

A global assessment of tropical reforestation organizations

Meredith Martin, PhD
Assistant Professor
Department of Forestry and Environmental Resources
North Carolina State University
mpmarti7@ncsu.edu



Photo: Shriya Asher via plantwithpurpose.org

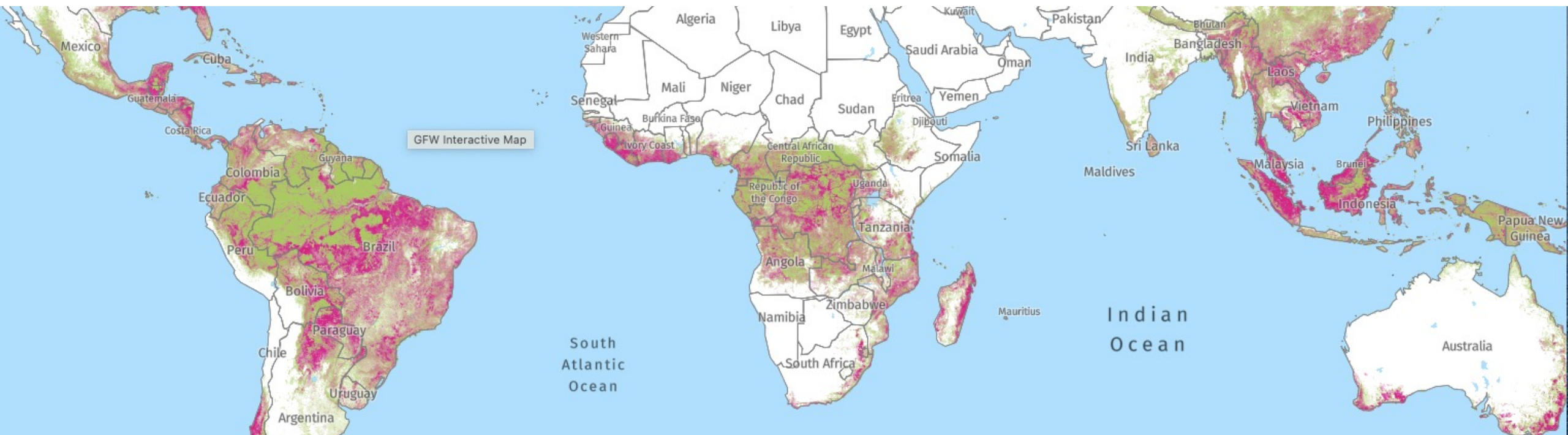
Yale SCHOOL OF
THE ENVIRONMENT

The Nature
Conservancy 

Tropical deforestation and degradation

- Contain half of aboveground carbon (Pan et al. 2011; 2013)
- Sequester up to 15% of global CO₂ emissions (Hubau et al. 2020)
- House nearly 2/3 of world's biodiversity (Bradshaw 2008)

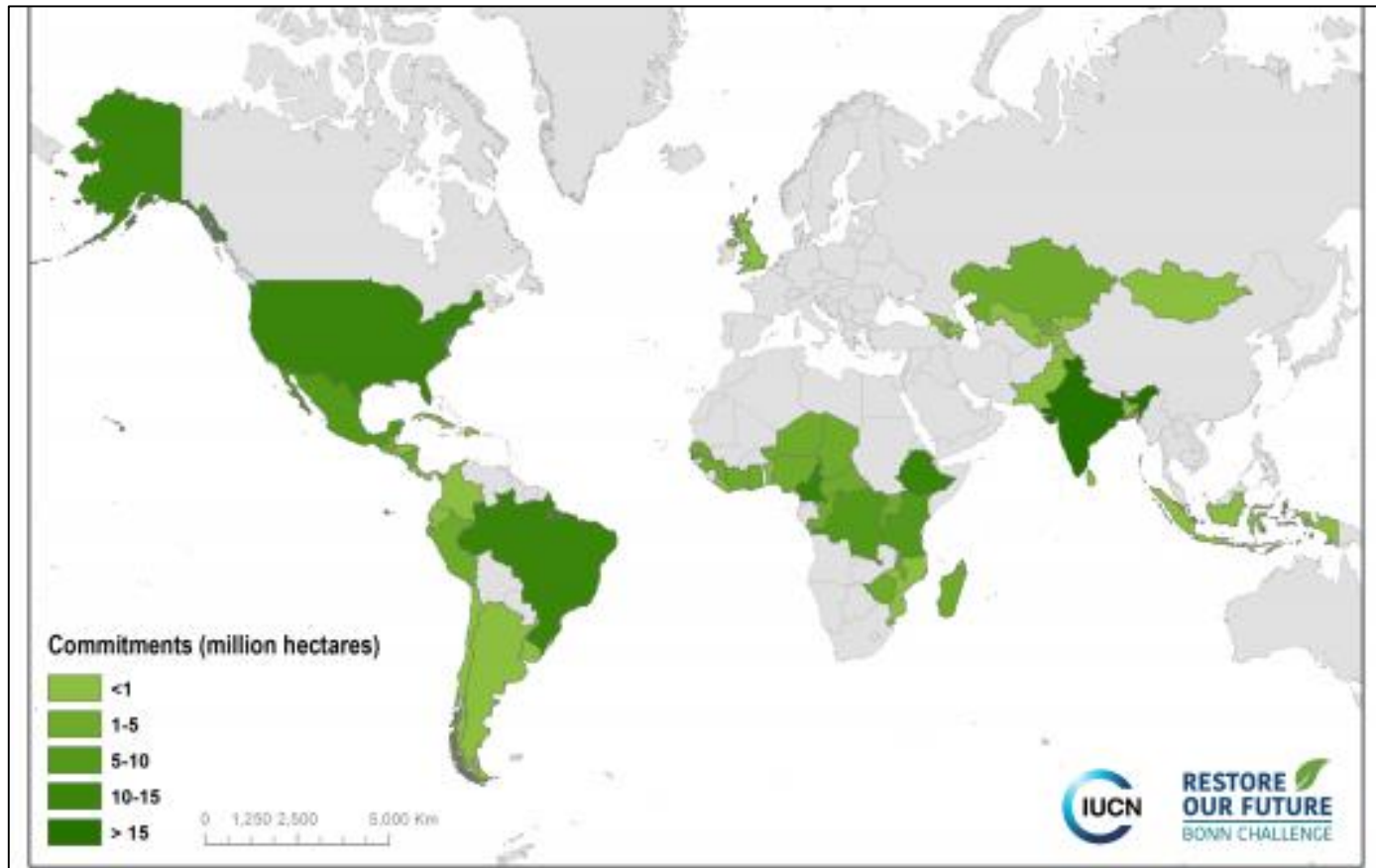




[Global Forest Watch](#)

Less than 50% of world's tropical forests remain (Lewis et al. 2015)

Ambitious global ecosystem restoration goals



Map produced by Gozde Saral IUCN May 2020, Data Source: Bonn Challenge - IUCN, ArcGIS HUB



Planting a trillion trees really can help us fight climate change

A trillion new trees isn't the only climate solution, but it is the cheapest and it would make a huge difference if we do it right, says ecologist Tom Crowther



TREES SUCH AS THESE | 2. 17. 19 by JON CHRISTIAN

ENVIRONMENT 8 January 2020

By [Fred Pearce](#)

Research: Planting Trillions of Trees Could Cancel Out CO2 Emissions

Scientist: Trees are "our most powerful weapon in the fight against climate change."

