Priceless Planet Coalition

Learning Exchange

Africa, Europe, Brazil, Asia

December 6th, 2022

Priceless Planet Coalition

Learning Exchange

Americas, Asia Pacific

December 6, 2022

Agenda

Topic	Session 1	Session 2	Time
Facilitator	Valentine	Claire	
Welcome	Valentine	Claire	5 min
Building our Restoration Toolbox	Isabel	Isabel	10 min
How We Report to PPC: CI and WRI's Process	Salome	Salome	10 min
Introduction to Tree Monitoring	Isabel	Isabel	20 min presentation & 20 min discussion
Where to Restore? How Project Developers Select Restoration Sites	Will & Salome 2 project developers	Will & Salome 2 project developers	Two 5-min presentations & 20 mins discussion

Building our Restoration Toolbox

Building our Restoration Toolbox

WHERE TO RESTORE

USING SPATIAL DATA TO INFORM RESTORATION PRIORITIZATION FOR CLIMATE, BIODIVERSITY AND COMMUNITY BENEFITS

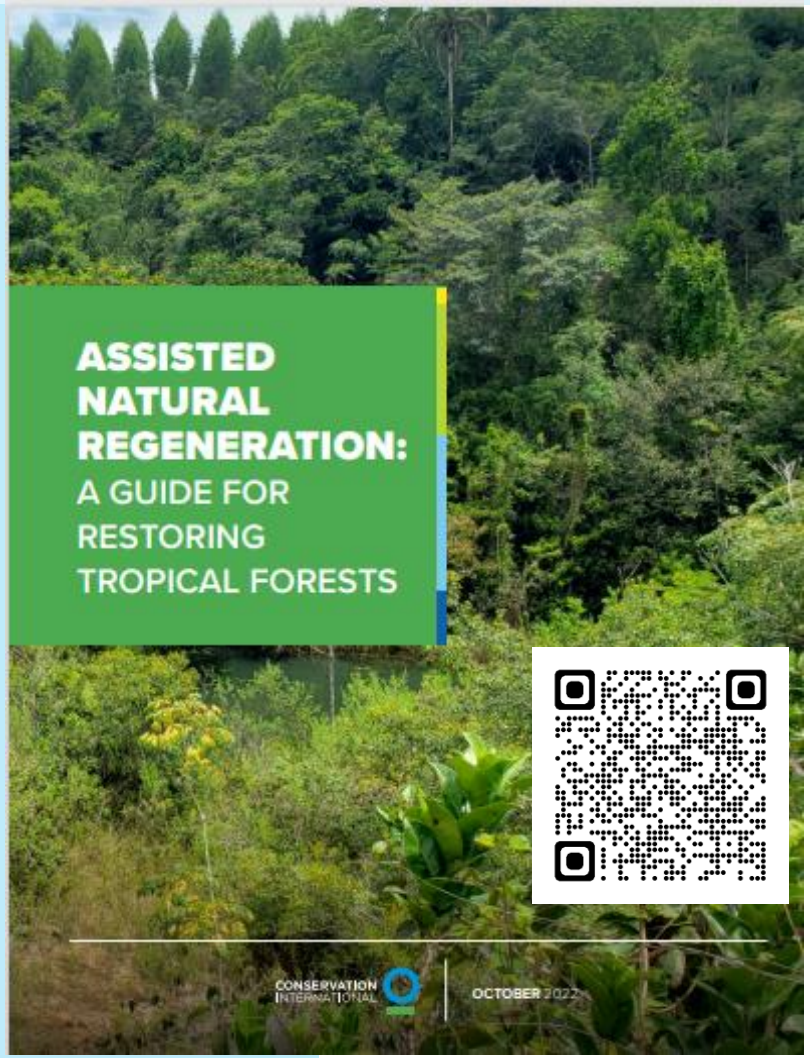
This guide explains how to use spatial data to identify opportunities for restoration. It also presents a wide range of alternative restoration strategies suited to different ecological and socioeconomic contexts. The goal of this guide is to help countries, projects and organizations identify where and how to restore forests using readily available data. It focuses on restoration that facilitates forest succession, enhances forest resilience in the face of climate change and complements existing forest conservation initiatives

Find this here

Building our Restoration Toolbox

ASSISTED NATURAL REGENERATION

A GUIDE FOR RESTORING TROPICAL FORESTS

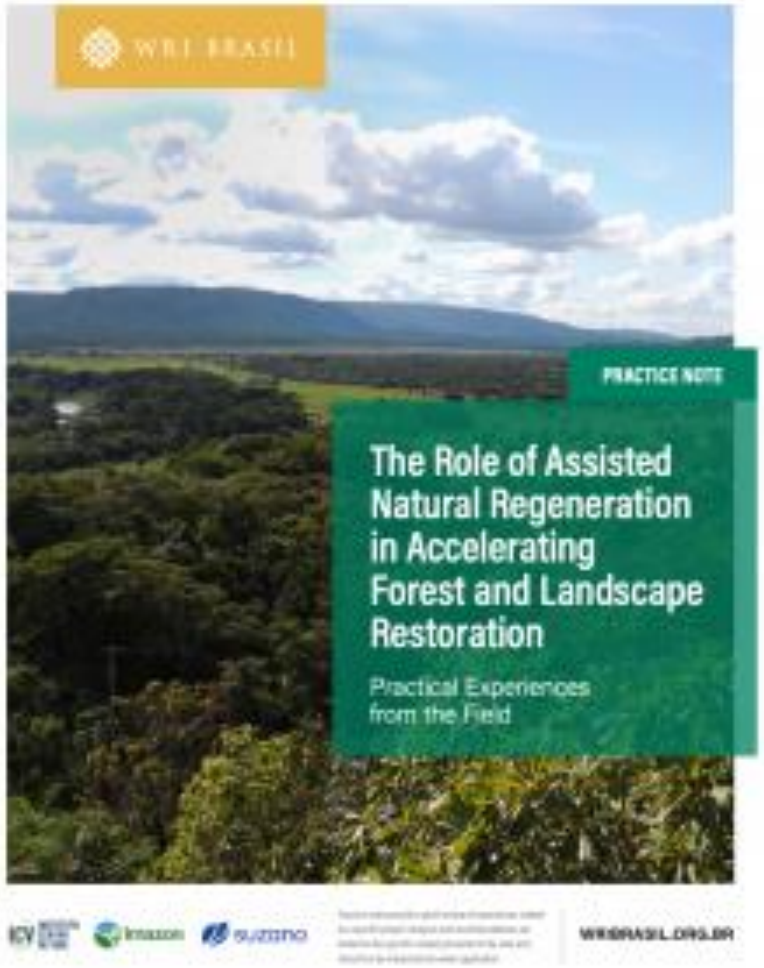


This guide focuses on using ANR to restore forests at scale to mitigate and adapt to climate change, provide benefits to landholders and communities, and conserve biodiversity. It is intended to help project developers, practitioners and decision-makers assess whether ANR is a good fit in a given social and ecological context. It also provides guidance on designing, implementing and monitoring ANR approaches that are socially and ecologically appropriate, driven by stakeholders, and balance competing environmental and social benefits.

Find this here

Building our Restoration Toolbox

The Role of Assisted Natural Regeneration in Accelerating Forest and Landscape Restoration: Practical Experiences from the Field



This study analyzes case studies of assisted natural regeneration projects to pinpoint the key factors that trigger success. With the goal of accelerating ecosystem restoration globally, these insights can improve the planning and implementation of projects that promote biodiversity, climate action, and rural economic development.

Find this here

Building our Restoration Toolbox

APPLIED NUCLEATION

RESTORATION GUIDE FOR TROPICAL FORESTS

Applied nucleation (AN) is a technique that integrates tree planting and natural succession to restore and regrow forests. Trees are planted in clusters, rather than over the whole site, thereby reducing costs and labor. Applied nucleation enhances natural forest recovery and relies on animal species to disperse native trees, which can create forests with high native biodiversity. It holds great potential for restoring forests at scale across the tropics and subtropics.

Find this here

Building our Restoration Toolbox

TREE RESTORATION MONITORING FRAMEWORK

FIELD TEST EDITION

Conservation International and World Resources Institute have created a field-tested framework that helps monitor the outcome and impacts of tree restoration projects. By combining data collected in the field with cutting-edge satellite monitoring that detects land-use changes, the framework evaluates whether investments in locally led tree restoration projects are achieving their expected impacts — from tree restoration to improving ecosystem services to providing jobs for communities living near project sites.

Find this here

Building our Restoration Toolbox

RESTORATION APPROACHES AROUND THE WORLD

A COLLECTION OF 10 CASE STUDIES

These ten case studies present a deep dive into restoration, featuring the work of practitioners and scientists spanning eight different countries: Australia, Brazil, Cambodia, Colombia, Costa Rica, Mexico, Peru and South Africa. The compendium includes cases in working lands, coastal ecosystems, the alpine paramo, rangelands, and arid environments. Each case contains information on the context in which the initiative was born, the methodology used, the impacts of the project, benefits and challenges of the work, and how those doing the work in the field plan to amplify the impact of the project in the future.

Find this here

Building our Restoration Toolbox

AURORA: A New Online Tool to Make Restoration Decisions Easier

Ecosystem restoration is a complex process, from identifying in-need landscapes to determining best practices for planting trees and promoting natural regeneration. To help restoration actors, funders and other partners plan, carry out and monitor successful projects, WRI and FAO have created AURORA, a web application named for Assessment, Understanding and Reporting of Restoration Activities. The application is now live and ready to support users as they make decisions and select desired impacts and indicators, set goals and monitor the progress of their restoration projects.

Find this here

How we Report to the Priceless Planet Coalition

TREE RESTORATION MONITORING FRAMEWORK: FIELD TEST EDITION

MONITORING: WHEN DOES IT HAPPENS AND WHAT IS MEASURED

LOOK BACK PERIOD TO 2010	SITE ESTABLISHMENT	YEAR 0 (BASELINE)	YEAR 2.5	YEAR 5
Data collected: Deforestation Disturbances	**Initial data collected:** Site history and boundary Restored hectares Target trees Work-days	**Vegetation Monitoring (baselines set for):** Trees naturally regenerating* Tree survival	**Vegetation Monitoring:** Restored hectares Trees naturally regenerating* Tree survival	**Vegetation Monitoring:** Restored hectares Trees naturally regenerating* Tree survival

MONTHLY MONITORING

Data collected: Trees planted*, Seeds*, Work-days, Nursery trees*, Socioeconomic partners, Disturbances, Trees grown

Unit legend:
Number of X: Green
Percent or Rate of X: Orange
Cost of X: Yellow
Site information

Reporting and Flow of Project Data Collection and Evaluation from Implementors

Project Field Implementors Submit	CI/WRI Process and Compilation
Restoration Site Baseline Form (per site) Site shapefile and basic site information	Visual interpretation of high-resolution imagery for baseline tree count and deep learning algorithm for baseline tree crown cover from site shapefile, verify year of deforestation
Restoration Site Establishment Form (per site) Site shapefile confirmed, site photographs Specify restoration methods used and values for trees planted and socioeconomic restoration partners (1.1, 1.1.1, 3.1, 3.1.1)	Receive and verify data, compile into monthly batches for quarterly report (1.1, 1.1.1, 3.1, 3.1.1)
Control Site Baseline, Establishment, and Monitoring Methodology in sub-protocol 2	Methodology found in sub-protocol 2
Monthly Project Technical Update Major disturbances observed that month (1.6, specify site) Any planting, person-days of work and socioeconomic restoration partners. Tree nursery data if applicable (1.3)	Compile monthly reports into quarterly report to PPC, share results and analysis with implementing partners
Annual Report Trees planted (1.1), work days created (3.1.1), disturbances (1.6). Socioeconomic impacts (3.1). Trees grown in nurseries (1.3) if applicable.	Aggregated from quarterly reporting
Final Project Report (Y5) Number of trees restored (A, Y5) and cost per tree restored (4.2)	Calculate attainment of target % canopy cover (B) and % change in canopy cover (1.4) per site and compile for program. # of people receiving ecosystem services benefits (3.2), # of hectares under restoration, by ecosystem type and restoration intervention (4.1). Compile data for 1.5, 1.2, 1.2.1. Estimate carbon sequestration (2), Compile data for A, 4.2

Reports are completed each quarter following the schedule detailed here

Event	Timeline	
Reporting for 1st Month of Quarter Due	Friday following the end of the month	
Reporting for 2nd Month of Quarter Due	Friday following the end of the month	
Reporting for 3rd Month of Quarter Due	Friday following the end of the month	
CI/WRI send first draft to Mastercard	2nd Friday following the end of the 3rd month	CI/WRI have 1 week to compile numbers and clarify details with the project developers.
Draft shared back to CI/WRI for review	3rd Friday following the end of the 3rd month	Mastercard has 1 week to create draft of report
Final draft including compiled comments shared back to Mastercard for distribution to coalition members	4th Friday following the end of the 3rd month	CI/WRI have 1 week to share compiled comments and corrections

Your Monthly Report: Due on October 7

Dear Priceless Planet Coalition Planting Partners,

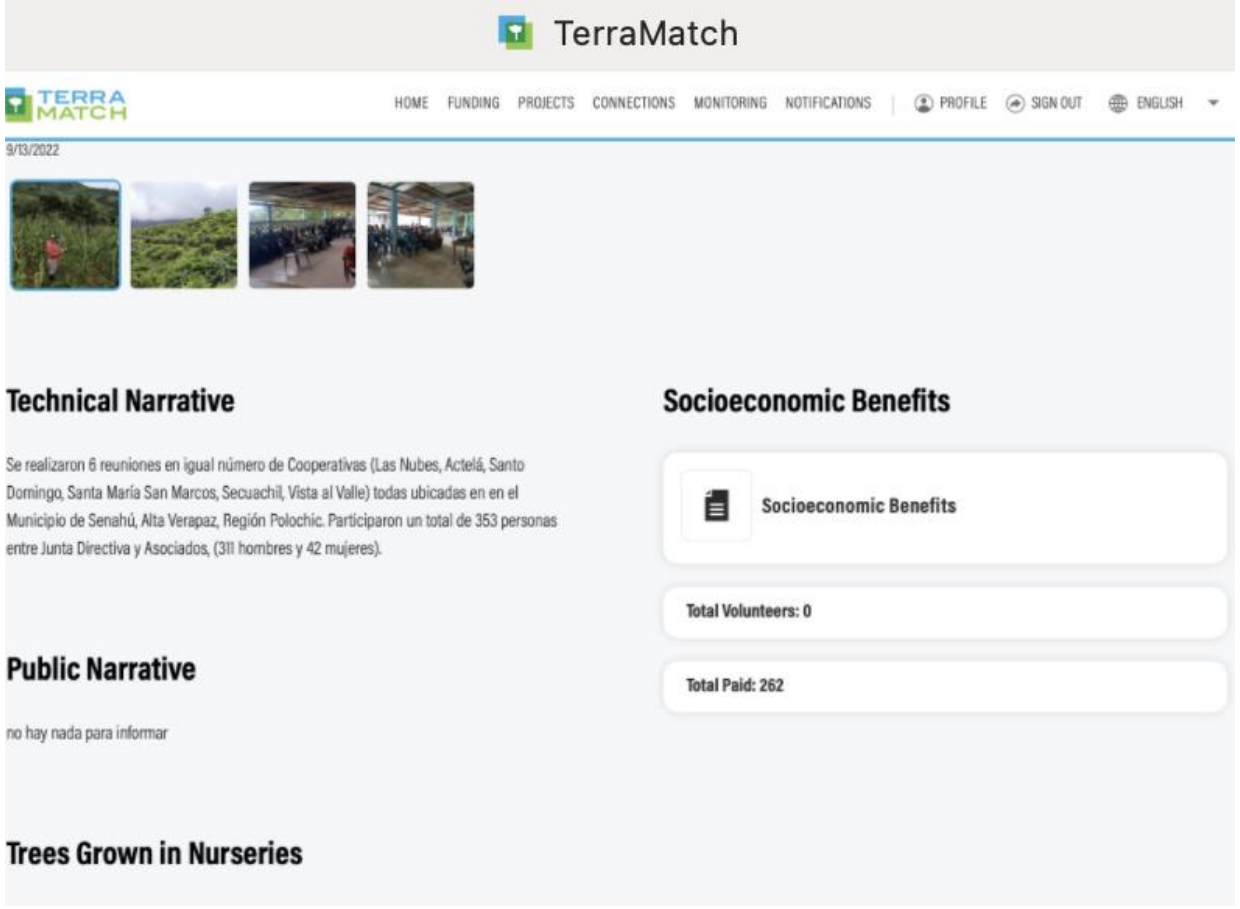
Each month, we will send you a reminder about report due dates. **This email is your reminder to complete your monthly reporting for September by Friday, October 7th. You will also need to complete all reports from July and August by that same date, Friday October 7th.**

As a reminder, the PPC homepage on the IMP contains a wealth of information about reporting and monitoring. Many planting partners are now establishing new sites. Please refer to the site establishment checklist, which outlines the necessary information that partners need to submit the correct information in the IMP.

