Borneo Nature Foundation

1 MILLION TREES PROJECT

END OF YEAR REPORT

2022

Borneo Nature Foundation

Borneo Nature Foundation is a registered charity in Indonesia (No. 5016051162200005), England and Wales (No. 1194359), and France (No. W012015356).

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CONTENTS

SUMMARY

Sebangau National Park contains some of the most extensive, contiguous lowland rainforest remaining in Borneo, supporting the largest protected population of the Critically Endangered Bornean Orangutan (*Pongo pygmaeus*). Prior to achieving formal protected-area status, the area was logged extensively, first by legal, controlled logging and then by intense illegal logging. Illegal loggers used purpose-built canals to extract timber from the forest, which has resulted in peatland drainage, putting the whole ecosystem at risk of degradation and, more immediately, from forest fires. These fires cause huge public health problems, destroy vast swathes of rainforest, and are a major factor causing the increase in global atmospheric carbon dioxide levels.

The priority conservation action for Kalimantan's peat-swamp forests is to restore them to their original state, thereby reducing fire-risk, following established practices and national strategy. In line with this, in 2019 BNF launched an ambitious project to grow, plant, monitor and protect 1 million trees by 2025, safeguarding this globally important forest and enhancing carbon sequestation to lead the fight against climate change. To achieve this, we are working with local communities and government agencies to identify priority areas for planting and empower communities to implement tree planting at scale to protect their ancestral forests. Once the trees have been planted, they are monitored and protected by local forest patrol and firefighting teams to ensure seedling survival.

Tree planting not only helps restore the damaged forest, but also provides economic benefits to local communities, reduces fire-risk, mitigates climate change and protects wildlife. Our holistic approach to conservation ensures that we tackle both the causes and the consequences of forest fires, starting at the grassroots level. Alongside our tree planting project, we are restoring the natural hydrology of the peatland rainforest by blocking illegally-dug drainage canals to re-wet the peat, reducing the risk of forest fires.

We are committed to supporting a green job economy through community seedling nurseries and sustainable livelihood development. Our community nursery scheme empowers rural communities to grow young seedlings on their land, with BNF providing the necessary resources and training, then buying the seedlings back once they are large enough to plant. We also encourage families to use the nurseries for their own livelihoods, providing training and infrastructure to introduce peat-friendly agriculture and aquaculture practices that reduce drainage and the use of fire for land clearance.

HIGHLIGHTS FROM THIS PERIOD

172,316 trees planted in 2022

4 additional community nurseries

Additional $813.16 of annual income for community members adopting our permaculture and aquaculture initiatives

5 new community patrol and firefighting teams

DEVELOP COMMUNITY NURSERIES

In December 2019, BNF launched its 1 Million Trees project, in which we will grow, plant, monitor and protect 1 million trees by 2025. We aim to meet this target by upscaling our community nurseries (CNs) project over the next three years, establishing a total of 25 CNs by 2025. This year, we have established four new community nurseries, bringing the total number of supported nurseries to 14, with 104 members. Our community nurseries are run by local families, generating an average annual income of $831.16 per person (12,026,900 Rp). BNF's support for this initiative takes the form of training and resources, providing equipment and expertise to participating community members.

Figure 1. *Seedlings are grown and cared for in community nurseries, run by local families.*

Through the community nurseries project, BNF encourages community members to create sustainable income sources and additional benefits through the reforestation project, including aligned permaculture and aquaculture initiatives, and the adoption of new peat-friendly land management practices across sectors. Four new villages have engaged with our sustainable livelihood projects this year, bringing the total up to eight: four in the Rungan landscape, and four in Sebangau. Another village has received socialisation and training to set up a permaculture and aquaculture forum group, which is currently pending formal establishment.

Figure 2. *Permaculture and aquaculture initiatives offer a more sustainable alternative to damaging forest-based livelihoods, such as mining and logging.*

As well as helping communities to become more self-sufficient, these development initiatives can be capitalised off by selling excess produce (freshwater fish, vegetables, honey) at the market, diversifying local income streams.

