| **28** | *Macaranga spinosa* | Native | Tree | Mature | Common | Confirmed mother tree | Numerous flowering and fruiting trees are present around the farm, suggesting they could provide a viable seed source for the species. This species is well suited for restoration planting, especially in wetlands. |
| **29** | *Maesa lanceolata* (Kiwondowondo) | Native | Tree | Mature | 4 | Potential mother tree | Only four individuals of this species were found around the farm, each with fruiting potential. The species is well suited for restoration planting in wet habitats, including swamps and along riverbanks. |
| **30** | *Maesopsis eminii* (Musizi) | Native | Tree | Mature | Common | Confirmed mother tree | This species is by far the most abundant on the farm, with many potential mother trees. It is a viable seed source and is highly suitable for restoration planting due to its importance as a food source for wildlife, especially birds. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **31** | *Margaritaria discoidea* (Kamenyambazzi) | Native | Tree | Mature | 17 | Potential mother tree | The trees around the farm are largely coppices and leftovers from the remnant forest. Several are currently fruiting, suggesting they could serve as a viable seed source for the species. |
| **32** | *Milicia excelsa* (Muvule) | Native | Tree | Mature | 5 | Potential mother tree | This is a globally threatened species, with three mature individuals observed on the farm and the rest at pole stage. The mature trees may serve as a viable seed source for the species and need futher monitoring during the season. |
| **33** | *Mimusops bagshawei* (Musaali) | Native | Tree | Mature | 13 | Potential mother tree | This species is uncommon around the farm; however, the presence of a few mature individuals with seed production potential indicates it could serve as a viable seed source. |
| **34** | *Mitragyna rubrostipulata* (Muzingu) | Native | Tree | Mature | 12 | Potential mother tree | All trees recorded during the survey were both flowering and fruiting, suggesting they could serve as a reliable seed source for the species. |
| **35** | *Monodora myristica* (Naggomola) | Native | Tree | Pole | 3 | Potential mother tree | The trees of this species present on the farm were not fruiting and are still immature, indicating they are not yet suitable as potential mother trees. |

