Brazil
Tietê
Forests

Yearly report 2020

Protecting water resources and connecting forest remnants

Ibitinga, Brazil

2020 was the first year of activity for the Tietê Forests project, which is a collaboration with energy company AES Brasil and engages CEIBA Environmental Consulting for field activities.

The first planting in this Atlantic Forest project, whose aim is to protect water resources along the banks of the Tietê river and increase forest cover and biodiversity, took place at the end of 2020. Scheduled to take place once a year during the rain season, from October to March, the planting was slightly delayed in 2020 because of the later rains - and to a lesser extent because of COVID-19.

In general, though, the pandemic had a minimal impact on the project thanks to the strict safety protocols put in place for all activities, and at the time of writing (January 2021) the field team are managing very well to catch up after the initial delays.

Goal for 2020-2021 planting season*: 100 ha
Progress to end 2020: 44.37 ha

Goal for 2020-2021: 200,000 trees
Progress to end 2020: 88,740 trees

15 workers were employed in the field. 12 were employed in the plant nursery, 42% of them women

2020 in PICTURES

An ideal testing ground for greener approaches

The Tietê Forests project provides the perfect 'living laboratory' to experiment with ways to reduce or eliminate the use of herbicides and pesticides, which are usually relied on in Brazil to control invasive grasses, or even eliminate them entirely. It will do this by testing different spatial arrangements or species combinations, and developing best practices. WeForest, AES Brasil and CEIBA put their heads together to elaborate these approaches, as well as making preliminary field tests of the machinery to be used. Experiments were also designed to provide data comparing different approaches, so it will be clear which practices are successful and which need to be revised or adjusted.

The beginnings of a new project

Once the project agreements had all been signed by May, the first few months were devoted to selecting areas to restore, assessing field conditions (such as the presence of natural regeneration and invasive grasses), surrounding land use - which is mainly cattle and sugarcane - and contacting neighbouring landowners to let them know about the implementation activities.

Currently, all the areas are AES Brasil landholdings. Under Brazilian law, reservoirs of water, including rivers like the Tietê, must be buffered by an exclusion area - but there is no legal requirement to restore these areas. The Tietê Forest project focuses on these areas, systematically restoring them with native vegetation.

JAN

Preparation & planting (P&P)

Mortality assessment & replanting

FEB

P&P

Mortality assessment & replanting

MAR

P&P

Mortality assessment & replanting

APR

Grass control

Mortality assessment & replanting

MAY

Grass control

Mortality assessment & replanting

JUN

A variety of native species

For practical reasons, the wide range of species which will be restored by the project are grouped into two types. Half of the seedlings will be species for filling, and the other half will contribute to the diversity of the forest.

Filling species: Only fast-growing species that promote fast soil coverage and improve environmental conditions near the ground within the first two years of forest development. The main goal of these large-crowned plants is to shade and suppress invasive grasses, creating the first forest structure and providing conditions for the growth of the diversity species.

Diversity species: All other species are categorized under this group, including those that grow slowly and those that grow fast but have narrow canopies. This group is essential for the long term persistence of the forests, as they provide a variety of food resources for fauna and are long-lived species that will substitute the fast-growing ones when they die off.

Field work begins

Field preparation began in July with the fencing-off of the areas to be restored. The field activity was slightly delayed because of one person testing positive for COVID-19, which meant that his team members had to isolate too. However, CEIBA's strict safety measures mean that groups of only three people can work together, so the impact was not great.

Waiting for the rains...

In October, the control of invasive grasses and leaf-cutting ants with organic techniques begins. The removal of grass was carried out mechanically by mowing, and green manure – Guandu or pigeonpea (*Cajanus cajan,* below) – was used as an extra contribution to the shade and suppression of invasive grasses which will be provided by the filling species. The biomass of both the mown grass and the green manure can be used as mulch during tree planting, also to stop invasive grasses growing again.

Although COVID-19 hadn't had too much of an impact, the weather certainly did. The team waited and waited - but still the rains didn't come!

JUL

Fencing

Ant & grass control

AUG

Fencing

Ant & grass control

SEP

Fencing

OCT

Fencing

P&P

Ant & grass control

Fertilisation

NOV

Fencing

P&P

Ant & grass control

Fertilisation

DEC

Fencing

P&P

"It's very beautiful to see nature coming back"

Carlaelson dos Santos, 37, left Bahia State when he was 12 to seek better job opportunities. He arrived in Ibitinga to work on the sugarcane fields of Santa Fé SugarMill, where he worked for 10 years. He started to work for CEIBA in 2014 as a driver, and has been an outstanding team member, earning a well-deserved promotion to designated field leader. "When the forest is renewed, even the wind is different," he says. "I'm very thankful for this opportunity, and I have faith that this project will develop well in the future."

Planting at last

Because of the late rains, the first seedling isn't planted until the middle of November 2020, about three weeks later than anticipated. A day or two before, the ground is fertilised and hydrogel is added, which keeps the ground damp until the rains start in earnest. Seedlings are planted at a density of 2,000 trees per hectare.

Over this planting season we expected to plant 60-70 ha in 2020 and the remaining 30-40 ha in early 2021. The delay means that about 44.37 ha has been done by the end of the year - but the remaining hectares will still be finished by March 2021.

What's next?

Restoration activities (AES landholdings):

- Evaluate the performance of restored sites and adapt the approach where needed.
- Set up and map an additional c. 200 ha for ecological restoration.

Restoration activities (private landowners):

- Review the proposal for restoration on private farms in Promissão-SP (close to AES Brasil's plant nursery, about 100km from Ibitinga), and decide next steps.

Monitoring and evaluation:

- Carry out the regular mortality assessments immediately after seedlings are planted, to take advantage of the continuing rains if replanting is needed. For the first planting season (2020-2021), this follow-up had started at the time of writing.
- Define the long-term monitoring methodology for flora, fauna and other ecosystem services such as carbon and water, in particular the integration of AES Brasil satellite monitoring data.

How do we know our restored forests are growing and making an impact?

Every hectare under restoration is mapped with GPS points to generate polygons (areas on a map) that are assigned to sponsors. Permanent monitoring plots are established in our sites and our forestry and science teams conduct surveys to monitor progress of biomass growth, tree density, survival rate and species diversity, among other indicators. Where social impacts are also critical, we measure socio-economic indicators such as the number of beneficiaries, people trained, and income generated from forest-friendly livelihood activities.

Please visit our Why and How webpage for more information.

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