YUCATÁN PLANTING REPORT 2020

With your help we can plant a better future

PLANT FOR THE PLANET
Trees for Climate Justice

Table of Contents

PLANT FOR THE PLANET | UN environment programme | UNITED NATIONS DECADE ON ECOSYSTEM RESTORATION 2021-2030

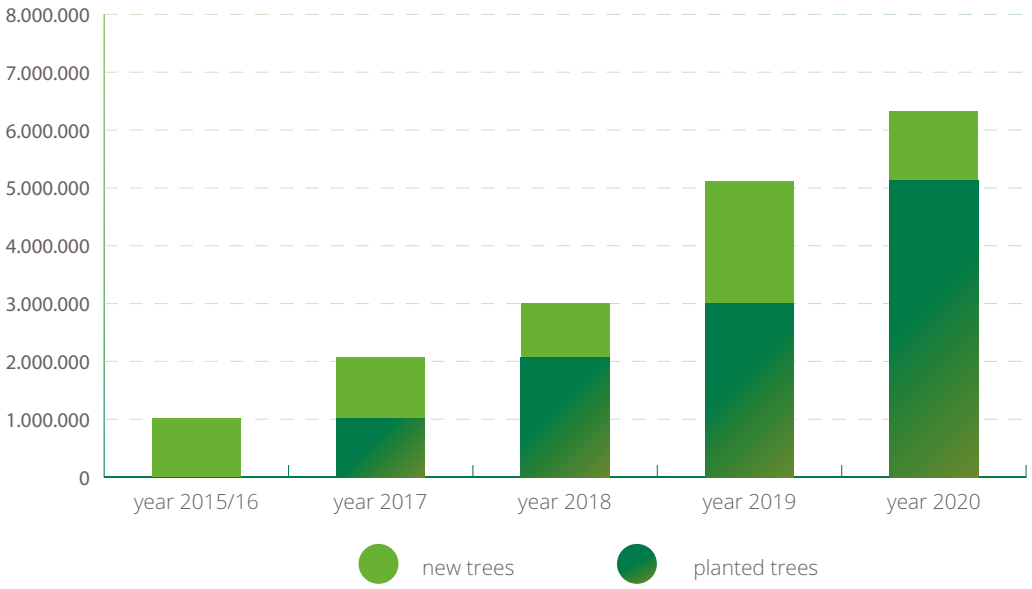
RESTORATION PROJECT YUCATÁN PENINSULA, MEXICO

In March 2015, we started our Reforestation Project in Constitución, Calakmul.
Since 2015 until December 2020, we have planted 6,332,664 trees.
Even if 2020 brought us the pandemic and a major flooding event, we were able to plant 1,209,104 trees throughout the year.

In 2020:
1.209.104 trees

From 2015 to 2020:
6.332.664 trees

Our planted trees in Yucatán



THE LOCATION

Our main planting sites are close to the town of Constitución, Calakmul in Campeche, Mexico. Constitución is a small town of 1,142 inhabitants, located 70 Km from the closest city, Escarcega, and 30 Km from the entrance to the Calakmul Reserve. Constitución is located in the Southeast of the state of Campeche and in the centre of the Yucatán Peninsula. This region is characterized by a tropical semi-evergreen forest. However, there has been high levels of disturbance due to cattle grazing and intensive agriculture. The tropical ecosystem has been severely degraded and deforested.

The nursery from above.

On the planting area.

THE LOCATION

Las Américas 2

Reforestation started in 2016. Current work: Maintain planted trees.

Las Américas 1

On this area we started our reforestation project in March 2015 in Yucatán. Part of this area was flooded in the 2020 hurricane season. Next Steps: to assess the damage and to find the place of restoration manufacture to determine.

Las Américas 6

„PlanBe Forest" Reforestation started here in August 2020.

Las Américas 5

Research forest „PlanBe", has been planted here since January 2020

Las Américas 4

Until now, no reforestation planned, the team of ecologists examine and assesses which areas need to be restored and will then submit appropriate applications.

Las Américas 3

Until now, no reforestation planned, the team of ecologists examines and assesses which areas need to be restored and will then submit appropriate applications.

TREE SPECIES

Our team collects seldom planted varieties and selects the right seeds. The nursery is responsible for the processing and germination of all seeds and then delivers these seedlings to our planting areas.

Balché (Lonchocarpus longistylus)

A common name in the region is Balcé. It grows up to 10 meters (m) high, with dense and round foliage. It belongs to the Fabaceae family and it is an important resource for pollinators. Moreover, it is a sacred tree for Mayans.