PLANT SEEDLINGS

At the end of August, we initiated our biggest tree planting effort to date, planting 172,316 trees across three target reforestation areas in just over three months. We vastly surpassed our planting target for 2022, taking the total number of trees planted since the project began to 268,618.

Figure 3. *Seedlings are prepared for planting.*

To continue to expand the seedling supply for our large-scale reforestation initiative, we constructed a new permanent seedling storage facility on BNF land. This will allow us to store the seedlings purchased from community nurseries *in-situ* until they are ready to be moved to one of our main planting areas.

Figure 4. *The new permanent seedling storage facility on BNF land.*

Finally, to commemorate Indonesian National Nature Conservation Day on the 8th of August, BNF supported the Sebangau National Park Agency in the ceremonial planting of 200 endemic tree seedlings. This event achieved regional news coverage and represents the flourishing partnership between the Sebangau National Park Authority and BNF.

Figure 5. *Planting trees for Indonesian National Nature Conservation Day with the Sebangau National Park Agency.*

MONITOR PLANTED SEEDLINGS

As part of the post-planting process, seedling growth and survival is closely monitored across BNF's reforestation sites. This builds upon a decade of work researching the most suitable species and planting methods to promote seedling survival in the uniquely challenging burned peatland environment.

Mortality rates can help inform our reforestation strategy going forward (i.e. which species to continue selecting for assisted reforestation, where seedlings grow best, etc). Early monitoring also provides a growth baseline for future data to be measured against.

Figure 3. *Recently planted seedlings at one of our reforestation sites within the Sebangau National Park.*

We have continued to learn from the results of our monitoring, as evidenced by the high survival rates of our planted seedlings. During the early stages of this project, our intial seedling survival rates were 76% at four months post-planting, 71% at eight months post-planting, and 56% after 16 months post-planting. After continuing to refine our methods, results from the latest monitoring activity of a different set of seedlings planted in October 2021 reveal that the average seedling survival rate is 89% at one month post-planting and 81% at six months post-planting (Table 1). We are extremely happy with these results so far and will continue to monitor these seedlings, as well as newly planted ones, over the coming year.

Table 1. *Seedling survival rates at one month and six-months post-planting.*

Species	**1 month survival %** (Nov 2021)	**6 month survival %** (March 2022)
Balangeran	90	81
Jambu-jambu	91	82
Katiau	86	86
Mahadingan	94	94
Prupuk	96	94
Pulai	86	86
Tabaras	55	55
Tampohot	86	79
Average	**89**	**81**

SAFEGUARD THE FOREST

Full restoration of the peat-swamp forest will take many years, during which, fires will continue to pose a serious threat to reforestation areas and the wider National Park. As part of our fire mitigation and prevention strategy, BNF supports a network of community firefighting teams, who conduct regular patrols year-round. During the dry season, these fire mitigation efforts are stepped up, with teams on standby and ready to mobilise throughout.

In 2022, we expanded our support to five new community firefighting and patrol teams, bringing the current total up to nine. We ensure that teams are fully equipped with everything they need to carry out thorough patrols in the peat-swamp forest, from generators and water tanks to safety boots and first aid kits. Training has also been issued on the use of SMART (Self-Monitoring Analysis and Reporting Technology) monitoring systems, which facilitates high quality data collection and reporting for conservation management.

Figure 6. *SMART monitoring systems will streamline our patrol data collection methods.*

So far this year, 372.36 hectares have been patrolled by the BNF-supported 'Centre for International Cooperation in Sustainable Management of Tropical Peatland' ('CIMTROP') patrol team. Further to this, the Bukit Tunggal community patrol team was established in February 2022. As of October 2022, all firefighting teams have been trained and equipped to begin patrolling on a regular monthly basis throughout the year.

Figure 7. *Community firefighting teams have increased their patrol intensity this period.*

This year's dry season was mercifully mild, with wetter-than-average conditions throughout. Combined with our fire prevention efforts, this meant that zero fires occurred in our target area during the reporting period and zero hectares of peatland were burned. This was confirmed using LandSat imagery pre/post the annual fire season, which came to an end in October.

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