If you have additional questions or are encountering problems, please reach out to your project manager at CI or WRI. Thanks in advance for submitting your reports on time!

Monthly Reports

Monthly Project Report



If there was no activities, still submit the report indicating no activities, or there might be disturbance etc

Checklist: What You Need to Create a Monthly Project Report

Creating a monthly project report on the Integrated Monitoring Platform through TerraMatch is simple. But before you begin, you should collect as much information as possible. Here is everything we ask users to provide in one handy checklist. We recommend that you prepare your answers before beginning to write your project update on the site. If you have any questions or issues about submitting your reports on TerraMatch, please log them here.

Project Report checklist

- Technical and Public Narratives
  - Report title*
  - Report author*
  - Technical narrative*
    Please provide a few sentences that describe the activities that were carried out during the last month. Some examples may include the process of engagement with communities, process of selecting the restoration method, experience with implementation, challenges and barriers that were overcome, lessons learned, etc.

    **Information provided in the Technical Narrative will only be shared with Conservation International and World Resources Institute for the use in project management and will not be shared with Mastercard or any other donors who are members of the Priceless Planet Coalition.*
  - Public narrative*
    Is there anything you would like to share publicly about this site? Information provided in the Public Narrative may be shared with public audiences beyond Conservation International and World Resources Institute. This may include sharing with Mastercard and other donors, social media, or blog posts. This is an opportunity to share what you are doing with a wider, public audience.
- Trees Grown in Nurseries (yes/no)
  - If yes, list each tree species and number of trees grown per species.
    You can record this information using the TerraMatch Mobile Application while in the field.
- Socioeconomic Benefits
  Download the Excel template provided and fill out the jobs created and socioeconomic benefits for each project. You should have one Excel sheet per project.
- Photos or videos

Checklist: What You Need to Create a Monthly Site Report

Creating a monthly site report on the Integrated Monitoring Platform through TerraMatch is simple. But before you begin, you should collect as much information as possible. Here is everything we ask users to provide in one handy checklist. We recommend that you prepare your answers before beginning to write your site report on the site. If you have any questions or issues about submitting your reports on TerraMatch, please log them here.

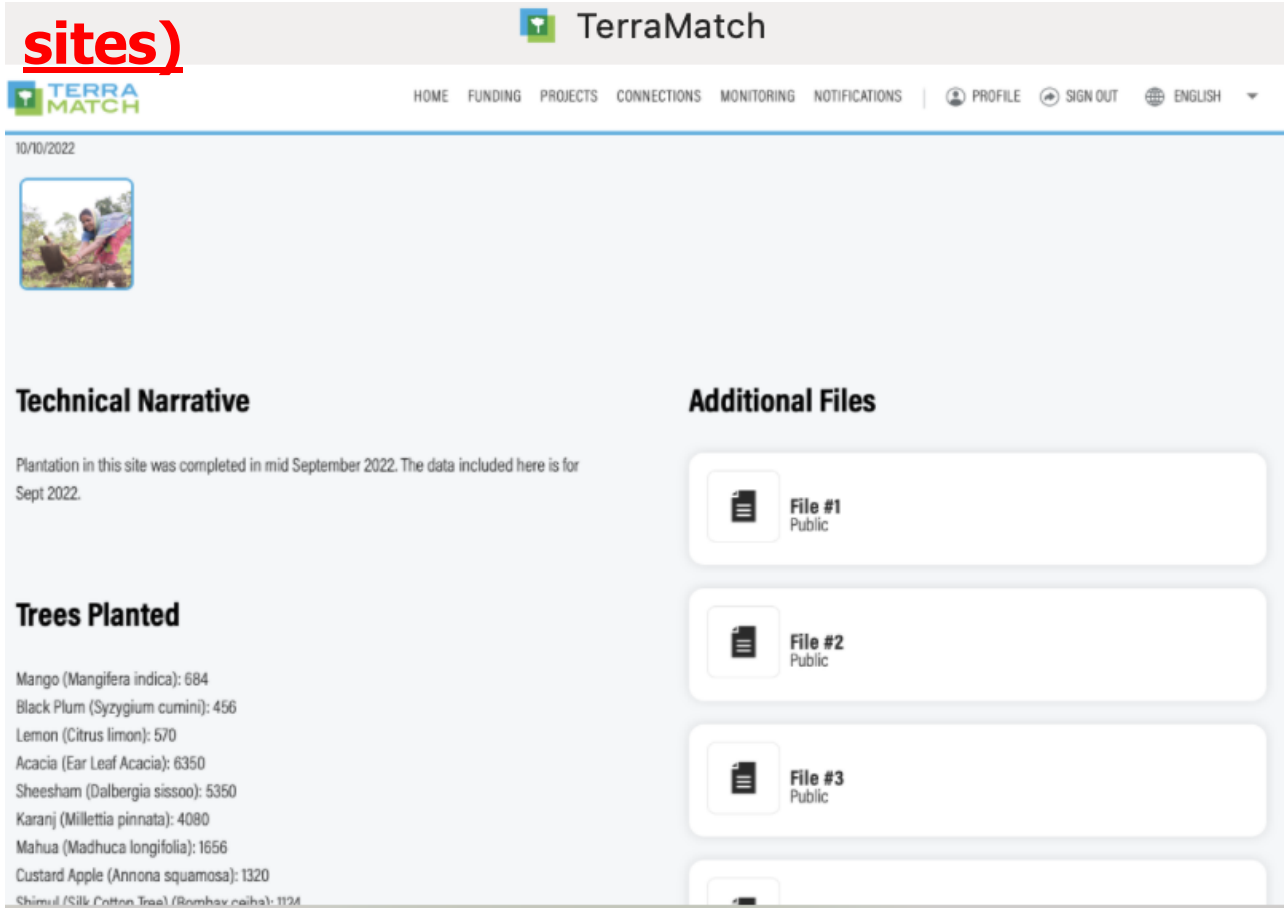
Note: Please report on progress made towards these indicators in the past month of project implementation. Do not double count from past months/reports. If you are not in an active planting season, you must still fill out this form but please skip any fields that are not relevant, such direct seeding. This report should be filled out by the end of the first week of each month.

Site Report checklist

- Report author*
- Trees planted (yes/no)
  If yes: Record the scientific name and number of new trees planted for this restoration site this month, by species.
- Direct seeding (yes/no)
  If yes: Record the kilograms of seed species that were planted. You can optionally report by the species of seed mix planted.
- Major disturbances: *
  - If yes:
    - Disturbance type* (*Ecological, Climatic or Anthropogenic)*
    - Intensity* (*High, Medium, or Low)*
    - Extent* (% of site affected)
    - Description of Disturbance
- Socioeconomic benefits
  Download the Excel template provided and fill out the jobs created and socioeconomic benefits for each site. You should have one Excel sheet per site.
- Photos or videos

Monthly Reports

Monthly **Site Report (all sites)**



If there was no activities, still submit the report indicating no activities, or there might be disturbance etc

Master calendar of data collection for each indicator, including baseline establishment and interval of monitoring. An X indicates mandatory monitoring, while a * indicates optional monitoring. Baselines are always considered mandatory.

Metric Category	Indicator per intervention site
Forests: Tree density and diversity	PPC Impact Indicator A: # of trees restored (survived and crowded in at year 5) 1.1 # of trees planted 1.1.1 disaggregated by species 1.2 # of trees naturally regenerating 1.2.1 disaggregated by species (Optional) 1.3 # of trees grown in nurseries
Forests: Tree cover	PPC Impact Indicator B: % attainment of target canopy cover 1.4 % change in tree crown canopy
Forests: Tree survival	1.5 % survival of planted trees 1.6 # of major disturbances observed
Carbon Benefits	2. Estimated # tons of CO2 sequestered (by year 5)[14]
Social/ Community Benefits	3.1. # of socioeconomic restoration partners 3.1.1. # of Person-days of work created 3.2. # of ecosystem service restoration partners (Optional) 3.2.1 # people directly benefiting from improved freshwater quality or quantity
Management	4.1. # of hectares under restoration, by ecosystem type[15] and restoration intervention 4.2. $ cost per tree grown by restoration intervention type
Biodiversity	(Optional) 5.1. % change in species richness within class 5.2 Average % change in abundance within class 5.3 Occupancy Index 5.4 Community Similarity Index

Indicator	Type	2010	Y0 (Before planting or time of planting, as appropriate)	6MO	Y1	Y2	Y2.5	Y3	Y4	Y5	Monthly
A	Field		Baseline				X			X	
	RS		Baseline							X	
1.1, 1.1.1	Field		Baseline								X
1.2, 1.2.1	Field		Baseline		*	*	X	*	*	X	X
1.3**	Field									X	*
B	RS	Look back period	Baseline							X	
1.4	RS	Look back period	Baseline							X	
1.5	Field		Baseline				X			X	
1.6	Field										X
	RS	Look back period									
2	RS									X	
3.1	Field				X	X		X	X		X
	Field (Survey)		*				*			*	
	GIS		Baseline							X	
3.1.1	Field										X
3.2	Field (Survey)		Baseline*				*			*	
	GIS		Baseline							X	
3.2.1**	Field		Baseline*				*			*	
4.1	Field		X								
4.2	Calculation		X							X	
5**	Field		Baseline*				*			*	

**** indicates an optional indicator or sampling. Rows with a type of 'field' are items contributed by project developers. Rows with types 'RS' or 'GIS' are completed by the global monitoring team.**

What goes into the quarterly report?

Item	Where it Comes From	How Calculated
Progress to date: Trees planted **A total based on trees planted, seeds planted, and estimated natural regeneration, and the projected survival rates of each**	Monthly Report	Equals (trees planted * survival rate) + (seeds planted * survival rate) + natural regeneration (is cumulative) Notes: Inclusion of survival rates allows us to portray a realistic estimate of project progress. Natural regeneration projections are included once Year 1 activities to facilitate ANR have been completed
Progress to date: Person-days worked	Monthly Report	Equals total (both paid and volunteer) days (is cumulative)
Project percentage complete	Estimated in each quarter	Is an estimate made each quarter based on the progression of a project through its life cycle, with 5-20% representing the site preparation phase, 10-40% representing the establishment and growing season phase, and 5-10% allocated to each of 5 monitoring years.
Spotlight Countries' latest activities	Monthly Report	Includes photos and short high level narrative focused on key main activities during the quarter. Each quarter 4-5 countries are featured and rotated yearly so all get to be included in the quarterly report.

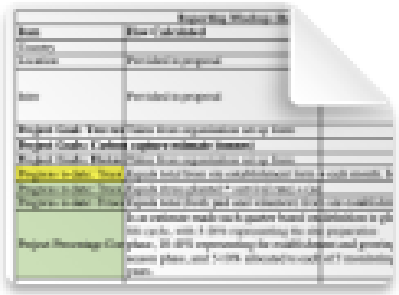
Data Flows

Field

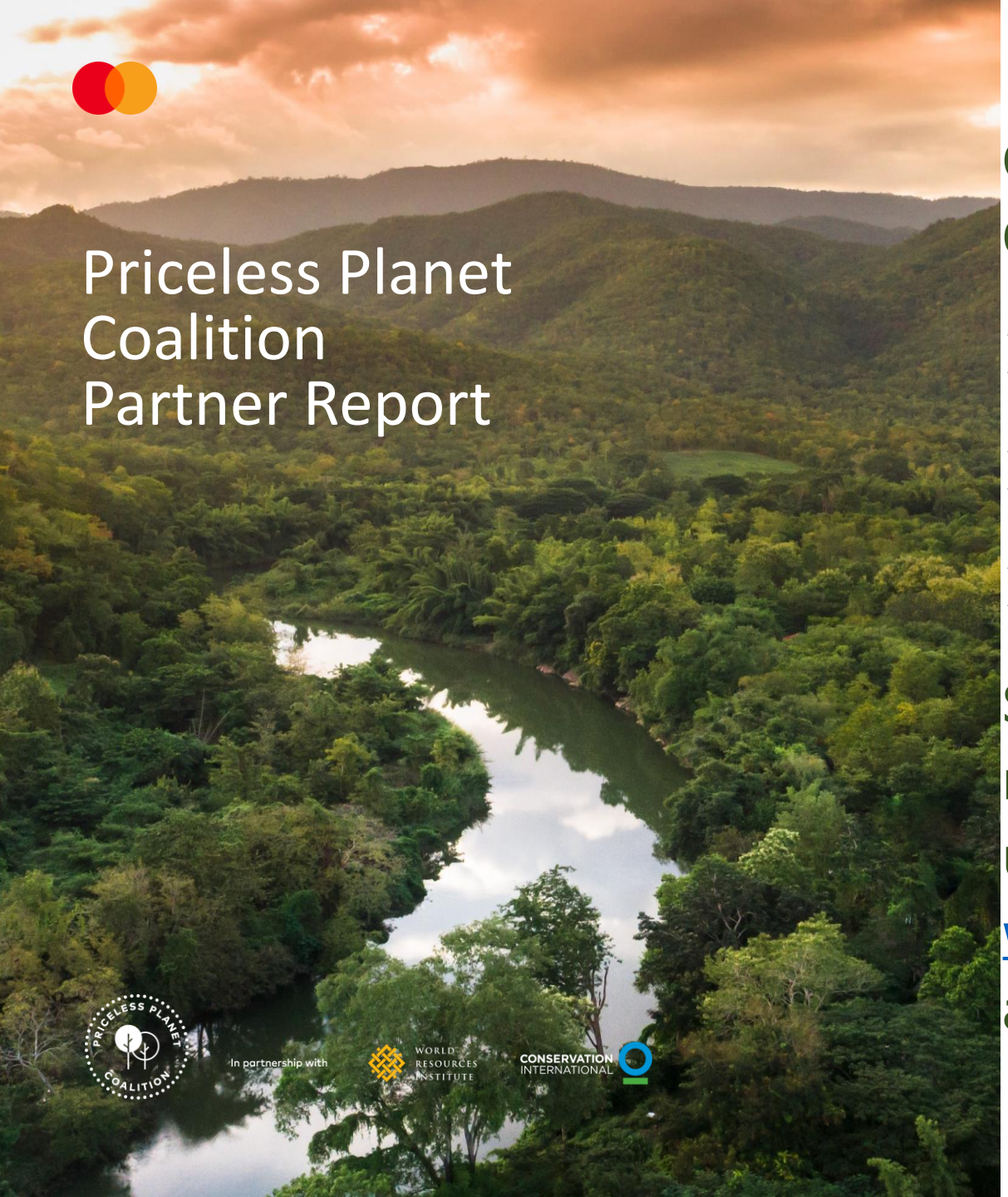
Project developers collect data in the field and upload to IMP → Data is analyzed by the global monitoring team to calculate indicators → Results are shared back with project developers on IMP

Global

Global monitoring team to aggregate result and compile technical narratives → Draft Report is shared with Mastercard and back to global monitoring teams if any comments → Final report are shared back with Mastercard and project developers



Reporting Mockup (items in green change for each report)			
culated			
		Australia	Brazil (Round 1)
	l in proposal	Southern Tablelands, Riverina	Amazon and Atlantic Forests
	l in proposal	Greening Australia's partnership	CI-Brazil is working with 4 collabo
Project Goal: Tree res	Taken from organization set up form	430,000	2,000,000
Project Goals: Carbon capture estimate (tonnes)		8,600	40,000
Project Goals: Hectare	Taken from organization set up form	450	1,090
Progress to date: Trees	Equals total from site establishment form + each month. Is 'to date' so does not start over each quarter		
Progress to date: Trees	Equals (trees planted * survival rate) + (se	103,745	865,798
Progress to date: Perso	Equal to al (both paid and volunteer) fro	347	8,946
Project Percentage Cor	Is an estimate mad each quarter based on definition in glossary: The progression of a project through its li		
Planting season	Provided in proposal	July - November	Year Round (Atlantic) Nov - Marc
Terrain	Provided in proposal	•New South Wales The Southe	In the Amazon biome, the project
Tree Species	Preliminary info provided in proposal and	In the Southern Highlands, Gre	A diverse mix of native seeds and
Restoration Method	Provided in site establishment forms	Direct SeedingDirect seeding in	Direct seeding involves the sowin
Latest activity	Includes photos + short narrative. Shoul	focus on main activities durin	last quarter. This information is



Communicated quarterly to Priceless Planet Coalition members

- Captures summary of progress to date
- Provides background of all projects
- Spotlight countries

Sign up for the Priceless Planet Coalition newsletter to stay informed about the latest updates and activities and visit the website, www.pricelessplanet.com to find out more about our tree planting projects.

