

# Kirugo no 04 2023

The Kimboza-Ruvu Gorge Newsletter

Newsletter of the forest restoration initiative to conserve and enhance the biodiversity of the Kimboza and Ruvu region (lowland Ulugurus in Eastern Tanzania)

Decades ago the lowland forests of Kimboza and Ruvu were linked by continuous tree cover along the River Ruvu Gorge but the area has since been largely deforested for agriculture. In recent years the land has

been so degraded that most of it is now abandoned. However, much of the vegetation is regularly burnt as fires spread from farmed areas. Our objective is to restore the wooded corridor linking the two forests.



A view of the Hills overlooking Kimboza with the forest reserve in the foreground. Most of the visible hills are now part of the Kirugo Conservation Area. Note that following

extensive deforestation to convert forest to agriculture and recurrent large fires the hill vegetation is a patchwork of grassland, and woody vegetation including remnant trees.

## Kimboza – Ruvu region update

During 2023 fires in the Kimboza - Ruvu area have been mostly restricted to fallows. The Kirugo Conservation Area was free of fires whereas the Kimboza Forest Reserve was marginally affected. The latter part of 2023

has been exceedingly wet, probably mostly due to the El Nino effect, in sharp contrast to the to previous years when near drought conditions prevailed.

### Long-term funding

Funding for the next few years has been secured and will focus on fire prevention and management, and prevention of tree cutting. Teams of local people have been set up to clear the forest boundaries and maintain firebreaks. During the dry seasons detection of fires encroaching into the forest will be carried out and teams will prevent them from spreading into the forest. Regular tree logging patrols are also taking place. Workers from the various local villagers have been recruited and issued with bicycles.



### Camping site and forest trail

Two new buildings are being erected. They consist of a toilet/shower block and a kitchen. These new facilities will significantly improve the attractiveness of the place to visitors. Hopefully more tourists will now be inclined to visit and stay in Kimboza.

A forest trail has been established from the camp site across the forest to the most interesting features of Kimboza. Visitors are no longer required to walk along the main road which is witnessing an ever increasing amount of traffic.

## Exceptional discovery

### A plant thought to be extinct rediscovered inside Kimboza

A decade ago efforts had been made to relocate a species collected just once in 2000 in the nearby Ruvu Forest Reserve. The plant, *Solanum ruvu*, was a quite distinct species of the tomato family with prickly stems and leaves. Days of intense searches turned out to be fruitless. It was then feared that this newly discovered and described species might probably be extinct.

In May 2023 two local farmers, Bilali Omar and Jabiri Amiru, who regularly work on Kimboza forest projects, were made aware of this species. They were asked to keep an eye for this prickly shrub with tomato-looking fruits on the large rock outcrops that dot the reserve. In October 2023, during one of their regular patrols, they spotted such a plant which they had hardly noticed over the previous years. They not only took photographs of the specimen but also collected fruits with their precious seeds. An expert from the Kew botanic gardens in London confirmed that this unique species had been re-discovered.

With the availability of seeds, the plant is going to be grown in a nursery to ensure the future of this highly threatened species. A small but essential step in the conservation and safeguarding of the exceptional nature of Kimboza Forest Reserve.



## Research news

### Cedrela and gecko ecology

The research of the past few years has been published in 2 scientific papers. Kilawe, C.J. *et al.* (2022) The impact of the invasive tree *Cedrela odorata* on the Electric Blue Gecko (*Lygodactylus williamsi*) and its habitat (*Pandanus rabaiensis*) in Kimboza Forest Reserve, Tanzania. *Global Ecol. Conserv.* 38, e02225.

Kilawe, C.J. *et al.* (2023) Replacement of native trees by the neotropical invasive tree *Cedrela odorata* L. in the Kimboza Forest Reserve, Tanzania. *Biol. Inv.* 25, 3697-3710.