Tree planting 'has mind-blowing potential' to tackle climate crisis

Research shows a trillion trees could be planted to capture huge amount of carbon dioxide

Tree planting is not a simple solution

Tree planting must be carefully planned and implemented to achieve desired outcomes

By **Karen D. Holl¹** and **Pedro H. S. Brancalion²**

A trillion trees not enough to fix climate crisis, critics say

27 February 2020, by Elvina Nawaguna

ADAM ROGERS

SCIENCE 10.25.2019 07:00 AM

Trying to Plant a Trillion Trees Won't Solve Anything

We're not going to stop climate change with just seedlings and fancy agriculture. We also need to reduce emissions.

TRILLION TREE CAMPAIGN



Research objectives

- Who is planting trees?
- Where?
- How many?
- What kind?
- With what methods?
- What objectives?

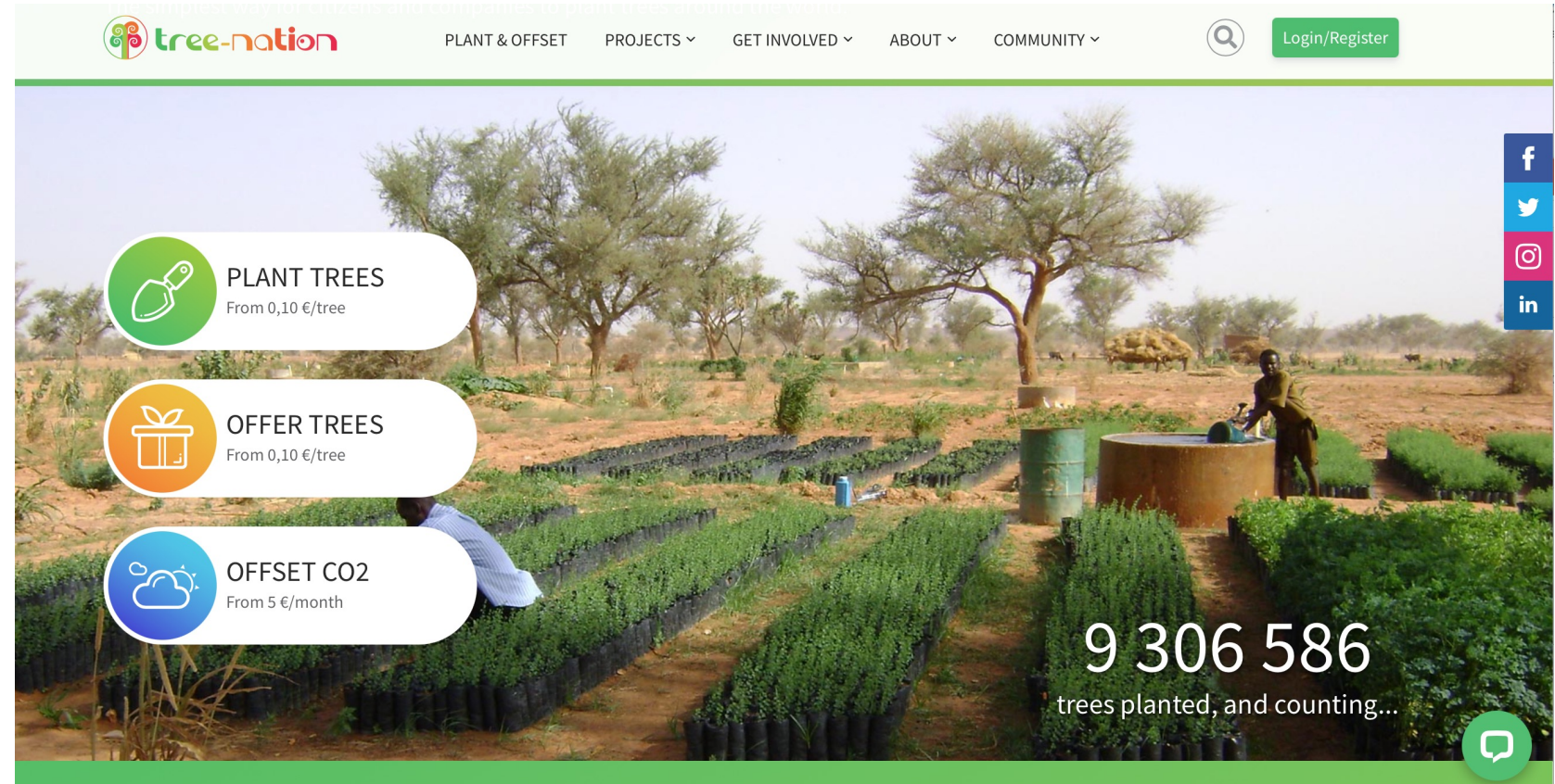


The audacious effort
to reforest the planet



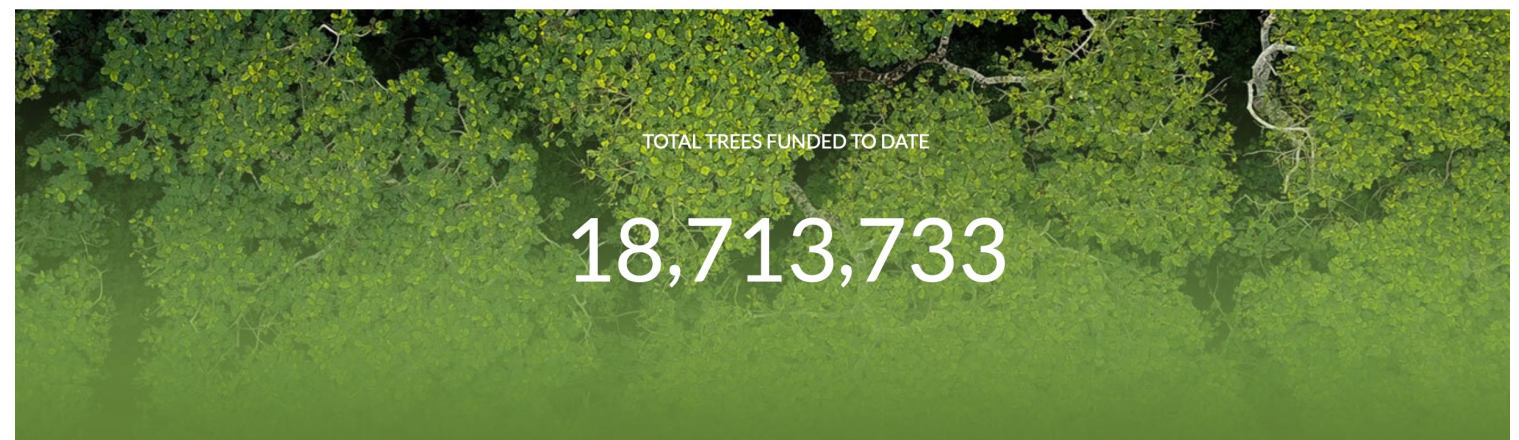
Methods

- Google searches
- Global Giving and Charity Navigator
- Tree-nation.org



Methods

- 174 unique organizations
- Information recorded:
 - Type of organization
 - Headquarters location
 - Project locations
 - Date founded
 - Mission statement
 - Trees planted
 - Area planted/restored
 - Restoration methods used
 - Species