PPC tree restoration project update

An overview of our projects and their progress

Location	Title	Hectare Restoration Target	Tree restoration target	Trees planted to date	Person-days worked
Mexico	Flagship: Oaxaca-Chiapas Landscape Restoration	916	650,000	0	0
Brazil	Flagship: Abrolhos Landscape Restoration	800	2,000,000	0	0
Madagascar	Flagship: Lake Alaotra Watershed Restoration Landscape	3000	2,000,000	0	0
Cambodia	Restoring the Tonle Sap Lake's Flooded Forest	510	219,980	0	0
China	Restoring terrestrial forests and coastal mangroves of China	40	460,000	0	114
Philippines	Puerto Princesa Forest Restoration Initiative	575	417,500	0	472
Colombia	Musesi: Restoration of culturally and environmentally strategic areas of the Sierra Nevada by its native peoples	1000	700,000	0	1,890
Scotland	Coming soon	Coming soon	Coming soon	NA	NA
France, Spain and Portugal	Western Europe tree restoration project	127	150,000	0	0

PPC tree restoration project update continued

Location	Title	Hectare Restoration Target	Tree restoration target	Trees planted to date	Perso-days worked
USA	Martin County, Kentucky on the KY/WV border	60	100,000	0	0
Guatemala	Las Verapaces	670	500,000	0	856
India	Dalma-Similipal Asian Elephant Corrido	400	1,000,000	0	3,300
Democratic Republic of the Congo	Idiofa Highlands	1,000	1,000,000	0	11,450
Malawi	Enyezini, Mzimba District	2,500	1,250,000	0	28,552
Australia	Southern Tablelands/Riverina, Western Sydney and Victoria	450	430,000	103,745	347
Brazil	Amazon and Atlantic Forest	1,090	2,000,000	865,798	8,946
Kenya	Makuli Nzaui landscape, Makueni County	3,545	890,400	87,426	1,946
UAE	Restoring mangrove ecosystems of UAE	10	50,000	0	0

PROJECT SPOTLIGHT

DRC | Idiofa, Congo-Kinshasa

10% Complete

World Resources Institute is partnering with Faja Lobi to plant 1 million trees to create a protective buffer zone around an area of primary Congo Basin rainforest. The project uses a mixed-methods approach that includes agroforestry, assisted natural regeneration, and reforestation. Faja Lobi combines tree planting with cultural, educational, and health programming for local community members to provide a holistic approach to addressing environmental and development challenges in the region.

Latest Activity

The initial stages of the project have focused on community engagement, site selection and nursery establishment. To select restoration locations, Faja Lobi engaged villages in land use dialogues, a participatory process to verify community that the project will contribute to local goals tand clarify concerns around land use issues. Ultimately, the project selected two communities, Iseme and Makanga, with which to move forward for this project.

Once sites were selected and agreements were signed with the communities, the Faja Lobi team procured key equipment and established nurseries at both sites. Currently, there are 118,764 trees growing in these nurseries,

including over 100,000 *Millettia laurentii*, a leguminous (or nitrogen-fixing) species that will account for about 35% of all trees planted for this project. Th
engaging community members in nurs
planting seeds, and watering, and will
up to prepare for the planting season,
September.

Photos from our restoration partner on the ground




Credit for images: Faja Lobi
Note: Figures and activities provided above are sourced from local partners. Figures may be

PROJECT SPOTLIGHT

Malawi | Enyezini Forest, Mzimba

10% Complete

World Resources Institute is partnering with Wells for Zoë to restore 2,500 hectares in the Enyezini area of Malawi. This investment will have significant positive impacts throughout the region, stabilizing soil and reducing erosion, reforesting previously logged areas, and improving the land conditions for local students and farmers.

Latest Activity

With a plan to plant 1,250,000 trees, the Wells for Zoë project is the largest restoration initiative ever witnessed in Mzimba, the Northern Region of Malawi. Alongside plans to grow and restore trees in the area, the project team has a robust community engagement plan to reduce poverty, empower women in the region, and broaden the economic opportunities beyond illegal charcoal production. To date, the project has built five large-scale indigenous tree nurseries that have 2,500,000 tubes ready to sow native trees. There are over 320 people working in the nurseries who know how to grow local indigenous trees at a large scale. In order to effectively safeguard the remaining bushland in the area, the project is committed to provide a job for families whose income has been dependent on illegal charcoal production, a leading cause of deforestation in Malawi.

These jobs include nursery management, erosion control work, water pump installation, and, most importantly, the planting and maintenance of indigenous trees.

The installation of several pumps in the area, which provide a sustainable source of water, and training on how to save valuable firewood through adopting efficient clean cookstoves are two examples on how the project is working to ease the life of local women. By easing the burden on water and firewood collection, women in the area will have time to explore small-scale business opportunities beyond charcoal production and can send their children to school.

Photos from our restoration partner on the ground






Credit for images: Wells for Zoe
Note: Figures and activities provided above are sourced from local partners. Figures may be estimated or approximate.

PROJECT SPOTLIGHT

Colombia | Sierra Nevada de Santa Marta

5% Complete

Conservation International is partnering with the Arhuaco people, an indigenous community, to implement Musesi, a restoration strategy, in culturally and environmentally key areas of the Sierra Nevada de Santa Marta. This project is being developed to actively engage the indigenous communities in defining and participating in the restoration approach to incorporate traditional knowledge, spiritual importance, and technical implementation. The Musesi strategy brings together numerous families and communities to grow the tree seedlings that will later be used in the restoration planting. This approach compliments the climate goal set by the government of Colombia to plant 180 million trees. This project aims to enhance adaptation and resilience capacity to climate change, restore critical ecosystems and reconnect the forest fragments by restoring 700,000 trees in the region.

Latest Activity

The team has participated in local consultation with traditional and spiritual authorities in 14 communities in the Minca municipality and in the Kantinurwa community. They are also in the process of evaluating the production materials and collecting baseline information within these communities. Recently, the project team has actively been preparing the restoration locations for planting through providing technical training on nursery management.

restoration techniques, as well as data collection and processing. To ensure the success for the restoration effort, it is critical to build the capacity development of those leading the initiative in the field ir
the planting and monitoring. Additional
consolidating key geospatial informatio
targeted intervention areas and workin
nurseries. As of June, there were more t
plants produced in the nurseries.

Photos from our restoration partner on the ground




Credit for image: Conservation International Colombia
Note: Figures and activities provided above are sourced from local partners. Figures may be

PROJECT SPOTLIGHT

Philippines | Puerto Princesa, Palawan

5% Complete

As part of the global effort to scale up restoration to fight climate change, Conservation International is leveraging on its innovations in restoration science, community engagement, and forest stewardship in Palawan to provide economic benefits to local communities, including indigenous communities, within the critical habitat and protected area, including the watershed areas that provides water and other ecosystems services to the local community, and tourism services to visitors of the Puerto Princesa Subterranean River National Park.

Latest Activity

The team is producing seedlings in an existing nursery within the park to be planted in the first five restoration sites. As the efforts quickly scale, the nursery team is ramping up from the original technician and five women nursery aides, to include additional workers. The team has been actively working on collecting seeds and wildings from the park, preparing the nursery beds and the potting media, prepping the container bags, and conducting regular maintenance such as weeding, watering, and transfers of recovered wildings as needed. Due to the growth of the project, more nursery sheds and beds were constructed to accommodate the propagated seeds and wildings.

The nursery has produced 2,451 seedlings in May and 3,104 seedlings in June. In addition to seed production and preparation, the team has completed an initial mapping analysis and drone survey to validate the perimeter of the first restoration site which will cover 50 hectares for assisted natural regeneration and applied nucleation, and 25 hectares for agroforestry. The team also gathered relevant bio-physical data to have a complete description of the site.

Photos from our restoration partner on the ground




Credit for image: Conservation International Philippines
Note: Figures and activities provided above are sourced from local partners. Figures may be estimated or approximate.

Brazil | South America

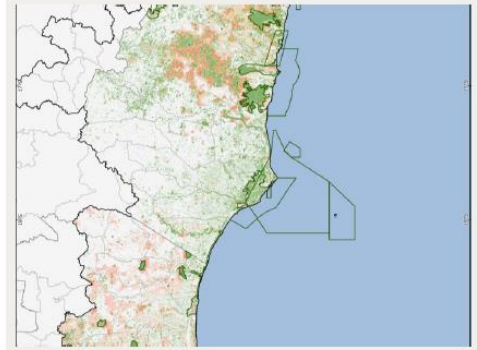
Abrolhos Flagship Landscape Restoration

The Atlantic Forest biome is one of the most threatened biodiversity conservation hotspots of the world. The Abrolhos Land and Seascape is a global forest restoration priority area because of the optimization of carbon sequestration potential, biodiversity gains and lower risks of fires. This Priceless Planet Coalition Flagship restoration project, led by Conservation International, is situated in a global biodiversity hotspot and UNESCO World Natural Heritage Site. It will be the first large-scale restoration effort maximizing climate, biodiversity and community benefits, playing an instrumental role in connecting protected areas, where remaining forest remnants lie.

Location
Abrolhos Land and Seascape

Hectare Restoration Target
900

Trees restoration target
2,000,000



Restoration Methods

Assisted natural regeneration: : The exclusion of threats (i.E. Grazing, fire, invasive plants) that had previously prevented the natural regrowth of a forested area from seeds already present in the soil, or from natural seed dispersal from nearby trees. This does not include any active tree planting.

Applied nucleation: A form of enrichment planting where trees are planted in groups, clusters, or even rows, dispersed throughout an area, to encourage natural regeneration in the matrix between the non-planted areas.

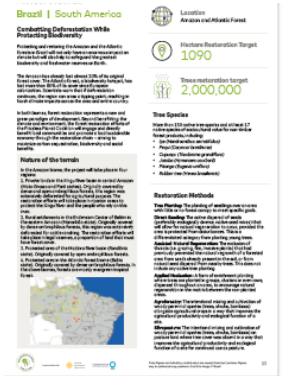
Tree planting: : The planting of seedlings over an area with little or no forest canopy to meet specific goals.

Tree Species

A diverse group of 36 species of native trees, for example: *Aroeirinha - Schinus terebenthifolia Raddi, Boleira - Johanesia princeps Vell., Cajá - Spondias lutea L., Cajú - Anacardium occidentale L., Gurindiba - Trema micrantha L., Ingá-cipó - Inga edulis Mart., Ingá-feijão - Inga cylindrica (Vell.) Mart., Ingá-ferradura - Inga sessilis (Vell.) Mart., Murici - Byrsonima sericea DC., Pata-de-vaca - Bauhinia forficata, Pau-pombo - Tapirira guianensis Aubl., Pau-viola - Cytharexyllum myrianthum Cham., Urucum-da-mata – Bixa arborea Benth., Almesca - Protium heptaphyllum (Aubl.) Marchand, Araxixá - Sterculia chicha A.S.-Hil, Arruda - Swartzia euxylophora Rizz. &Matt., Bapeba - Chrysophyllum splendes Spreng., Camboatá - Cupania vernalis Camb., Canela-sassafrás - Aniba formula (Ness. &Mart.) Mez, Embaúba-prateada - Cecropia hololeuca Miq., Grumixama - Eugenia brasiliensis Lam., Guanandi - Calophylum brasiliensis Camb., Guapuruvú -Schizolobium parahyba (Vell.) S.F. Blake, Ipê-amarelo - Tabebuia serratifolia (Vahl) Nichols, Ipê-felpudo Zeyheria tuberculosa, Ipê-rosa Tabebuia impetiginosa (Mart.ex Cond.) Standl., Ipê-roxo - Tabebuia heptaphylla (Vell.) Toledo, Jatobá - Hymenaea courbaril L., Jenipapo - Genipa americana L., Juerana-branca - Macrosamanea pedicellaris Nielsen, Massaranduba – Manilka rasalzmanii (DC.) Lam., Murta - Eugenia florida DC., Murta-folha-miúda - Myrcia rostrata DC., Óleo-comumbá - Macrolobium bifolium Pers., Pau-d'alho -Gallesia integrifolia (Spreng.) harms, Pitanga - Eugenia uniflora L., Pitomba Talisiae sculenta (St. Hil.) Radlk.*

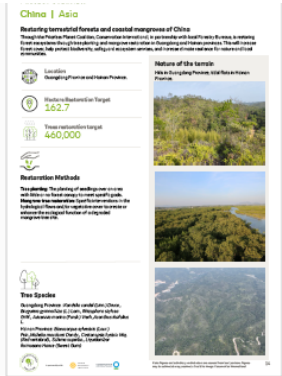
In partnership with

Note: Figures and activities provided above are sourced from local partners. Figures may be estimated or approximate. Credit for image: Conservation International


Brazil | South America

Combatting Deforestation While Protecting Biodiversity

1


China | Asia

Restoring terrestrial forests and coastal mangroves of China

2


Colombia | South America

Mussá: Restoration of culturally and environmentally strategic areas of the Sierra Nova

3


Cambodia | Asia

Restoring the Tonle Sap Lolea's Flooded Forest

4


Democratic Republic of Congo | Africa

5


PROJECT OVERVIEW

France, Portugal, Spain | Europe

Three initiatives to restore degraded forests in France, Spain and Portugal

6


PROJECT OVERVIEW

Guatemala | Central America

7


PROJECT OVERVIEW

India | Asia

8


PROJECT OVERVIEW

Kentucky, USA | North America

9


PROJECT OVERVIEW

Kenya | Africa

Driving impact for national goals and local communities

10


PROJECT OVERVIEW

Madagascar | Africa

Lele Akoatra Watershed Restoration Flagship Landscape.

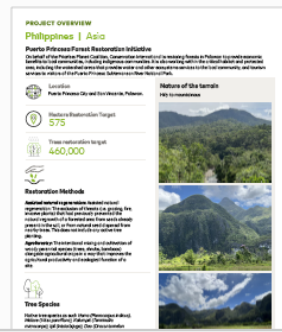

PROJECT OVERVIEW

Malawi | Africa


PROJECT OVERVIEW

Mexico | North America

Oaxaca-Chiapas Flagship Landscape Restoration


PROJECT OVERVIEW

Philippines | Asia

Puerto Princesa Forest Restoration Initiative


PROJECT OVERVIEW

UAE | Asia

Restoring mangroves in the UAE using an ecosystem-based approach

Glossary

Agroforestry: the intentional mixing and cultivation of woody perennial species (trees, shrubs, bamboos) alongside agricultural crops in a way that improves the agricultural productivity and ecological function of a site.

Applied nucleation/tree islands: a form of enrichment planting where trees are planted in groups, clusters, or even rows, dispersed throughout an area, to encourage natural regeneration in the matrix between the non-planted areas.