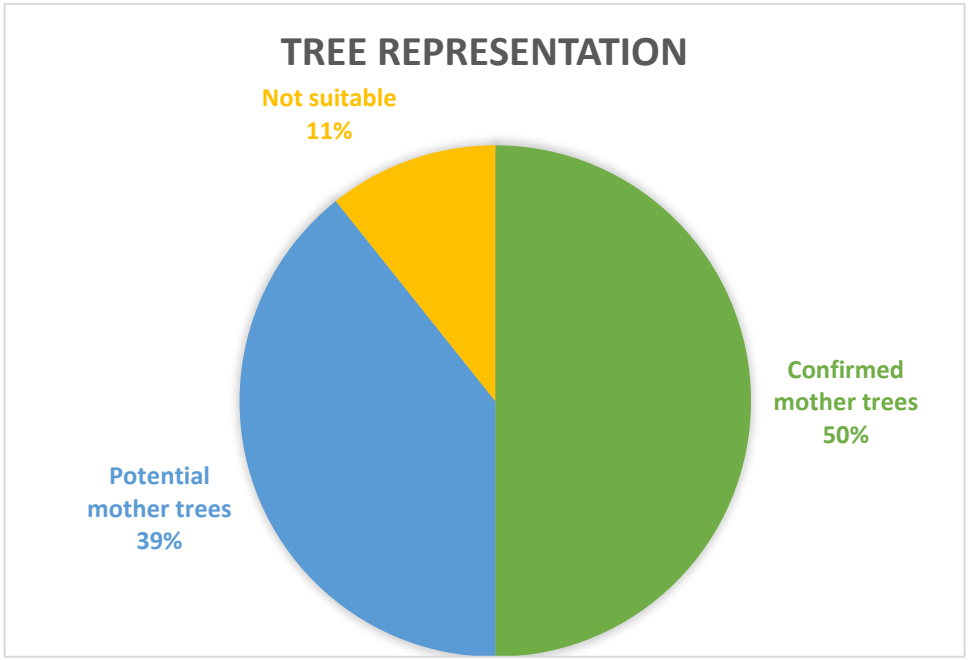
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **36** | *Morinda lucida* (Mubajansanyi) | Native | Tree | Mature | Common | Potential mother tree | The site contains numerous shrubby trees, with most individuals currently fruiting, suggesting they could serve as a seed source for the species. For higher propagation success, collecting seedlings or wildings after the rainy season is recommended. |
| **37** | *Musanga ceropioides* (Kaliba) | Native | Tree | Mature | Common | Confirmed mother tree | The species occurs commonly in the lower portion of the farm near the lakeshore, where some individuals are fruiting and may serve as a seed source. It is especially valuable for restorative planting within the farm, but at The Greater Outdoors its use is largely limited to display purposes. |
| **38** | *Newtonia buchananii* (Mpewere) | Native | Tree | Mature | Common | Confirmed mother tree | This species is common, with many individuals having recently produced fruit, indicating it could serve as a viable seed source. |
| **39** | *Piptadeniastrum africanum* (Mpewere) | Native | Tree | Mature | Common | Confirmed mother tree | There are many trees around the farm, with the majority having recently produced fruit, indicating they could serve as a reliable seed source for the species. |
| **40** | *Polyscias fulva* (Ssetala) | Native | Tree | Mature | Common | Confirmed mother tree | Many mature trees are present around the farm, with some individuals having fruited recently, suggesting the area is a viable seed source for the species. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **41** | *Pseudospondias microcarpa* (Muziru) | Native | Tree | Mature | Common | Confirmed mother tree | The species is widespread on the farm, with many fruiting trees, seedlings, and coppices, suggesting it is a reliable seed source. It is also ecologically valuable as a food source for wildlife. |
| **42** | *Pycnanthus angolensis* (Kinaaba) | Native | Tree | Mature | Common | Confirmed mother tree | A number of trees on the site are currently fruiting, suggesting they could provide a reliable seed source for the species. |
| **43** | *Rauvolfia vomitoria* (kawule) | Native | Tree | Mature | Common | Confirmed mother tree | The farm has numerous mature trees, accompanied by many seedlings and wildings. With most individuals currently fruiting, these trees could serve as a reliable seed source for the species. |
| **44** | *Sapium ellipticum* (Musasa) | Native | Tree | Mature | Common | Confirmed mother tree | The species is commonly distributed across the farm, with numerous fruiting and seed-producing trees, indicating that the site is a viable source of seed for the species. |
| **45** | *Senna siamea* (Cassia) | Exotic | Tree | Mature | Common | Not suitable | Although the species occurs at low density on the site, it has the potential to become invasive. Active management is needed to prevent its proliferation and maintain ecological balance. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **46** | *Senna spectabilis* (Cassia) | Exotic | Tree | Mature | Common | Not suitable | Although the species occurs at low density on the site, it has the potential to become invasive. Active management is needed to prevent its proliferation and maintain ecological balance. |
| **47** | *Spathodea campanulata* (Kifabakazi) | Native | Tree | Mature | 12 | Confirmed mother tree | All individuals of this species observed on the farm were potential mother trees, bearing flowers and seeds, indicating they could serve as a reliable source for seed collection. |
| **48** | *Sterculia dawei* | Native | Tree | Mature | Common | Confirmed mother tree | This species is common along the lakeshore of the farm, with the majority of trees observed bearing seeds. These trees provide a reliable seed source for the species. |
| **49** | *Syzygium cordatum* (Kanzirinziro) | Native | Tree | Mature | 14 | Potential mother tree | Only a small number of individuals of this species were found on site, and none were fruiting or flowering during the survey. Their potential as a seed source should be confirmed through follow-up monitoring during the fruiting season. |
| **50** | *Tetrorchidium didymostemon* | Native | Tree | Mature | 5 | Potential mother tree | Mature individuals of this species were present on the farm, but none were fruiting during the survey. These trees may serve as a seed source, and their seed production should be checked during the fruiting season. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **51** | *Trema orientale* (Kasisa) | Native | Tree | Mature | Common | Confirmed mother tree | There are many mature trees around the farm, with a significant number currently flowering and fruiting, suggesting they could serve as a viable seed source for the species. |
| **52** | *Trichilia dregeana* (sekoba) | Native | Tree | Mature | 18 | Potential mother tree | Only a few mature individuals of this species were found on the farm, with none actively fruiting, suggesting they may not be a viable seed source. |
| **53** | *Trichilia emetica* | Native | Tree | Mature | 6 | Potential mother tree | Six individuals of this species were recorded on the farm, the majority being coppices from the remnant forest. One tree was observed fruiting, suggesting it could serve as a seed source, though confirmation during the fruiting season is recommended. |
| **54** | *Uapaca guineensis* (Munamagulu) | Native | Tree | Mature | Common | Confirmed mother tree | This species is common along the lakeshore, with numerous fruiting individuals, most of which contain seeds, indicating good seed source potential. It is highly suitable for restorative planting along the lakeshore and primarily serves as a display species at The Greater Outdoors. |
| **55** | *Vangueria spp* (Katugunda) | Native | Tree | Pole | 6 | Confirmed mother tree | Several mature trees are present on the site, with many having recently produced fruit. These trees serve as a valuable food source for wildlife, especially birds, and could provide a reliable source of seed for the species. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **56** | *Xylopia eminii* (Nsagalanyi) | Native | Tree | Mature | 12 | Confirmed mother tree | Only a few individuals of this species were found on the farm, with some fruiting. These trees could serve as a seed source and are particularly suitable for restoration planting along lakeshores and in wet areas, while also being useful as a display species in more open locations. |



