NATIONAL CONSERVATION ACTION PLAN FOR THREATENED TREE SPECIES OF UGANDA

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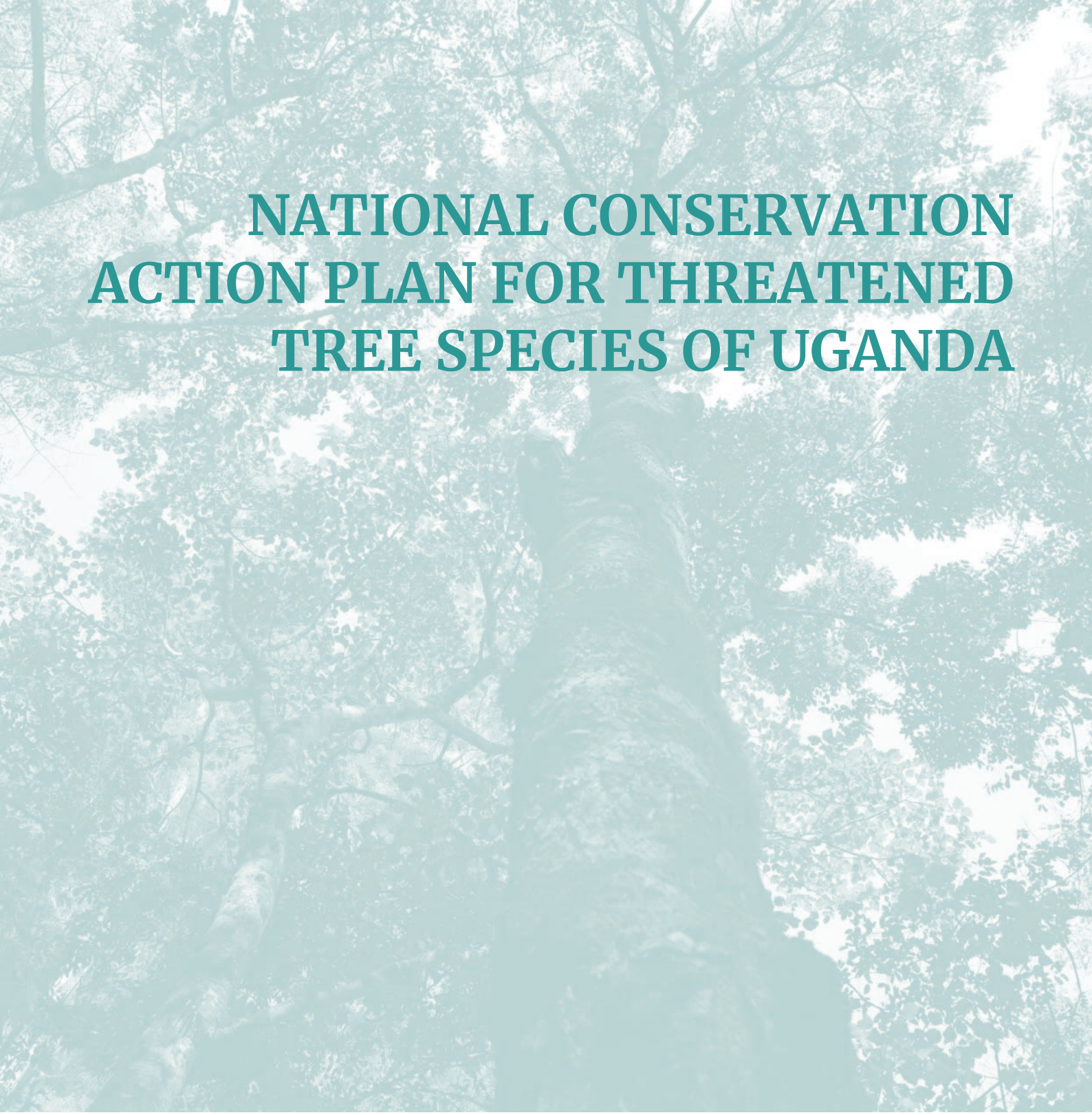


BOTANIC GARDENS CONSERVATION INTERNATIONAL

TOORO BOTANICAL GARDENS

CIFOR

NFA National Forestry Authority

NARO

MAKERERE UNIVERSITY

NaFORRI

Franklinia Foundation

Ministry of Water and Environment
REPUBLIC OF UGANDA

Royal Botanic Gardens Kew

Mapping threatened tree diversity in the wild

Cordia mellinii seeds

Acknowledgments

The successful development of National Conservation Action Plan for Threatened Tree Species of Uganda would not have been possible without the generous financial support from Fondation Franklinia and the invaluable assistance, contributions and support from various individuals and institutions. The authors extend their sincere gratitude and appreciation to these parties.

Additionally, special acknowledgment is extended to those who provided reviews for the report.

Appendix I of this document contains a comprehensive list of workshop participants, and the authors extend their gratitude to all for their valuable contributions.

Cover photo: *Prunus africana* seed orchard at Fort Portal CFR. (Kakaire Rajab/TBG)

Recommended citation: Harvey-Brown, Y. Mutegeki, A.S.M., Ruyonga, G.M. and Owinyi, R. (2025). National Conservation Action Plan for Threatened Tree Species of Uganda. BGCI, Richmond.

Acronyms and abbreviations

BGCI	Botanic Gardens Conservation International
CFR	Central Forest Reserve
CSO	Civil Society Organisation
CSR	Corporate Social Responsibility
CFM	Collaborative Forest Management
CBO	Community-Based Organisation
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CR	Critically Endangered
DLG	District Local Government
EN	Endangered
EIA	Environmental Impact Assessment
ESIA	Environmental Social Impact Assessment
IPAs	Important Plant Areas
IK	Indigenous Knowledge
ITF	International Tree Foundation
LFRs	Local Forest Reserves
MWE	Ministry of Water and Environment
MMU	Mountains of the Moon University
NEMA	National Environment Management Authority
NFA	National Forestry Authority
NTFPs	Non-Timber Forest Products
TBG	Tooro Botanical Gardens
UWA	Uganda Wildlife Authority
VU	Vulnerable

CONTENTS

Khaya anthotheca seedlings

Khaya grandifoliola

EXECUTIVE SUMMARY

Uganda, the pearl of Africa, is an important country for plant diversity despite its relatively small size. It has more than 860 native tree species, seven of which are endemic to the country. Over 45 native tree species are threatened with extinction (IUCN Red List 2024). Forest cover in the country has declined significantly, due to urban and agricultural expansion, unsustainable harvest of tree products (particularly for charcoal, firewood and timber), livestock grazing and mining. There is, therefore, an urgent need for well-planned conservation actions at priority sites which are underpinned by current, reliable information, to ensure that none of the country's tree species becomes extinct.

In February 2023, Botanic Gardens Conservation International (BGCI), Makerere University, Royal Botanic Gardens Kew and Tooro Botanical Gardens (TBG) hosted an in-person workshop titled "Conservation of Ugandan plant and tree diversity: prioritisation and planning". In this workshop a national vision statement was developed, proposed Important Plant Areas (IPAs) were reviewed and conservation actions were identified for priority sites (Zoka Central Forest Reserve (CFR), Bugoma CFR, Budongo CFR and Kasyoha-Kitomi CFR). Planning contributors who attended the workshop included representation from fourteen organisations including central and local government institutions, NGOs, and academic institutions.

Conservation planning workshop for Budongo systems range

Afzelia africana (Vulnerable)

Subsequently, TBG held other stakeholder planning workshops with the National Forestry Authority (NFA) management staff throughout different regions of Uganda (e.g. Muzizi Range Management, South West Range Management, Mafuga plantations, Sango Bay Range Management, Lake Shore Range Management, West Nile Range Management and Budongo Systems Range Management) to explore challenges faced in managing CFRs, developing strategies and actions for conservation and restoration of threatened tree species in their respective areas.

This plan summarises what was achieved during the conservation planning workshops, including the development of a national Vision and Goals. National-level objectives and actions have been compiled based on the issues which were identified to affect the majority of sites which are home to threatened tree diversity. Lastly, case-studies are presented for a selection of CFRs highlighting the main threats and which national-level objectives are relevant to mitigate them.

PREFACE

This conservation action plan for Uganda's threatened tree species comes at an exciting time in the evolution of tree conservation and forest restoration efforts. It has been developed to guide and support the restoration and conservation of the country's tree diversity. It aims to address the pressing issues faced by threatened tree species. It outlines strategic actions to mitigate these threats, ensuring the preservation and resilience of Uganda's tree diversity for future generations.

This conservation action plan has been developed for three main target groups; Government agencies and institutions, Non Governmental Organisations (NGOs), Community-Based Organisation (CSO), and Private Institutions and contributors to conservation and restoration.

TBG field team monitoring native tree diversity

Key components of the conservation plan include;

- **Descriptions of threats:** The plan provides a detailed analysis of the various threats to tree species diversity in Uganda. These threats include deforestation, habitat fragmentation, climate change, invasive species, and over-exploitation.

- **Conservation actions and strategies:** A range of targeted conservation actions and strategies are outlined to address the identified threats. These actions include habitat restoration, legal protection measures, community engagement, sustainable land-use practices, and research initiatives.

- **Collaborative efforts:** Successful implementation of conservation actions requires collaboration among various stakeholders. The plan identifies potential collaborators, including government bodies, NGOs, research institutions, local communities, and international partners. It emphasizes the importance of a coordinated approach to enhance the effectiveness of conservation efforts.

- **Implementation and monitoring** of the conservation action plan not only sets out the strategic actions needed but also provides a framework for monitoring and evaluating progress. Regular assessments and adaptive management strategies are crucial to ensure that conservation goals are met and that the plan remains responsive to emerging challenges.

This conservation action plan for Uganda's threatened tree species is a comprehensive guide designed to unite and direct the efforts of diverse stakeholders towards a vision where "Uganda's unique tree diversity is valued and consequently protected, sustainably used, and restored for the benefit of future generations". Through informed and coordinated action, these vital natural resources can be conserved for both current and future generations.

It is hoped this conservation action plan will inform and guide conservation and restoration practitioners in Uganda.

FOREWORD

I am honoured to pen this foreword for the National Conservation Action Plan for Threatened Tree Species of Uganda. The conservation action plan emerges as a crucial response to the pressing challenges and persistent factors driving the depletion of Uganda's tree diversity. Urgent, integrated approaches are needed to tackle these issues. The decline of tree species signals humanity's heavy reliance on biomass energy, necessitating comprehensive conservation and restoration strategies for sustained benefits for present and future generations.

Uganda predominantly depends on its diverse tree resources for firewood, charcoal, and agricultural residues to meet domestic needs. Biomass energy, sourced from trees and agricultural remnants in various land use types like farmlands, forests, and grasslands, underscores this dependence. Beyond energy, trees also yield timber and poles, collectively constituting the biomass resource.

However, human activities and competing demands from important plant areas and community landscapes threaten our tree diversity. The escalating population drives higher food production and energy needs, straining available land and leading to encroachment, deforestation, forest degradation, and wood fuel scarcity across the country. This concerning situation has drawn the attention of botanists, foresters, environmentalists, policymakers, and the public alike.

Milicia excelsa seeds

The conservation action plan is a strategic blueprint crafted by international, national conservation, and government and non government entities to conserve and restore trees facing extinction risks. A series of workshops organized by Botanic Gardens Conservation International (BGCI), Tooro Botanical Gardens (TBG), Makerere University, Royal Botanic Gardens Kew, and the National Forestry Authority (NFA) laid the foundation for this initiative. These workshops, conducted in various regions of Uganda, resulted in the formulation of a national vision statement, revising Important Plant Areas (IPAs), and conservation actions for priority sites.

Furthermore, TBG and the NFA organised regional workshops across seven forestry ranges to address threats to tree diversity and devise region-specific mitigation measures.

In addition to the conservation action plan, NFA is committed to engaging stakeholders including other government agencies and departments, the private sector, civil society, international organisations, and forest-edge communities to promote responsible forest management through education, advocacy, networking, skills transfer, and strengthening forest governance.

I extend heartfelt gratitude to Fondation Franklinia for their generous financial support of the Tree Conservation and Forest Restoration in Uganda project, the staff of BGCI, TBG, NFA, and all partners involved in the project. The conservation action plan is aligned with the National Development Plan III (NDP 3) and Vision 2040 of Uganda. This will further strengthen NFA's conservation efforts for Uganda's tree diversity and guide conservation practitioners toward a brighter future. The realization of this vision depends on the effective implementation of the conservation actions outlined in the conservation action plan.

"For God and My Country"

Tom Obong Okello
Executive Director, National Forestry Authority

FOREWORD

The National Conservation Action Plan for Threatened Tree Species of Uganda is an inspiring and ambitious plan focused on the protection of biodiversity in a hugely important and ecologically diverse part of Africa. Developed through an international workshop process and drawing on the latest global assessment of the status and threats to trees it sets out a clear vision to be achieved by 2035.

The steps along the way to securing Uganda's trees for the benefit of future generations and the roles and responsibilities of the key players are clearly set out in a format that provides an excellent model for other countries to follow. Successful implementation will reduce the impact of climate change whilst bringing great benefits to trees and people as well as the many thousands of other species that depend upon trees and the vital ecosystem services they provide. Congratulations to everyone involved.

Stephen Blackmore
King's Botanist

Prunus africana

INTRODUCTION

1.1 Plant diversity of Uganda

Uganda is an important country for biodiversity in Africa despite its relatively small size. It holds up to 5,000 plant species in her variety of ecosystems including semi-arid areas of the northeast, savannas of the northwest and tropical rainforest in the southwest. Western Uganda is part of the northern Albertine Rift region (large areas of which fall within the Eastern Afromontane Biodiversity hotspot), which contains many threatened and endemic plant species. There are two principal altitudinal types of forest, high altitude or montane forest (above 1,525 m asl) and mid altitude moist or lowland forest. All of the lake-belt forests are considered to be lowland, while in the Albertine Rift both montane and lowland forest can be found (Hamilton and Kalema 2020). Lowland forest also contains variation between wetter and drier areas, with an increased proportion in the number of deciduous trees found in drier forest (also known as semi-deciduous forest).