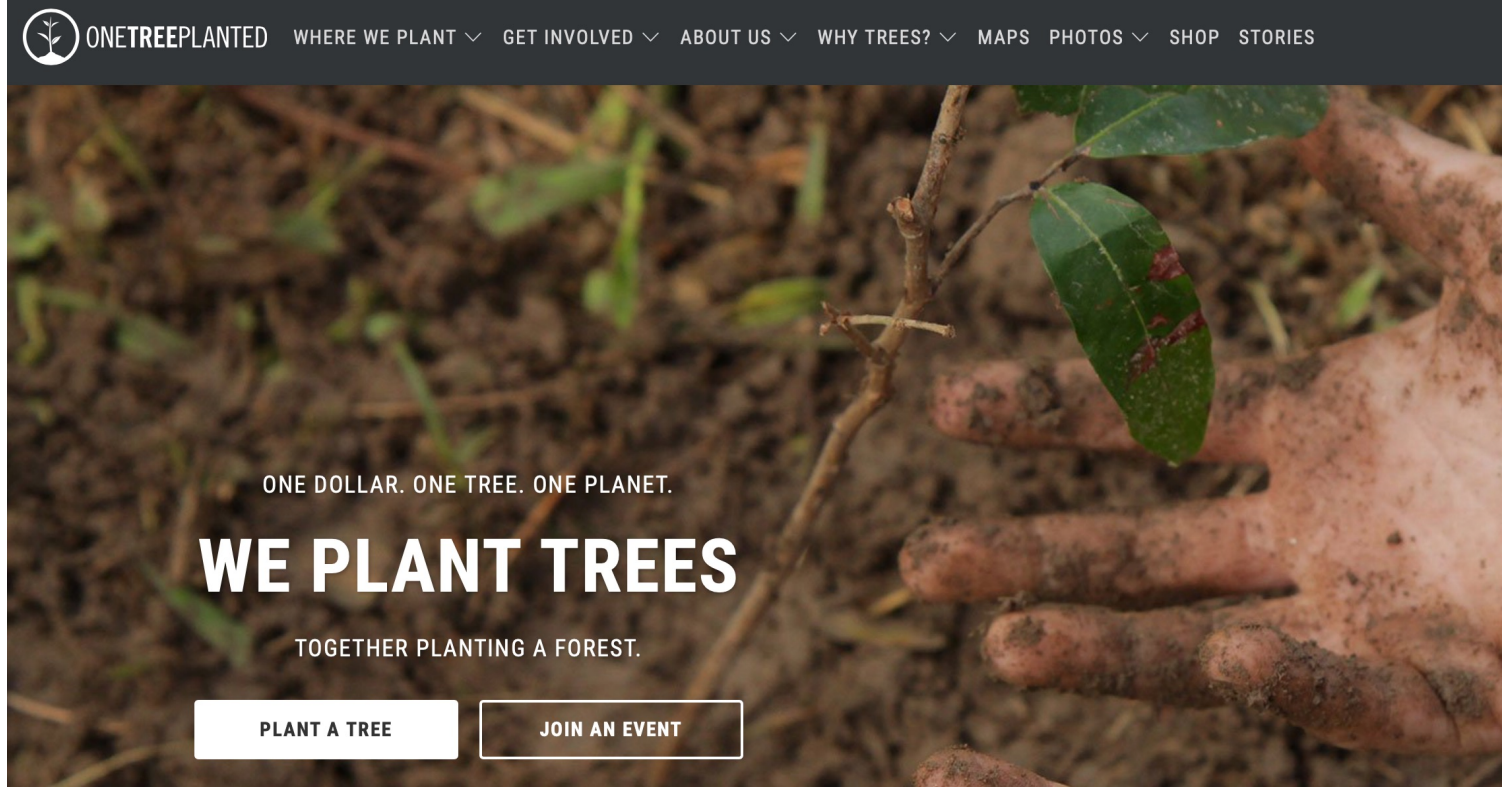
Give Today & Start Growing Your Own Forest

Make a difference! Your gift will fund the planting of tropical trees, sequestering carbon and directly help replenish the world's forests

MONTHLY

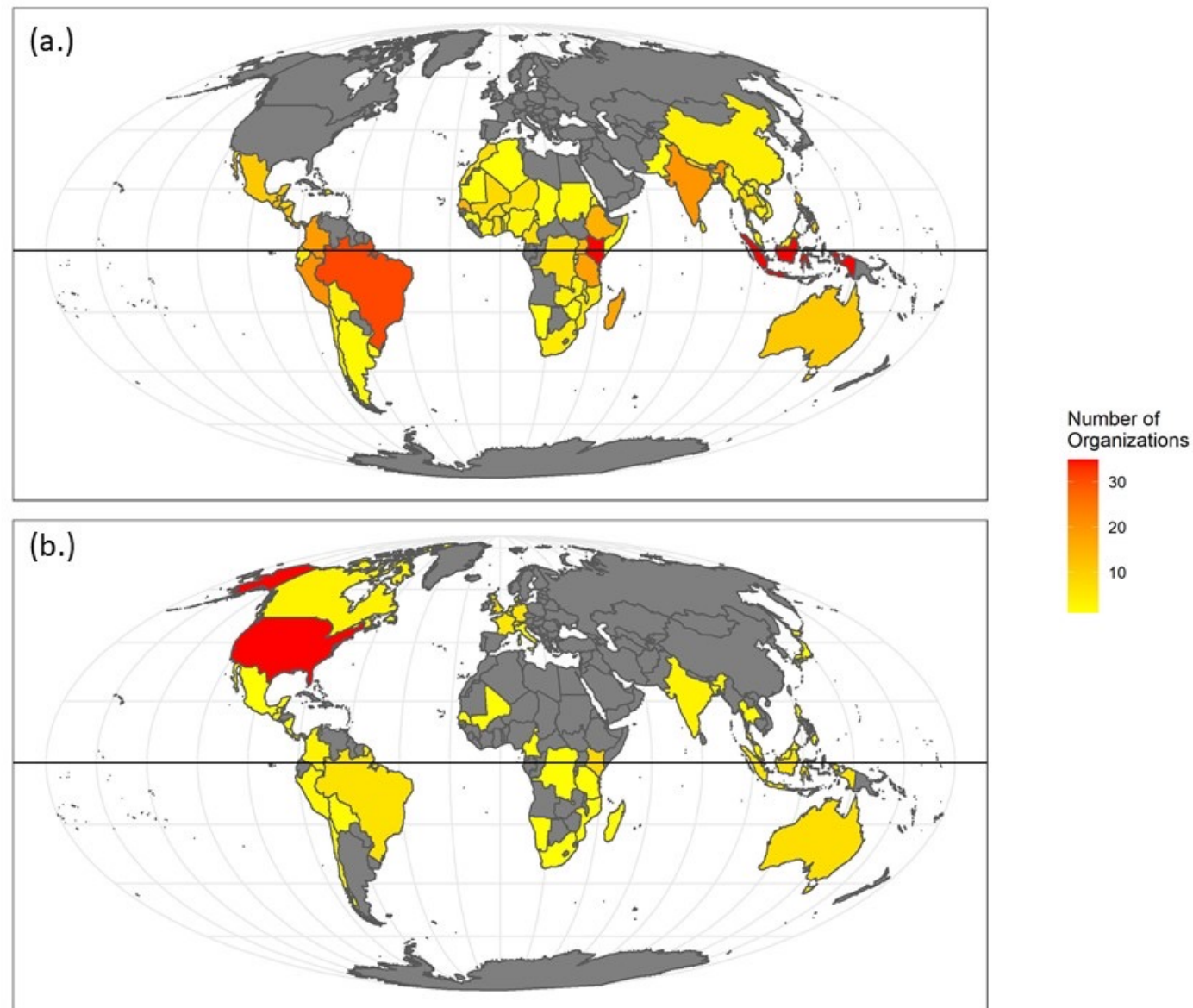
ONE-TIME

Treesisters.org



Results

- Dramatic increase in organizations in last few decades
- Headquarters more commonly located in Global North
- 1.4 billion trees reported since 1961