Fifty percent (28) of the tree species recorded within the survey area were confirmed as mother trees. These individuals met established criteria for seed collection, including appropriate age, physiological maturity, adequate size, and evidence of recent or active fruiting at the time of assessment.

These confirmed mother trees indicate that seed collection can be undertaken sustainably, without posing ecological risks to the long-term survival, regeneration capacity, or genetic integrity of the species. Additionally, the spatial distribution and adequate spacing of these trees support effective cross-pollination and genetic exchange, thereby maintaining healthy breeding populations.

Consequently, these species represent ideal candidates for sustained and repeated seed harvesting, provided that collection is conducted in accordance with best-practice guidelines to safeguard associated ecological interactions, including those involving wildlife and other dependent species.

Thirty-nine percent (22) of the recorded tree species were classified as potential mother trees. Several of these individuals met key criteria such as appropriate size, age, and spatial distribution, but lacked evidence of recent flowering or fruiting at the time of the survey. With continued growth, maturation, and seasonal monitoring, it will be possible to confirm whether these individuals can be formally designated as mother trees suitable for the collection of propagation material.

For other species within this category, population sizes were low, making long-term or repeated seed collection ecologically unfeasible, as this could compromise the regenerative capacity of the species and negatively affect associated ecological interactions, including wildlife dependence. Nevertheless, limited and carefully managed seed collection may be possible for some of these species, provided it is accompanied by close monitoring, adherence to sustainable harvesting thresholds, and consideration of species-specific ecological parameters.

Six tree species recorded during the survey were deemed unsuitable for seed collection. These were classified into two distinct categories.

The first category comprised non-native species that do not align with the project's restoration and conservation planting objectives. As these species fall outside the intended ecological framework, they are excluded entirely from seed sourcing and propagation considerations.

The second category included immature species or species represented by a very low number of individuals within the survey area. In such cases, even for species known to be prolific seed producers—such as *Cordia millenii*—the presence of only a single individual significantly limits genetic diversity. Seed collection under these conditions would compromise the genetic quality and resilience of propagated material, rendering collection ecologically and technically unfeasible.

## CHALLENGES AND LESSONS LEARNED;

During the initial days of the field assessment, the local personnel engaged in the activity demonstrated limited familiarity with both the tree species present and the specific objectives of the seed sourcing and mapping exercise. Additionally, the assessment coincided with the holiday period, which initially slowed field progress. However, efficiency and coordination improved as the activity progressed.

Several local names provided for tree species could not be reliably matched to the corresponding scientific taxa, rendering them unsuitable for accurate identification. In particular, three local names could not be confirmed at any stage of the assessment. This highlights the need for additional investigation and cross-verification to establish reliable links between local and scientific nomenclature.

Furthermore, the assessment was conducted outside the fruiting period for some species, limiting the ability to conclusively determine their status as confirmed or potential mother trees. As a result, continued and seasonal monitoring of the site is required to accurately assess the reproductive status and seed production potential of all recorded species.

To strengthen future assessments, it is recommended that voucher specimens be collected during subsequent field activities. These specimens will support provenance tracking, enable definitive species confirmation, and allow for verification across multiple herbaria, thereby improving the accuracy and credibility of species identification and documentation.

## CONCLUSION;

The seed sourcing and mapping survey conducted at Nalumuli Farm, Buikwe District demonstrates that the site retains high ecological value despite historical disturbance. The presence of a diverse assemblage of predominantly indigenous tree species, coupled with good overall tree health and active natural regeneration, indicates a functioning and resilient forest system capable of supporting sustainable seed sourcing initiatives.

