

# Reshaping the Terrain

## Forest landscape restoration in Uganda

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Photo by John Baptist Wandera/CIFOR

### Introduction

The National Forestry Authority has monitored Uganda’s land cover, including forested areas, periodically since 1990. The land cover classification is comprised of 13 classes as shown in the table below. The first five classes in the table refer to the

Code	Class name	Area (ha)
1	Broad leaved plantations	44,237
2	Coniferous plantations	63,486
3	Tropical high forests- well stocked	529,124
4	Tropical high forests- low stocked	101,864
5	Woodland	1,212,951
6	Bush	1,967,234
7	Grassland	5,097,372
8	Wetland	715,481
9	Subsistence Farmland	10,274,969
10	Commercial farmland	255,850
11	Built up area	135,567
12	Open Water	3,749,581
13	Impediments	7,780

different types of forests in Uganda. The largest forest type is woodland. Compared to other land cover types, forests are a small proportion of the country area.

Over time, land cover classes have been changing in area coverage; some have been increasing while others have been decreasing, as demonstrated in the following chart (see Figure 1). For example, forest plantations, which include both broad and needle leaved trees, have been on an upward trend, increasing from 35,000 hectares in 1990 to 107,700 hectares in 2015, according to land cover statistics from the National Forestry Authority. Tropical high forests (THF) and woodlands have been on a downward trend. THF comprise of both well-stocked and low stocked forests. They shrank from 924,172 hectares in 1990 to 630,988 hectares in 2015; but the most drastic reduction has been in woodlands, which shrank from 3,974,523 to 1,212,951 hectares.

The reduction in country wide forest cover is best shown on the map in Figure 2 Most forest cover loss in Uganda has occurred on privately owned land rather than protected areas. The main protected forested areas are central forest reserves