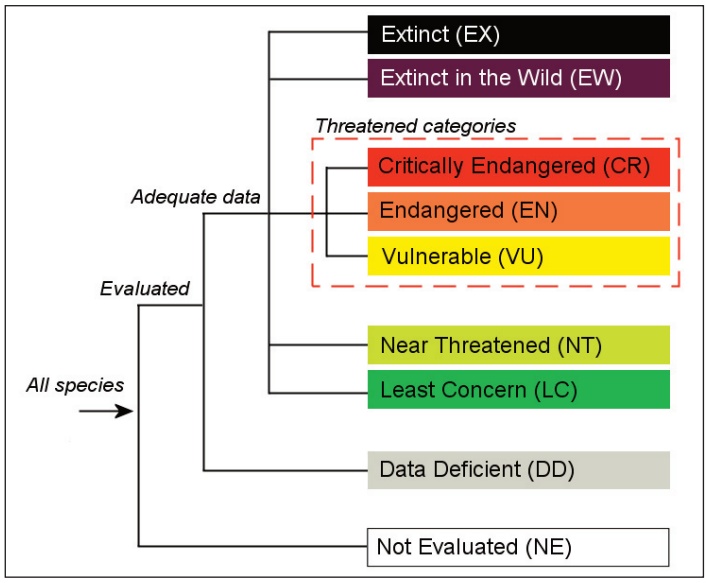
Seven tree species are endemic to Uganda. They include *Diospyros katendei* (Critically Endangered (CR)), *Encephalartos equatorialis* (CR), *Encephalartos whitelockii* (CR), *Uvariodendron magnificum* (Endangered (EN)), *Euphorbia stapfii* (Data Deficient (DD)), *Balsamocitrus dawei* (EN) and *Ficus katendei* (Not Evaluated (NE)).

1.2 Tropical Important Plant Areas (TIPAs) in Uganda

Important Plant Areas (IPAs) are the most important places in the world for wild plant and fungal diversity that can be protected and managed as specific sites. However, the vast majority of the IPAs identified in the decade following their launch by Plantlife International in the early 2000s were based in Europe, yet the vast majority of plant diversity is located in the tropical regions. To address this imbalance, the Tropical Important Plant Areas (TIPAs) programme was launched at the Royal Botanic Gardens, Kew. Through forming partnerships with botanical experts in selected countries in the Tropics, combining our knowledge and resources, 172 IPAs have been published so far, with this number expected to increase significantly over the coming years.

Much of the population of Uganda is reliant on key ecosystem services provided by plant species. While Uganda has an extensive network of National Parks, Wildlife Reserves and Central Forest Reserves (CFRs), a lack of freely available and centralised data on the critical sites for plant species conservation means that current legislation fails to protect many of the country's threatened plant species and habitats, particularly those located outside protected areas. Therefore, the assessment of IPAs provides a systematic and evidence-based means of identifying priority areas for site-based conservation of its flora and protecting the country's valuable resources for future generations. Forty-two TIPAs have been identified in Uganda. Please see Annex III for a map showing Uganda's TIPAs, and highlighted in green are areas with a high occurrence of threatened tree species.

Entandrophragma angolense, Mature Budongo mahogany



IUCN Red List of Threatened Species categories

1.3 Conservation status of Uganda's tree species

Of the 862 tree species native to Uganda, 76% (660 tree species) have been assessed using the IUCN Red List of Threatened Species Categories and Criteria. The majority of species which have not been assessed are those which are widespread across several countries. Many of the assessments have been completed by the Eastern African Plant Red List Authority; a voluntary network of botanists mandated by the IUCN SSC to undertake plant conservation assessments in Eastern Africa, including Uganda. Over 45 tree species have been assessed in Uganda as CR, EN or Vulnerable (VU).

Forest cover in the country has declined from 23.8% (4.8 million ha) in 1990 to about 9.9 % in 2019 (2 million ha) (NEMA 2019). The main threats driving forest loss in Uganda are urban and agricultural expansion, unsustainable harvest of tree products (particularly for charcoal, firewood and timber), livestock grazing and mining.

During the colonial period in Uganda (1894-1962) many of the larger forest patches were designated as CFRs which were managed by the Central Government Forest Department and small remnants of forest fell under the jurisdiction of the local government as Local Forest Reserves (LFRs). In 2003, the Forest Department was replaced by the National Forestry Authority (NFA) which now manages a total of 506 CFRs while the Uganda Wildlife Authority (UWA) manages six of the larger forests as National Parks.

Due to the high floristic diversity, concentration of threatened tree species and persistent threats, there is an urgent need for well-planned conservation action underpinned by, reliable and current information on the distribution, habitat, populations, key sites and major threats, to ensure that none of Uganda's tree species becomes extinct.

1.4 Scope of the project and process

In February 2023, Botanic Gardens Conservation International (BGCI), Makerere University, Royal Botanic Gardens Kew and Tooro Botanical Gardens (TBG) hosted an in-person workshop entitled "Conservation of Ugandan plant and tree diversity: prioritisation and planning". This workshop was attended by 29 participants, with representation from a variety of organisations including central and local government institutions, NGOs, and academic institutions.

During this workshop, a provisional list of IPAs for Uganda was reviewed and was allocated for participants to identify new sites within the national network, contribute to site description and propose IPA boundaries.

Subsequently, the conservation planning process was introduced and context for the process given. A visioning exercise followed which resulted in a jointly developed qualitative description of what the successful recovery of Uganda's tree diversity would look like. After the session, participants' contributions were translated into a set of goals. For a selected number of priority sites (Zoka CFR, Bugoma CFR, Budongo CFR and Kasyoha-Kitomi CFR) the following issues were discussed during the workshop:

- Causes and impacts of major issues to conservation
- Agreement on priority strategies to mitigate issues
- Agreement on what existing conservation opportunities could be mobilised for targeted groups and what kinds of further action or planning should be initiated; and
- Agreement on who will take the next steps towards progressing these recommendations.

After this initial workshop, TBG also held a series of stakeholder workshops with regional conservation institutions in Fort Portal, and the NFA management staff throughout different regions of Uganda (e.g. Muzizi Range Management, South West Range Management, Mafuga plantations, Sango Bay Range Management, Lake Shore Range Management, West Nile Range Management and Budongo System Range Management) to explore challenges faced in managing protected areas, developing strategies and actions for conservation and restoration of threatened tree species in their respective areas. The complete list of participants and which workshops they attended can be found in Appendix II.

This plan summarises what was achieved during the conservation planning workshops, including the development of a national Vision and Goals. National-level objectives and actions have been compiled based on the issues identified to affect the majority of sites which are home to threatened plant diversity. Lastly, case studies are presented for a selection of CFRs highlighting the main threats and which national-level objectives are relevant to mitigate them.

CONSERVATION STRATEGY

2.1 Our vision

By 2035, Uganda's unique tree diversity is valued and consequently protected, sustainably used and restored for the benefit of future generations

2.2 Our goals

Five goals outline the broad operational themes for conservation activity for Uganda's threatened trees.

Goal 1:
Uganda's tree diversity is documented, centrally compiled and freely available to guide conservation actions across the country

Goal 2:
The irreplaceability of Uganda's tree diversity is publicised and valued by all sections of society

Goal 3:
Uganda's tree diversity is protected as a national priority

Goal 4:
The country's tree resources are managed sustainably and equitably

Goal 5:
Destroyed and degraded landscapes are restored for the benefit of people and biodiversity

Afzelia africana

CONSERVATION ACTIONS

3.1 Goal 1: Uganda's tree diversity is documented, centrally compiled and freely available to guide conservation actions across the country

OBJECTIVE 1: Collate and update botanical information

RATIONALE

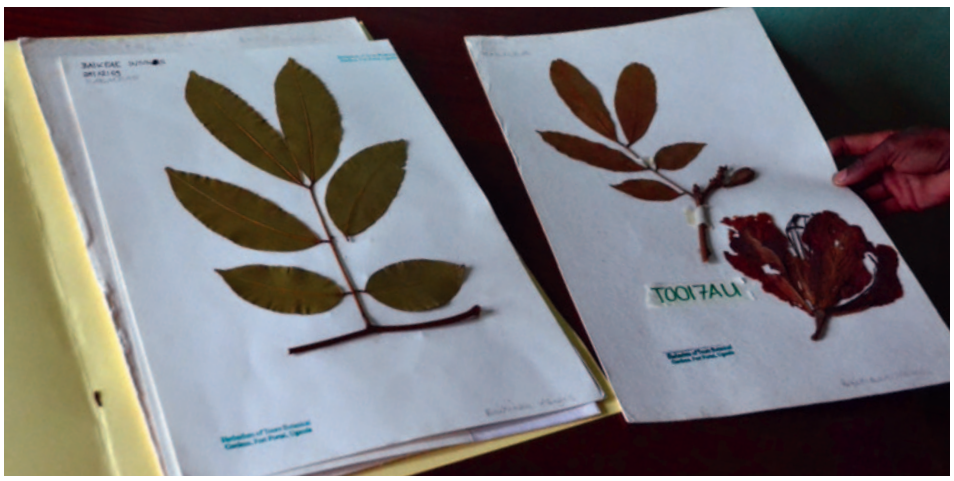
Several publications have been produced on the trees of Uganda. In the 1950s, two important books were published: The Indigenous Trees of Uganda Protectorate (Eggeling and Dale 1951) and the Graphical Field Keys of Uganda Trees (Dawkins 1951). Since then, several field guides have been produced, with the most recent "Field Guide to the Forest Trees of Uganda: For Identification and Conservation" published by Kalema and Hamilton (2020). In addition to providing keys for identification, it includes cultivation and propagation guidance for 62 tree species.

Consequently, many of Uganda's trees are well known, but some threatened tree species have not been collected for several years, and important information (e.g. location of mother trees within protected areas and on private land) is often unavailable. Therefore, it is recommended that new intensive surveys are conducted, particularly in forest remnants with a high density of threatened tree species, to gather information to facilitate their effective conservation.

Herbarium specimens often contain information which is useful for conservation. For example, collection labels can include information on local names, location, altitude, phenology and associated species. It is important that historical and new collections are databased and/or digitised. Some specimens are found in herbaria outside of Uganda (e.g. The East African Herbarium) and require international collaboration to ensure information is publicly available.

Additionally, useful information can be documented in reports (e.g. NFA management plans and Environmental Social Impact Assessments (ESIAs)) which are seldom freely accessible online. It is important that these reports are centralised and digitised to ensure that conservation decisions are being made with as much data as possible.

Entandrophragma angolense



Herbarium specimen

CONSERVATION ACTIONS 2025-2035

- 1.1 Collate existing information from management bodies, ESIAs and database, digitise and georeference herbarium specimen records (prioritising threatened endemic and near-endemic plant species)
- 1.2 Produce and reguarly update checklists of threatened endemic and near-endemic plant species in Uganda
- 1.3 Identify sites important for plant conservation and documenting key information including priority species (including globally threatened species and endemics) and collate information about these species at each site
- 1.4 Ensure that IUCN Red List Assessments for Uganda's plants and associated distribution maps are completed and up-to-date
- 1.5 Update phenological calendars for threatened plant species
- 1.6 Finalise germination and propagation protocols for threatened plant species
- 1.7 Establish *ex situ* collections (both gene banks and living collections) for threatened plant species
- 1.8 Data collected is stored in a centralised database that is publicly accessible
- 1.9 Research on native and threatened plant species is increased and driven by priority research gaps

ACTION LEAD & COLLABORATORS

- **NFA (LEAD)**
- **MWE (LEAD)**
- **National Environmental Management Authority (NEMA) (LEAD)**
- **Ministry of Tourism, Wildlife, and Antiquities (MTWA)**
- District Local Government (DLG)
- Royal Botanic Gardens Kew
- National CITES authority
- BGCI
- Makerere University Herbarium (MHU)
- The Eastern African Plant Red List Authority
- Botanic gardens

INDICATORS OF SUCCESS

- Number of herbarium specimens databased, digitised, georeferenced and published
- Regular updates of checklists of threatened endemic and near-endemic plant species published
- Publication of Uganda's TIPA's
- Number of surveys undertaken at TIPA's
- Number of up-to-date IUCN Red List assessments published
- Number of phenological calendars and propagation protocols developed and published
- Review of research gaps required for threatened tree species conservation conducted and published
- Number of distribution maps for threatened tree species produced and disseminated
- Number of active research projects on native threatened tree species

3.2 Goal 2: The irreplaceability of Uganda's tree diversity is publicised and valued by all sections of society

OBJECTIVE 2: Raise awareness of the importance of Uganda's tree diversity

RATIONALE

Promoting the value of conserving Uganda's plant diversity amongst all sectors of Ugandan society is paramount. A key method of achieving this could be through a greater understanding and appreciation of indigenous knowledge (IK). There is a need to facilitate platforms where those with IK can pass it on to the next generation. Storytelling can provide an opportunity for sharing knowledge and making connections within communities. Tales From Uganda (https://talesfromuganda.com/) aims to retell traditional Ugandan folktales in local languages and English using social media. Documenting and sharing folktales which include native trees could be explored as a potential method for raising awareness of Uganda's biodiversity.

There have been efforts to increase outreach and education on the importance of conserving the country's native fauna and flora. For example, the Uganda Wildlife Conservation Education Centre in Entebbe, is a focal point for school trips to learn about conservation. It receives more than 260,000 guests each year, however, it is primarily focused on Uganda's animal species rather than its plants. The Wildlife Clubs of Uganda have also set up wildlife clubs at schools throughout the country, implementing wildlife education activities. Novel approaches have been used to engage with the country's youth. For example, a graphic novel called Beatrice's Wildlife Adventure aims to empower Uganda's young people to become champions of their natural heritage. After learning with Beatrice, 94% of children said they would share conservation information with family and friends (WildAid 2023). Such initiatives can also be expanded to integrate the importance of Uganda's plant diversity.