A substantial proportion of the recorded species were confirmed as mother trees, with additional species identified as potential future seed sources pending further maturation and seasonal monitoring. This provides a strong foundation for sustainable, long-term seed collection, while maintaining ecological integrity, genetic diversity, and associated wildlife interactions. The limited presence of exotic and potentially invasive species, currently at low and manageable densities, does not pose an immediate threat to restoration objectives.

Although constraints were encountered—particularly related to limited local taxonomic knowledge, incomplete local nomenclature, and the timing of the survey outside peak fruiting seasons—these challenges can be effectively addressed through continued monitoring, seasonal

follow-up surveys, and the collection of voucher specimens for herbarium verification and provenance tracking.

Overall, Nalumuli Farm represents a strategically important seed source site for indigenous tree species restoration and conservation programs. With appropriate management, documentation, and monitoring, the site can support reliable, ecologically responsible seed collection that contributes meaningfully to landscape restoration, biodiversity conservation, and sustainable forestry initiatives.

APPENDICES;

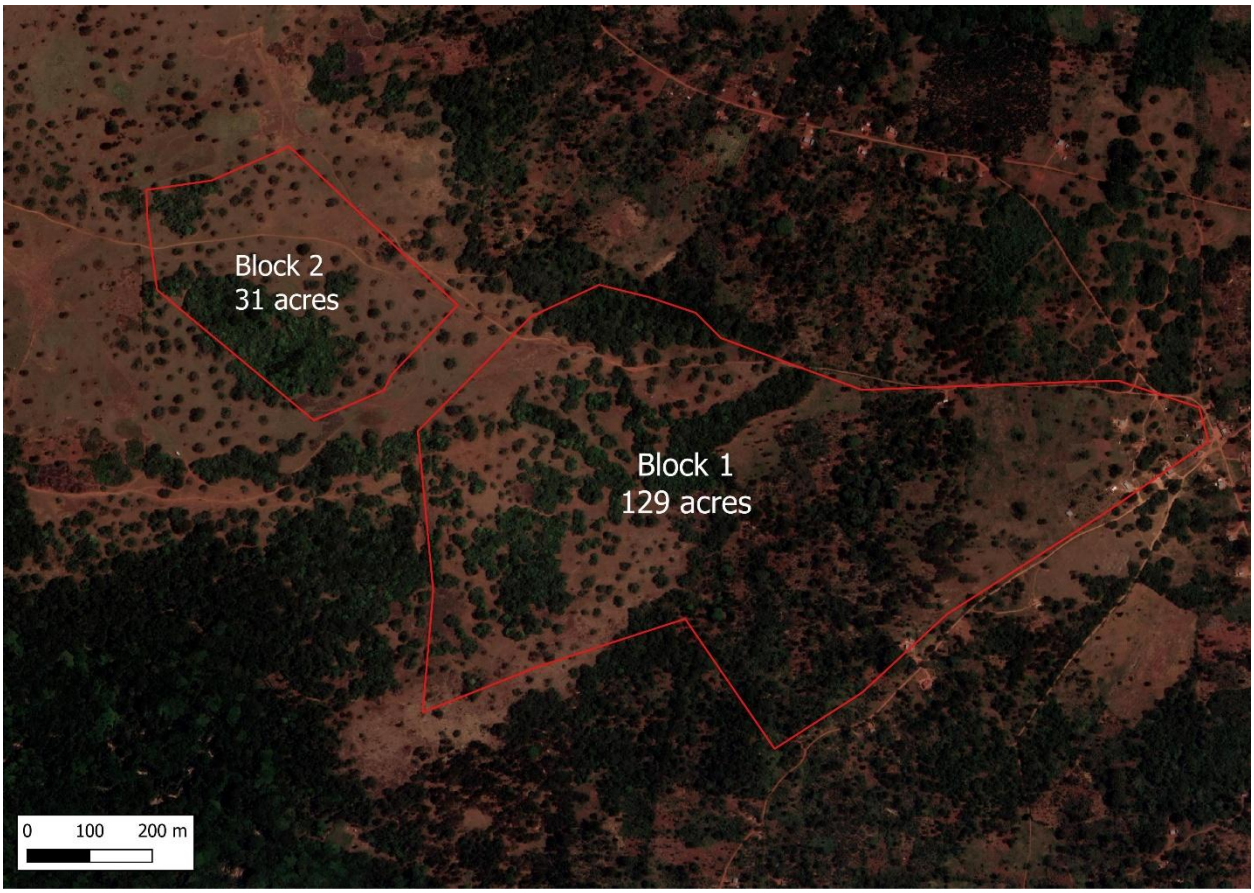



*Figure 2 Surveyed Blocks at Nalumuli*