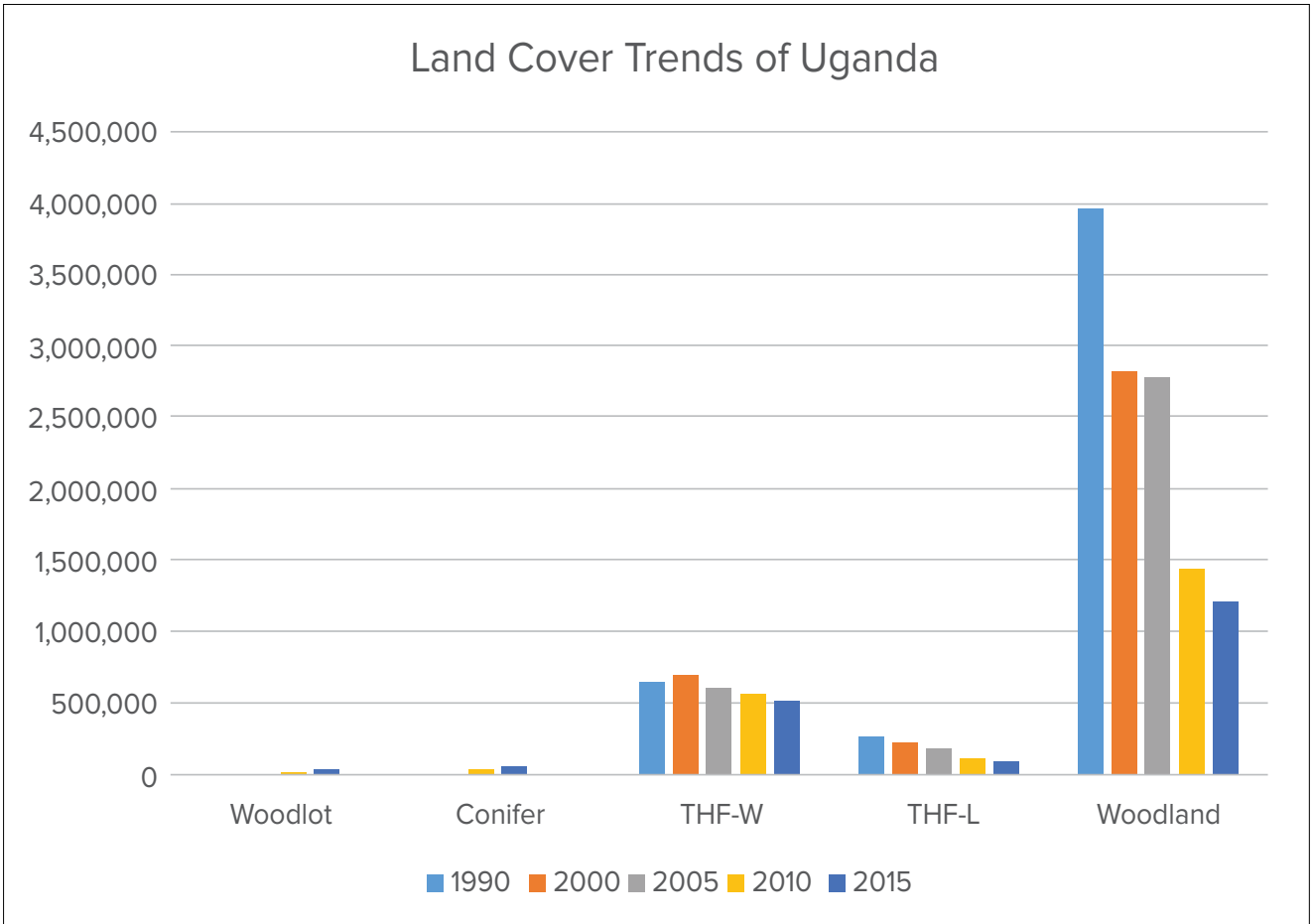


Figure 1. Forest Trends in Uganda

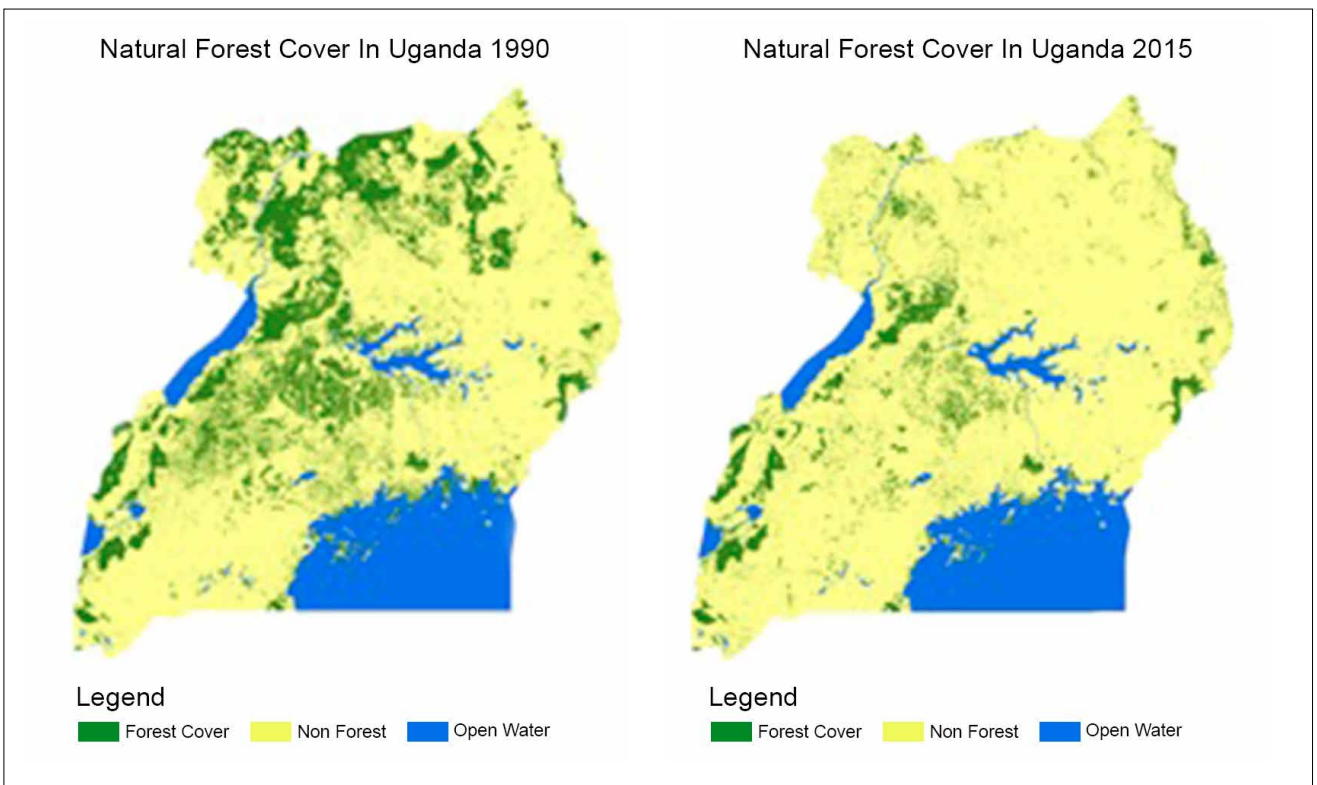


Figure 2. A comparison of forest cover in 1990 and 2015



and national parks. In 1990, forests on private land covered almost three million hectares and by 2015 they were reduced to 681,029 hectares. On the other hand, forests inside protected areas covered almost two million ha in 1990 but were reduced to about 1.3 million in 2015. Geographically, deforestation was most severe in the central region around Lake Victoria and also in central western Uganda in the districts of Kibaale and Hoima.

Other land cover types have been more or less stable. Wetlands have been oscillating between 700,000 and 800,000 hectares. Subsistence farmland has seen a small but steady growth in area over time, increasing from 8 million hectares to 10.3 million hectares. Commercial farmland has grown steadily and very quickly, increasing over 3 times in the same period. In 1990, commercial farmland area was 68,447 hectares and by 2015 it had grown to 255,850 hectares. Another class that has grown at a terrific pace is built up area, increasing from 36,572 in 1990 to 135,567 hectares. Classes that have increased in area have in many cases displaced forests.

The key drivers of deforestation and forest degradation in Uganda are:

- expansion of commercial and subsistence agricultural into forest lands and bush lands
- unsustainable harvesting of tree products, mainly for charcoal, firewood and timber
- expanding urban and rural human settlements and impacts of refugees;
- free-grazing livestock
- wild fires
- artisanal mining operations (MWE 2018).

These drivers are symptoms of underlying socio-economic factors including:

- high rates of population growth
  - levels of economic performance resulting in high dependence on subsistence agriculture, natural resources and biomass energy
  - competing economic returns from land that do not favor long-term investments such as forestry
  - weak forest governance manifested in weak

forest management, planning and regulation

- weak policy implementation
- climate change effects
- land tenure systems (MWE 2018)