Wildlife conservation is included in Uganda's National Curriculum, but it is mainly framed within the context of fauna and its importance for the tourism sector. It is recommended that the value of conserving plant diversity for the vital ecosystem services that they provide and for their own intrinsic uniqueness is also included in the curriculum. It is also important that conservation practices are well integrated in tourism activities and actors in this space are adequately empowered and obliged to promote them.

Awareness raising via radio programs


Entandrophragma angolense

CONSERVATION ACTIONS 2025-2035

- 2.1 Integrate the importance of Uganda's native biodiversity into the national curriculum at each age group
- 2.2. Increase capacity for the identification and conservation of threatened trees through specific training courses
- 2.3 Establish multi-stakeholder communication platforms for discussion and engagement on the importance of Uganda's plant diversity (particularly highlighting threatened tree species) for all age groups (e.g. utilising existing wildlife clubs, competitions and storytelling gatherings)
- 2.4 Develop resources to support public engagement (e.g. brochures and posters available in local languages and including pictures of target tree species)
- 2.5 Integrate conservation practices into tourism activities
- 2.6 Engage faith-based groups and cultural institutions to incorporate lessons of plant diversity into teachings and programs
- 2.7 Utilise citizen science as a method of engagement
- 2.8 Engage with Corporate Social Responsibility (CSR) to include threatened tree species conservation (e.g. marches, tree planting exercises)
- 2.9 Increase mainstream and social media features of native and threatened tree species

ACTION LEAD & COLLABORATORS

- **Ministry of Education and Sports (MoES) (LEAD)**
- **MWE (LEAD)**
- Policital leaders
- Ministry of Tourism Wildlife and Antiquities
- Uganda Wildlife Authority
- Botanic gardens
- Civil Society Organisations (CSOs) (e.g. Wildlife Clubs of Uganda and Tales of Uganda)
- Uganda Wildlife Conservation Education Centre
- Faith-based groups
- Cultural institutions
- Corporates

INDICATORS OF SUCCESS

- Native tree diversity is integrated into the national curriculum and associated learning materials are developed
- Number of engagement activities highlighting the importance of native tree diversity delivered per annum
- Number of faith-based groups and cultural institutions integrating native tree diversity into their program of activities
- Number of tourism packages developed highlighting native tree diversity
- Number of CSR activities highlighting threatened tree species conservation and restoration
- Number of mainstream and social media features promoting native and threatened tree species

Radio outreach campaigns raising awareness on threatened tree conservation

Promoting tree conservation through exhbitions

3.3 Goal 3: Uganda's tree diversity is protected as a national priority

Illegal logging is a key contributor to deforestation in Uganda. The majority of illegal logging is carried out using pit sawing (Ministry of Water and Environment 2016). It is the cause of the loss of important timber species such as *Afzelia africana* (VU) and *Khaya* spp. In addition to causing the loss of forest it can also contribute to ecological degradation. For example, selective logging reduces the number of mother seed trees of these species and consequently their ability to regenerate.

It is estimated that charcoal and fuelwood are responsible for up to 90% of Africa's primary energy consumption. In Uganda, there is no national ban on charcoal however, there are regional bans on production. There is also a ban on exporting charcoal, however this is not strictly enforced (Mwampamba et *al*. 2023). Charcoal is particularly favoured by poor urban communities where it can be used to prepare dishes which require slow cooking. Several species are particularly selected for charcoal production such as *Cynometra alexandri* (Least Concern (LC)).

Uganda is experiencing high population growth currently estimated at 46 million, with the population expected to at least double between 2020-2060 (World Bank 2020). This has resulted in the majority of remaining forested areas becoming fragmented and surrounded by human settlements. As the pressures on resources increase, settlements are starting to infringe on forest fragments. For example Zoka CFR has an additional resource pressure of being situated near refugee settlements in Adjuman district (Nyumanzi 1 & 2, Baratuku, Elema, Ayilo 1& 2, Mirieyi, Mungula and Maaji). High population densities in turn lead to increased harvesting of timber and Non Timber Forest Products (NTFPs).

Monitoring and mapping expedition in Bugoma CFR

Logging resulting in tree mortality

Forests are coming under pressure to establish large mono-plantations as forested areas are some of the few remaining areas in the country where there is an opportunity to convert large stretches of land. Sugarcane growing is becoming increasingly lucrative. A growing number of community members adjacent to protected areas are becoming out-growers to cultivate sugarcane. Budongo CFR, for example, is situated next to a sugar factory, Kinyara Sugar Works Limited (KSWL). Between 1988 and 2002 the area under sugarcane cultivation by both KSWL and its out-growers increased by over 17-fold, with a corresponding loss of 4,680 ha of forest (Mwavu and Witkowski 2008). Subsistence agriculture is also a primary driver of forest loss. For example, on the slopes of Mount Elgon (a plant biodiversity hotspot), between 1978 and 2020 agriculture overtook tropical high forest as the major land type (Opedes et *al*. 2022).

Several forests within Uganda have deposits of useful minerals underneath them. Kasyoha-Kitomi CFR has been mined in the past for gold however more recently it has been mined for Coltan (Plumptre 2002). Licences to mining companies have been issued by the Ugandan government.

Oil and gas development is also an emerging threat. The East African Crude Oil Pipeline will be the world's longest heated oil pipeline, transporting crude oil from near Lake Albert in western Uganda to Tanzania's Indian Ocean port of Tanga. It has been highly controversial and will impact a number of protected areas (e.g. Uganda's Murchison Falls National Park and Bugoma CFR).

OBJECTIVE 3: Increase the capacity of management bodies to enforce against illegal activities

RATIONALE

Many protected areas have only one or no forest station on site. This can hinder protected area managers' ability to deal with illegal activities which occur within their jurisdiction. Loggers, for example, are deliberately targeting remote areas of reserves, where there is limited capacity within the management bodies to patrol. Technology could be utilised to help aid the ability of forest patrol teams, supervisors and managers to respond to threats in real-time. WCS has provided customised smartphones for the use in monitoring, assessment, and management of forest patrolling activities in the CFRs of Mt. Kei, Kulua, Lodonga, Mt. Watti, Barituku, Otrevu, Enyau, and Suru in Kei and Maracha sectors of the West Nile Range (WCS 2022). If successful, this technology could be circulated to NFA staff in other sectors.

An additional challenge which management bodies often face is hostility from local communities adjacent to the protected area that they work in. Ensuring that there is a platform available for communication between the management body and other key stakeholders is important for discussing key issues. The Forest Resources Sector Transparency (FOREST) programme recommends establishing public forest accountability forums at district and sub/regional levels to encourage dialogue between stakeholders and to build trust. For example, the inter-district Forum has brought together stakeholders from Mubende, Kyegegwa, and Kyenjojo managed to facilitate the peaceful eviction of long-standing encroachers by the NFA from Kaweeri CFR without having to use force (CARE International 2018).

CONSERVATION ACTIONS 2025-2035

- 3.1 Increase the number of forest rangers, forest supervisors, and community frontline informers and provide training in forestry management skills and supply them with sufficient resources to implement effective management (e.g. protective gear and communication systems)
- 3.2 Establish and equip existing forest stations to effectively monitor and prevent encroachment
- 3.3 Establish joint forums to build relations with the management authorities and other key stakeholders surrounding native forest fragments

ACTION LEAD & COLLABORATORS

- **NFA (LEAD)**
- TBG
- MoES
- MWE
- CSOs
- DLG
- WCS
- MTWA

INDICATORS OF SUCCESS

- Number of rangers and community frontline informers supported, trained and supplied with appropriate equipment
- Number of well-equipped forest stations operating
- Number of joint forums held between management bodies and adjoining protected areas community members per annum
- Number of people engaged in the management of priority sites for threatened tree species
- Amount of financial resources committed to forest management
- Number of protected areas with secure boundaries
- Number of cases of illegal activities in forested areas reduced

OBJECTIVE 4: Control and eliminate invasive species

RATIONALE

Invasive species have become one of the biggest global threats to biodiversity and are reported to be affecting livelihoods in 70% of African countries (Makoni 2020). As many forested areas in Uganda are becoming increasingly degraded by threatening processes, more and more forest gaps are being created. This is resulting in suitable conditions for invasive species to take hold. For example, *Senna spectabilis* has also been found to occupy more than 1,000 hectares of Budongo CFR, having replaced whole communities of native forest plants, taking particular advantage of old logging roads and disturbed areas (Witt and Boy 2013). Additionally, increased incidences of drought have also been associated with an increase in certain invasive species in the country (e.g. *Prosopis juliflora* and *Latana camara*) (Kuule et *al.* 2022).

Some of the impacts of invasive species within Uganda have already been documented. A study investigating the impact of *Broussonetia papyrifera* found that in Mabira CFR, its presence has significantly reduced the abundance and basal area of selected native timber species (Ssemanda and Ssekuubwa 2023). In the Queen Elizabeth Protected Area the invasive plant species *Dichrostachys cinerea*, *Imperata cylindrica* and *Lantana camara* all increased significantly in area in an eight-year period. This has resulted in a reduction in the amount of suitable habitat available for animal grazers and may negatively affect important revenue generating tourism activities (Ayebare et *al.* 2020). These examples highlight that the presence of invasive species has a significant negative impact not only on biodiversity but also on the economy of the country.

Although there has been increased research into the presence of invasive species and their impact, they are often still poorly understood in many areas of the country. Knowledge of which invasive species are present in forested areas and trials of appropriate management actions (including methods which were not effective) is needed.

CONSERVATION ACTIONS 2025-2035

- 4.1 Identify and map the presence of invasive species within areas with a high concentration of threatened tree species
- 4.2 Identify factors that influence their population dynamics
- 4.3 Stakeholder engagement and awareness creation of their negative impact (e.g. simple identification guide)
- 4.4 Development of an Invasive Species Management Plan (ISMP) for early detection and monitoring of invasive species
- 4.5 Active management of invasive species
- 4.6 Development of a national strategy for invasive species covering prevention, control and management

ACTION LEAD & COLLABORATORS

- **NFA (LEAD)**
- **National Agricultural Research Organisation (NARO) (LEAD)**
- UWE
- DLG
- CSOs
- Research institutions
- Botanic gardens
- MWE

INDICATORS OF SUCCESS

- Number of sites where invasive species are identified, mapped and monitored
- Number of hectares where invasive species have been controlled and monitored
- Number of information leaflets highlighting the negative impact of invasive species developed
- Number of people trained in the indentification and management of invasive species per annum
- Number of ISMP developed
- Publication of a national strategy for invasive species

OBJECTIVE 5: Reduce incidences of wildfires

RATIONALE

Nearly all wildfires are caused by humans. There is a long-standing tradition in Uganda to use fire as a tool to clear land and promote new growth as it is inexpensive and quick. Fires are also lit to catch bushmeat and harvest honey. Fires can spread out of control from the original source and burn large areas. For example, in 2016 approximately 30 hectares of Echuya CFR was burnt which may have been started to aid honey collection (NatureUganda 2018). Some areas which would have burned irregularly are now being burnt multiple times within a ten-year period.

Managers of PAs do not have clear and well-developed strategies for combating wildfires. The NFA has established firebreaks on the boundaries of certain CFRs, but according to Opige et *al.* (2022) they are ineffective and are not well maintained. The NFA does not have the capacity to deal with them once they are ignited. This is resulting in the reduction of natural regeneration and the conversion of the forest to savanna. Due to the resources needed to extinguish wildfires, the most effective tool is through planning and implementing preventative measures (Opige et *al.* 2022). For example, understanding the needs in different areas can ensure that actions (e.g. training) are appropriate and effective.

CONSERVATION ACTIONS 2025-2035

- 5.1 Train local communities on appropriate farming practices that reduce the risk of wildfires
- 5.2 Raise awareness on the negative impact of wildfires on biodiversity and local communities
- 5.3 Development of fire mangement plans, including preventative wildfires measures where necessary (e.g. fire observation towers, early warning systems and establishment of fire breaks)
- 5.4 Map of “high incidence” areas

ACTION LEAD & COLLABORATORS

- **NFA (LEAD)**
- CSOs (e.g. Tropenbos International)
- Local community
- DLG
- Cultural leaders
- MWE
- Ministry of Relief, Disaster Preparedness and Refugees

INDICATORS OF SUCCESS

- Number of fire management plans developed
- Acreage of “high incidence” areas mapped
- Number of people trained on preventative wildfire measures per annum
- Number of information leaflets of the negative impact of wildfires distributed per annum
- Number of preventative wildfire measures implemented
- Amount of financial resources committed to wildfire management

3.4 Goal 4: The country's tree resources are managed sustainably and equitably

OBJECTIVE 6: Expand alternative sustainable livelihoods

RATIONALE

With forest loss outside of protected areas extremely high, local communities are often reliant on PAs to meet their needs and supplement their livelihoods. Key resources obtained from the forest include timber, fuel-wood, charcoal, food and medicine. Usage is however not always sustainable and there are often no alternatives available.

For example, within Budongo CFR NTFPs are an important source of herbal medicine for local people. Herbal medicine is sometimes preferred over modern medicine as it is believed to have fewer side effects. There is also poor access to medical facilities in many areas, increasing reliance on herbal medicine extracted from NTFPs. Certain species (e.g. *Warburgia ugandensis* (NE) and *Prunus africana* (VU) are declining due to unsustainable overharvesting.

Another example is the high demand for charcoal and fuel-wood as there are limited affordable alternative sources available. Inefficient cooking practices and equipment also exacerbate demand. There is a need to raise awareness on the environmental impacts of cooking with untraceable charcoal (where the source of the wood is not provided) to help encourage consumers to buy charcoal which has been derived from a sustainably managed source. Efforts to increase the sustainability of fuel wood and charcoal are underway in the country. For example, the organisation Green Charcoal Uganda manufactures carbonised and non-carbonized briquettes from palm kernel, rice and coffee husks, and other agricultural wastes, creating and other agricultural wastes, creating sustainable products that replace both charcoal and firewood.