Assisted natural regeneration: the exclusion of threats (i.E. Grazing, fire, invasive plants) that had previously prevented the natural regrowth of a forested area from seeds already present in the soil, or from natural seed dispersal from nearby trees. This does not include any active tree planting.

Cost per tree: us$2 average cost per tree is an average cost across all priceless planet coalition restoration projects.

Enrichment planting: the strategic reestablishment of key tree species in a forest that is ecologically degraded due to lack of certain species, without which the forest is unable to naturally sustain itself.

Estimated carbon captured over 5yrs (kg of co_2): defined as 20kg of co_2e captured per tree over 5 years, reflecting a standard young growth rate for native species in the tropics and the subtropics. This report uses a simplified method for setting a carbon capture target prior to restoration projects reaching a 5-year maturity. These targets cannot provide any basis for public claims of quantified climate benefit. More complete calculation methodologies will be employed after 5 years and provided as a part of final project impact reports.

Establishment phase: period of time in which trees are established through the restoration methods outlined in this glossary.

Funds committed: based on commitment made in the commitment letter of campaigns that are being planned to run.

Funds received: based on funds received by ci, or when a donation letter has been signed and the funds are in the process of being transferred.

Mangrove tree restoration: specific interventions in the hydrological flows and/or vegetative cover to create or enhance the ecological function of a degraded mangrove tree site.

Percent complete: the progression of a project through its life cycle, with 5-20% representing the site preparation phase, 10-40% representing the establishment and growing season phase, and 5-10% allocated to each of 5 monitoring years.

Peatland restoration: the re-establishment of vegetative cover that will lead to active peat formation. This often involves a mix of planting, seed dispersal, and engineering solutions to pre-disturbance reestablish hydrological dynamics. Threat exclusion is usually a major intervention.

Tree planting: the planting of seedlings over an area with little or no forest canopy to meet specific goals.

Person-days of work: a person-day of work is defined as 8-hours of work per day.

Riparian Restoration: Specific interventions in the hydrological flows and vegetative cover to improve the ecological function of a degraded wetland or riparian area.

Seed dispersal/direct seeding: the active dispersal of seeds (preferably ecologically diverse, native seed mixes) that will allow for natural regeneration to occur, provided the area is protected from disturbances. This is a differentiated category from planting young trees.

Silvopasture: the intentional mixing and cultivation of woody perennial species (trees, shrubs, bamboos) on pasture land where tree cover was absent in a way that improves the agricultural productivity and ecological function of a site for continued use as pasture.

Trees funded: number of trees to be planted or to be planted based on the funds received.

Tree restoration target: the target number of trees expected from each tree planting project.

Trees planted: An estimation based on trees planted, seeds planted, and estimated natural regeneration, and the projected survival rates of each.

Wetland/riparian restoration: specific interventions in the hydrological flows and vegetative cover to improve the ecological function of a degraded wetland or riparian area.

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Resources:

Integrated monitoring Platform

https://www.terramatch.org/news/ppc-imp

Helpful Checklists :

- ✓ Project Set Up Checklist
- ✓ Site Establishment Checklist
- ✓ Monthly Project Report Checklist
- ✓ Monthly Site Report Checklist

Training Videos :

IMP - Intro and Profile Set Up

Project Creation - Video 1 and Video 2

Nuts and Bolts of Site Creation - Video 1 and Video 2

Monitoring

Monitoring Overview

Site Establishment Forms

Monthly Updates

Vegetation Monitoring

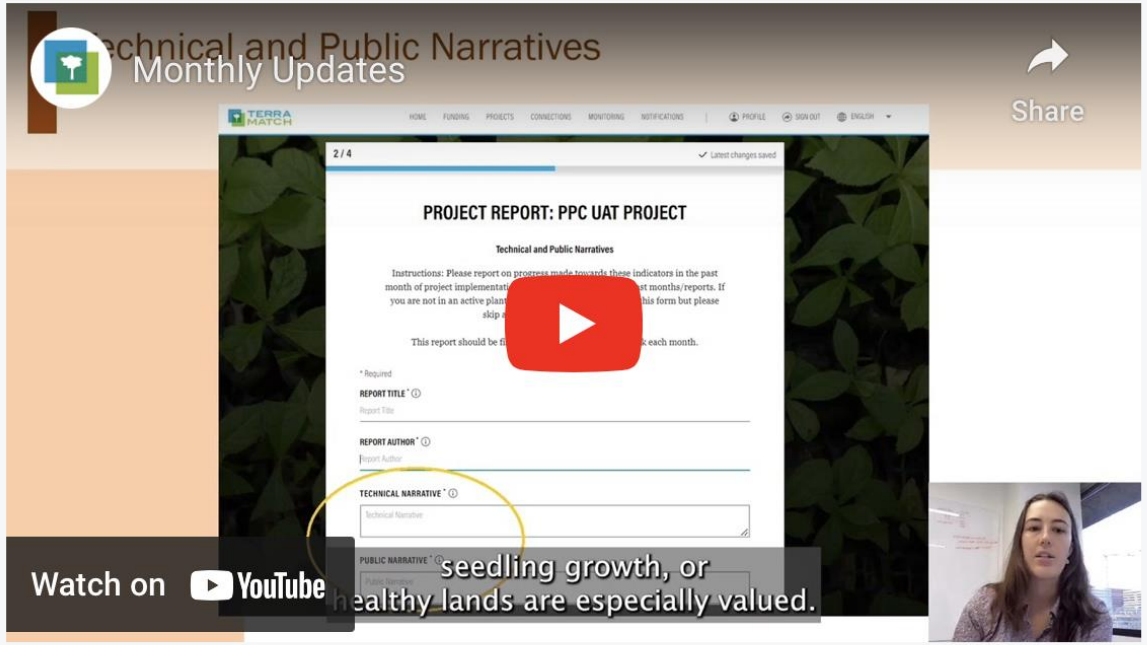
Control Sites

FAQ

Step Four: Submit your Monthly Reports

After you create a project and your relevant sites, the monthly reporting process required under the PPC Monitoring Framework will be triggered. You will receive email reminders when the monthly forms are due, so please closely monitor your email.

Watch this video to learn more about the monthly reports on the IMP.



You can also consult our checklists, which detail the type of information we ask project developers to collect each month.

- Monthly Project Report
- Monthly Site Report

Tree Monitoring

Step by Step Guide to PPC Tree Monitoring

Covers content found in sub-protocols 2 and 4 of the PPC Monitoring Framework

Part 1: Office

Done before going to the field

Overview: What's done/covered in this part?

- Background
- Step 1: Determine size and characteristics of site
- Step 2: Calculate number of monitoring plots and control plots needed
- Step 3: Consider if all plots should be permanent, or only ½
- Step 4: Place plots – generate GPS coordinates
- Step 5: Download KoboCollect – access the survey
- Step 6: Prepare to go to the field

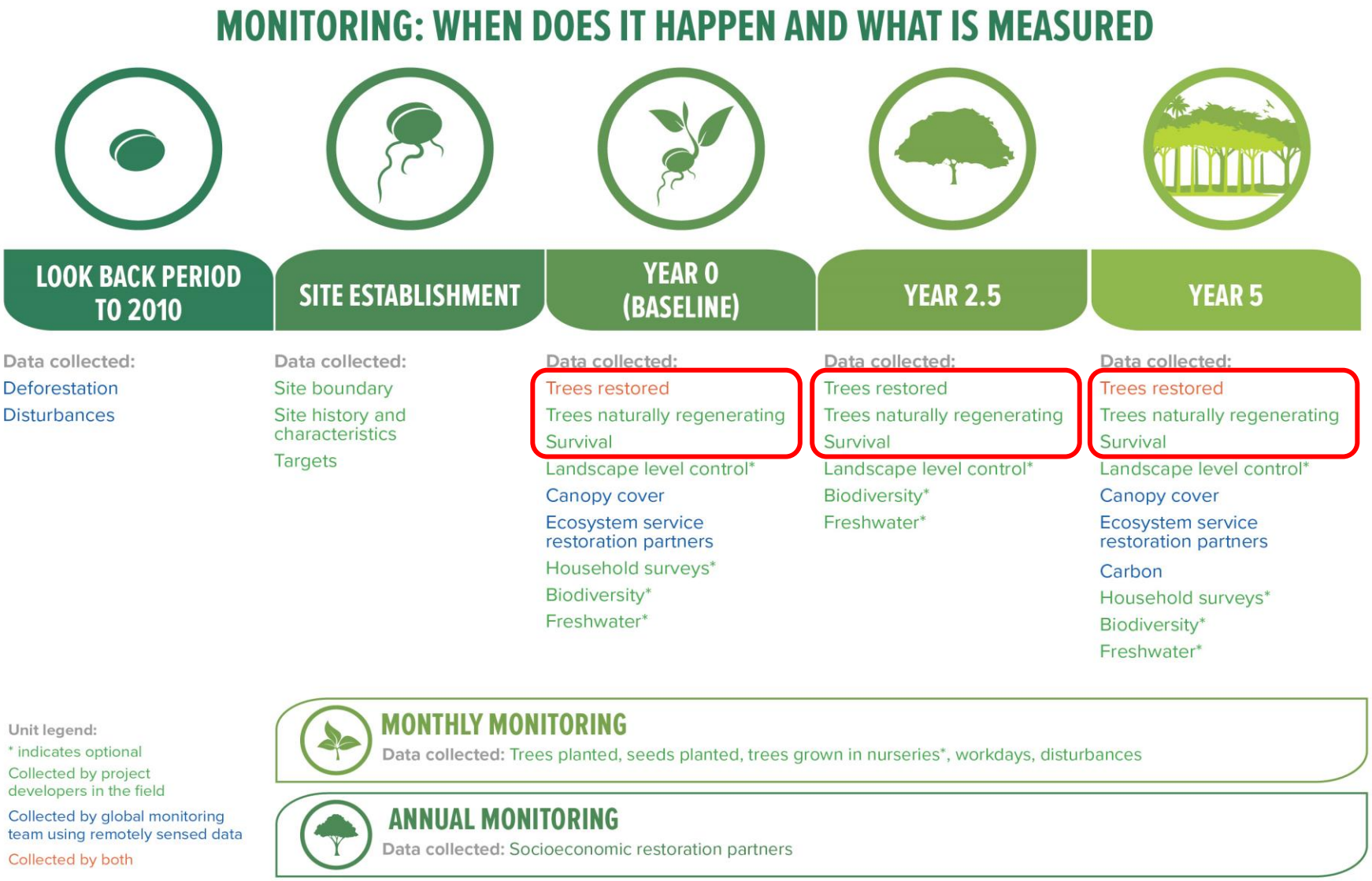
Priceless Planet Coalition: Program Monitoring

- What sets it apart:
  - Monitoring “Trees restored," not just planted, including natural regeneration (5-year timeframe).
  - Nineteen (19) indicators w/detailed protocols for data collection & processing, designed to function across geographies, scales, and restoration strategies.
  - Integration of remote sensing including the Trees in Mosaic Landscapes (TML) dataset for tree cover monitoring.

Priceless Planet Coalition: Program Monitoring

- Importance of Tree Monitoring:
  - Tree Monitoring allows us to calculate overall diversity and species richness of planted and regenerating trees in restoration sites, compared to sites without restoration (control).
  - Inform potential adaptive management, especially in situations where the planted tree species have low survival rates.
  - Learnings about restoration methods, adaptability and selection of species for future enrichment plantings.

Monitoring Time Frame



PPC Program Indicators

Metric Category	Indicator per intervention site
Forests: Tree density and diversity	Impact Indicator A: # of trees restored (survived and crowded in at year 5) 1. # of trees planted 1.1.1 disaggregated by species 1.2 # of trees naturally regenerating 1.2.1 disaggregated by species (Optional)1.3 # of trees grown in nurseries
Forests: Tree cover	Impact Indicator B: % attainment of target canopy cover 1.4 % change in tree crown canopy
Forests: Tree survival	1.5 % survival of planted trees 1.6 # of major disturbances observed
Carbon Benefits	2. Estimated # tons of CO_2 sequestered (by year 5)
Social/Community Benefits	3.1. # of socioeconomic restoration partners 3.1.1. # of Person-days of work created 3.2. # of ecosystem service restoration partners (Optional) 3.2.1 # people directly benefitting from improved freshwater quality or quantity
Management	4.1. # of hectares under restoration, by ecosystem type and restoration intervention 4.2. $ cost per tree grown by restoration intervention type
Biodiversity (all optional)	5.1. % change in species richness by class 5.2 Average % change in abundance by class 5.3 Wildlife Picture Index

Integrating Data from Multiple Sources

- From field data
- From Remote Sensing (RS) data
- From field and remote sensing (RS) data
- Vegetation Monitoring contribution

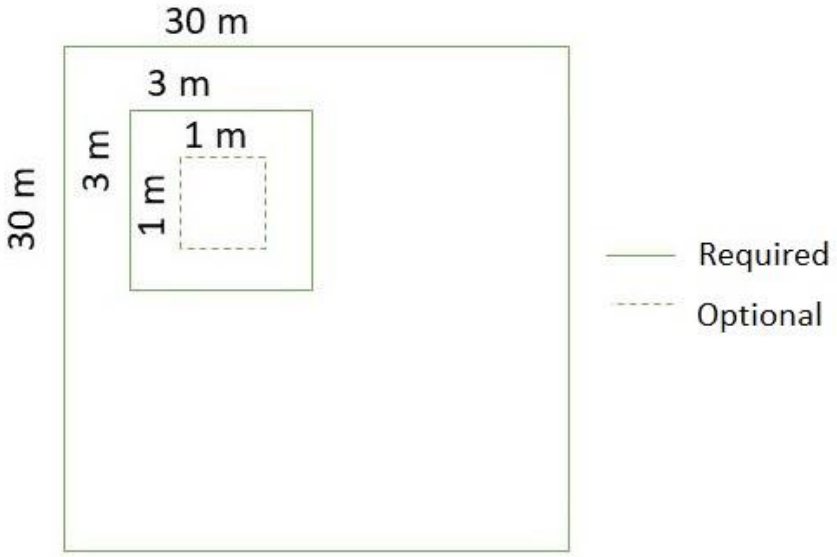
Tree Monitoring Sub-Protocols

- How do we collect this data and implement the tree monitoring?

- Sub-Protocol 2:
  - Control Monitoring, Optional landscape level control sites:
    - Siting and establishment of control plots.
    - Monitoring methods for baseline and following monitoring.
    - (Optional) Siting and establishment of landscape level control units.

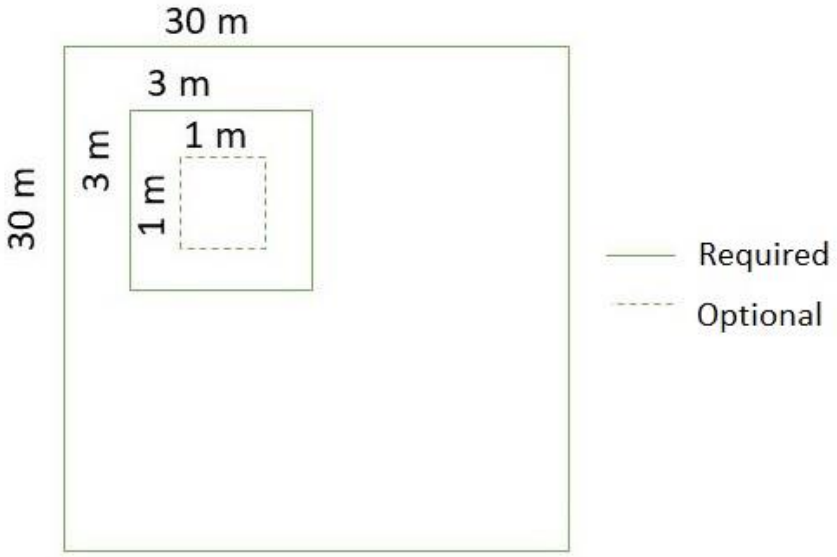
- Sub-Protocol 4:
  - Tree Monitoring:
    - Siting of monitoring plots.
    - Method for field-based tree monitoring suitable at baseline (Y0), Y2.5 and Y5.
    - Monitoring all restoration methods including natural regeneration.
    - Optional guidance for carbon stock assessment.

