



# Malawi Mount Mulanje

Yearly report 2020

# Restoring forest to protect water and biodiversity

## Mount Mulanje, Malawi

2020 was a challenging year all round, and our Mount Mulanje project was no exception. COVID-19 meant delays to rolling out beekeeping owing to smaller group sizes (though we did manage to complete 73% of our target), and only four of the eight environmental education classes took place just before schools closed.

Despite COVID-19, the nurseries still managed to raise, as planned, more than 200,000 cedar, pine and indigenous species seedlings. 18,553 cedar seedlings were planted as hedges in early 2020 and 10,000 on the mountain top. The mountain planting of the remaining 128,730 seedlings of cedar and companion species will finish at the end of the 2020-2021 planting season in February.

Establishing restoration sites for assisted natural regeneration is also on track, and by the end of 2021 we aim to have 221,550 trees (211 ha) under restoration management. 12 monitoring plots were established to track progress.

2020 reminded us that seedling survival rates are often challenging on Mulanji (see back page for more). A disappointingly low survival rate of 54% for the 10,000 mountain-top cedar was due to planting starting late during the rains, as well as competition with invasive species. We're adapting the plan for 2021 to improve survival rates, including planting on the mountain in February instead of March and planting a combination of cedar seedlings with fire-resistant accompanying trees species to reduce the development of invasive species.

Many of the 500 fruit trees distributed to schools are also expected to suffer, since schools closing meant that many did not receive sufficient care. A trial of pine plantings with the Forest Department (not sponsored trees) succumbed to fire, though around 15,000 are still doing well thanks to the 78 tea farmers of the Sukumbizi Tea Association.

Good news, however, has come from the initial survival rates of the cedars planted for hedges; and our partner, the Mulanje Mountain Conservation Trust, is exploring how to attain World Heritage Site status for the Mulanje Biosphere Reserve!



## 2020 in PICTURES



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# 2020 in NUMBERS

Mount Mulanje is a highly threatened national forest reserve, crucial for its water resources. It provides water for drinking, irrigation and electricity downstream for millions of people.

Due to the huge differences in height over the reserve, it has exceptional biodiversity. Mulanje's lower slopes are mainly miombo woodlands which will be restored through assisted natural regeneration, with some enrichment planting where areas are too highly degraded. Miombo species are able to quickly regenerate from root or seed stock.

The mid-elevation and upper slopes are home to afromontane forests. These areas are so degraded that the only restoration approach is to actively plant.

## Seedlings

200,000 seedlings were the target to be grown in 2020 for planting in the 2020-2021 season. In fact, 206,000 were raised.

18,553 cedar seedlings were planted for hedge growing.

10,000 Mulanje cedar tree seedlings were planted on top of the mountain at Mtayamoyo, Lichenya at the beginning of the year. Now 128,730 seedlings (79,635 Mulanje cedar and 49,095 indigenous species) are being planted in the Afromontane forest of Mulanje Mountain Forest Reserve during the 2020-2021 planting season, which ends in February 2021.

500 fruit tree seedlings were distributed to the ten schools taking part in the School Tree Planting and Environmental Education programme.

## Livelihoods

73% of our beehive target was met: Out of the 350 top-bar beehives distributed to the three beekeeping clubs, 256 had been hung by the end of December, and the remainder were completed in January 2021.

35 people were trained in beekeeping.



## Forestry

Protecting and growing 211,550 trees in 211 ha across Mangombo (141 ha) and Nakhonyo (70 ha), the blocks of miombo forest that will be restored using ANR and co-managed with the community.

19 Forest Management Committees were established.

12 permanent monitoring plots were set up in these areas.

## Community Engagement

13 stakeholders are engaged in the project:

- The Mulanje Mountain Conservation Trust
- The Department of Forestry
- Botanical Gardens Conservation International
- 8 nurseries owned and run by the communities
- Sapitwa Beekeepers association
- Sukambizi Association Trust



## The year begins

The start of each calendar year begins in the middle of the planting season (November to February). Sites have already been prepared for planting by land clearing, marking for pitting, and pitting.

## Seedlings for schools

As environmental awareness is a key part of the future success of any forest restoration venture, our project engages the younger members of the community with its School Tree Planting and Environmental Education programme. By February, 500 fruit tree seedlings have been procured for the 10 schools taking part, whose pupils will plant and take care of the trees.



Here, some of the seedlings are being loaded into a vehicle to be transported to schools, including to the Namulenga secondary school (below).



JAN

Preparing areas and planting on mountain

Hedge planting

FEB

Training in & planting of pine trees

Hedge planting

MAR

Raising Mulanje cedar and other seedlings

Procuring beehives

APR

Training in beekeeping

Ranger patrols

MAY

Training in beekeeping

Establish permanent monitoring plots

JUN

Weeding

Fire management training

## Cedar for hedges

There are 8 nursery groups where cedar seedlings are grown. Nursery managers and farmers have received training on how to plant cedar hedges.