Collaborative Forest Management (CFM) schemes have been established in Uganda for communities that live adjacent to PAs to help manage and protect forestry resources more equitably. The CFM model requires communities to formally organise in CFM groups. First established in 1998, over 300 groups are engaged in CFM in the country, with over half concentrated in just one (of nine) NFA forest ranges (Kazoora et *al.* 2020). CFM schemes can be used as a method to diversify the incomes of communities and, in turn, decrease the dependency on forest resources. Activities promoted through CFMs include apiculture, agroforestry, village savings and cooperative schemes, vegetable growing, livestock rearing and business and vocational training. For example, a project being run in run in Budongo CFR by Budongo Conservation Field Station includes vocational training of 28 ex-hunters through a horticultural course and a further eight enrolled into a motor mechanics course (Babweteera 2019).

Afzelia africana seeds

Production of charcoal often uses wild sourced native species

CONSERVATION ACTIONS 2025-2035

- 6.1 Document traditional knowledge (with a particular focus on utilisation) of native and threatened tree species
- 6.2 Establish tree plantations to provide alternative resources (e.g. woodfuel) within adjacent communities through the distribution of seedlings and training on propagation, planting and management
- 6.3 Train groups of farmers in adjacent communities to increase the productivity of land outside of protected areas
- 6.4 Train and support for ecopreneurship, green jobs, ecotourism and Nature-based Solutions (NbS)
- 6.5 Explore with NFA about zoning CFRs with the involvement of local and the international community and if there are more opportunities for integration within the CFM model
- 6.6 Develop more energy-efficient practices with associated training and cookstoves to reduce the demand for charcoal and wood fuel
- 6.7 Mobilise resources to scale up the domestication of native trees (e.g. fruit and medicinal species) through agroforestry
- 6.8 Develop alternative income generating activities (e.g. apiary)
- 6.9 Develop sustainable and competitive value chains of prioritised fruit and medicinal species

ACTION LEAD & COLLABORATORS

- **NFA (LEAD)**
- **CSOs (LEAD)**
- UWA
- DFS
- Local communities
- Private sector
- Botanic gardens
- Uganda Peoples' Defence Force
- Uganda Police Force
- Ministry of Gender, Labour and Social Development
- MWE
- Ministry of Agriculture, Animal Industry and Fisheries

INDICATORS OF SUCCESS

- Number of smallholder farmers trained annually on increased land productivity practices, under the three main agro-forestry systems – agrosilvopastoral, silvopastoral, and agrosilvicultural systems
- Number of farmers trained in potentially viable tree-based enterprises per annum
- % of agroforestry systems using 17-20 native tree species in agroforestry systems
- Number of smallholder farmers trained annually in energy-efficient practices (e.g. the production of alternative energy sources (briquettes))
- Number of energy-efficient stoves distributed per annum
- Number of active CFM schemes per annum
- Number of people skilled in green jobs and NbS
- % of income accruing from green jobs and NbS

OBJECTIVE 7: Resolve boundary disputes around protected areas

RATIONALE

Uganda's history, where there have been several changes in land policy, has created uncertainty about rights and ownership of land. Consequently, land disputes are widespread in the country, affecting 33% to 50% of landholders. The majority of these disputes are related to the determination of boundaries or competing claims for land use and ownership (Musumba 2014).

Land conflicts between communities are causing the issue of deforestation to become highly politicised in certain areas which is hindering effective conservation from being implemented.

CONSERVATION ACTIONS 2025-2035

- 7.1. Survey land where there are land disputes to confirm the boundary titles of the land
- 7.1.2 Consult with local communities to explain the results of the land survey
- 7.1.3 Clear boundaries established and promoted in protected areas
- 7.2 Cancel all illegal land titles in protected areas

ACTION LEAD & COLLABORATORS

- **NFA (LEAD)**
- **Ministry of Lands, Housing and Urban Development (LEAD)**
- Local communities
- Cultural and faith based institutions
- MTWA
- MWE

INDICATORS OF SUCCESS

- Number of consultations to resolve land disputes
- Number of land surveys to resolve land disputes
- Number illegal land titles within protected areas cancelled
- Number of people sensitised about land ownership systems

Restored part of Fort Portal CFR [TBG]

Afzelia africana

3.5 Goal 5: Destroyed and degraded landscapes are restored for the benefit of people and biodiversity

OBJECTIVE 8: Regeneration and restoration of degraded areas

RATIONALE

In Uganda, only 40% of the forest cover remains intact today, from what existed in the 1990. The forest cover which has been lost offers an opportunity for its restoration. A Restoration Opportunity Assessment Mapping exercise performed by the Ministry of Water and Environment revealed that up to 8,079,622 ha of land is available in Uganda for restoration. The highest restoration opportunities were identified in the Northern moist, Karamoja and Southwest rangelands (MWE and IUCN 2016). It is worth noting that Uganda made a commitment to restore 2,500,000 ha through the Bonn Challenge. This pledge presents a huge opportunity for delivering species conservation, increasing farm biodiversity, and delivering genetically and taxonomically diverse ecological restoration that benefits people and wildlife.

Conservation institutions such as TBG and NFA, possessing expertise in cultivating indigenous species and restoring forests, are transferring this knowledge to local community members. This empowers them to monitor native species within forests and gather seeds for propagation in both government and community tree nurseries.

The Tree Conservation and Forest Restoration Project in Uganda presents an opportunity to support a network of conservationists to map mother trees of threatened species, monitor wild populations, collect and propagate their seeds for use in restoration initiatives. For example, 60 hectares of degraded land within Kangombe CFR are currently under active establishment of a field gene bank for threatened tree species, with ongoing monitoring to track progress. Similarly, 6.8 hectares within Fort Portal CFR are under expansion of a threatened species seed orchard to support their conservation and restoration. These gene banks will not only showcase species growth trends and modeling but also serve as fundamental elements of tree conservation strategies. They will provide indispensable resources for seed collection and banking, research, propagation, restoration efforts, and the long-term preservation of genetic diversity within threatened tree populations. This model can be replicated in other regions of Uganda to enhance the restoration of degraded forest areas.

CONSERVATION ACTIONS 2025-2035

- 8.1 Research into seed sources and trials to develop planting strategies in different land-use types inside and outside of protected areas
- 8.2 Establish and expand existing nurseries nurseries of a diverse species of native tree seedlings in the different forest zones
- 8.3 Identify and map suitable sites for restoration
- 8.4 Engage and train local communities to collaborate in restoration activities
- 8.5 Implement *in situ* and *ex situ* restoration programmes that integrate adjoining land uses
- 8.6 Monitor and evaluate restoration activities

ACTION LEAD & COLLABORATORS

- **NFA (LEAD)**
- **UWA (LEAD)**
- TBG
- CSOs
- CBOs
- Local communities
- MWE
- MTWA

INDICATORS OF SUCCESS

- Number of native tree species available in nurseries
- Number of people trained in restoration techniques per annum
- Acreage of degraded/destroyed sites restored

CASE-STUDY CFRS

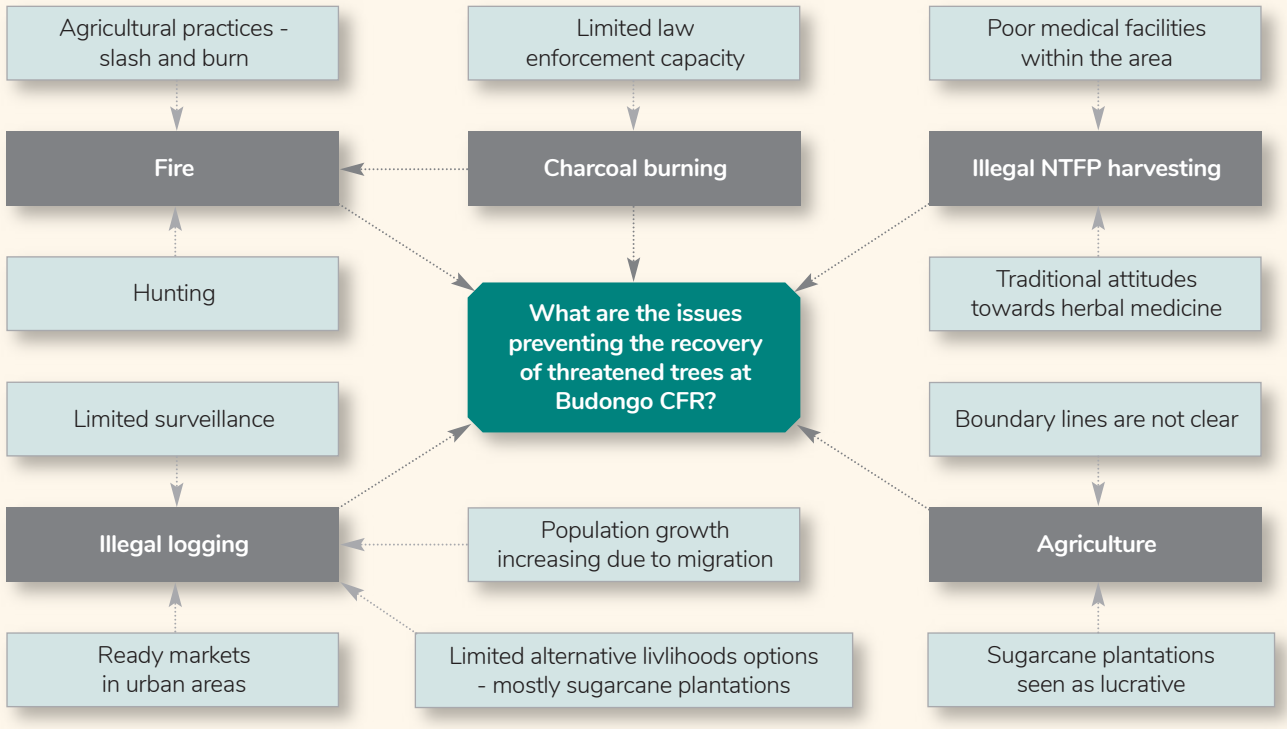
5.1 Budongo Central Forest Reserve

Budongo CFR is a moist, semi-deciduous tropical rainforest located at the top of the Albertine Rift. It is made up of 435 km^2 of continuous forest cover. There are also strips of riverine forest which persist into the surrounding landscape which is a mosaic of predominantly sugar cane plantations and cropland. The forest is mainly dominated by tree species of *Cynometra*, *Celtis* and the mahoganies *Khaya* and *Entandrophragma*. Many of Uganda's threatened tree species can be found in the reserve. For example, the near-endemic (also native to DRC) *Dicranolepis pyramidalis* (EN).

The CFR is divided into three management zones; strict nature reserve (managed solely for conservation), buffer zone (eco-tourism and research are permitted) and production zone (commercial activities are allowed in accordance with the CFR's management plan). Approximately 10% of the CFR is under CFM, mainly in the south, eastern and southwestern compartments which border villages. One CFM is the Budongo Good Neighbour Conservation Association (BUNCA) which has produced a management plan to guide enterprises. Activities which have been undertaken in accordance with the plan include timber extraction from non-threatened species, charcoal production (mainly from *Cynometra alexandri* (LC), firewood collection from dry trees or wood, pole collection, harvesting of herbal medicine, extraction of rattan canes and Raphia (Mulyowa 2022). In forest compartments not under CFM, timber extraction takes place following agreed regulations (Mulyowa 2022).

Key threats for Budongo CFR include: illegal logging, encroachment of agriculture (particularly sugarcane), forest fires, unregulated harvesting of NTFPs and charcoal burning. It has been estimated that between 1930s-1980s, 25-45 cubic metres of timber per hectare were removed from Budongo CFR (Budongo Conservation Field Station 2023). Invasive species are also having a negative impact. *Senna spectabilis* has also been found to occupy more than 1,000 hectares of Budongo CFR, having replaced whole communities of native forest plants, taking particular advantage of old logging roads and disturbed areas (Witt and Boy 2013).

Threat analysis of Budongo CFR



Relevant objectives

Objective 1: Collate and update botanical information
Objective 2: Raise awareness of the importance of Uganda's tree diversity
Objective 3: Increase the capacity of management bodies to enforce against illegal activities
Objective 4: Control and eliminate invasive species
Objective 5: Reduce incidences of wildfires
Objective 6: Expand alternative sustainable livelihoods
Objective 7: Resolve boundary disputes around the CFR
Objective 8: Regeneration and restoration of degraded areas

5.2 Zoka Central Forest Reserve

Zoka CFR is a 6,145 hectare area of tropical rainforest in Southern Adjumani District, northern Uganda. It is the most biologically diverse forest remaining in the district. Threatened tree species found in the reserve include *Balsamocitrus dawei* (EN).