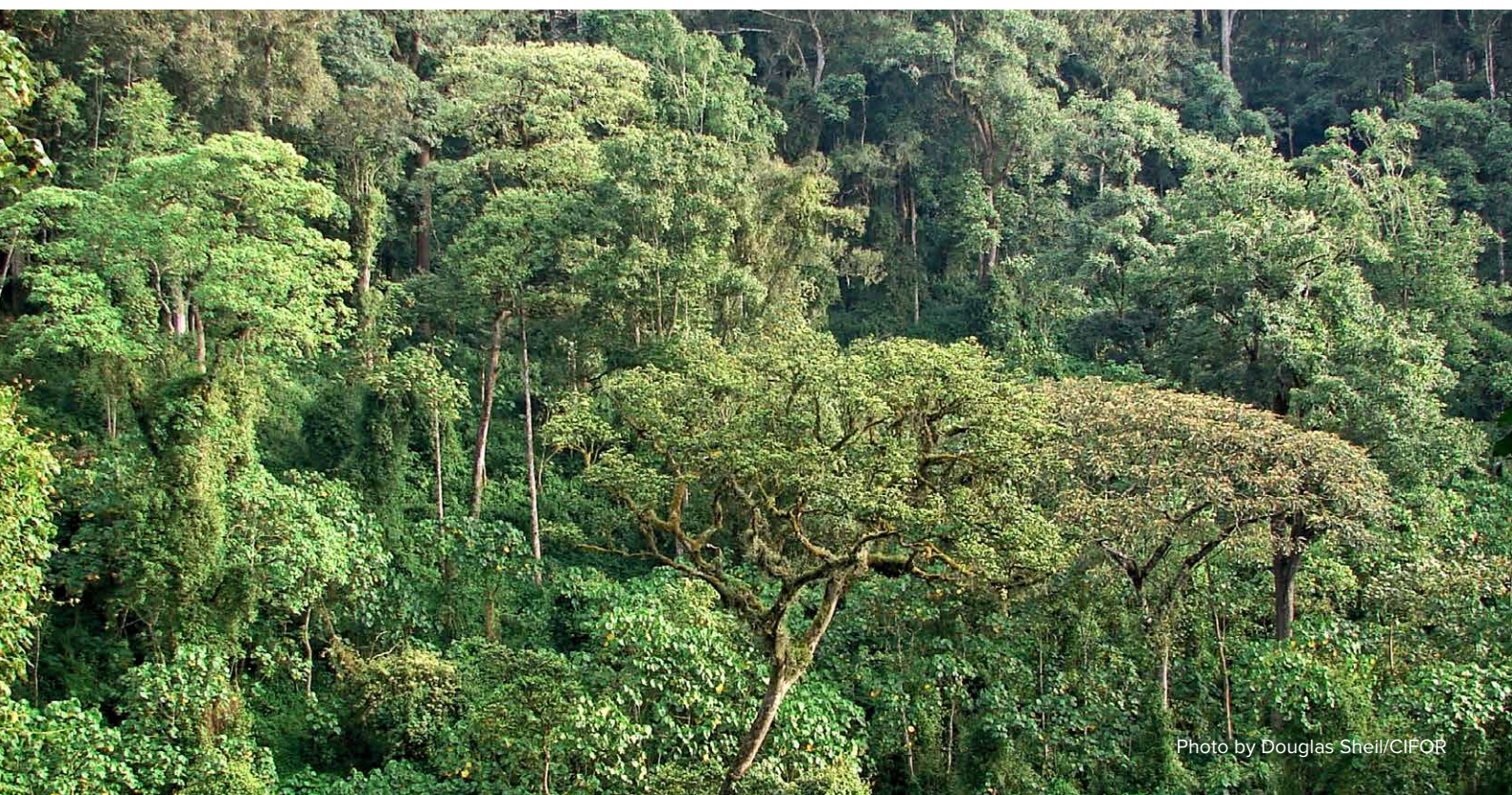
## Reforestation efforts

There are several steps being taken in Uganda to restore deforested and degraded areas. Both government and the private sector undertake efforts. They include:

- **Farm Income Enhancement and Forest Conservation Program (Phase 2)** - Integrated Natural Resources Management; to develop and implement watershed management plans, including installation of sedimentation and erosion control structures, and promotion of conservation farming and agroforestry. It will also assist in the formulation and implementation of measures that reduce deforestation and promote agroforestry, which will lead to emission reductions and the protection of carbon reservoirs as part of the Reducing Emissions from Deforestation and forest Degradation (REDD+) agenda. It will expand the achievements of the first phase, which resulted in rehabilitation of three existing schemes covering 2,328 hectares and improved forest coverage on approximately 31,000 hectares in upstream watersheds.
- **Forest Landscape Restoration (FLR)**- An initiative by the Ministry of Water and Environment to restore forests in degraded areas in various parts of the country. Seven classified landscapes were produced through a participatory process by a core team composed of technical staff from ministries and government agencies, academia and the International Union for Conservation of Nature (IUCN). The classified landscapes include western mid-altitude farmlands, Lake Victoria Crescent, Karamoja, the South Kyoga floodplains, afro-montane high altitude, north moist farmlands, and south west rangelands. The assessment showed that Uganda has a total of about 8 million ha of land with opportunities for forest landscape restoration.

The actual forest restoration has not yet begun pending funding.

- **Community tree planting by NFA-** this is a government-funded program under the National Forestry Authority in which seedlings are raised and provided to members of the community who wish to raise woodlots and small plantations. Seedlings are provided at no cost to the farmer. This program started in 2009 with a budget of 1 billion Uganda shillings (\$268,000) and has been growing in popularity since then. Starting this financial year 2018/19, the budget has been increased from 2 billion last financial year to 5 billion Uganda shillings. Last financial year it produced and distributed 5.7 million seedlings to tree farmers
- **Land allocation to tree farmers by NFA-** in 2017, NFA identified 40,000 hectares of land to be afforested using various approaches. It invited those who wish to invest in forestry to apply for the land according to their ability to invest. Land was parceled into blocks ranging from 5 ha for small-scale investors to 300 hectares for large-scale investors. All the land has been allocated, and it remains to be seen if all recipients will be able to pay the required land rent fees. The process of allocating land to farmers is ongoing.
- **Government tree planting by NFA-** NFA is mandated to manage central forest reserves in Uganda. It is restoring degraded forests but also planting harvested areas. In some cases it is carrying out afforestation in grassland areas that have never been forested before. About 60,000 hectares of plantations distributed in various forest reserves have been established since 2004.
- **Corporate tree planting and forest restoration with NFA-** corporate bodies such as banks and industries through their corporate social responsibility programs are working with NFA to restore selected forests. Participants include Uganda Breweries Ltd, Rotary Club of Kampala, Standard Chartered Bank, Serena Hotel, Davis and Shirlif New Vision and the Parliament of Uganda. Planting was undertaken in Navugulu, West Bugwe, Lwamunda, Bukedea, Aber and Mabira Forest Reserves.
- **Saw Log Production Grant Scheme (SPGS) III-** .SPGS is an initiative of the government of Uganda funded by the European Union, and implemented by the Food and Agriculture Organization of the United Nations (FAO). The scheme supports interested private sector investors to establish and manage commercial forest plantations through