60 seedlings for the Mulanje cedar are planted in this farmer's field at Gambeya Lujeri, with rows spaced at half a metre apart and trees at 1 metre intervals.

Monica S. is pictured here standing among the 82 Mulanje Cedar seedlings she has planted as hedges in her homestead. As one of the beneficiaries from Makolera Cedar Nursery Group, she is committed to taking good care of these seedlings with the hope of benefitting in the future from producing and selling sustainable cedar oils that can be extracted from the trees.



## Co-managed restoration

Our aim to map 90 ha of forest for community-managed restoration was realised. This was in Mangombo and Nakhonyo. Mangombo is mostly mature miombo woodland, and has small patches of riparian evergreen species where the river passes through. Nakhonyo's bottom stretch is mature miombo, with upper bands of evergreen and riparian forest. Responsibility for forest management is shared between local committees and the department of forestry.



With the help of committee members such as Janet (pictured), 12 permanent monitoring plots have been set up, measuring tree sizes and heights as well as species distribution and diversity. The plots will allow us to assess the state of the forest now and in the future as the miombo woodland regenerates.

## Top of the mountain

Nine sites for cedar planting in the Afromontane forests on top of the mountain were identified, and the remaining seedlings of Mulanje cedar and companion species were ready to be planted. The land clearing, marking for pitting, pitting and planting out began later than planned due to delays in accessing the funds by MMCT, but this is now being carried out at the time of writing. 128,730 seedlings will be planted in the Afromontane forest of Mulanje Mountain Forest Reserve by the end of February 2021.

JUL

Monitoring & support for beekeepers

Mapping pine and cedar areas

AUG

Monitoring & support for beekeepers

Firebreaks

SEP

Monitoring & support for beekeepers

OCT

Monitoring & support for beekeepers

NOV

Preparing areas and planting

Support for beekeepers

DEC

Planting

Support for beekeepers

## A new forest-friendly livelihood

All the 350 beehives and necessary equipment are constructed and distributed to the beekeeping groups, whose 35 members (24 men and 11 women) received a four-day training to gain the knowledge and technical skills needed for modern beekeeping. This has the potential to change the livelihoods of all participants and will help with improving forest management.

In October, the first beehives are hung. "We will now safeguard this forest by ensuring total protection from fire and the cutting down of trees, now that we've hung our beehives here," says Dyton R., a member of the beekeeping group. Of the 350 beehives distributed to the three beekeeping clubs, by the end of the year 256 beehives had been hung. The first harvest is expected in June or July.



## A good start in life

The Nakhonyo Cedar Nursery group has been ranked as one of the best in terms of seedling survival and growth. They say the secret to their success is observing good practices such as observing the right depth when sowing seeds, watering twice a day, removing weeds, pest management, and following proper hardening off measures.



# What's next?



## Forestry

- After planting the remaining seedlings in the 2020-2021 planting season, maintenance activities – such as weeding – will be carried out, as will the construction and maintenance of firebreaks. Fire is a real risk in Mulanje, and making sure firebreaks are well maintained is critical.
- The planted sites will also be mapped to have an accurate plan of each hectare.
- 211 ha of community-managed land (Mangombo and Nakhonyo) will be under restoration management by the end of 2021.



## Livelihoods

- By the end of January, all beehives will be hung. Real beeswax has been delivered, and the hives will be baited in March to coincide with the regional bee swarm.

## The challenges of growing Mulanje cedar

Cedars grow from cones from mature trees, but even mature trees don't cone consistently every year, so seed collection is unpredictable and sometimes impossible. There are currently two sites in Malawi, far from Mount Mulanji, where cedars have been planted and which have stands of mature cone-producing cedars suitable for seed collection. Germination from cedar cones is also affected by soil type and condition, watering regime and even the depth at which the seeds are sown.

After germination, handling during transplanting can also affect the sensitive seedlings. Growing cedar on top of Mulanje poses additional challenges: fire and frost. Continuous maintenance on the mountain to maintain fire breaks and carry out weeding and companion planting to offer protection is crucial for the survival of the growing seedlings.

WeForest is partnering with the Mulanje Mountain Conservation Trust, the Forestry Research Institute of Malawi and Botanical Gardens Conservation International on a research programme on cedar propagation. Together with a team of ecologists and plant specialists from around the world, we have devised an extensive, controlled trial to test the variables that influence cedar survival. As this research goes on, we use the results to inform the sowing and planting strategies in the nurseries and on the mountain.



Stay up-to-date with your interactive **Mt. Mulanje map**, and check out the **photo album** on Flickr.