Tree Monitoring: Data Collected



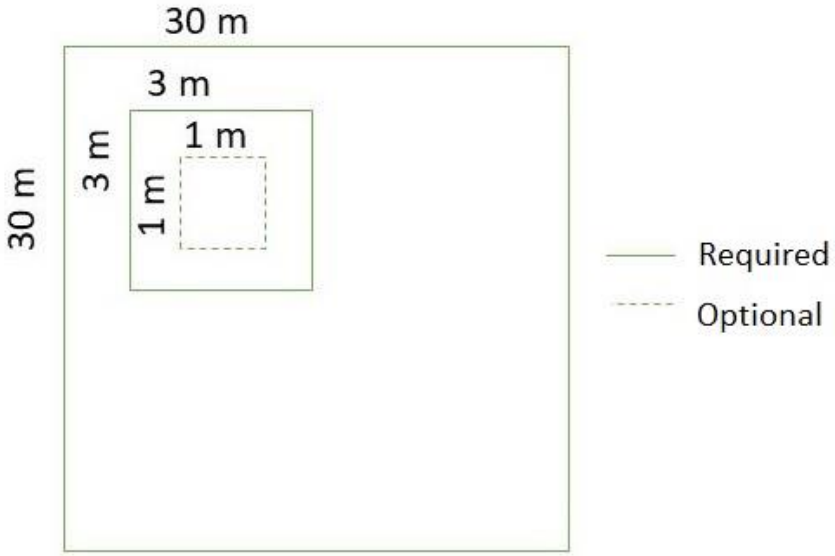
- 30m x 30m plot (re-locate empty plots up to twice in same HA)
  - GPS coordinates of each corner
  - Count of trees >10cm DBH – disaggregated by species and type (planted, naturally regenerated, etc)
  - 4 pictures
  - Background info: is the plot permanent or not, is it on a restoration or control site, what is the planting pattern, etc
  - Count of additional planted trees in permanent plots

Tree Monitoring: Data Collected



- 3m x 3m plot
  - GPS coordinates of centroid
  - Count of trees 1-9.9cm DBH – disaggregated by species and type (planted, naturally regenerated, etc)

Tree Monitoring



- OPTIONAL: 1m x 1m plot
  - Trees smaller than 1cm DBH

- Developers are NOT asked to collect:
- Count of trees across the entire restoration site
- DBH
- Height

Carbon Benefits

- The methods outlined in sub-protocols 2 and 4 are not adequate for calculating carbon to a crediting standard. However, sub-protocol 4 highlights specific ways that this the PPC methodology can be adapted for carbon.
- Calculations of carbon from data collected in the field are not required within the PPC program.

Step 1: Determine size and characteristics of site

- Use your site shapefile/kml to calculate the number of hectares in your site.
- Ask yourself, does this site have any strata? Strata are submitted in the Site Establishment form.
  - That's important if there are multiple vegetation types (i.e. bare ground vs. grass vs. secondary growth) or multiple types of restoration (i.e. agroforestry, ANR) applied in the area.

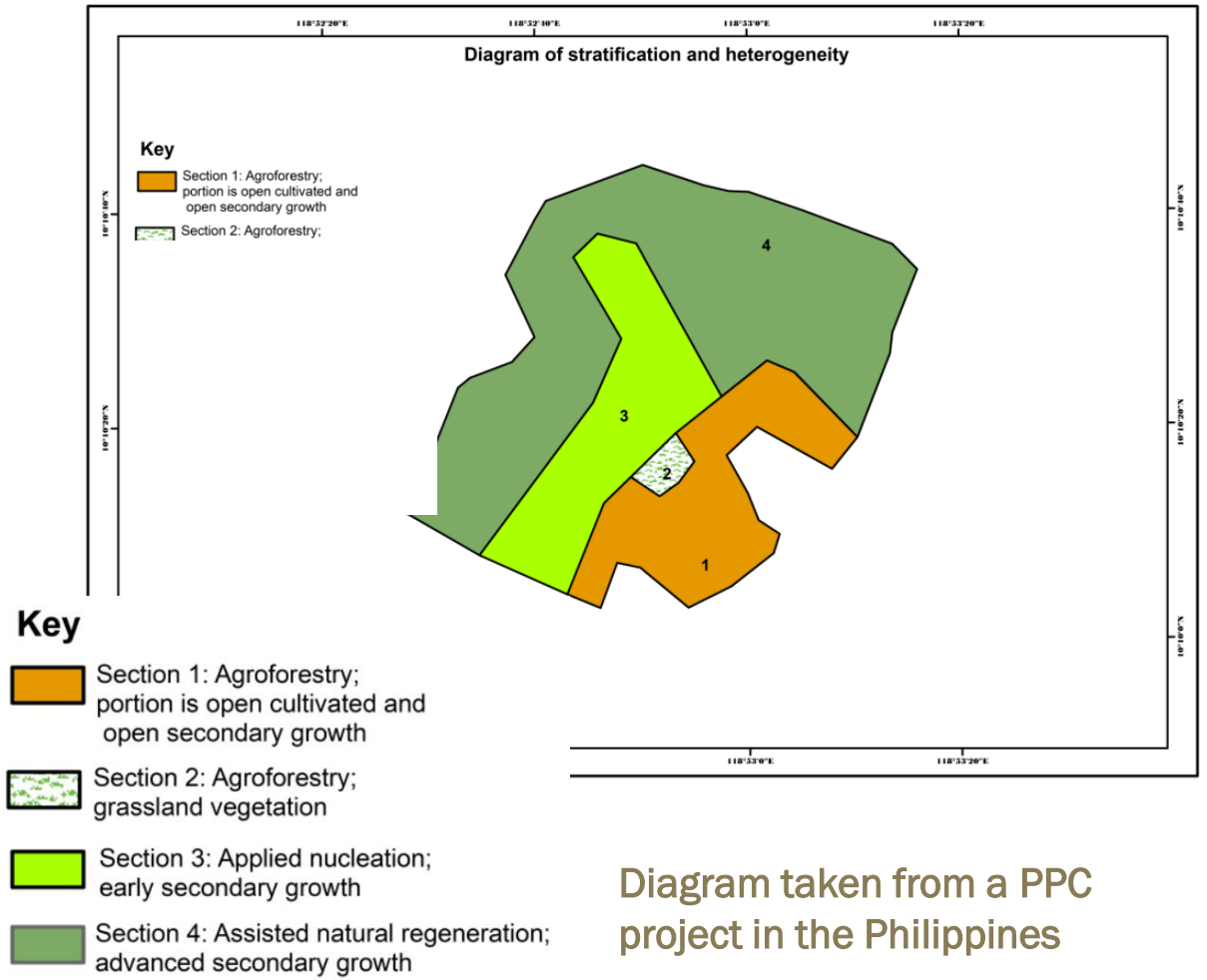


Diagram taken from a PPC project in the Philippines

Example from Brazil

Diagram taken from a PPC project in Brazil

- As shown in the picture to the left, the strata on this site follow the density of vegetation
- The planting strategy is determined by the strata
  - Enrichment planting is done in areas with existing vegetation
  - Planting in a 3x3 grid is done in areas with sparse vegetation

Step 2: Calculate number of monitoring plots and control plots needed

- Monitoring plots
  - The number of monitoring plots cannot be less than the required minimum, unless the method is approved and the number of plots agreed with the global monitoring team.

Restored Area (ha) = A	Number of Plots (minimum PPC standard)
A ≤ 50	1 per hectare
A > 50 ≤ 100	1 per ha for 1st 50, 1 per 2ha for 2nd 50
A > 100	1 per ha for 1st 50, 1 per 2ha for 2nd 50, 1 per 5ha for all over 100

Optional use of power analysis, but calculations must be approved by the global monitoring team

Step 2: Calculate number of monitoring plots and control plots needed

- **Control plots –** minimum 1 per strata per site

  - Same size as regular monitoring plots (30m x 30m).
  - Should be mapped, marked, and monitored in the same manner as the restoration monitoring plots (all control plots are permanent).
  - If a site is less than ½ a hectare in size, no control plot is required.
  - If a site is very small (½ to 1 ha), then the control plot can be 10m x 10m instead of 30m x 30m.

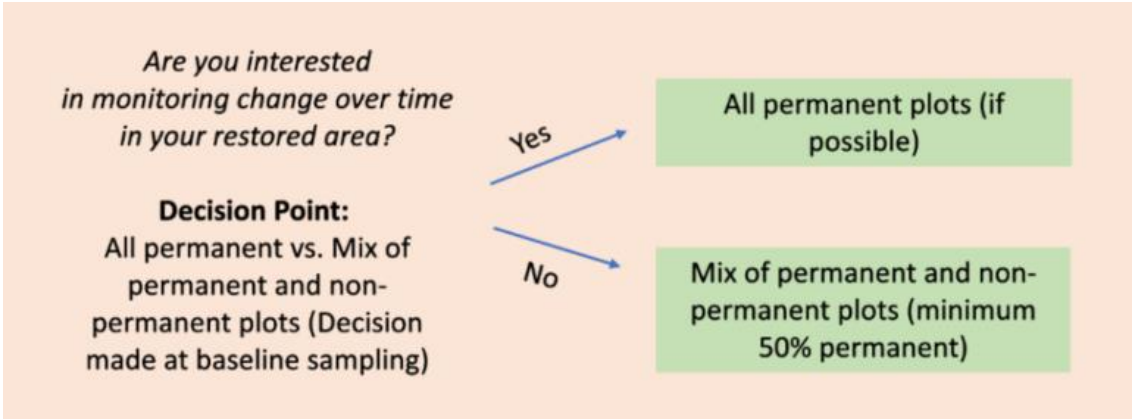
  - If there is significant variation (strata) in the restoration site, then multiple control plots are needed to encompass that variation.

  - **Plot-level control x landscape level control (optional):** It is ideal to have both controls, however, choosing a control type should be dependent on the resources available.

Step 3: Consider if all plots should be permanent, or only ½

- At least ½ the tree monitoring plots should be permanent, and all control plots are permanent.
- The other ½ are up to you to decide if they are permanent or not.
  - Permanent plots are recommended if the focus is scientific research or when the funding comes from banks or official agencies.

- Consider what type of materials you need to mark your permanent plots (Note: you'll need to find them in 5 years).

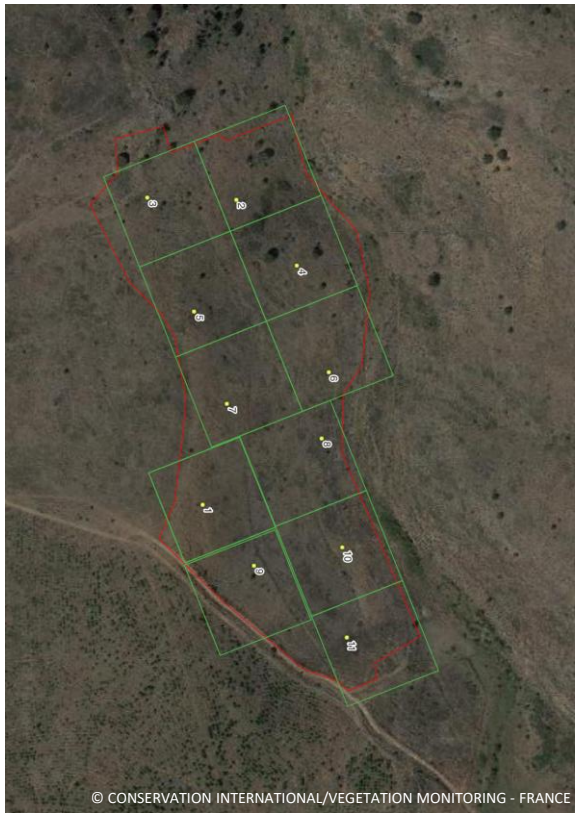


Step 4: Place plots – generate GPS coordinates

- Recommend to place a 1HA grid over the site and randomly place a plot within each grid + randomly place control sites (1 per strata):
  - Generate randomized "plot centroids" in ArcGIS or using a random number generator to determine where the plot should be placed.
  - Correct the randomized placement distribution if necessary to ensure that the right fraction are in each stratum.

- Plots should also not be placed within 5 meters of the restoration site's boundary, to avoid edge effects.

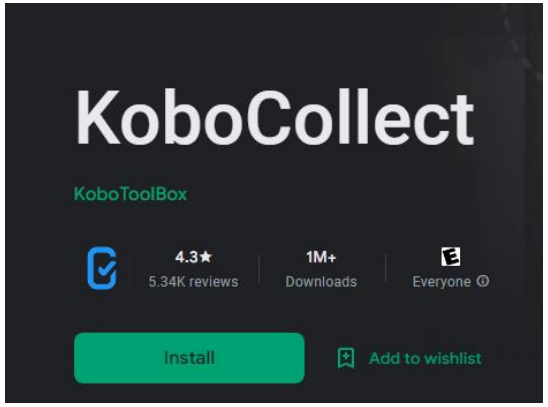
- Download GPS points to find your plots in the field. Adding the points to a GPS makes it easier to locate the plots.



If in doubt about the proper location of control plots, please contact the global monitoring team. We welcome conversations around proper control design and are available to help determine the right specifications for any given site.

Step 5: Download KoboCollect – access the survey

- Available on Android smartphones and tablets (Google Play Store).
- Access the PPC survey (same survey used for control and restoration plots)
- Survey available in English, Spanish, French and Portuguese.



Step 5: KoboCollect – How to access the survey

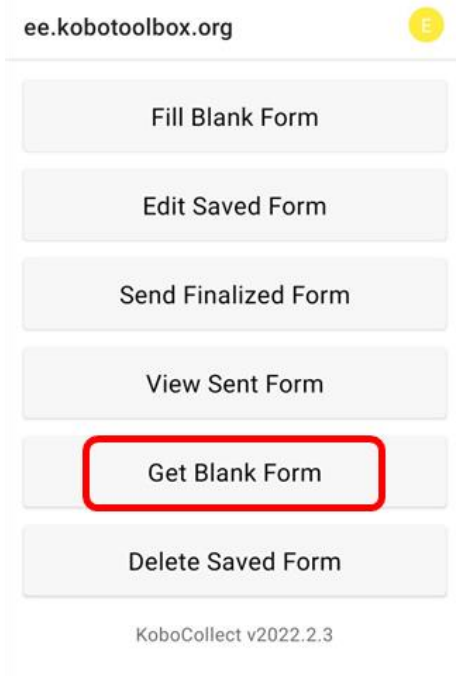
1) Open KoboCollect and Select Configure with QR code enter project details.

2) Point your cellphone camera to the QR code.

3) Make sure you have access to the tree monitoring survey and your device is connected to the internet.

4) Select Get Blank Form from the home menu.

Vegetation Monitoring form QR Code access



Step 5: KoboCollect – How to access the survey

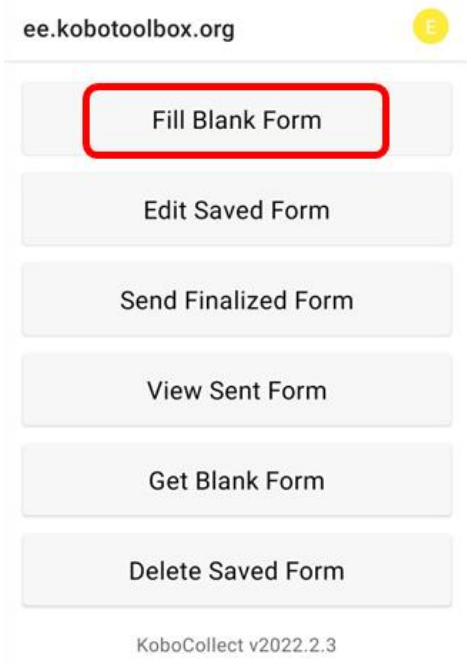
5) The Tree Monitoring survey should appear.