### Plant collections and discoveries

New records of species not known in the region have been made on the hills overlooking Kimboza and the River Ruvu. A number of plant specimens have been collected and photographic records have also been gathered. According to plant taxonomists there appear to be some interesting finds that require further field investigations and the gathering of more herbarium specimens.

### Plant guide

Over hundred new plant species profiles have been produced in 2023. As many new species have been recorded in the field the total number of species in the region stands at around 500, thus the guide is about  $\frac{3}{4}$  completed. Species profiles can be downloaded from:

<http://www.mikepalmer.co.uk/WoodyPlantEcology/tropical/Kimboza.html>

## Kirugo Conservation Area – management and development



### Cedrela control

During May 2023 a major campaign to remove the invasive Cedrela from the Kirugo Conservation Area took place. Well over 100,00 seedlings and saplings were pulled out of the ground. Larger individuals were ring-barked (left). In December a follow up operation was carried out to deal with individuals that had survived ring-barking. In most instances the trees up to a diameter of 20 cm were uprooted (right) using great skills and brutal force. The conservation area is now essentially free of Cedrela. However, the surroundings, including the nature reserve, will be a source of seeds and re-establishment, but further control operations will not be necessary for half a dozen years.



### Walking trails

A trail system is being developed to cater for both visitors and accessing remote spots in difficult terrain. Some already established trails need maintenance following treefalls and landslides (left).

A new trail was established over the main cliffs. It provides many vistas over the forest canopies of both the conservation area and Kimboza, and the local village. At the top of the hill there is a stunning panorama of the Uluguru mountains that stretch over 60 km to the West of Kimboza.



### Firebreaks and fuel load reductions

Firebreak establishment and maintenance is our most important management activity. The fire lines have to be cleared twice a year during the dry periods. This is the only way how further tree death can be prevented and vegetation succession will not take place unless fires are suppressed for up to a decade. In accessible parts of the conservation area cows from the adjacent mission are now grazing fire-prone areas. As illustrated (right) they dramatically reduce the fuel load.



## Establishment of a tree nursery and the start of the forest restoration activities

In early 2023 a tree nursery was established next to the camping site. It is a well shaded plot with easy access to water. A dozen knowledgeable villagers were selected and employed to raise seedlings from mostly seeds gathered in the forest. Each participant looked after her/his own set of seedlings (see right). For some species seedlings were collected from the base of the mother tree. Particular emphasis was placed on the raising of interesting and rare taxa. Of note were species of the genus *Cola* that includes 2 endemic species. Several thousand seedlings were raised in polythene pots.

In May a couple of hundred students from the local university, Sokoine University of Agriculture, came to plant the seedlings inside the forest reserve as part of their restoration ecology module. Later, the remaining stock was planted inside the conservation area.



Inside the conservation area much effort was put into releasing suppressed woody vegetation. Following the cutting of most large trees or the abandonment of agricultural land, large areas of mostly very steep terrain became overwhelmed by a tangle of vines. These were largely removed and the suppressed woody vegetation has since been able to thrive.

Bottom left: one of the clearings that had been cultivated up to half a dozen years ago after removing the dense mat of vines. These can be seen in the background smothering steep slopes and rocks.

## Background information - Kimboza-Ruvu Region

The Kimboza-Ruvu region lies at the base of the Uluguru Mountains that are part of the Eastern Arc Mountains in Eastern Tanzania. It lies 60 km from Morogoro on the main road to the Selous Game Reserve. The area is inhabited by the Waluguru people.

The Kimboza and Ruvu Forest Reserves are managed by the Tanzania Forest Service Agency (TFS) based in Morogoro. In 2019 the TFS produced a management plan for Kimboza.

The Kimboza-Ruvu Gorge project is managed by Dr Charles J. Kilawe from Sokoine University of Agriculture in collaboration with Pierre Binggeli, the local communities and TSF.

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Right: Location of the forests reserves in the Morogoro Region with A. Kimboza, B. Ruvu