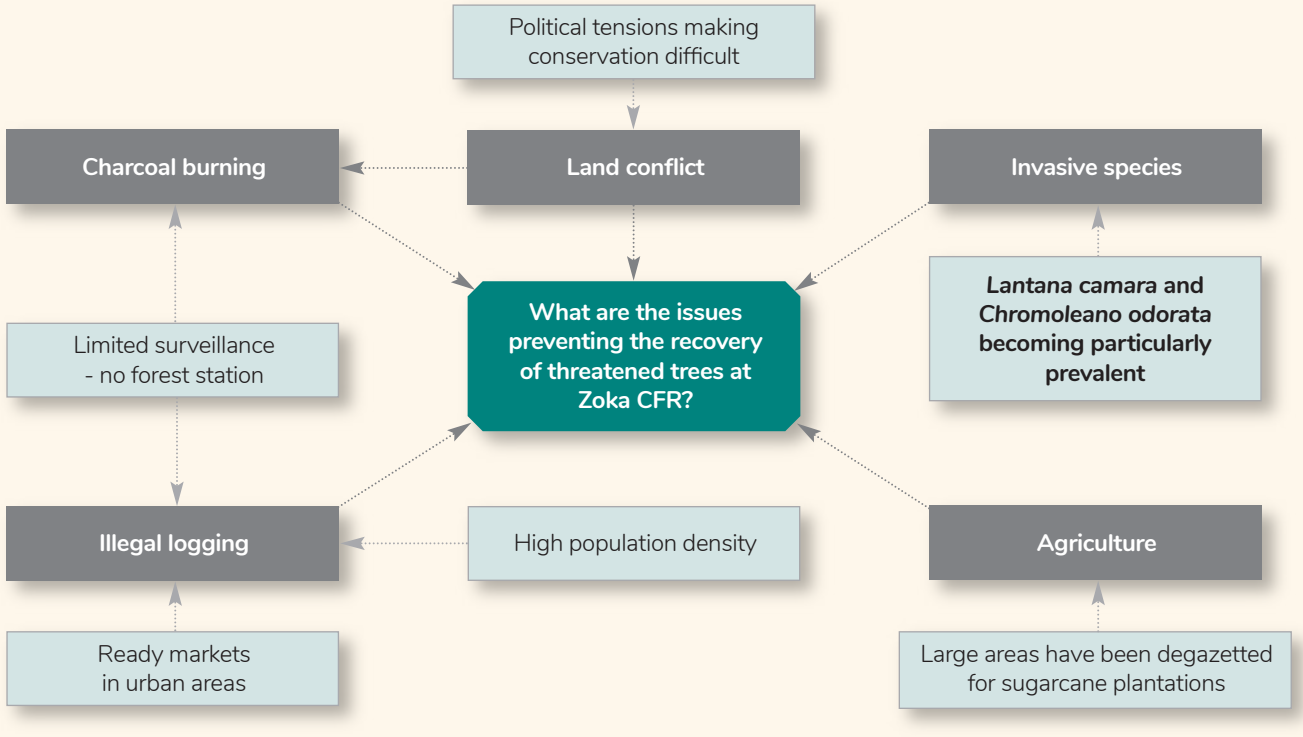
Key threats to the reserve include encroachment from increasing settlement building and agriculture expansion within the boundaries of the reserve, being driven by an increasing population in the area in conjunction with limited alternative sources of generating income. It has been estimated that charcoal burning and encroachment for agriculture have led to the destruction of 52% of the forest cover (Duku 2022). Large areas of the reserve have been degazetted for sugarcane plantations which is causing a significant loss of biodiversity and reducing the integrity of the forest. Invasive species are also increasingly causing issues within the CFR, with *Lantana camara* and *Chromolaena odorata* becoming particularly prevalent. More research is needed to determine their impact.

Land conflicts between communities are also causing the issue of deforestation to become highly politicised which is hindering effective conservation from being implemented. Friends of Zoka was founded as a community-led pressure group to protect Zoka CFR in 2016.

Relevant objectives

Objective 1: Collate and update botanical information
Objective 2: Raise awareness of the importance of Uganda's tree diversity
Objective 3: Increase the capacity of management bodies to enforce against illegal activities
Objective 4: Control and eliminate invasive species
Objective 5: Reduce incidences of wildfires
Objective 6: Expand alternative sustainable livelihoods
Objective 7: Resolve boundary disputes around the CFR
Objective 8: Regeneration and restoration of degraded areas

Threat analysis of Zoka CFR



5.3 Kasyoha-Kitomi Central Forest Reserve

Kasyoha-Kitomi CFR is found in western Uganda and covers 392 km^2. It is a part of the Albertine Rift eco-region, situated only a few kilometres from Queen Elizabeth National Park. It is a medium-altitude moist forest and represents the most extensive area of relatively undisturbed forest between 975 and 2,136 m asl in Uganda (Howard 1991). It is an important watershed for Lake George (a very productive fishery) (Plumptre 2002). It is home to significant plant diversity, including a number of plant species only known from Uganda. *Diospyros katendei* (CR Possibly Extinct) is endemic to the reserve and has only ever been collected once in 1987, despite three separate specific searches to re-find the tree it has not been re-found. *Uvariodendron magnificum* (EN) is only known from the reserve and Sesse Islands (on Lake Victoria). *Costus foliaceus* (EN) is known from four localities in Uganda, with Kasyoha-Kitomi CFR and Bwindi National Park being the only ones with some level of protection. Additionally, a number of threatened animal species can be found in the reserve including forest elephants (CR), chimpanzees (EN), L'Hoest's monkeys (VU) and white-naped pigeons (NT).

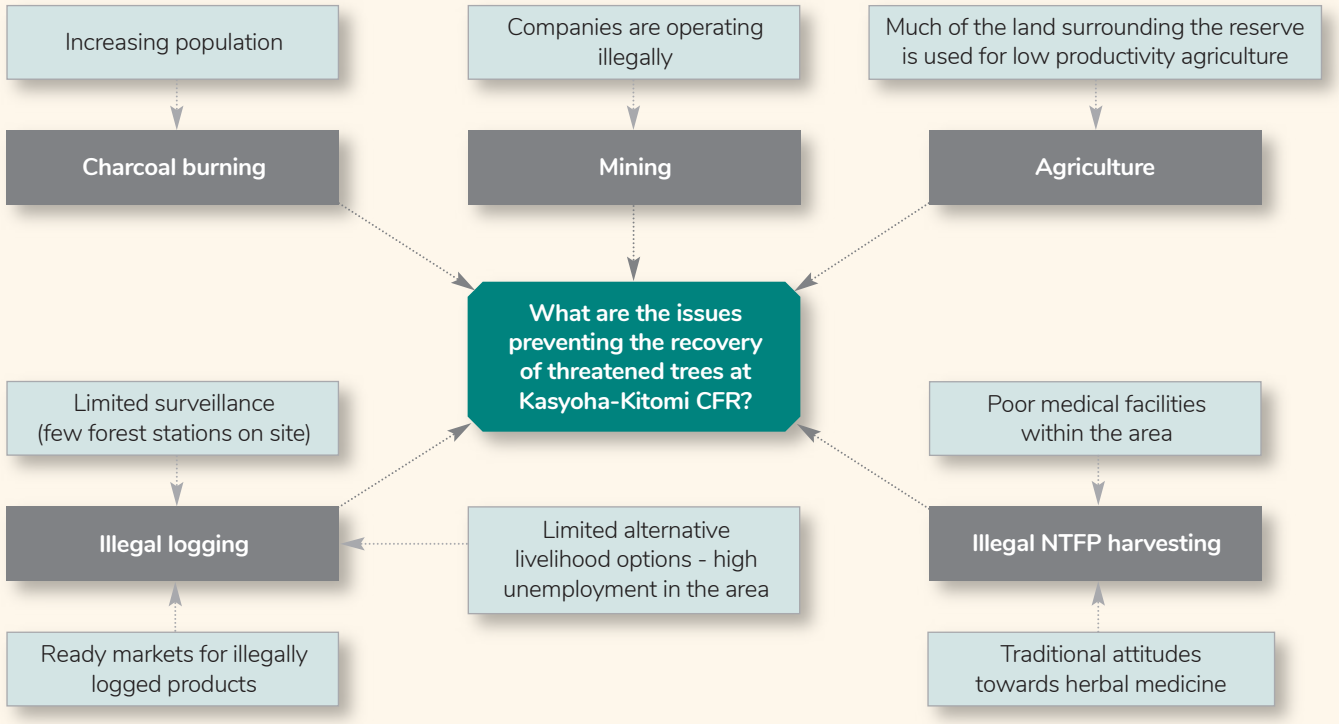
There are a number of threats to the reserve. The increasing population and a lack of suitable and fertile land in the region are putting great pressure on the forest for agricultural land, housing and timber/fuel wood. Encroachment has caused the forest cover to become fragmented (NatureUganda 2016). It is illegal to harvest timber from the forest and the collection of fuel wood by local communities is only permitted within 2 km of the reserve boundary and no more frequently than once a week. The felling of dead trees is also not allowed. However, it has been observed that these regulations are not being sufficiently enforced (NatureUganda 2016). NatureUganda (2016) found that NFA staff members do not consider preventing illegal activities as a part of their duties. It is therefore important to ensure they have had sufficient training and resources made available to them to perform this vital duty.

As a part of the CFM project communities jointly patrolled the CFR against illegal activities including timber and bamboo harvesting. NatureUganda (2011) states that stakeholders considered this the most successful forest management activity. A system was also set up to report incidents to NFA who would then take action to apprehend offenders. However, a lack of resources within NFA to ensure all claims were investigated led to some tension between local communities and NFA.

Relevant objectives

Objective 1: Collate and update botanical information
Objective 2: Raise awareness of the importance of Uganda's tree diversity
Objective 3: Increase the capacity of management bodies to enforce against illegal activities
Objective 6: Expand alternative sustainable livelihoods
Objective 7: Resolve boundary disputes around the CFR
Objective 8: Regeneration and restoration of degraded areas

Threat analysis of Kasyoha-Kitomi CFR



5.4 Bugoma Central Forest Reserve

Bugoma CFR is a medium altitude semi-deciduous forest of around 39,949 ha. It is isolated from other protected areas, surrounded by agricultural land and settlements. Approximately 50% of the forest is dominated by ironwoods (*Cynometra alexandri* LC), with the remaining forest being mixed. It is the largest remaining block of natural tropical forest along the Albertine Rift Valley (World Bank and FAO 2020).

The CFR has been exploited as a source of commercial timber. There are many small-holder farmers and also larger-scale commercial farmers established (particularly sugar cane and tobacco) which are eroding the integrity of the CFR. More recently, there has been increasing negative impact from influential well resourced people with political support. Unclear boundaries of Bugoma CFR have resulted in several land disputes. Clear-cut felling of the forest for sugarcane development is increasing. A well-publicised conflict between NFA and Hoima Sugar (who have purchased a land lease from Bunyoro-Kitara) over land considered to be previously part of Bugoma CFR. This land has now been cleared for sugarcane. It has also resulted in the acceleration of illegal activities in the area (IGEN-EA 2022).

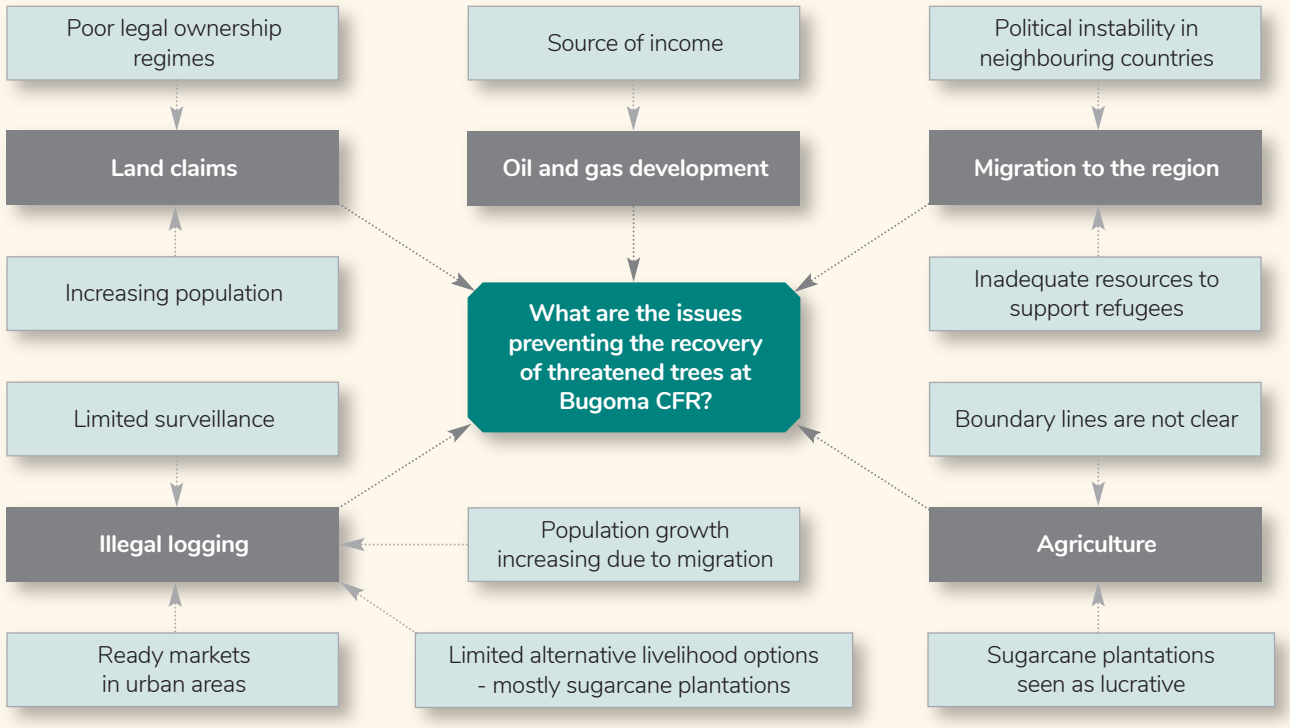
Kyangwali refugee settlement is within walking distance of the CFR which is not in line with the global planning guidelines of the United Nations High Commissioner for Refugees. It has been recorded that the dominant petty trade at Kyangwali is the sale of firewood and charcoal sourced from Bugoma CFR and other nearby forests (World Bank and FAO 2020).

The NFA with the support of FAO has been investigating the causes and extent of deforestation at Bugoma CFR. There has been a substantial increase in degradation in 2019, however, the main impacts of this were found to be located more than 15 km away from the refugee settlement boundary. Although Kyangwali is likely to be causing local effects at the southwest edge of the forest, it is not the main cause of forest degradation and destruction (World Bank and FAO 2020).