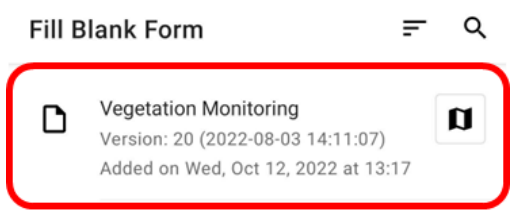
6) Select the Tree Monitoring survey form by selecting them manually. Then click Get Selected.

7) Once you have blank form(s) in the app, you will no longer require an internet connection to collect data.

8) Select Fill Blank Form from the home menu.

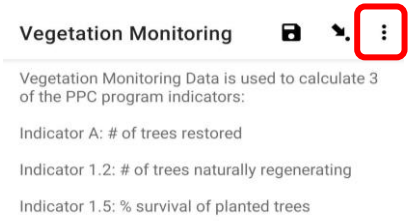
9) Select the survey form that you want to use to start collecting data.



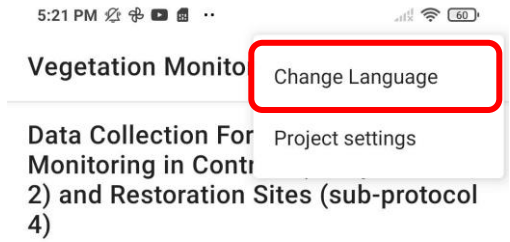


Step 5: KoboCollect – How to set up a different language

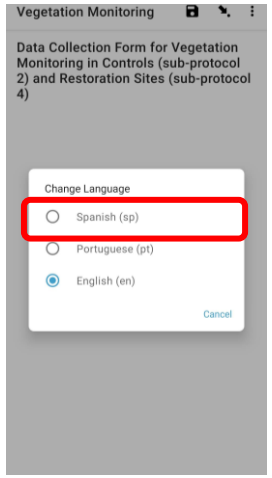
1) Click and open Form options



2) Select Change Language



3) Select the language



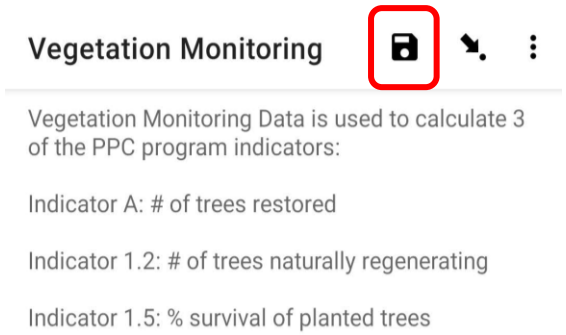
4) Tree Monitoring Form in English, Spanish, Portuguese and French

*KoboCollect Form

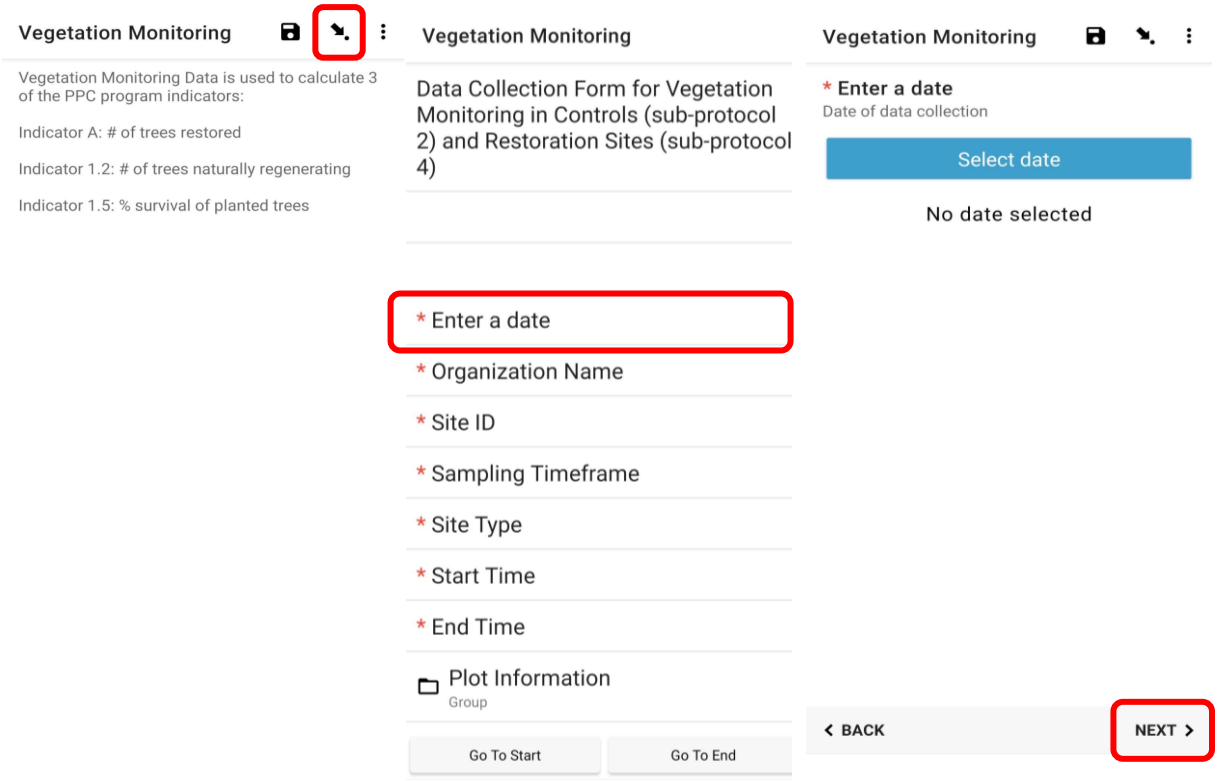
Step 5: KoboCollect – How to navigate within the form

1) Click and save your form.

- Don't forget to save your data!



2) Tree Monitoring Form Overview:



*KoboCollect Form

Step 6: Prepare to go to field

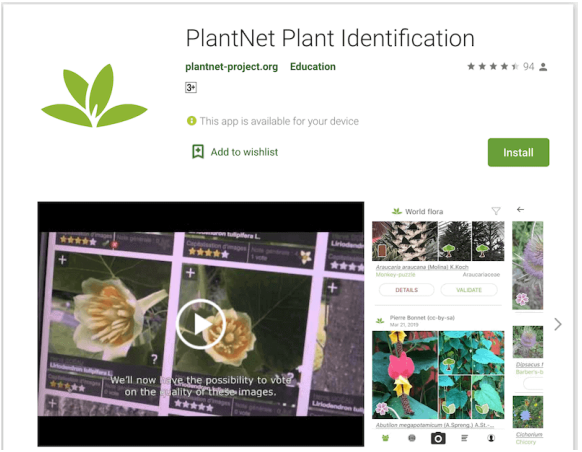
- Obtain materials for marking permanent plots.

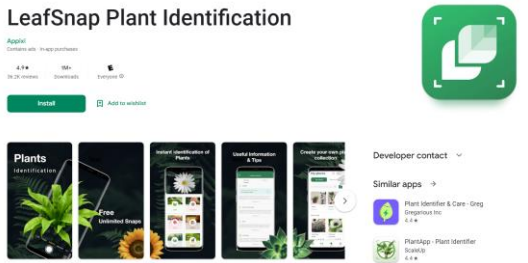
- Obtain other materials need for monitoring, including:
  - Tablet or Android smartphone with the KoboToolbox app.
  - GPS – a GPS linked to the smartphone or tablet is preferred.
  - DBH tape or calipers to measure tree size.
  - Measuring tapes for laying out monitoring plot boundaries.
  - Any resources needed to identify tree species using scientific names.
  - (Optional) 1m x 1m squares for the smallest sub-plot, if applicable.

- Before going to the field, substitutes can be created, such as homemade calipers or measuring lengths on rope if no measuring tapes accessible.

Step 6: Prepare to go to field

- Trees species identification requires some expertise:
  - Have a list of the species scientific names in your project helps to identify your species.
  - Botanists may be able to support on site or remotely with samples.
  - Herbaria could be created/improved upon with additional support.
  - Consider smartphone applications:
    - In Mexico, the platform "Enciclo Vida" created by CONABIO has the information of +113,000 species.
    - "Pl@ntNet" has the option to identify plants with pictures. It is organized in different thematic and geographical floras.
    - Explore applications specific to your area.





Part 2: Field

Overview: What's done/covered in this part?

- Step 1: Go to the GPS coordinates of your first plot (take all the materials you need)
- Step 2: Do you need to resample?
- Step 3: Open survey in KoboCollect – fill in background info
- Step 4: Lay out and mark your 30m x 30m plot – record
- Step 5: Take GPS points of the 4 corners and take pictures – record
- Step 6: Count all trees greater than 10cm DBH – record
- Step 7: Lay out your 3m x 3m plot – record trees greater then 1cm DBH
- Step 8: Record planted trees in 30m x 30m that haven't already been counted
- Step 9 (optional): Lay out 1m x 1m plot and count all trees of all sizes - record
- Step 10: Check over all data in KoboToolbox survey - submit

Step 1: Go to the GPS coordinates of your first plot (take all the materials you need)

- KoboCollect: Available on Android smartphones and tablets (Google Play Store).

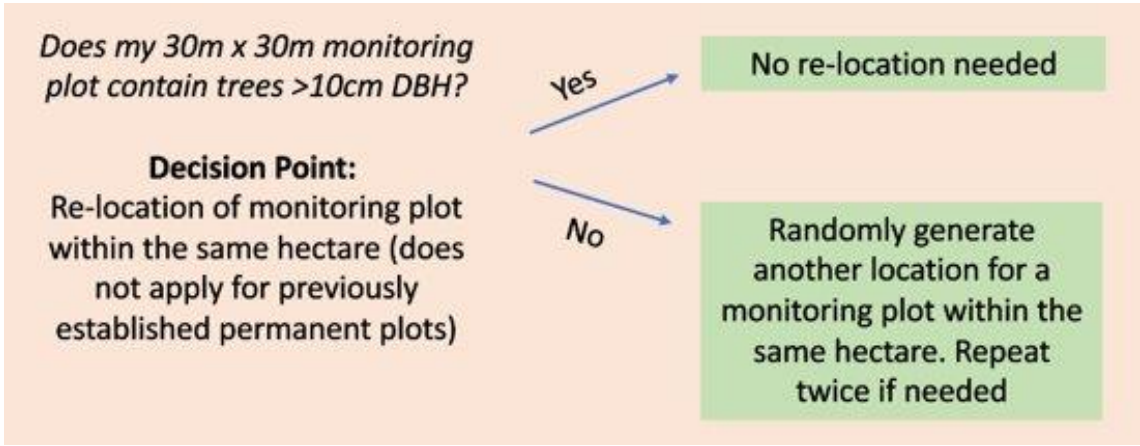
- Access the PPC survey (same survey used for control and restoration plots).

- Survey available in English, Spanish, French and Portuguese.

Step 2: Do you need to resample?

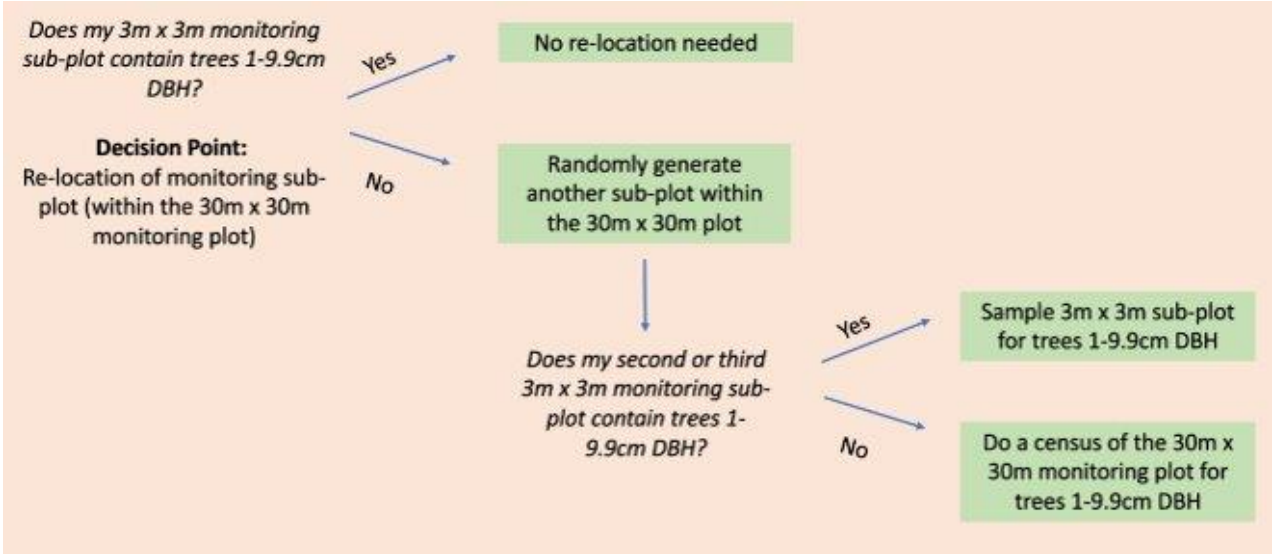
- A resampling (relocation of the plot within the same hectare) occurs if there are no trees >10cm DBH in the plot. Does not apply to permanent plots except at baseline.

- If there are no trees > 10 cm DBH found in the initial 30 x 30 m plot:
  - Plot should be counted as 'empty' and a new plot selected in a new random location within the same 1 ha sampling area. This may be done twice.
  - If 2 additional empty plots are found, then, the 3rd plot should be monitored, even if it is empty.
  - If this 3rd plot is also devoid of any trees > 10 cm DBH, this can be noted in the data sheet.



Step 2: Do you need to resample?

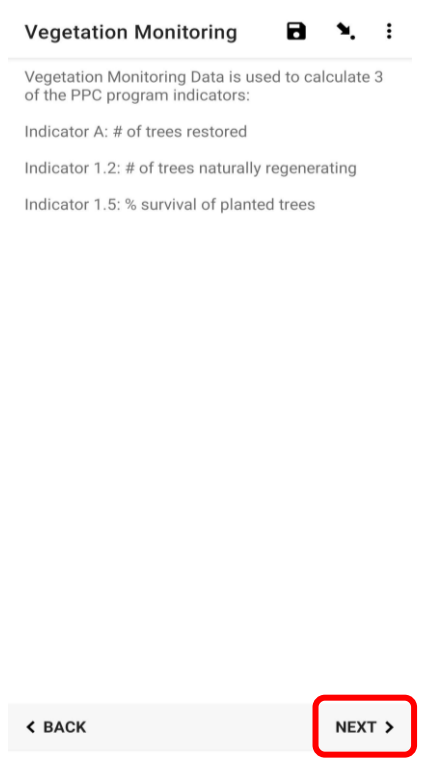
- The nested 3 x 3 plot should then be checked for trees 1-9.9cm:
    - If there are none, then, the nested plot should also be counted as empty and a new plot selected in a new random location within the 30x30m plot. Again, this may be done twice.
    - If 2 additional empty plots are found, then, a full census count of the 1-9.9cm size class should be done in the entire 30x30m plot.