conditional and retrospective subsidy/grants (paid after planting and not upfront), as well as practical training and professional advice in the various techniques necessary to make tree-planting profitable. Since 2004, SPGS has supported establishment of close to 50,000 hectares of plantations for timber, poles and fuelwood. Beneficiaries of the project are small (15 hectares  $\leq$  100 hectares), medium ( $\geq$  100 hectares  $\leq$  500 hectares) and large scale ( $\geq$  501 hectares  $\leq$  3,000 hectares) land holders, community groups who are supported with quality planting material (tree seedlings and or cuttings) and public and private institutions dependent on fuelwood who benefit by having woodlots established for them.

## 1. Approach to reforestation

The approach used for reforestation depends on the level of forest degradation. Forests that have suffered minor degradation are protected so they can give **natural regeneration** a chance. Forests where degradation is more severe -- where many trees have been cut down -- **enrichment planting** is done to assist regeneration. In other cases it is total reforestation by planting. Such is the case where total degradation or planting in harvested areas has occurred.

Enrichment planting has been undertaken in degraded natural forests like parts of Maira, Gangu Luwafu Navugulu, Jubia Mujuzi and Nationko central forest reserves. New planting has occurred in severely degraded forest areas like Lwamunda in Mpigi district. New planting is the modus operandi in traditional plantation areas, including Bugagamba, Mafuga, Katugo, and Mwenge Plantations.

Each of the approaches has advantages over the other. For example, natural regeneration alone is inexpensive, but may not produce sufficient species diversity. Assisted regeneration improves on species diversity and density, but is a bit more costly. Total reforestation of deforested or harvested areas converts a bare area into a forest in a relatively short time. This is the most effective way of establishing a forest where it has not been, although it is the most expensive and labor intensive.

All these approaches are subject to external factors such as the amount of rainfall available in the first few years and exposure to fires or vandalism. The quality of tending practices also determines the success of the approach. All the approaches will deliver a good forest if well implemented.

Reforestation is concentrated in central Uganda because that is the area where most deforestation and forest degradation took place. Reforestation is taking place in other parts such as the Eastern, Southwest and West Nile areas.

## 2 Key constraints and enablers of reforestation

Constraints and enablers of reforestation include the following:

**Cost-** All reforestation efforts involve resources in terms of seedlings, chemicals, equipment and human resources. All these have a cost and funds are usually in short supply. To supplement government efforts, the private sector was invited to invest in forestry. This would result in an increased forest cover for the country.

**Sufficient rains-** Rains may not be sufficient after planting seedlings in the field, resulting in very low potential survival rates and requiring serious beating up or total replanting. Even after seedlings have well established, availability of sufficient rain is still crucial for their proper growth. Moreover, less rain increases the risk of fires.

**Removal or restraint of the deforestation agent-** deforestation is caused by various agents or drivers. These may include timber production, charcoal burning, firewood production, fires and opening up new land for agriculture. So for a successful reforestation of an area, it is necessary that agents of deforestation are controlled or deactivated.

**Seeds and seedlings-** Apart from natural regeneration, all other approaches require seeds or seedlings. There, the right species and sufficient amounts need to be in place for a successful reforestation effort.