American mahogany (Swietenia macrophylla)

A common name in the region is Caoba and it belongs to the Meliaceae family. It grows up to 25 m and the trunk can reach up to 1.5 m in diameter at chest height. It is well known in the region for its hard wood which makes it an ideal raw material for furniture.

Spanish cedar (Cedrela odorata)

A common name in the region is cedro and similar to mahogany it forms part of the Meliaceae family. It reaches up to 40 m high and a diameter at chest height of 2 m. This tree species is valued for its hard wood that is commonly used in furniture making.

Trumpet tree (Tabebuia rosea)

A common name in the region is Maculís it belongs to the Bignoniaceae family. This tree can grow up to 15 m high and it is a very important resource for pollinators. Traditionally, Maculís has been used for rural construction work.

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TREE SPECIES

Guanacaste (Enterolobium cyclocarpum)

A common name in the region is Pich and it is part of the Fabaceae family. This species is a big tree that reaches 20 to 30 m high. Their seeds are traditionally eaten roasted and are as nutritious as protein-rich beans. In many places of the Yucatán Peninsula, their seeds are also used to make handcrafts such as bracelets and earrings.

Bread walnut (Brosimum allicastrum)

A common name in the region is Ramón and it belongs to the Moraceae family. It grows up to 30 m high and is an evergreen, dense crown tree. In the region, the seeds are dried and used to make bread and coffee. Also, the leaves are a very important source of protein and thus are used as forage for sheep and pigs.

Ciricote (Cordia dodecandra)

A common name in the region is ciricote and it belongs to the Boraginaceae family, the same family as the forget-me-not flowers. This tree can reach up to 30 m high and it is characterized by its coarse leaves. These particular leaves have been used as sandpaper. Traditionally the bark and wood are used to treat colds.

Six other tree species were also planted on a smaller scale: Madre de Cacao, Waaxim, Chakte Viga, Tsalam, Roble prieto, and Guayacan.

From the 2021 season, we will increase the number of tree species in our reforestation to over 20 in order to achieve higher biodiversity.

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THE TEAM

We employ locals and in that way we provide income for them and their families. In 2020, we reached a number of 118 employees during our planting season. They work for 10.5 days and then have 3.5 days off.

Each planting site is often located a few hours from the town in which the local reforesters live. As a result of this distance, campsites are set up near the planting site. Huts are constructed for local reforesters to sleep, and food is provided. Hired cooks prepare breakfast, lunch and dinner. In addition, we have drivers who provide fresh water, food and toilet to each of our campsites everyday.

Our reforesters get up at 5:30 in the morning. After a nutritious breakfast they head to the sites to start planting at 7:00 am. They finish work at 3:00 pm and by that time they head to our campsite to have lunch. After eating most of our reforesters go to rest and meet again to have dinner at 6:00 pm.

In our office, which is situated in Constitución, we have a similar routine to our reforesters. Our coordinator, Elder de la Cruz, stays the full 11 days to supervise the work and manage all the logistical details in each of our planting sites. Dr. Anna Karen Zapata Carbonell works in the office coordinating the research and reforestation activities done on our sites and helping Elder to have the best practices in the field before and during the planting season. Dinosca Rondón Rivera, who is also part of the research team, is in charge of creating maps of each of our sites as well as monitoring the work in each of the sites on which we are planting our trees.

THE TEAM

Dr. Anna Carbonell
Head of Yucatán Restoration & Research of Plant-for-the-Planet

Dr. Leland Werden
Scientific director of Plant-for-the-Planet

Dinosca Dulmary Rondon Rivera
GIS Expert

Ing. Raúl Negrete
President (voluntary) of Plant-for-the-Planet Mexico A.C.

Carlos Luna
Forest Engineer, Head of the tree nursery

Elder de la Cruz
Logistics manager

HOW WE PLANT

In the Yucatán Peninsula, there are two main seasons that are important to prepare for: the dry and the rainy season. The dry season starts in November/December and finishes by the end of May/June and is characterized by a very low precipitation and high probability of fires to occur. The rainy season starts just after the dry season finishes and is characterized by an average accumulation of 141 mm of water per month out of an annual average of around 300 mm.