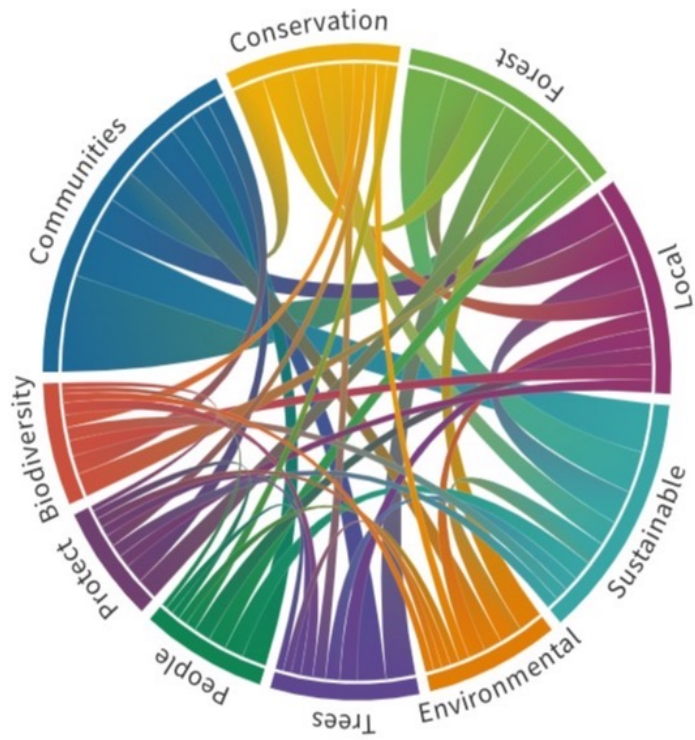


Reforestation method		All		Global North		Global South	
		n	Percent	n	Percent	n	Percent
	Agroforestry	82	47%	51	51%	31	42%
Agroforestry	Silvopasture	14	8%	6	6%	8	11%
	Farmer Managed Natural Regeneration (FMNR)	5	3%	5	5%	0	0
Tree plantations	Mixed species plantations	22	13%	12	12%	10	14%
	Single species plantations	13	7%	4	4%	9	12%
	Framework method	3	2%	1	1%	2	3%
	Miyawaki method	3	2%	1	1%	2	3%
	Rainforestation method	3	2%	0	0	3	4%
	Direct seeding	3	2%	3	3%	0	0
	Mangrove restoration	9	5%	5	5%	4	5%
	“Planting”	87	50%	60	60%	27	36%
Semi-natural / natural	Assisted Natural Regeneration (ANR)	17	10%	12	12%	5	7%
	Enrichment planting	12	7%	4	4%	8	11%
	Natural regeneration	3	2%	0	0	3	4%

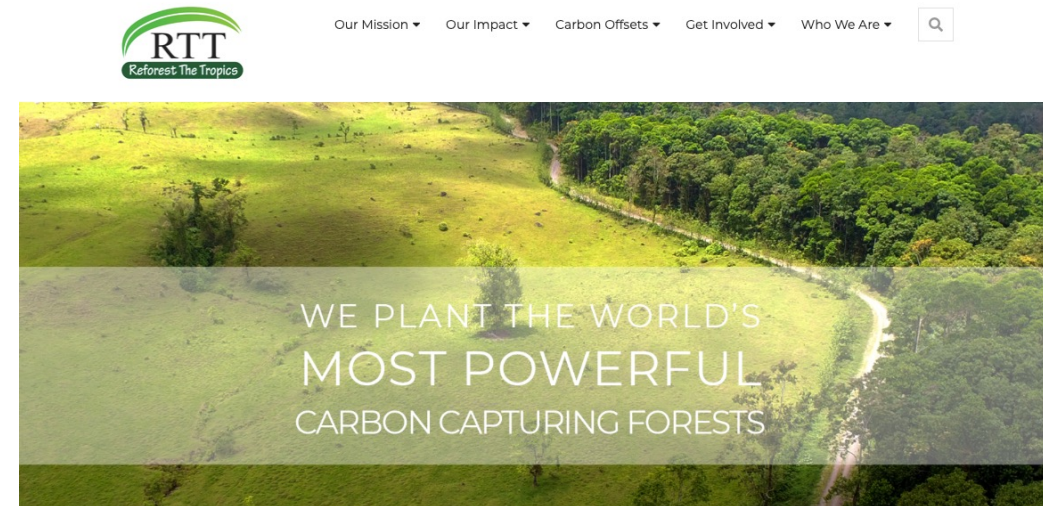
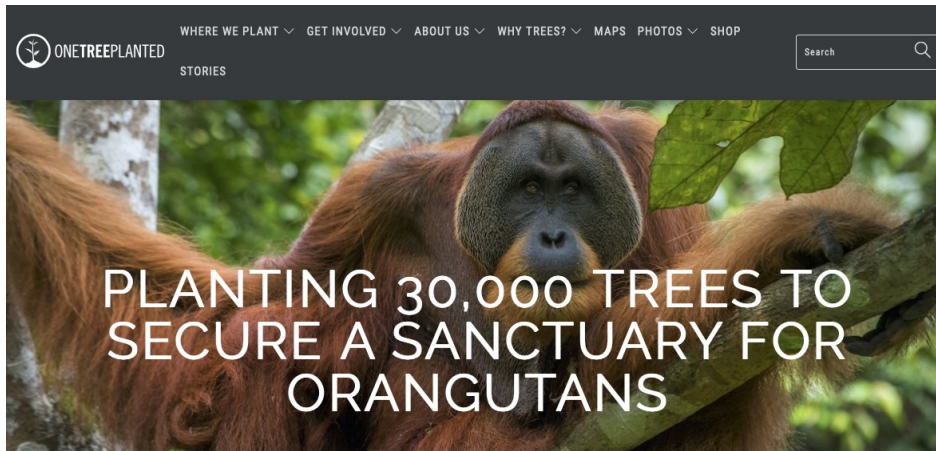
Only small number of species commonly reported