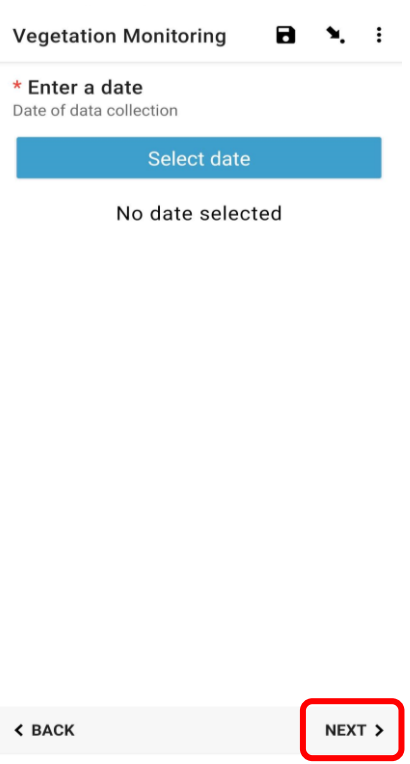


Step 3: Open survey in KoboCollect – fill in background info

- Tree Monitoring Form – Background info:
  - Date
  - Country
  - Organization Name
  - Site ID
  - Sampling Timeframe (Y0, Y2.5, Y5, Other)
  - Site Type (Control, Restoration)
  - Start time of data collection
  - End time of data collection

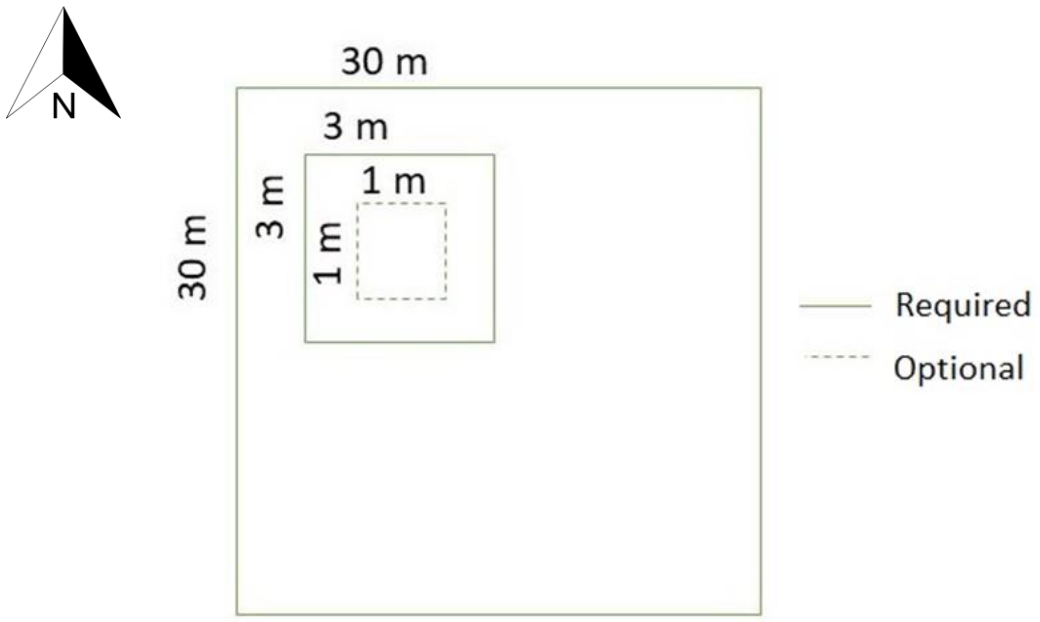
- KoboCollect can be used offline, and data can be shared later when returning to Wi-Fi or cellphone service.





*KoboCollect Form

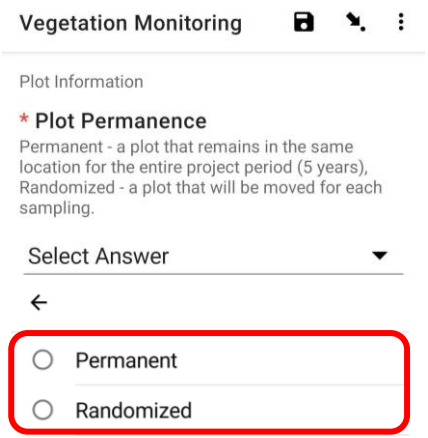
Step 4: Lay out and mark your 30m x 30m plot – record



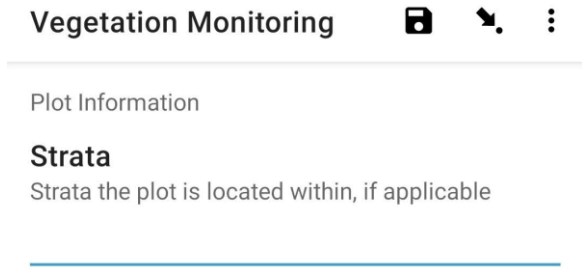
- 30m x 30m plot (re-locate empty plots up to twice in same HA).
- Orient plots north
- GPS coordinates of each corner.
- Background info: is the plot permanent or not, is it on a restoration or control site, what is the planting pattern, etc.
- Count of additional planted trees in permanent plots.

Step 4: Lay out and mark your 30m x 30m plot - record

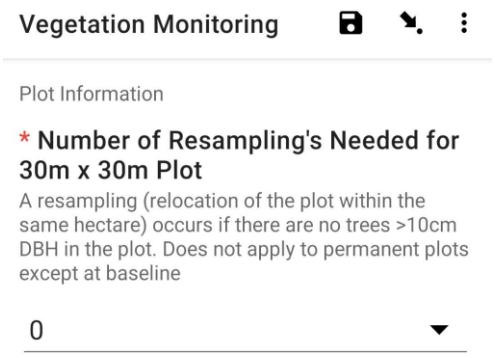
1) Inform if the plots are permanent or non-permanent (Randomized).



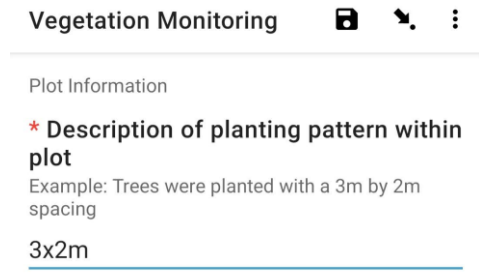
2) Strata the plot is located within, if applicable.



3) Inform the number of Resempling's needed for the plot.



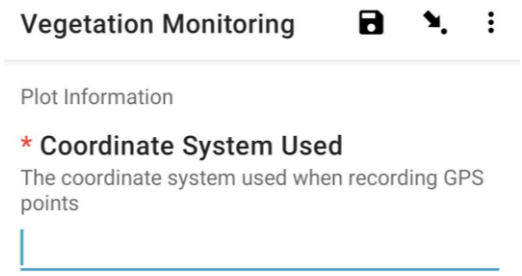
4) Describe the planting pattern within the plot (Example: Planted with a 3m x 2m spacing).

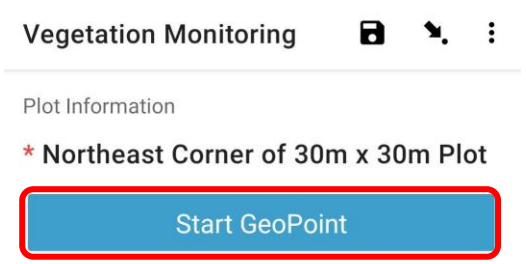


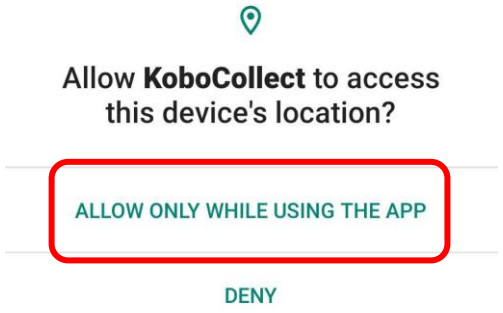
*KoboCollect Form

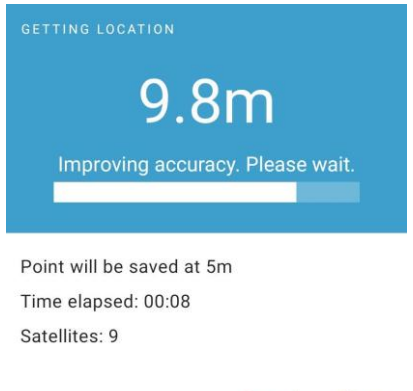
Step 5: Take GPS points of the 4 corners and take pictures – record

- **Permanent plots:** must be georeferenced with landmarks in the ground (wood staking, iron pipes, rebar, or PvE tubing) at 1.2 m in height.
    - GPS corner points and centroids should be recorded along with device margin of error.
- **Non-permanent plots:** Record GPS corner point and centroids. Do not need to be marked with landmarks.



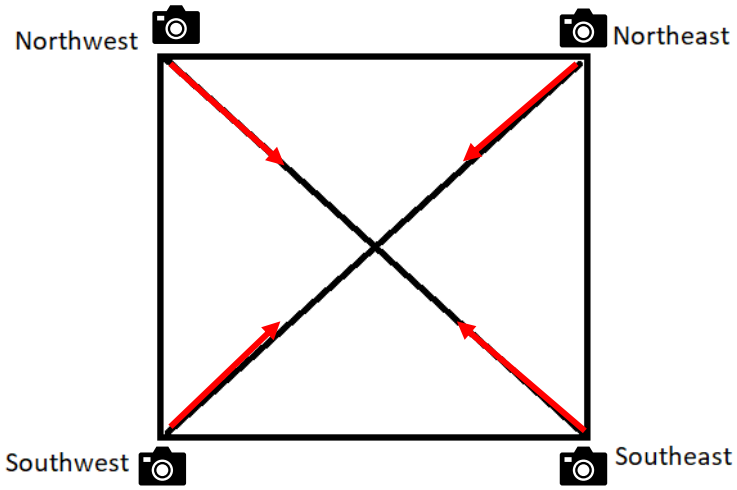


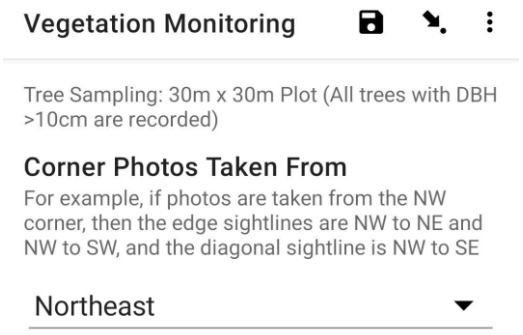


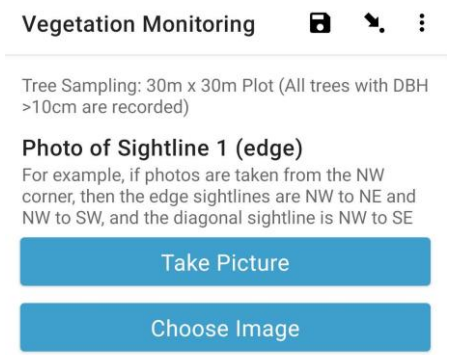


*KoboCollect Form

Step 5: Take GPS points of the 4 corners and take pictures – record





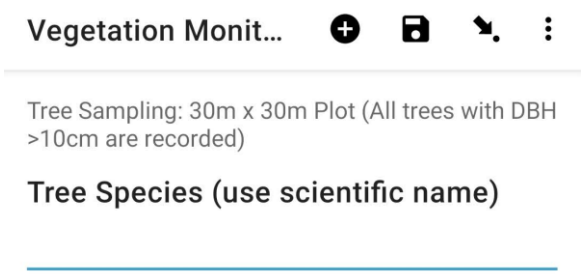


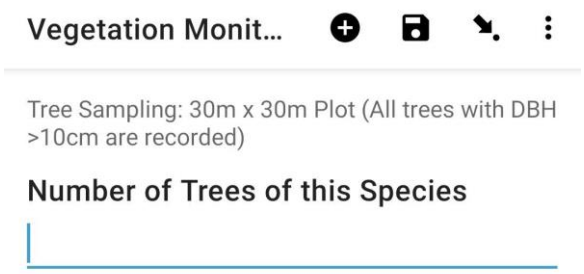
- 4 geotagged photos should be taken from each corner of the 30m x 30m plot:
  - Choose the angle that provides the best overview of the plot.
  - Take a picture on each edge of the plot in the centerline, pointing into the center of the plot.
  - NW, NE, SW, SE should be noted as in the GPS coordinates.

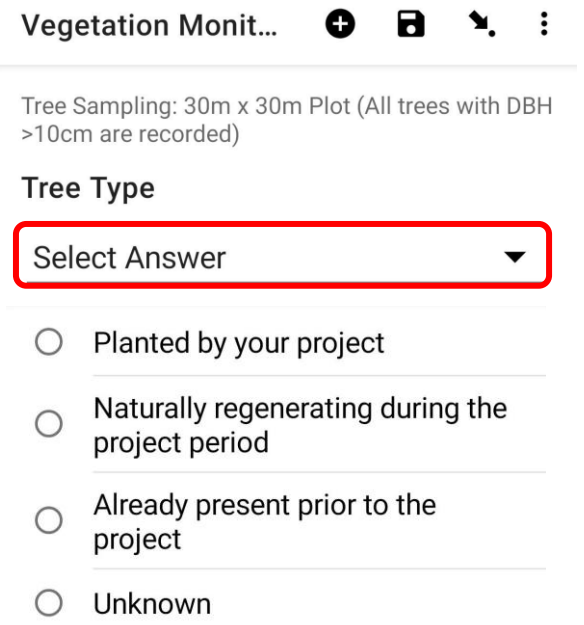
*KoboCollect Form

Step 6: Count all trees greater than 10cm DBH - record

- In the 30 m x 30 m plots all large trees (> 10cm DBH) per tree species are counted.
- DBH and height can be optionally recorded for each individual tree.
- Attention when counting the trees. Don't step on the naturally regenerant or planted trees.







*KoboCollect Form

Step 6: Count all trees greater than 10cm DBH - record

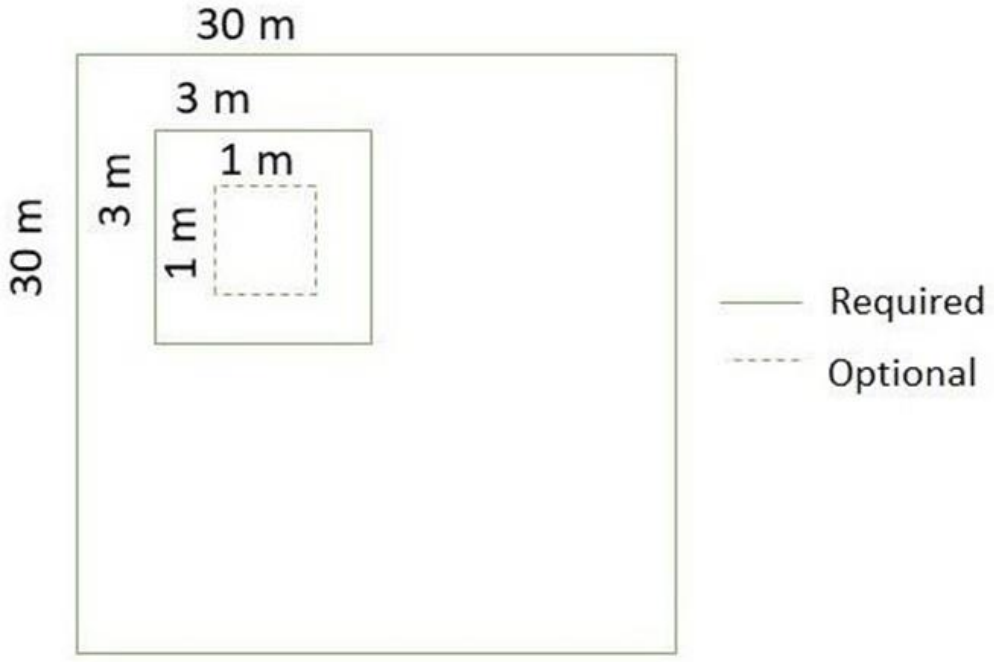
- How to distinguish a Naturally Regenerating Tree from a Planted/Seeded Tree

  - The historical knowledge of the planting patterns used (i.e., if it was a grid, what was the spacing of the grid, and/or what was the orientation (N/S/E/W) and spacing of the rows) will be essential to help in this task of distinguishing between a planted/seeded tree and a naturally regenerating tree.

  - In general, a tree is probably a regenerant (i.e., not planted) when any of the three following conditions apply:

    1) it is located outside a known planting row or grid position
    2) it is an obviously different size (either bigger or smaller suggesting more than one year's difference in age) than the observed range of sizes of the planted/seeded trees or
    3) it is not included in the species list of planted/seeded trees.