Relevant objectives

Objective 1: Collate and update botanical information
Objective 2: Raise awareness of the importance of Uganda's tree diversity
Objective 3: Increase the capacity of management bodies to enforce against illegal activities
Objective 6: Expand alternative sustainable livelihoods
Objective 7: Resolve boundary disputes around the CFR
Objective 8: Regeneration and restoration of degraded areas

Threat analysis of Bugoma CFR



5.5 Itwara Central Forest Reserve

Itwara CFR, first gazetted in 1932 as a production forest, has an area of 87 km^2. It is found in the Kabarole District and is 25 km from Lake Albert to the west and 25 km northeast of Fort Portal Town. It is a high-intermediate altitude forest, with its highest peak (Kinga) at 1,665 m asl. It lies within the Muzizi River watershed which is of great importance for supplying water to more than a million households (World Bank Group 2011).

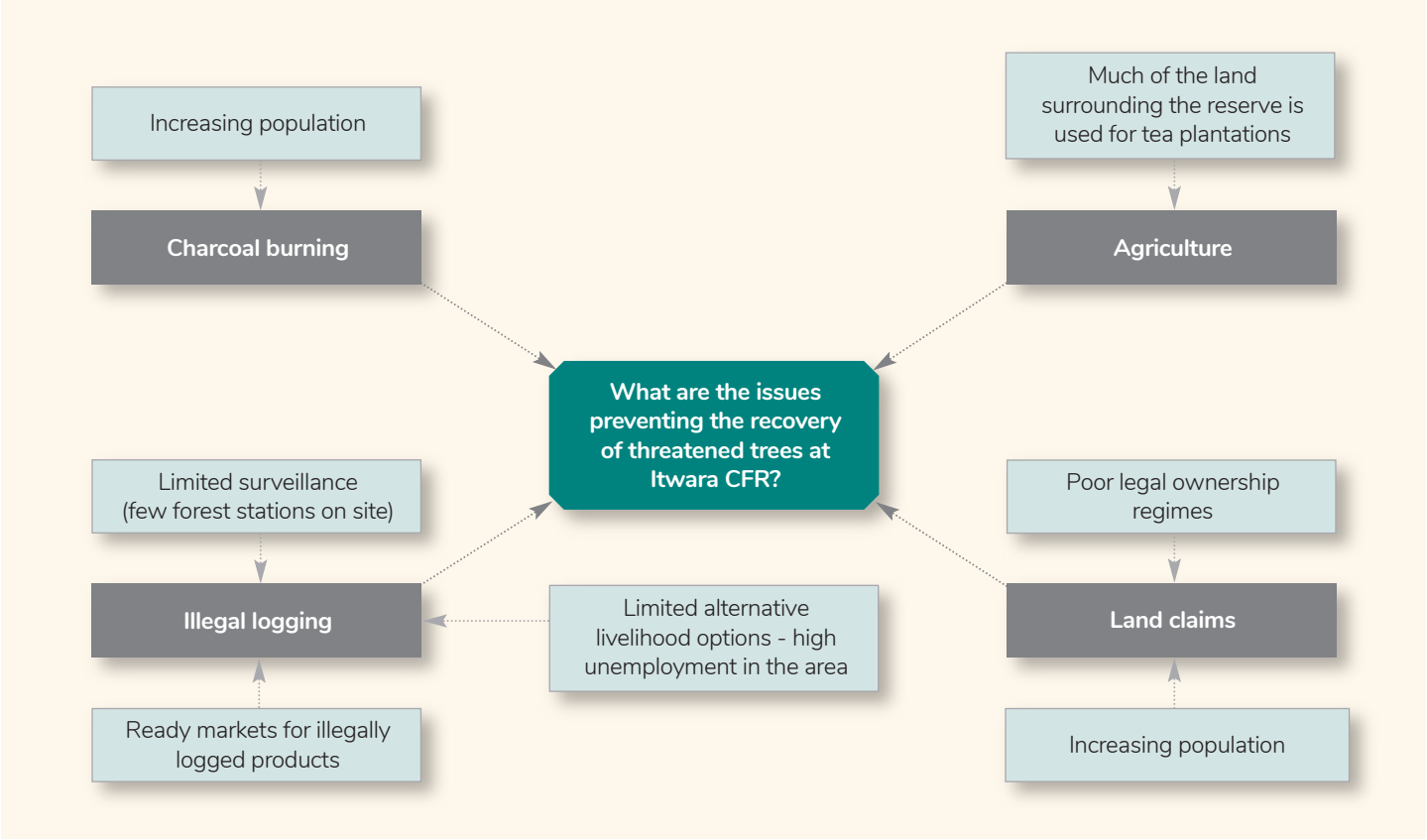
Sawmills were installed at Itwara CFR after the 1950s and significant areas of the forest have been harvested. Although for manual pit sawing there are different minimum girth limits which apply for each species, research has found at Itwara CFR that 48% of trees were cut undersize. It has also been found that almost all large individuals of *Entandrophragma excelsum* have been cut down. This has an important ecological and economic impact as only commercially inferior stock are left as a seed source for natural regeneration and restoration planting materials (Howard 1991).

Itwara CFR has high quality timber trees, and it is therefore under significant pressure from adjacent communities from illegal logging. There are limited alternative livelihoods in the area and poverty is high. These problems are exacerbated by a significant proportion of private land surrounding the reserve being used for tea plantations. There is no NFA forest station on site which limits their ability to enforce against illegal activities. In the 2008-2018 Forest Management Plan for the Itwara group of CFRs it was recommended that a forest station should be built with an office and residential building to house a Forest Supervisor (World Bank Group 2011).

North and South Itwara have been through a boundary opening process and encroachers are awaiting eviction. There will be an opportunity to restore degraded areas.

Relevant objectives

Objective 1: Collate and update botanical information
Objective 2: Raise awareness of the importance of Uganda's tree diversity
Objective 3: Increase the capacity of management bodies to enforce against illegal activities
Objective 6: Expand alternative sustainable livelihoods and resources
Objective 7: Resolve boundary disputes around the CFR
Objective 8: Regeneration and restoration of degraded areas



5.6 Echuya Central Forest Reserve

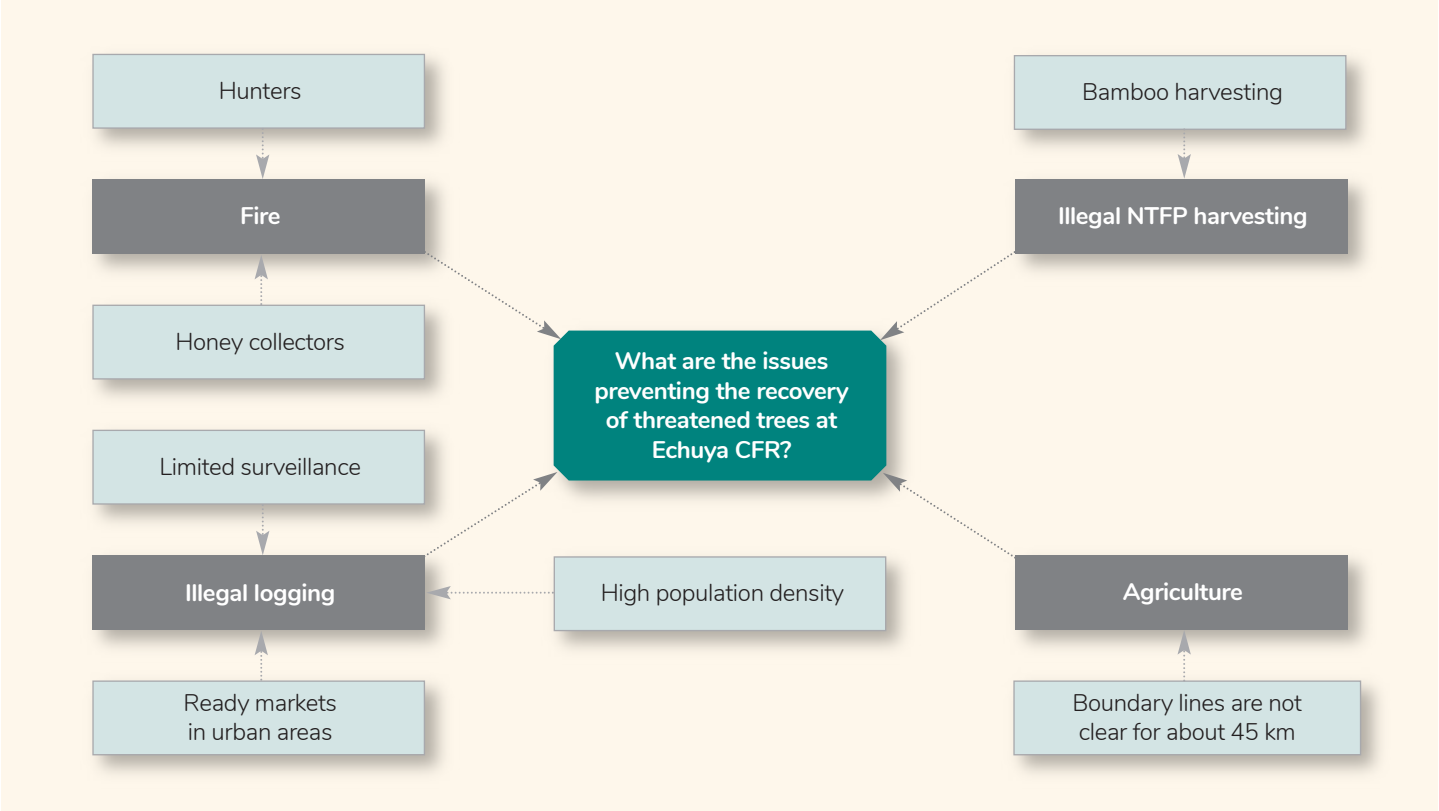
Echuya CFR contains montane rainforest in southwestern Uganda and the southern end runs along the border with Rwanda. It is 34 km^2 in size and contains a high-altitude swamp known as Muchuya. The species composition of the forest is estimated to be 80% *Macaranga kilimandscharica* and *Hagenia abyssinica*, with the remaining a native mountain bamboo (Oldeania alpina). The CFR is managed jointly through CFM groups and the NFA. Tourism is also important in the area due to the abundance of threatened bird species (e.g. the VU Grauer's Swamp-warbler (*Bradypterus graueri*)) and there are several ecotourism groups operating. There are plans to install boardwalks in Machuya swamp to increase tourism and associated benefits to local communities.

There is a high population density in the surrounding communities, many of which have low incomes and lack sustainable alternative livelihoods. Most of the forest surrounding Echuya CFR has been cleared for agriculture which leaves local communities without access to forest products. It has been noted that many people depend entirely on the reserve for their natural resource needs (Bitariho *et al.* 2015). There are unclear boundaries between the community and the CFR for 45 km which has caused conflict.

Oldeania alpina is targeted by local communities to make handicrafts and for housing. This has resulted in its decline and is affecting the regeneration of the species. Regeneration is also impeded by the growth of invasive species. Forest fires are another important threat, often caused by anthropogenic activities such as hunters and honey collectors. For example, in 2016, 30 hectares hectares of the reserve was burnt.

Relevant objectives

Objective 1: Collate and update botanical information
Objective 2: Raise awareness of the importance of Uganda's tree diversity
Objective 3: Increase the capacity of management bodies to enforce against illegal activities
Objective 4: Control and eliminate invasive species
Objective 5: Reduce incidences of wildfires
Objective 6: Expand alternative sustainable livelihoods and resources
Objective 7: Resolve boundary disputes around the CFR
Objective 8: Regeneration and restoration of degraded areas



NEXT STEPS

Afrocarpus usambarensis

6.1 Coordinating and tracking action

It is important that conservation planning is not the end of the process but leads to tangible conservation outcomes. A framework for coordination is needed to ensure as many species as possible move towards action. Additionally, any progress needs to be documented so that the impact of the conservation planning can be quantified.

The following activities are recommended:

- Active coordination and monitoring of progress through a national secretariat
- A central platform established to access information on Uganda's tree diversity
- Regular in-person or online meetings to present and share knowledge, progress and challenges
- Collaborative funding applications to leverage funding for priority actions
- Engagement with additional stakeholders (e.g. development of policy briefs to increase engagement from policy makers, translation of the action plan into local languages and development of a simple summary)
- Development of targets to track the impact of the conservation planning
- A national survey developed and sent out to collect baseline information for the indicators of success
- Develop a communication strategy (including a clear mechanism for disseminating success stories)
- Involve community members and their local leaders in planning, implementing, and monitoring proposed strategies

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APPENDIX I

Tree Conservation and Forest Restoration in Uganda Project Priority Tree Species
This list was developed using conservation assessments and workshop discussions taking into account livelihood values

Family	Taxon	Author	IUCN Red List Category	National Red List Category	Global Native Distribution
Rosaceae	*Prunus africana*	(Hook.f.) Kalkman	VU	VU	Angola, Burundi, Cameroon, Comoros, Ethiopia, Ghana, Gulf of Guinea, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Rwanda, Swaziland, Tanzania, South Africa, Uganda, Zambia, DRC, Zimbabwe
Meliaceae	*Khaya anthotheca*	(Welw.) C.DC.	VU	EN	Angola, Burundi, Central African Republic, Congo, Guinea, Sudan, Uganda, DRC
Meliaceae	*Turraeanthus africanus*	(Welw. ex C.DC.) Pellegr.	VU	VU	Angola, Cameroon, Central African Republic, Congo, Equatorial Guinea, Gabon, Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Sierra Leone, Uganda, DRC
Podocarpaceae	*Afrocarpus usambarensis*	(Pilg.) C.N.Page	EN	CR	Burundi, Kenya, Rwanda, Tanzania, DRC, Uganda
Meliaceae	*Entandrophragma angolense*	(Welw.) C.DC.	NT	EN	Angola, Cabinda, Cameroon, Central African Republic, Congo, Gabon, Ghana, Guinea, Gulf of Guinea Is., Ivory Coast, Kenya, Liberia, Nigeria, Sierra Leone, Sudan, Tanzania, Uganda, DRC
Meliaceae	*Entandrophragma utile*	(Dawe & Sprague) Sprague	VU	EN	Angola, Cabinda, Cameroon, Central African Republic, Congo, Equatorial Guinea, Gabon, Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Sierra Leone, Uganda, DRC
Meliaceae	*Entandrophragma cylindricum*	(Sprague) Sprague	VU	EN	Cabinda, Cameroon, Central African Republic, Congo, Equatorial Guinea, Gabon, Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Sierra Leone, Togo, Uganda, DRC
Fabaceae	*Albizia ferruginea*	(Guill. & Perr.) Benth.	NT	EN	Angola, Benin, Burkina Faso, Cameroon, Central African Republic, Congo, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Nigeria, Senegal, Sierra Leone, Togo, Uganda, DRC
Annonaceae	*Uvariodendron fuscum* var. *magnificum*	(Verdc.) Dagallier & Couvreur	LC	NE	Uganda