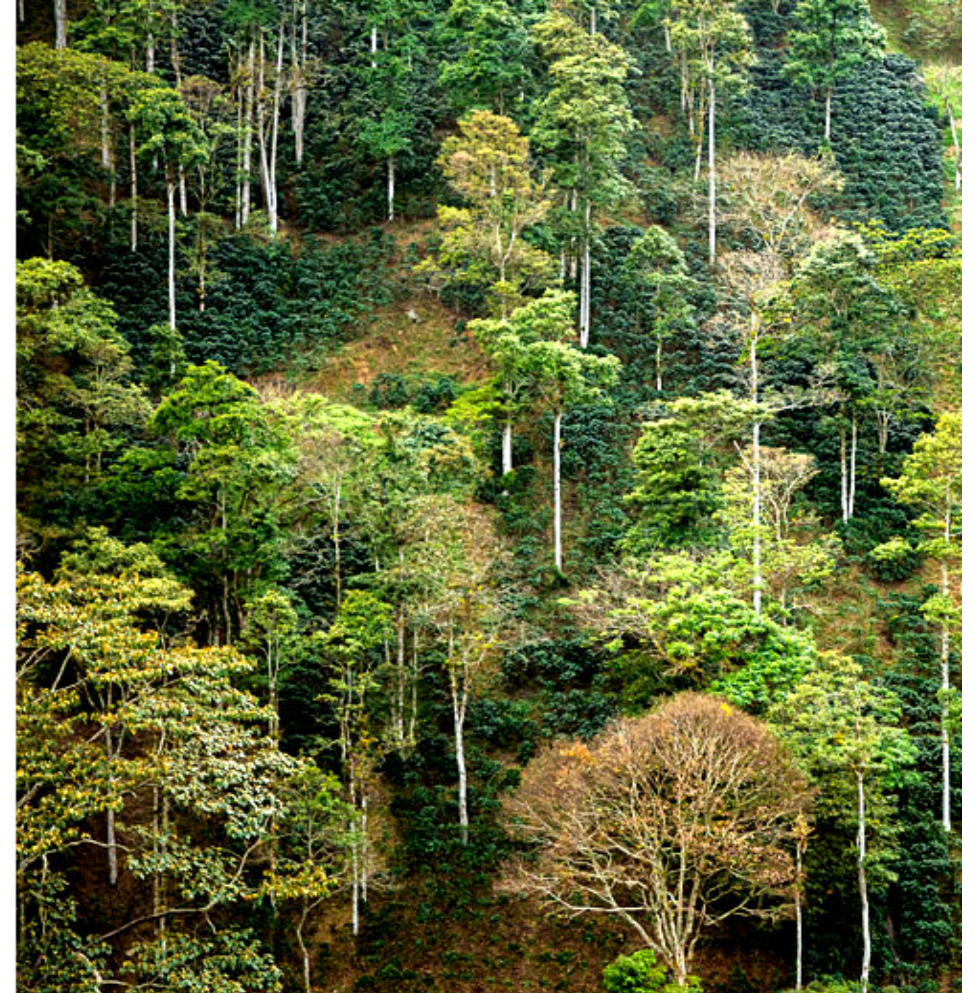
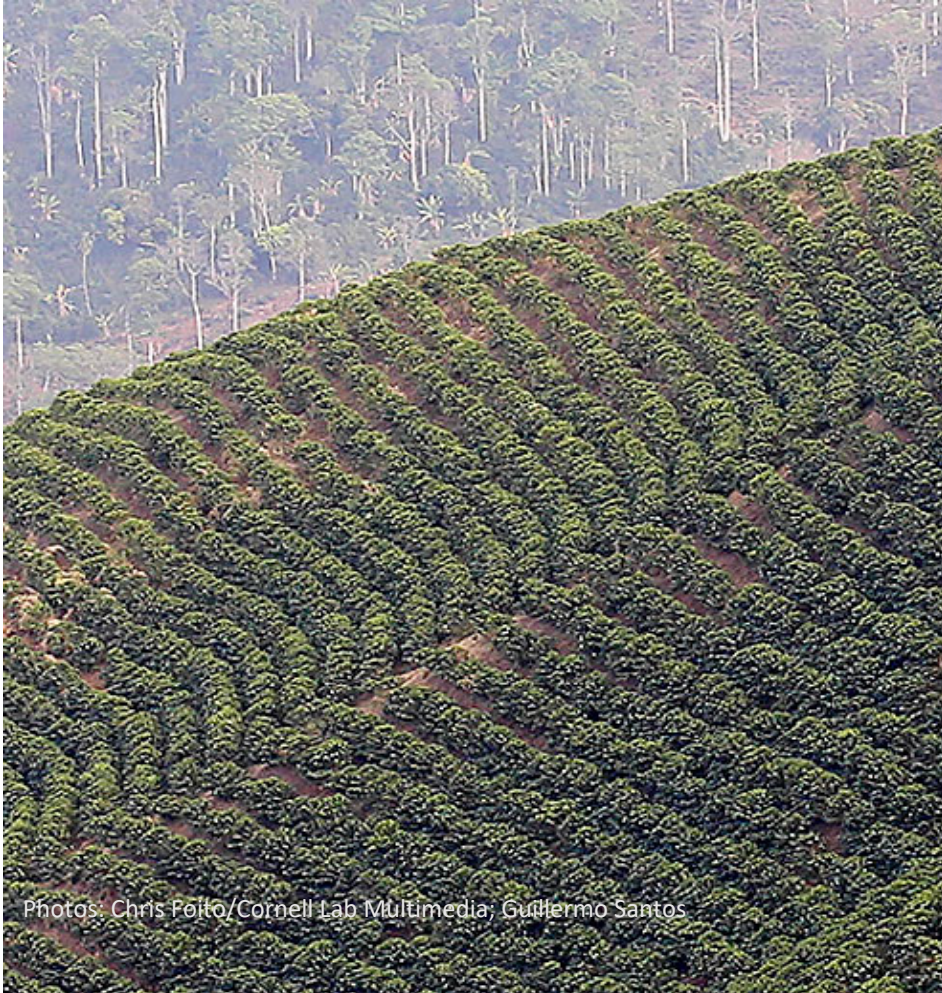
Species	Projects	Countries	Primary use	Countries where planted
<i>Theobroma cacao</i>	30	20	Fruit	<i>Benin, Bolivia, Brazil, Burkina Faso, Cameroon, Colombia, Cote d'Ivoire, Democratic Republic of Congo, Dominican Republic, Ecuador, Ethiopia, Ghana, Guatemala, Indonesia, Mali, Nicaragua, Panama, Peru, Senegal, Togo</i>
<i>Tectona grandis</i>	25	18	Timber	<i>Bolivia, Brazil, Colombia, Costa Rica, Ecuador, Ghana, Haiti, India, Indonesia, Madagascar, Nepal, Nicaragua, Panama, Philippines, Sri Lanka, Thailand, Togo, Uganda</i>
<i>Moringa oleifera</i>	24	17	Food / vegetable	<i>Australia, Bolivia, Brazil, Burkina Faso, Democratic Republic of Congo, India, Kenya, Madagascar, Malawi, Mali, Nepal, Nicaragua, Nigeria, Peru, Tanzania, Togo, Uganda</i>
<i>Mangifera indica</i>	22	13	Fruit	<i>Bolivia, Ethiopia, Haiti, India, Indonesia, Kenya, Madagascar, Malawi, Senegal, Tanzania, Thailand, Togo, Uganda</i>
<i>Coffea arabica</i>	16	10	Fruit	<i>Colombia, Cote d'Ivoire, Ethiopia, Guatemala, Indonesia, Madagascar, Nicaragua, Panama, Peru, Tanzania</i>
<i>Swietenia macrophylla</i>	15	10	Timber	Bolivia, Brazil, Colombia, Ghana, India, Indonesia, Panama, Peru, Timor Leste, Togo
<i>Persea americana</i>	10	7	Fruit	<i>Cameroon, Ethiopia, Kenya, Panama, Peru, Rwanda, Tanzania</i>



The ten most commonly used words in mission statements and their collocates



Agroforestry trade-offs



- Lack of reported monitoring
 - 18% mention monitoring
 - 5% mention survival rates



Case Study: Local NGO



RURAL EDUCATION AND DEVELOPMENT



MAIN AREAS OF ACTIVITIES:

a) Natural Resource Management and Development (NRM):

Natural Resource Development and its Sustainable Management is being Promoted through:

i) Common property resource development,

ii) **Natural Regeneration of Common Lands** by motivating the Villages 'communities to conserve the natural vegetation. It has successfully initiated and promoted the concept of natural regeneration of revenue common lands in about 15,000 acres in collaboration with other voluntary organizations in Ananthapur district. The total strategy took more than a decade and had all the components of advocacy, organization, creation of stakes, networking of organizations, communication etc.