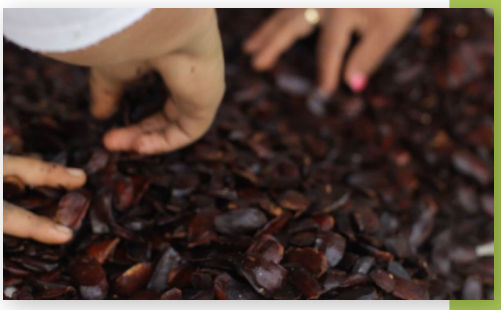
JANUARY - MAY

AT THE BEGINNING

From January to May we select the seeds and grow them in our partner tree nursery. We make sure the seeds have the best quality so seedlings can grow strong. Normally, the nursery grows 20% more seedlings than are needed in each planting season, so the best trees can be selected.

Each of them needs to be taken care of by approximately 35 workers, as the eight species that were grown in 2020 sprout at different times and have different environmental requirements.

While the seedlings grow up in the nursery, we take care of our planting sites by preparing the soil and the surface to start our planting season for when the first rain starts, approximately in early June. We remove all dry material to prevent wildfires, clear our plot boundaries in order to create fire breaks and survey the planting areas to determine the density and type of plants we will plant. Additionally, we take care of all the trees already planted in previous years by removing grass, weeds and vines that cover them and by clearing some of the canopies to allow the sunlight to reach them.



HOW WE PLANT

We mainly plant in two different kinds of areas: 1) in flat lands, where trees have been removed and only grass for cattle is left behind, and 2) in degraded forests that have been plundered of big, tall and old trees. The latter because we care about the integrity and regrowth of the species that have been plundered.

JUNE

SPRING

In early June, when enough rain has fallen, we start planting our trees. Our tree planting season lasts until the rain ends, which varies from year to year but happens sometime in October to December.

HOW WE PLANT

ACTIONS DUE TO PANDEMIC AND EXTREME WEATHER

In 2020, we had a very rough year not only because the pandemic started, but also because the rainy season brought several hurricanes with enormous amounts of water that ended up flooding one of our planting areas for several consecutive month with water levels of up to 3 meters, far beyond the usual measure. Once we know how many trees, the partial flooding of our Las Américas 1 reforestation site did not survive we will replant them according to the recommendations of our experts see map p.4.

The beginning of our planting season was postponed due to the pandemic and the construction of the research station, to the later part of August.

PLANTING SEASON 2020

began on
17. August
ended on
15. December

Despite the complications of 2020, we managed to plant **1.209.104 trees** in **111 days.**

THE SCIENCE

2020 marks the beginning of our work at the “Research Forest PlanBe” site that we were able to purchase in 2019 with funds from a private donation. In collaboration with the Crowther Lab at ETH Zurich, and scientists from Imperial College London, we planted an experiment with 16,000 trees in January 2020.

In this project we aim to better understand ecosystem recovery and create new strategies to reforest. More precisely we test here the impact of soil microbiome restoration on tree growth, survival and ecosystem carbon sequestration rates. We planted native tree species mixes with and without soil microbiome inoculation (the complex community of soil bacteria and fungi) from multiple environments.

For the next ten years we will regularly measure tree growth, survival rates and take samples to sequence the DNA of the microbiome. By comparing inoculated and uninoculated treatments, we will be able to directly measure the impact of soil microbiome on restoration outcomes. We expect that the results of this experiment will help us to improve our understanding of plant-soil interactions and allow us to directly apply this knowledge in our restoration work to make our trees grow faster and capture more carbon. We are also keen to make this information available to researchers but also restoration projects around the world.

OUTLOOK AND PREPARATION PLANTING SEASON 2021

Future work 2021

At the end of 2020 we began establishing a new research station in Constitución. Dr. Anna Carbonell was hired as the **Director of the Yucatán Research Site** at the end of 2020 and Dr. Leland Werden started as the Director of Science for Plant-for-the-Planet in early 2021.

Forestry engineer Dinosca Rondón Rivera was hired to help us with all the geographic information systems, **ecologist** Marcos Escobar Castellanos to lead the seed collection programme, **biologist** Ricardo Gaumer Araujo to coordinate our microbiome experiments, **ecologist** Samantha Davalos Segura to help us create guidelines for our restoration projects and Marco Domínguez Vazquez to supervise our restoration team on site.