Family	Taxon	Author	IUCN Red List Category	National Red List Category	Global Native Distribution
Fabaceae	*Afzelia africana*	Sm. ex Pers.	VU	EN	Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Sudan, Togo, Uganda, DRC
Meliaceae	*Khaya grandifoliola*	C.DC.	VU	EN	Benin, Burkina Faso, Central African Republic, Chad, Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Sudan, Togo, Uganda, DRC
Meliaceae	*Khaya senegalensis*	(Desv.) A.Juss.	VU	EN	Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Gabon, The Gambia, Guinea, Guinea-Bissau, Ivory Coast, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Sudan, Togo, Uganda
Meliaceae	*Leplaea cedrata*	(A.Chev.) E.J.M.Koenen & J.J.de Wilde	NT	EN	Cabinda, Cameroon, Central African Republic, Congo, Equatorial Guinea, Gabon, Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Sierra Leone, Uganda, DRC
Sapotaceae	*Vitellaria paradoxa*	C.F.Gaertn.	VU	VU	Benin, Burkina, Cameroon, Central African Republic, Chad, Ethiopia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Mali, Mauritania, Nigeria, Senegal, Sudan, Togo, Uganda, DRC
Boraginaceae	*Cordia millenii*	Baker	LC	EN	Angola, Benin, Burundi, Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, Gabon, Ghana, Guinea, Ivory Coast, Kenya, Nigeria, Sierra Leone, Sudan, Tanzania, Uganda, DRC
Oleaceae	*Olea welwitschii*	(Knobl.) Gilg & G.Schellenb.	LC	VU	Angola, Ethiopia, Kenya, Malawi, Mozambique, Tanzania, Uganda, Zambia, Zimbabwe
Podocarpaceae	*Podocarpus latifolius*	(Thunb.) R.Br. ex Mirb.	LC	VU	South Africa, Lesotho Swaziland, Uganda?, Kenya
Rutaceae	*Fagaropsis angolensis*	(Engl.) H.M.Gardner	NE	VU	Angola, Ethiopia, Kenya, Malawi, Mozambique, Rwanda, Sudan, Tanzania, Uganda, Zambia, DRC, Zimbabwe
Fabaceae	*Tamarindus indica*	L.	LC	VU	Benin, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Congo, DRC, Côte d'Ivoire, Equatorial Guinea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Madagascar, Mali, Morocco [?], Mozambique, Niger, Nigeria, Sao Tomé and Principe, Senegal, Sudan, Tanzania, Togo, Uganda, Zambia, Zimbabwe

Family	Taxon	Author	IUCN Red List Category	National Red List Category	Global Native Distribution
Moraceae	*Milicia excelsa*	(Welw.) C.C.Berg	NT	EN	Angola, Benin, Burkina, Burundi, Cameroon, Central African Republic, Congo, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Gulf of Guinea Is., Ivory Coast, Kenya, Liberia, Malawi, Mozambique, Nigeria, Sudan, Tanzania, Togo, Uganda, DRC, Zimbabwe
Rutaceae	*Citropsis articulata*	(Willd. ex Spreng.) Swingle & M.Kellerm.	NE	VU	Cameroon, Central African Republic, Congo, Gabon, Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Sierra Leone, Sudan, Tanzania, Togo, Uganda, DRC
Sapotaceae	*Gambeya albida*	(G.Don) Aubrév. & Pellegr	NT	VU	Benin, Cameroon, Central African Republic, Congo, Gabon, Ghana, Guinea, Gulf of Guinea IS, Ivory Coast, Kenya, Liberia, Nigeria, Sierra Leone, Sudan, Tanzania, Uganda, DRC
Sapotaceae	*Gambeya muerensis*	(Engl.) Liben	NE	VU	Sudan, Uganda, DRC
Sapotaceae	*Gambeya perpulchra*	(Mildbr. ex Hutch. & Dalziel) Aubrév. & Pellegr.	LC	VU	Cameroon, Central African Republic, Congo, Gabon, Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Tanzania, Uganda, DRC
Meliaceae	*Lovoa trichilioides*	Harms	LC	EN	Angola, Cabinda, Cameroon, Central African Republic, Congo, Equatorial Guinea, Gabon, Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Rwanda, Sierra Leone, Tanzania, Uganda, DRC
Meliaceae	*Lovoa swynnertonii*	Baker f.	NT	EN	Cameroon, Kenya, Mozambique, Tanzania, Uganda, DRC, Zimbabwe
Irvingiaceae	*Irvingia gabonensis*	(Aubry-Lecomte ex O'Rorke) Baill.	NT	EN	Angola, Benin, Cabinda, Cameroon, Central African Republic, Congo, Equatorial Guinea, Gabon, Gulf of Guinea Is., Nigeria, Uganda, DRC
Anarcadiaceae	*Antrocaryon micraster*	A. Chev. & Guillaumin	VU	CR	Benin, Cameroon, Central African Republic, Congo, Gabon, Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Sierra Leone, Uganda, DRC
Fabaceae	*Erythrophleum suaveolens*	(Guill. & Perr.) Brenan	LC	VU	Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Kenya, Liberia, Malawi, Mali, Mozambique, Nigeria, Senegal, Sierra Leone, Sudan, Tanzania, Togo, Uganda, Zambia, DRC, Zimbabwe
Fabaceae	*Dialium excelsum*	Louis ex Steyaert	LC	EN	Cameroon, Congo, Sudan, Uganda, DRC

Family	Taxon	Author	IUCN Red List Category	National Red List Category	Global Native Distribution
Lauraceae	*Beilschmiedia ugandensis*	Rendle	LC	VU	Sudan, Tanzania, Uganda, Zambia, DRC
Fabaceae	*Dalbergia melanoxylon*	Guill. & Perr.	NT	VU	Angola, Botswana, Burkina, Cameroon, Caprivi Strip, Central African Republic, Chad, Eritrea, Ethiopia, Guinea, Ivory Coast, Kenya, Malawi, Mali, Mauritania, Mozambique, Namibia, Nigeria, South Africa, Senegal, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, DRC, Zimbabwe
Malvaceae	*Cola congolana*	De Wild. & T.Durand	LC	VU	Uganda, DRC
Canellaceae	*Warburgia ugandensis*	Sprague	NE	VU	Ethiopia, Kenya, Malawi, Tanzania, Uganda, DRC
Achariaceae	*Dasylepis eggelingii*	J.B.Gillett	VU	NE	Uganda, DRC
Clusiaceae	*Allanblackia kimbiliensis*	Spirlet	EN	CR	Uganda, DRC
Rubiaceae	*Pavetta urundensis*	Bremek.	VU	NE	Burundi, Rwanda, Uganda, DRC
Rubiaceae	*Rytigynia kigeziensis*	Verdc.	VU	NE	Burundi, Rwanda, Uganda, DRC
Rutaceae	*Zanthoxylum mildbraedii*	(Engl.) P.G.Waterman	VU	NE	Kenya, Rwanda, Uganda, DRC
Violaceae	*Rinorea tshingandaensis*	Taton	VU	NE	Gabon, Uganda, DRC
Menispermaceae	*Albertisia exelliana*	(Troupin) Forman	EN	EN	Rwanda, Uganda, Zambia, DRC
Lauraceae	*Ocotea kenyensis*	(Chiov.) Robyns & R.Wilczek	VU	VU	Ethiopia, Kenya, South Africa, Malawi, Mozambique, Northern Provinces, Rwanda, Sudan, Tanzania, Uganda, DRC
Annonaceae	*Xylopia nilotica*	D.M.Johnson & N.A.Murray	VU	NE	Sudan, Uganda
Celastraceae	*Gymnosporia keniensis*	(Loes.) Jordaan	EN	NE	Kenya, Uganda
Moraceae	*Ficus tremula* subsp. *acuta*	(De Wild.) C.C.Berg	VU	NE	Burundi, Kenya, Rwanda, Uganda, DRC
Rubiaceae	*Rytigynia bridsoniae*	Verdc.	NE	NE	Burundi, Rwanda, Uganda
Rubiaceae	*Rytigynia ruwenzoriensis*	(De Wild.) Robyns	VU	NE	Burundi, Uganda, DRC
Rubiaceae	*Vangueria volkensii* var. *fyffei*	(Robyns) Verdc.	CR	NE	Uganda

APPENDIX II

Participants listed below attended one or more of the following events; National Conservation Planning Workshop (February 2023), Budongo Range planning workshop (April 2023), Fort Portal Region Planning workshop (July 2023), conservation planning meetings across different NFA ranges (May-June 2023), Conservation of Uganda's Threatened Trees' Diversity: Dissemination and Implementation of the Conservation Action Plan (April 2024)

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Afeku Tom Odama	National Forestry Authority
Ahiira Julian	Kamwenge District Local Government
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Ainomujuni Joachim	National Forestry Authority
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Alele Gabriel Ogwang	Tooro Botanical Gardens
Alum Juliet	National Forestry Authority
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Amanyire Chris	Natural Resources Defense Initiative
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Atugonza Fredrick	National Forestry Authority
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Businge Julius	National Forestry Authority
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Bwire Kennethi	National Forestry Authority
Drabile Robert	National Forestry Authority
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Kelewula Iddi	National Forestry Authority
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Khatundi Sarah Leilah	National Forestry Authority
Kidega Simon Peter	National Forestry Authority
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Kiirya Erry	Ibanda District Local Government
Kirumira Dorothy	Uganda Wildlife Authority-Kibale National Park
Kisakye Edith	National Forestry Authority
Kisembo B. Reuben	Bishop Rwenzori Diocese
Kisembo Prisca	National Forestry Authority
Kiwuka Catherine	National Agricultural Research Organisation
Kiyinji Isaac	NARO-NAFORRI
Kokugonza Harriet	Tooro Botanical Gardens
Komucunguzi Monica	Fort Portal Diocese
Kuganyirwa Lydia	Ecotrust
Kugonza Salim	Tooro Botanical Gardens
Kusemererwa Jimmy	Fort Healthy Minds Initiative
Kyalisima Richard	National Forestry Authority
Kyensi Buruhani	Tooro Muslim District
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Maziima Isaiah	National Forestry Authority
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Muchelule Ivan	National Forestry Authority
Mucunguzi Patrick	Makerere University
Mudini Albert	National Forestry Authority
Mugabo Johnson	Universal Institute of Research and Innovation
Mugisa Brian	Tooro Botanical Gardens
Mugume Peter	National Forestry Authority
Muhairwe Timothy	Kabarole District Local Government
Muhereza Onesmus	National Forestry Authority
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Mukasa Kennedy	Makerere University
Mukonzi Stanley	Tooro Botanical Gardens
Mukwaya M. Emmanuel	National Forestry Authority

Name	Institute
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Namaganda Mary	Makerere University
Nambi Ruth	National Forestry Authority
Nankoma Mary	National Forestry Authority
Nankunda Adurine	National Forestry Authority
Nansumba Jane	Nature Palace Community Botanic Garden
Naturinda Agnes	National Forestry Authority
Ndemere Stephen	National Forestry Authority
Nduhukire Sheilla	National Forestry Authority
Nekesa Esther	National Forestry Authority
Ngewa Francis	ICRAF-Uganda
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Odong Godfrey Gabriel	National Forestry Authority
Odyero Daniel	National Forestry Authority
Ojelel Samuel	Makerere University
Ojiambo Dickson	National Forestry Authority
Olike Christopher	Kyenjojo District Local Government
Omaswa Peter	Makerere University
Onongo Johnathan	Nature Uganda
Opolot Sam	National Forestry Authority
Oribdhogu Donald	National Forestry Authority
Oyugi Felix	National Forestry Authority
Ipulete Perpetua	Makerere University
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Richards Sophie	Royal Botanical Gardens Kew
Rusoke Taddeo	Uganda Wildlife Clubs of Uganda
Ruyonga Godfrey	Tooro Botanical Gardens
Sabiiti Peter	Fair Ventures Worldwide Wide -Uganda
Sabit Charles	National Forestry Authority
Senturo Richard	National Forestry Authority
Serunjogi Derrick	Makerere University
Simwotho Moses	National Forestry Authority
Ssebugwawo Dennis	National Forestry Authority
Ssegawa Paul	Makerere University
Ssempuuma John Kennedy	National Forestry Authority
Surea Charter	Tooro Muslim District
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Tukashaba Evans	National Forestry Authority
Tumushabe Naboth	National Forestry Authority

Name	Institute
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Tumusiime Stephen	Tooro Botanical Gardens
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Turyashemererwa Maureen	National Forestry Authority
Tushemereirwe Sylivia	National Forestry Authority
Tusiime Lawrence	Joint Effort to Save the Environment
Tusubira Paul	National Forestry Authority
Twinomujuni Gerevazio Rushokye	Tooro Botanical Gardens
Wabyona Herbert	National Forestry Authority
Wafula Lawrence	Tooro Botanical Gardens
Walaita Sebastian Javan	Tooro Botanical Gardens
Walira Peter	National Forestry Authority
Winston T. Ireeta	Makerere University
Wodamba Julius	National Forestry Authority
Zema Z. Okuni	National Forestry Authority

Encephalartos whitelockii

Afrocarpus usambarensis tree seedlings

APPENDIX II

Participants

Participants listed below attended one or more of the following events; National Conservation Planning Workshop (February 2023), Budongo Range planning workshop (April 2023), Fort Portal Region Planning workshop (July 2023), conservation planning meetings across different NFA ranges (May-June 2023), Conservation of Uganda's Threatened Trees' Diversity: Dissemination and Implementation of the Conservation Action Plan (April 2024)

Name	Institute
Mutegeki Alislam Said Musa	Tooro Botanical Gardens
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Sophie Richards	Royal Botanical Gardens Kew
Kokugonza Harriet	Tooro Botanical Gardens
Sebastian Walaita Javan	Tooro Botanical Gardens
David K.Nkwanga	Nature Palace Botanical Garden
Kabasindi Harriet	ICRAF-Uganda
Johnathan Onongo	Nature Uganda
Timothy Muhairwe	Kabarole District Local Government
Collins Bulafu	Makerere University
Mukasa Kennedy	Makerere University
Serunjogi Derrick	Makerere University
Winston T. Ireeta	Makerere University
Peter Omaswa	Makerere University
Mary Namaganda	Makerere University
Kiwuka Catherine	National Agricultural Research Organisation
Jack Plummer	Royal Botanical Gardens Kew
Mwodi Martin Kegere	NFA-National Tree Seed Centre
Paul Ssegawa	Makerere University
Kebirungi Phionah	Ministry of Water and Environment-Albert Water Management Zone
Samuel Ojelel	Makerere University
Ngewa Francis	ICRAF-Uganda
Kuganyirwa Lydia	Ecotrust
Isaac Kiyinji	NARO-NAFORRI
Basigirenda Boaz	NFA-Budongo Systems Range
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Patrick Mucunguzi	Makerere University
Nyadoi Priscilla	Uganda Wildlife Society
Perpetua Ipulete	Makerere University

Participant list for Budongo Range planning workshops, Kijungu Hotel, Hoima, District.