Aforestation and Avenue Plantation ;

Community Horticulture block (Cherlopalli village)

During the reporting period we have planted 600 plants in 02 Hectares Woodlot in Cherlopalli village. Amla, Sapota, Custard Apple and Jamoon species planted in this Woodlot. Total Scheduled Caste (SC) 39 families benefitted from this activity.

Regular maintenance of 2.5 kilometers of Avenue Plantation has been done from Kondampalli Cross Road to leads Cherlopalli village.



Horticulture in farmer's field -Community Horticulture Development for 39 SC Families at Cherlopalli Village and Road side Avenue plantation towards Cherlopalli village

A nursery was established with about 50,000 plants of Neem, Pongemia, Gliricidia, Tamarind, Drum Stick, Curry leaf and Lime in Kondampalli village. Furthermore a 1.5 km long avenue plantation with *Pongemia* and *Gliricidia* plants was taken up Cherlopalli village.



D		Afforestation			
1	Woodlot Maintenance (2 Ha, 39 SC Families – 500 Horticulture plants)	Maintenance	01	39 families	
2	Avenue plantation Maintenance (2.5 kms, 500 plants)	Maintenance	2.5 Kms	39 Families	
3	Nursery Raising & Maintenance	50,000.00	175000 seedlings	4 villages	
4	Afforestation	05 Ha	32 Ha	4 villages	
5	Clustered Apple seed dibbling in hillocks	2.5 Ha	7.5 Ha	2 villages	
6	Gliriciridia seed dibbling on bunds of Farm ponds	1500 plants	-	4 villages	

Case study: Small international NGO

- Fairventures Worldwide (Germany)
- Indonesia (Borneo) and Uganda

Since our inception in 2013



We have distributed **1,654,366** tree seedlings



We have reforested **1,683** hectares



We have supported **4,225** farmers in Indonesia and Uganda

Achievements in 2021



91,084 seedlings distributed



79 participating farmers



12 tree species



55-85%*
survival rate of planted trees



6 non-timber food products



4 signed partnership agreements

*Broad percentage range is a result of flooding causing significantly lower survival rates in some areas.

Remark: Unlike in last year's report, we will from now on present the data according to the calendar year. In the case of Indonesia, however, this means that figures in this report are the same as in the previous year's report (2020-2021), as the planting phase there takes place at the beginning of the year.

Fairventures social forestry

- For-profit partner
- Indonesia – Sengon plantations intercropped with ginger
- Planted on land of 60 smallholders



Zwei Kleinbauern unterstützen uns bei der Pflege der Setzlinge.



81% tree survival rate



146,056 total number of trees planted



175 ha reforested with tree seedlings



200,000 seedlings can be grown at the Fairventures nursery



4 of the 5 million euros investment needed have already been raised

Case study: Large global NGO



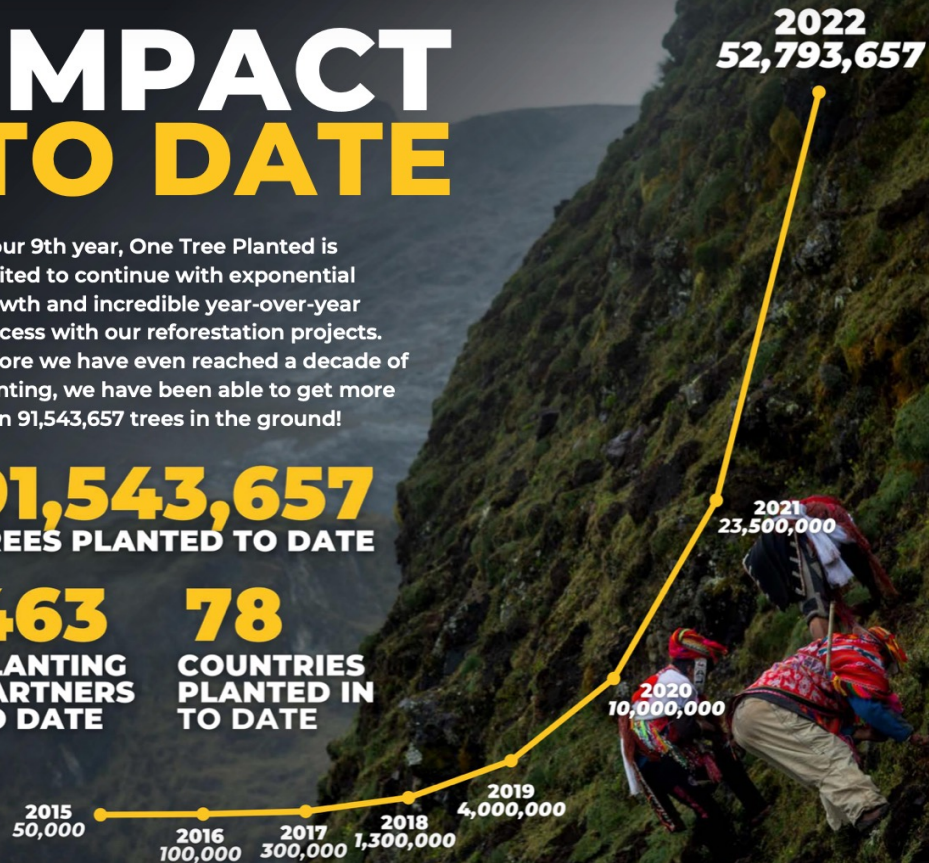
IMPACT TO DATE

In our 9th year, One Tree Planted is excited to continue with exponential growth and incredible year-over-year success with our reforestation projects. Before we have even reached a decade of planting, we have been able to get more than 91,543,657 trees in the ground!

91,543,657
TREES PLANTED TO DATE

463 PLANTING PARTNERS TO DATE
78 COUNTRIES PLANTED IN TO DATE

13



ECONOMIC AND SOCIAL IMPACTS

Our projects help communities by creating jobs, providing training, and supporting families with improved income and access to food. Combining these outcomes not only helps those in need, but also ensures that the trees planted are preserved for generations to come.

JOBS CREATED/ SUPPORTED 2,438

FAMILIES SUPPORTED 50,582

COMMUNITY FORESTRY EVENTS 468

WOMEN EMPLOYED/ INVOLVED 26,254



THE POWER OF FOREST-BASED SOLUTIONS

To date, trees are the best known technology we have for the capture and sequestration of carbon. They're inexpensive to plant and grow, remarkably efficient at capturing and storing greenhouse gas emissions, and can live an extremely long time.