### 3. Uganda's restoration commitments

Uganda made a Bonn challenge commitment, but there are other commitments both national and international. Below are Uganda's commitments:

- Bonn Challenge commitments to restore 2.5 million hectares of the deforested and degraded forests and landscapes by 2030.
- Aichi Biodiversity target 15, commitment to reduce 50 percent of deforested and degraded forests (2.6 million hectares lost by 2015) by 2020, translating to 1.3 million hectares.
- Nationally Determined Contributions (NDC) towards reduction of emissions was committed in 2015 by putting at least 21 percent of the land surface under forest cover (5.05 million hectares) and ensuring that at least 12 percent of land surface is under wetlands or at least (2.89 million hectares) by 2030.
- Land Degradation Neutrality (LDN) commitment to restore and or maintain landscapes or terrestrial ecosystems and land resources (soil, water and biodiversity) productive and healthy for sustainable and intensification of the production of food, fuel and fiber for future demand. Uganda targets for LDN by 2030 under setting.
- The African Restoration Initiative AFR100, an African initiative that aims to restore more than

100 million hectares across the continent by 2030. In 2014, Uganda committed to restore 2.5 million ha of forest and priority intervention areas include agroforestry, woodlots and natural regeneration.

- Uganda's vision and commitment to restore forest cover to the tune of 24 percent of the land surface (4.882 million hectares) by 2040 is stated in the Vision 2040 that was launched in 2013 with the aim of transforming Uganda from a predominantly peasant society to a modern prosperous country within 30 years.
- The 2015 National Development Plan II aimed at ensuring that national forest cover takes 18 percent of the land surface by 2030. The objective of this target was to increase sustainable production, productivity and value addition in key growth opportunities.

There are various targets such as 21 percent, 24 percent and 18 percent in terms of forest cover, and then different timelines such as 2010 and 2040. These discrepancies are due to the fact that the documents were written at different times under different circumstances targeting different years. For example, NDP II is shorter term, targeting 2030 while Uganda Vision 2040 is longer term, targeting 2040, but was written earlier than the NDP II



Photo by John Baptist Wandera/CIFOR



Luwunga 2008



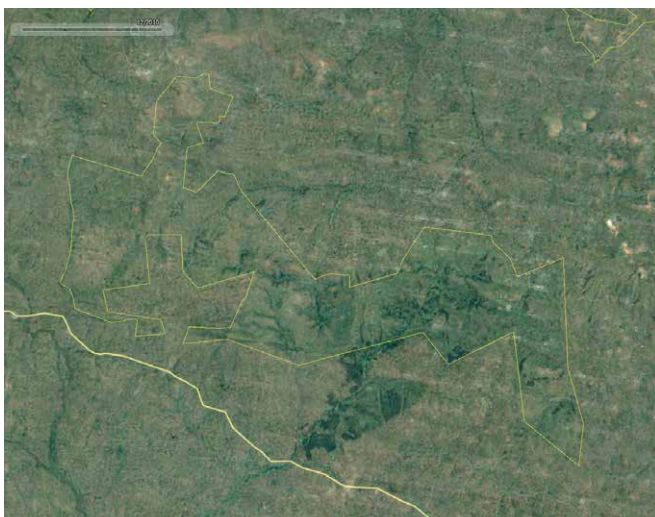
Luwunga 2016



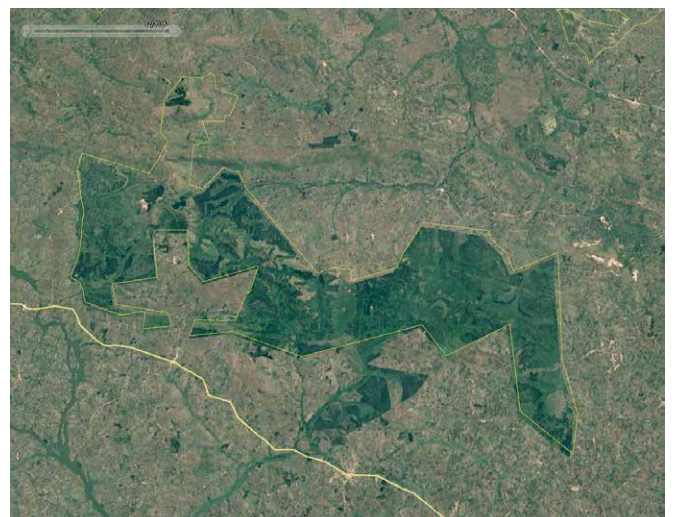
Mabira September 2014



Mabira December 2017



Namwasa 2010



Namwasa 2016



Navugulu 2015



Navugulu 2018

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