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Alele Gabriel Ogwang	Tooro Botanical Gardens
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Muhereza Onesmus	National Forestry Authority
Kelewula Iddi	National Forestry Authority
Ainomujuni Joachim	National Forestry Authority
Alum Juliet	National Forestry Authority
Azamuke Kennedy	National Forestry Authority
Bwangu Charles	National Forestry Authority
Isinde Jalia	National Forestry Authority
Kisembo Prisca	National Forestry Authority
Opolot Sam	National Forestry Authority
Geria Philip	National Forestry Authority
Abigaba Rogers	National Forestry Authority
Ayebare Joseph	National Forestry Authority
Mugume Peter	National Forestry Authority
Kamulegeya Christopher	National Forestry Authority
Khatundi Sarah Leilah	National Forestry Authority
Maziima Isaiah	National Forestry Authority
Obonyo Alex	National Forestry Authority
Tumushabe Naboth	National Forestry Authority
Kyalisima Richard	National Forestry Authority
Ssempuuma John Kennedy	National Forestry Authority
Atugonza Fredrick	National Forestry Authority
Odyero Daniel	National Forestry Authority
Nankoma Mary	National Forestry Authority
Mukakanya Solomon	National Forestry Authority
Maureen Turyashemererwa	National Forestry Authority
Boaz Basigirenda	National Forestry Authority
Godfrey Ruyonga	Tooro Botanical Gardens

Participant list for Fort Portal Region Planning workshop at Tooro Botanical Gardens

Name	Institute
Olike Christopher	Kyenjojo District Local Government
Muhindo Samuel	International Tree Foundation
Aiisa Henderson	Kyaninga Forest Foundation
Timothy Muhairwe	Kabarole District Local Government
Abigaba Patrick	Kagadi District Local Government
Julian Ahiira	Kamwenge District Local Government
Mugabo Johnson	Universal Institute of Research and Innovation
Dorothy Kirumira	Uganda Wildlife Authority-Kibale National Park
Kisembo B. Reuben	Bishop Rwenzori Diocese
Monica Komucunguzi	Fort Portal Diocese
Lawrence Tusiime	Joint Effort to Save the Environment
Kato Innocent	Makerere University Biological Field Station
Amanyire Chris	Natural Resources Defense Initiative
Bamanya Prosper	Mountains of the Moon University [Student]
Atulinda Kugonza	Mountains of the Moon University [Student]
Kayezu Barbra Dinnah	Mountains of the Moon University [Student]
Kugonza Salim	Tooro Botanical Gardens
Ntegeka Patience	Mountains of the Moon University [Student]
Muhumuza Posiano	Mountains of the Moon University [Student]
Akugizibwe Nicolas	Bunyangabu District Local Government
Atuhaire Immaculate	Ministry of water and Environment-Albert Water Management zone
Kyensi Buruhani	Tooro Muslim District
Abigaba John Barya	Turaco Trails -Kamwenge
Twinomujuni Gerevazio Rushokye	Tooro Botanical Gardens
Surea Charter	Tooro Muslim District
Kiirya Erry	Ibanda District Local Government
Tumusiime Stephen	Tooro Botanical Gardens
Kusemererwa Jimmy	Fort Healthy Minds Initiative
Businge Emmanuel	Fort Portal Resident City Commission
Mukonzi Stanley	Tooro Botanical Gardens
Irumba Joseph	Tooro Botanical Gardens
Wafula Lawrence	Tooro Botanical Gardens
Obbi Paul	Tooro Botanical Gardens
Walaita Sebastian Javan	Tooro Botanical Gardens
Herbert Migiro Ongubo	Botanic Gardens Conservation International
Sabiiti Peter	Fair Ventures Worldwide Wide -Uganda
Bamuturaki Jimmy	Tooro Botanical Gardens
Mwanga Edward	Universal Institute of Research and Innovation
Bwambale Bernard	Kabarole Research and Resource Centre
Kabaseke Clovis	Mountains of the Moon University
Andreas Wofing	Fort Healthy Minds Innitiative
Tukashaba Evans	National Forestry Authority
Tinka John	Kibale Association For Rural and Environmental Development.
Kengonzi Elizabeth	Fort Portal City Council
Bahebwa Loreen	Ministry of Water and Environment-Albert Water Management Zone
Muhumuza Richard	Tooro Botanical Gardens
Mutegeki Alislam Said Musa	Tooro Botanical Gardens
Ruyonga Godfrey	Tooro Botanical Gardens
Alele Garbriel Ogwang	Tooro Botanical Gardens

Participant list for Conservation planning meetings across different NFA ranges

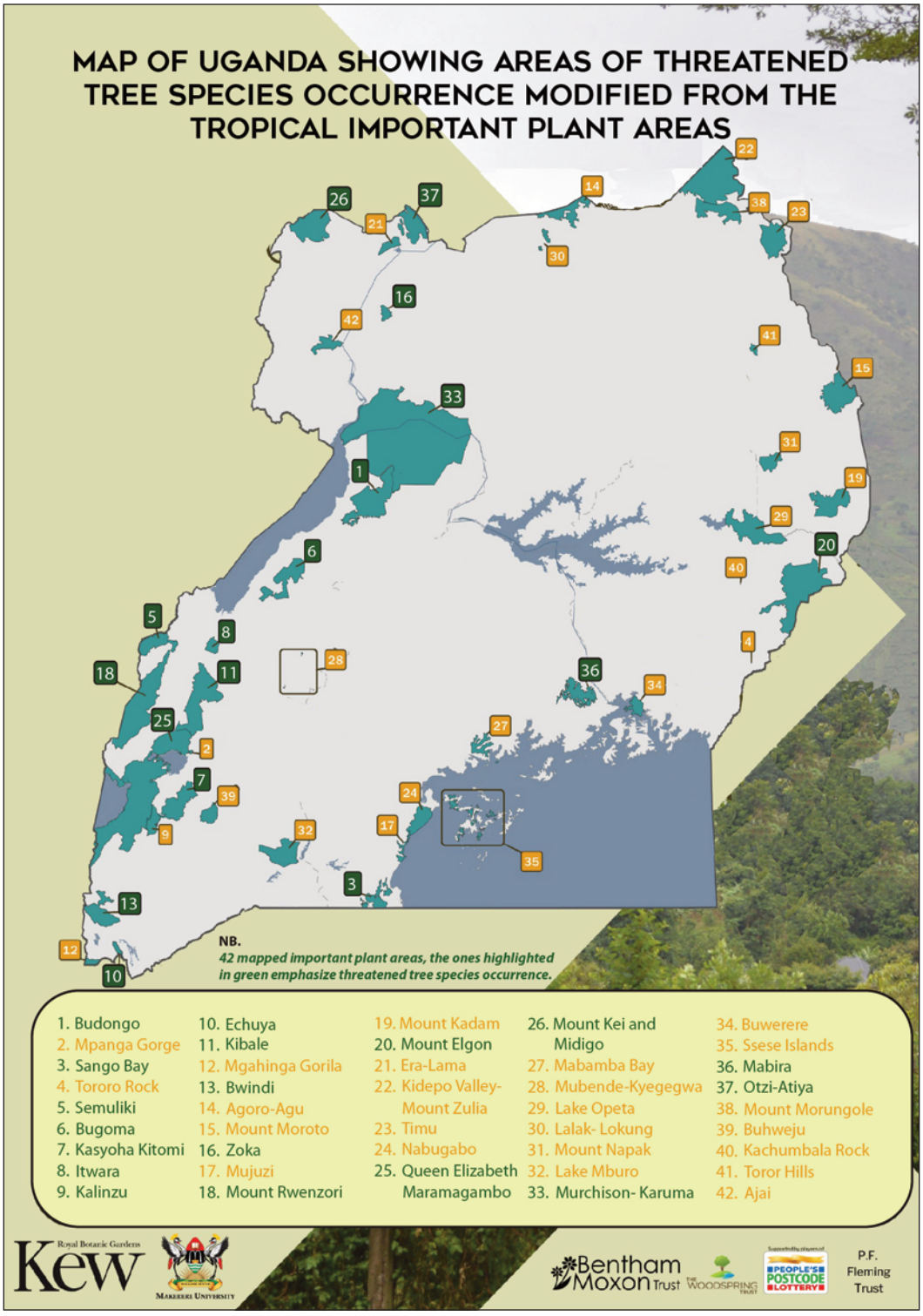
Name	Institute
Muzizi Range-Itwara sector office, Fort Portal	
Drabile Robert	National Forestry Authority
Alele Gabriel Ogwang	Tooro Botanical Gardens
Sebastian Javan Walaita	Tooro Botanical Gardens
Mutegeki Alislam Said Musa	Tooro Botanical Gardens
Godfrey Ruyonga	Tooro Botanical Gardens
Ndemere Stephen	National Forestry Authority
South West Range Office-Bushenyi District	
Drabile Robert	National Forestry Authority
Sebastian Javan Walaita	Tooro Botanical Gardens
Mutegeki Alislam Said Musa	Tooro Botanical Gardens
Mudini Albert	National Forestry Authority
Kennethi Bwire	National Forestry Authority
Richard Senturo	National Forestry Authority
Tumusiime John Lourdel	National Forestry Authority
Talemwa Muzamir	National Forestry Authority
Kamugisha Hillary	National Forestry Authority
Sabit Charles	National Forestry Authority
Amanya Didas	National Forestry Authority
Naturinda Agnes	National Forestry Authority
Mafuga Plantations Office-Rubanda District	
Drabile Robert	National Forestry Authority
Sebastian Javan Walaita	Tooro Botanical Gardens
Mutegeki Alislam Said Musa	Tooro Botanical Gardens
Walira Peter	National Forestry Authority
Ivan Muchelule	National Forestry Authority
Ikiror Josephine	National Forestry Authority
Nduhukire Sheilla	National Forestry Authority
Turyahabwa Herbert	National Forestry Authority
Sango Bay Range Office -Masaka District	
Drabile Robert	National Forestry Authority
Sebastian Javan Walaita	Tooro Botanical Gardens
Mutegeki Alislam Said Musa	Tooro Botanical Gardens
Nabankema Apolonia	National Forestry Authority
Mubokhisa Robert	National Forestry Authority
Businge Julius	National Forestry Authority
Ruth Nambi	National Forestry Authority
Nekesa Esther	National Forestry Authority
Nankunda Adurine	National Forestry Authority
Irumba Henry	National Forestry Authority

Name	Institute
Lake shore range, Lwankima sector office-Buikwe District	
Drabile Robert	National Forestry Authority
Sebastian Javan Walaita	Tooro Botanical Gardens
Mutegeki Alislam Said Musa	Tooro Botanical Gardens
Mukwaya M. Emmanuel	National Forestry Authority
Busiku Robert	National Forestry Authority
Kisakye Edith	National Forestry Authority
Wabyona Herbert	National Forestry Authority
Tushemereirwe Sylivia	National Forestry Authority
Wodamba Julius	National Forestry Authority
Ecima Joseph	National Forestry Authority
Odong Godfrey Gabriel	National Forestry Authority
Ssebugwawo Dennis	National Forestry Authority
Simwotho Moses	National Forestry Authority
Ojiambo Dickson	National Forestry Authority
Tusubira Paul	National Forestry Authority
Westnile Range office, Arua District	
Drabile Robert	National Forestry Authority
Sebastian Javan Walaita	Tooro Botanical Gardens
Mutegeki Alislam Said Musa	Tooro Botanical Gardens
Zema Z. Okuni	National Forestry Authority
Kidega Simon Peter	National Forestry Authority
Afeku Tom Odama	National Forestry Authority
Oyugi Felix	National Forestry Authority
Tusubira Paul	National Forestry Authority
Abiyo A. Patrick	National Forestry Authority
Johnbbosco Muruli	National Forestry Authority
Kyomuhendo Patriac	National Forestry Authority
Busobozi Harunah	National Forestry Authority
Aciro Vicky	National Forestry Authority

Prunus africana tree seedlings

APPENDIX III

IPA Map,Modified for Threatened tree species occurrences



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Cover photo:
Prunus africana seed orchard
at Fort Portal CFRJ
(Kakaire Rajab/TBG)

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