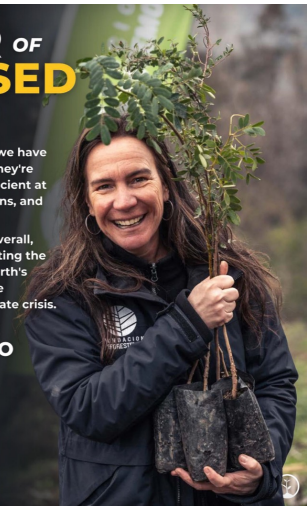
Alongside reducing global carbon emissions overall, reforestation plays an important role in mitigating the harmful effects of climate change. With the Earth's capacity to support increased forest cover, tree planting is a major solution to the current climate crisis.

THE TREES WE PLANTED THIS YEAR HAVE THE POTENTIAL TO CAPTURE MORE THAN

10,000,000

TONS OF CARBON OVER THE NEXT 20 YEARS*

*This is a rough estimate based on an average of 10kg/tree with a planting density of 1,000 trees/ha.



BENEFITS FOR BIODIVERSITY

Trees support over 80% of the world's terrestrial biodiversity. Many of our projects are established to ensure that both flora and fauna have healthy and sustainable habitats to call home. Some threatened & endangered species that benefited from our planting projects include:

SUPPORTED HABITAT RECOVERY FOR THE HAWAIIAN HOARY BAT IN HAWAII

RE-ESTABLISHED HABITAT FOR THE FLYING SQUIRREL IN APPALACHIA

RESTORED VITAL NESTING GROUNDS FOR THE EASTERN MIGRATORY MONARCH

PROTECTED A BUFFER ZONE FOR THE SUMATRAN TIGER IN INDONESIA

RESTORED HABITAT FOR THE PHILIPPINE EAGLE IN THE PHILIPPINES

RESTORED FORAGING GROUNDS FOR THE WOOD TURTLE IN NOVA SCOTIA

CONNECTED CRITICAL HABITAT FOR THE WOOLLY SPIDER MONKEY IN BRAZIL

RESTORED WATERSHED HABITAT FOR CHINOOK SALMON IN OREGON

RESTORED A VITAL NATURE RESERVE FOR THE ASIAN ELEPHANT IN VIETNAM

25

28

MONITORING & TECHNOLOGY

In 2022, we significantly grew our monitoring program and added two new team members. From rural farming communities in Africa and remote sections of the Amazon to burn scars in California, our planting partners around the globe have varying degrees of access to technology — which affects their ability to scale up, communicate effectively and provide quality monitoring.

We're working to bridge this gap by providing key partners with reliable technology, as well as the necessary training and support to collect and analyze data.

This helps ensure that they can record quality monitoring data and provide accurate updates on the progress of their planting programs!

 PHOTOS ADDED TO MAP **10,000+**

 ADVANCED SATELLITE ANALYSIS SYSTEM IMPLEMENTED

44



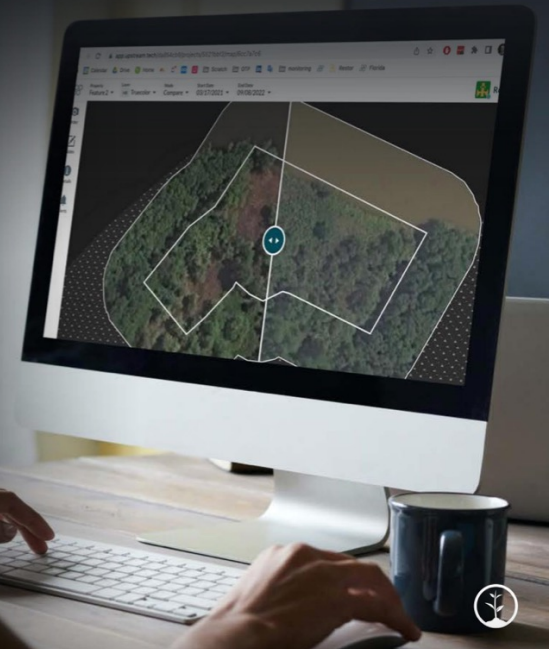
MONITORING WITH DRONES

Drones continued to play a big role in our monitoring program in 2022. Our project managers are equipped with drones and trained to collect drone data on visits. We continued to provide trainings and drones for key partners, and convened an in-person workshop in Uganda for 9 of our Terrafund for AFR100 partners.

In areas where drone imagery can't be captured through staff or planting partners, we've developed partnerships with two organizations that will allow us to scale our drone data collection needs.

 TRAINING VIDEOS LAUNCHED **8**

45



PROJECT HIGHLIGHT

MAKE THE FOREST FLOURISH 55,000 TREES PLANTED

The State of Acre, located in the southwest region of the Brazilian Amazon, still has a large extent of native forests in its territory (approximately 80%), and a good part of the forest is protected in Conservation Units and Indigenous Lands. However, some regions are occupied by riverside and traditional communities, who live in a condition of social vulnerability due to the few opportunities for education, health, and family income generation activities. Many of these families lost their main income after the rubber market in Brazil competed with the Malaysia monoculture of serengueira (rubber tree).

Our on the ground partner has been helping these communities to keep their land by encouraging productive agroforestry systems that create year-round income so that they don't depend solely on rubber extraction for their survival.



PROJECT HIGHLIGHT

CITARUM RIVER 1,383,541 TREES PLANTED

This multi-year project is part of the AstraZeneca Forest and aims to plant 10 million trees by 2025 in the Citarum River Basin in West Java, Indonesia. One of the most strategically important watersheds in Indonesia, it serves nearly 27 million residents of the Jakarta-Bandung metro area with domestic water as well as irrigation for rice fields, accounting for approximately 38% of the rice production in West Java.

Unfortunately, this critical resource is faced with many problems, including human-caused degradation, erosion and landslides and more. This project seeks to reverse the negative effects of deforestation and agriculture by introducing community-based agroforestry as a means of encouraging local communities to maintain forests as a sustainable source of income.



If you plant it, will they come?

- Importance of supply chain and market development
- Danger of market boom and bust cycles