OUTLOOK AND PREPARATION PLANTING SEASON 2021

Planting Strategy
Our ecologist team has mapped out a list of initial priorities to improve the outcomes of our reforestation efforts in the Yucatán and we will be focusing on three main goals:

1. Increasing the diversity of our tree plantings

Tropical forests such as those we are reforesting in Constitución hold an incredible biodiversity of plants, animals, insects, and microbes. Because tree planting is complicated, many projects focus on a core group of a few common tree species when implementing initial plantings. To that end, for the first few years of our work in Constitución we mainly planted a group of seven common native species, which was a great start. This year (2021) we have more than doubled the number of species we are going to plant. At least 20 species of native trees will be planted, a group of which can tolerate seasonal flooding cycles. The following year we hope to plant even more and we are currently building a team that focuses specifically on seed collection for those tree species that are nearly impossible to purchase from local seed providers. These efforts will help to provide more local tree biodiversity in areas that have been damaged after deforestation. We plan to share extra seeds we collect with the local communities so they can do the same and plant more trees.

2. Expanding our collaborations with other institutions in Mexico

Led by Dr. Anna Karen Zapata Carbonell we have developed a collaboration with a Mexican forestry and agricultural research institution called INIFAP. This organization runs an experimental site called “Sitio Experimental San Felipe Bacalar” that is about a three hour drive from our main reforestation sites in Constitución. The project will be jointly focused on restoring around 600 hectares of land that was previously affected by fire. Along with INIFAP we aim to work on this project for the next three years in order to monitor the changes in forest composition.

OUTLOOK AND PREPARATION PLANTING SEASON 2021

The collaboration with INIFAP is one many collaborations with local organizations and researchers that we are creating to accelerate the reforestation of degraded land across the Yucatán Peninsula. Moreover, we are learning a lot about reforestation from organizations such as INIFAP, which is helping improve our tree planting program in Constitución.

3. Implementing a cutting-edge monitoring program

For our tree planting efforts to be effective, we need to understand the fate of trees after they are planted. In the past we did this by setting up temporary plots where we measured the survival and growth of planted trees to get a snapshot of our reforestation outcomes. Now that we have established a team of ecologists we have more bandwidth to track the long-term performance of trees after they are planted. To do this we will establish permanent monitoring plots where planted trees will be measured annually for the foreseeable future to get a full picture of how the forests we planted are growing. Additionally, we will be integrating cutting-edge tools such as drones and satellite imagery into our monitoring program to measure our tree planting effort on a much larger scale. All of this data will help us to take an adaptive management approach in which we continuously make small changes to our tree planting approach. We feel this will ensure a reforestation plan that has the best possible outcome.

Donation Accounts

Germany: Bank für Sozialwirtschaft
IBAN: DE13 7002 0500 0000 2000 00
BIC/SWIFT: BFSWDE33MUE

Switzerland: Luzerner Kantonalbank
IBAN: CH06 0077 8202 4545 1200 1
BIC/SWIFT: LUKBCH2260A

Brazil: Banco Itaú (341) Agência: 0300
Conta Corrente: 42707-7
CNPJ: 20.346.141/0001-78
Holder: Plant-for-the-Planet Brazil

Italy: Banca Etica
IBAN: IT70S0501811800000012284030
SWIFT/BIC: CCRTIT2T84A

Spain: BBVA
IBAN: ES37 0182 9796 3502 0016 2493
SWIFT / BIC: BBVAESBB

Mexiko: BBVA BANCOMER
Account number: 0193447065
Clave interbancaria: 0126 9400 1934 4706 59
BIC/SWIFT: BCMRMXMMPYM

Czech Republic: Česká Spořitelna
IBAN: CZ9008000000005748490399
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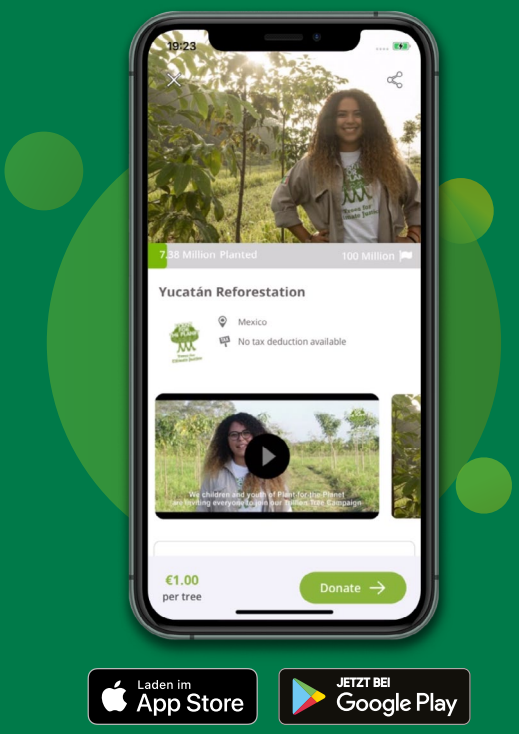

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