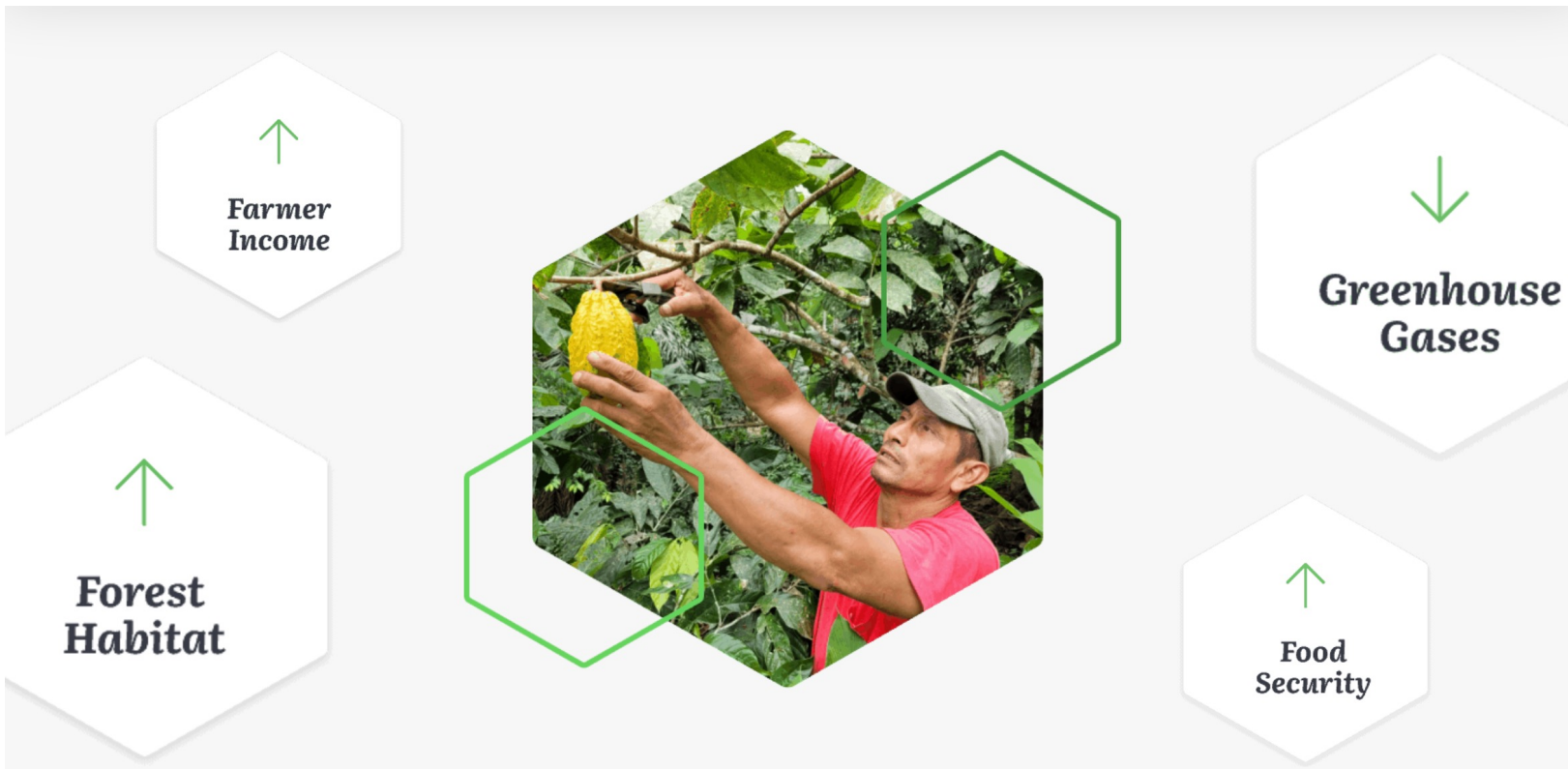
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Third millennium alliance

- U.S. NGO
- Ecuador
- Cacao agroforestry

TMA provides:

- Seedlings, irrigation equipment & training.
- Short-term cash injection until tree crops generate income.
- Access to premium markets.

Farmers plant a mix of:

- 1 Native shade trees for CO₂ removal and biodiversity.
- 2 Banana, plantain, and fruit trees for local food security.
- 3 Heirloom cacao trees for a sustainable revenue stream.

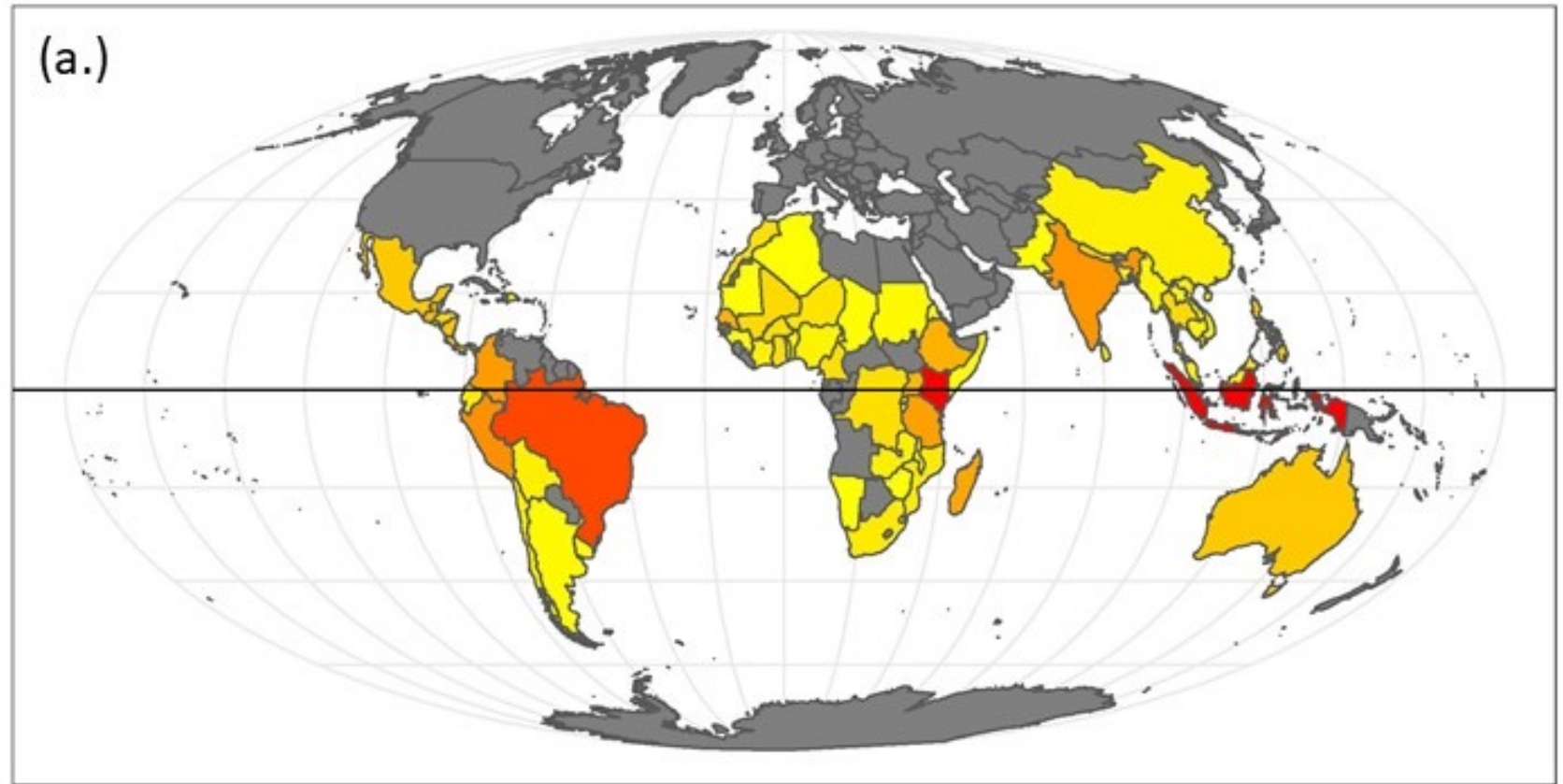


Ecotierra

- Canadian B-corporation
- Peru and Colombia
- Coffee agroforestry and carbon credit projects

Homogenization and non-native species?

- Role of local nurseries?
- Need for more information on native species propagation



Conclusions

- Need for better communication between organizations, research, and donors



Source: Wilson et al. 2021; Conservation International