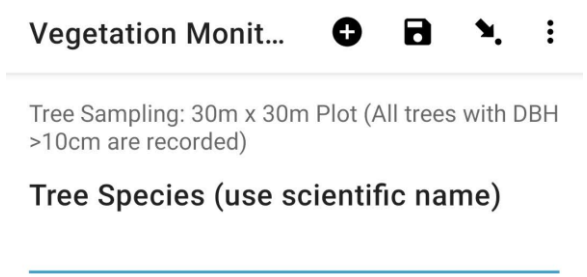
Step 7: Lay out your 3m x 3m plot – record trees greater then 1cm DBH

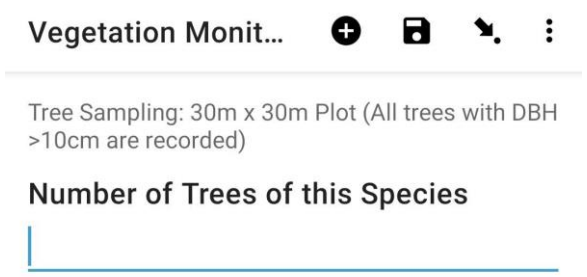


- All medium size trees/saplings (diameter s 1 – 9.9 cm DBH) per tree species are recorded – disaggregated by species and type (planted, naturally regenerated, etc).
    - Example: Species A, count of 2, and naturally regenerating.
- GPS coordinates of centroid.

Step 8: Record planted trees in 30m x 30m that haven't already been counted

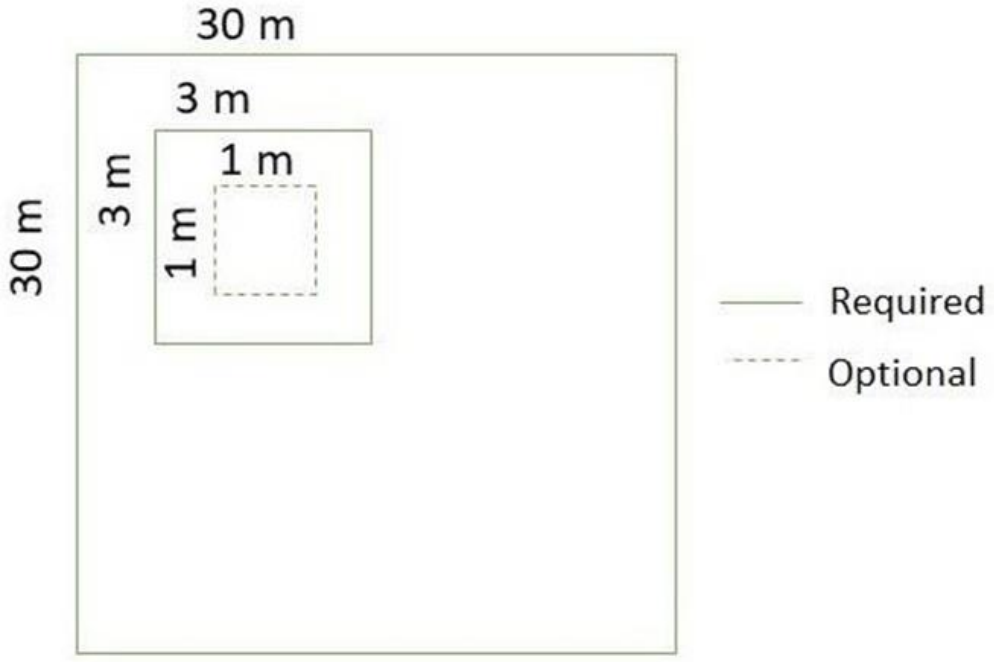
- Any trees PLANTED during this project that have not yet reached 10cm DBH should also be recorded.
  - This allows us to calculate survival of planted trees at Y5.
  - All tree species are recorded – disaggregated by species.
  - Example: Species A, count of 2.





*KoboCollect Form

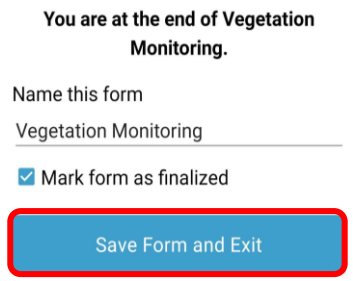
Step 9 (optional): Lay out 1m x 1m plot and count all trees of all sizes - record



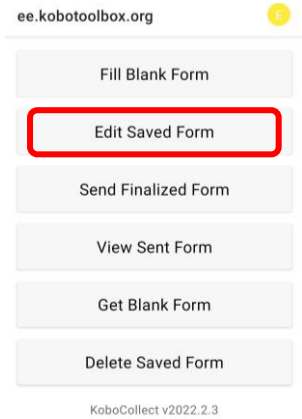
- Indication of the emerging, very young trees on the site.
- All tree saplings (<1 cm DBH) will be counted and identified to species or species type as much as is possible.
    - Example: Species A, count of 3, planted by your project.

Step 10: Check over all data in KoboCollect survey - submit

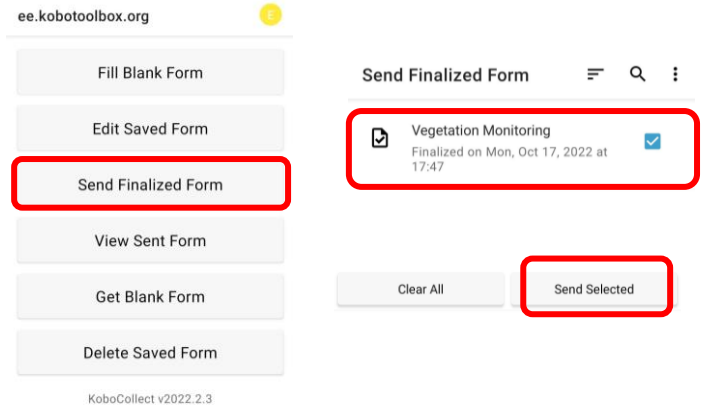
1) Save your data when all form is filled.



2) In the main menu, Edit Saved Form, if needed. This is the step to correct any possible mistakes.



3) Send Finalized Form when returning to Wi-Fi/cellphone service.



*KoboCollect Form

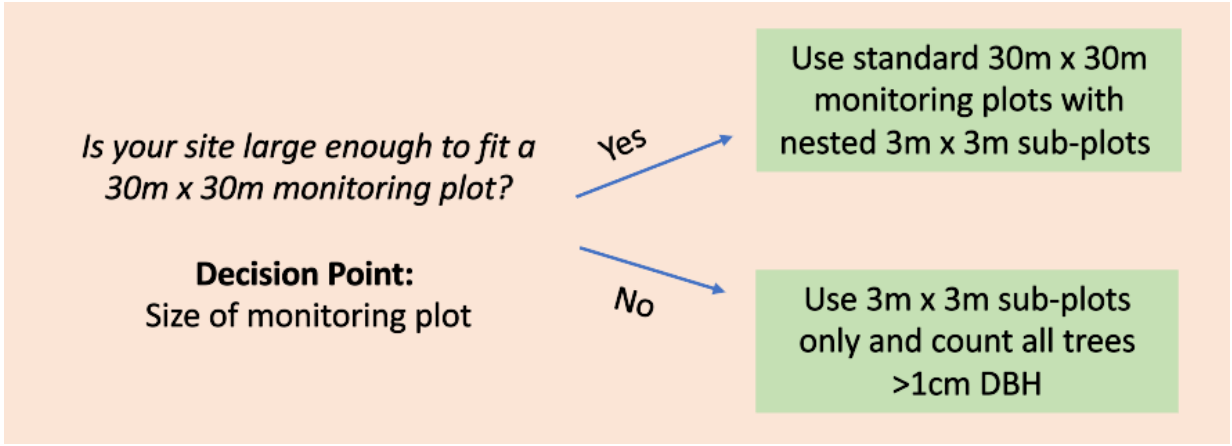
Exceptions

Exceptions for control and tree monitoring plots

- Multiple strata in a small restored area and the number of vegetative strata exceeds the number of hectares being restored:
    - You will need to exceed the 1/ha minimum monitoring requirement, to ensure some monitoring coverage in each strata (i.e. 2 plots would be needed in a 1 ha plot with 2 vegetative strata).

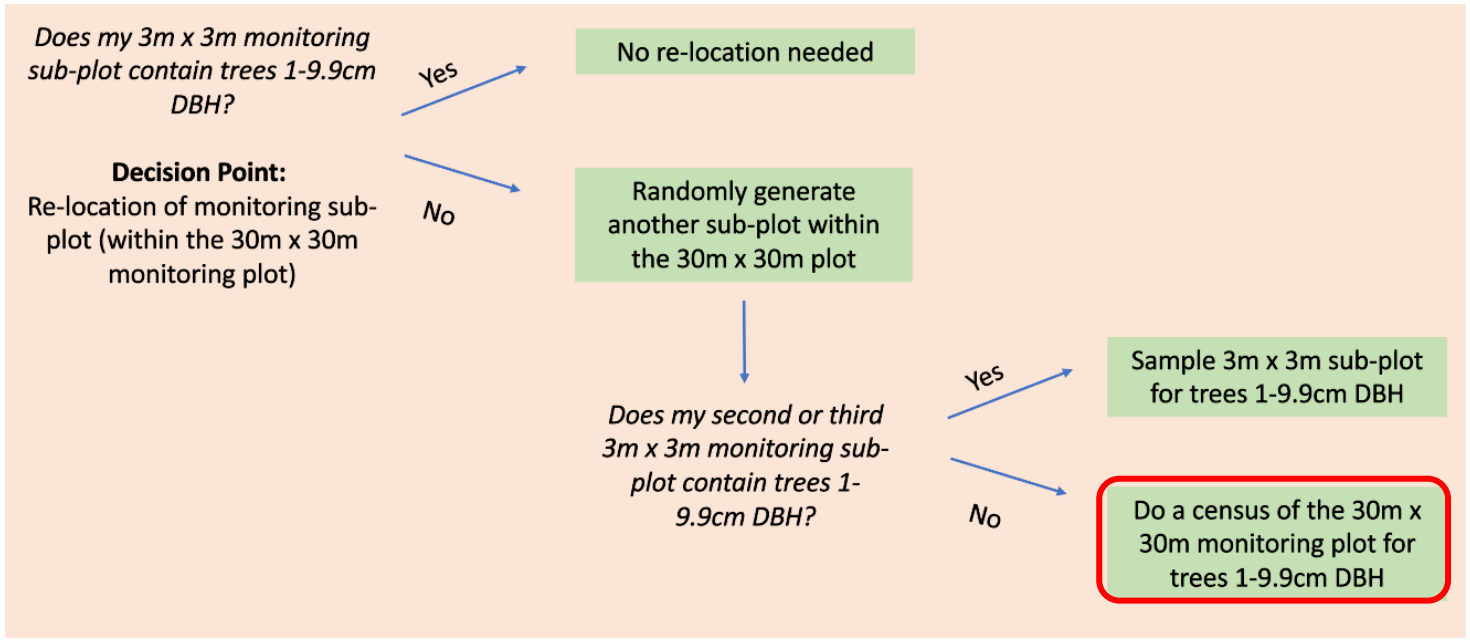
Exceptions for control and tree monitoring plots

- Sites smaller than 30m wide:
  - Denoted in the data sheet.
  - Use a 3m x 3m sub-plot.
  - All trees >1cm DBH should be recorded – disaggregated by species and type (planted, n aturally regenerated, etc).
  - GPS coordinates of centroid.
  - Description of location within 30m x 30m plot.



Exceptions for control and tree monitoring plots

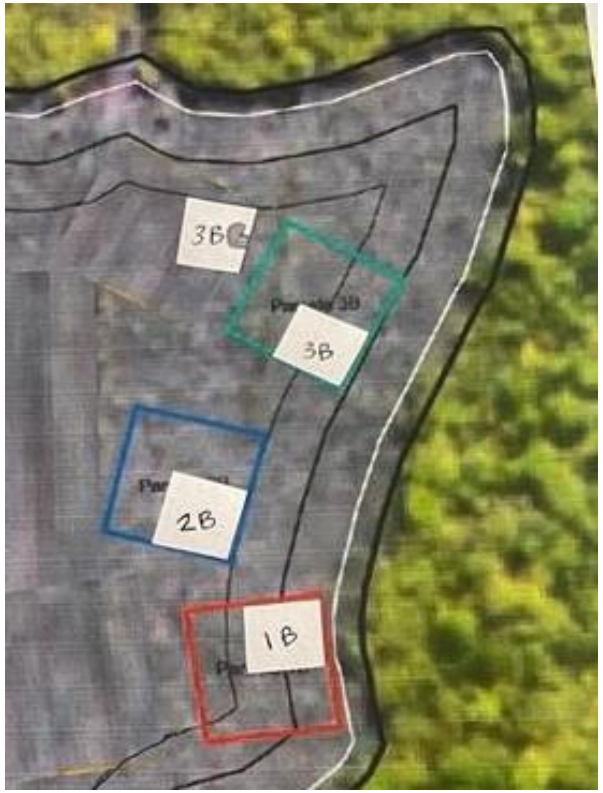
- Census:
  - If my second or third 3m x 3m monitoring sub-plots have no trees 1-9.9cm DBH, a full census count of the 1-9.9 cm size class should be done in the entire 30x30 m plot.



Special Considerations by Restoration Strategy

Applied Nucleation

- This restoration method integrates tree planting and natural succession to restore and regrow forests.
- Trees are planted in groups (called nucleii or islands), rather than over the whole site, and natural regeneration is promoted around them.
- It is unrealistic to randomize the locations of monitoring or control plots when this restoration technique is used. Instead, the plots must be placed relative to tree islands (see example at right).
- The global monitoring team can assist with planning.



Tree island planting locations inside grey restoration area are outlined in green, blue, red

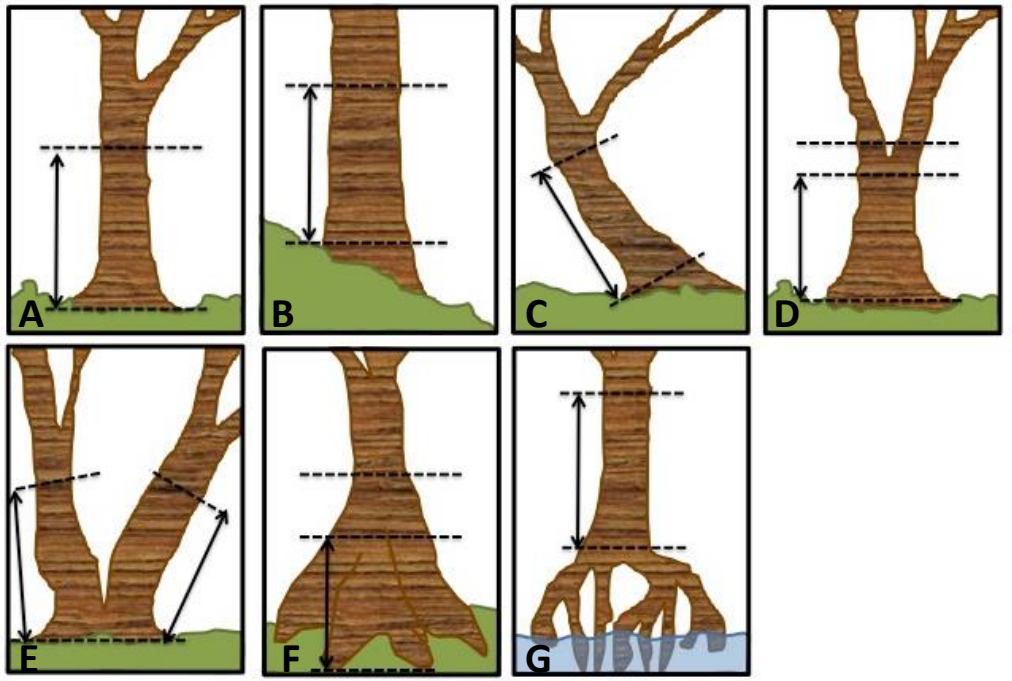
Monitoring plots inside islands (1B, 2B, 3B)

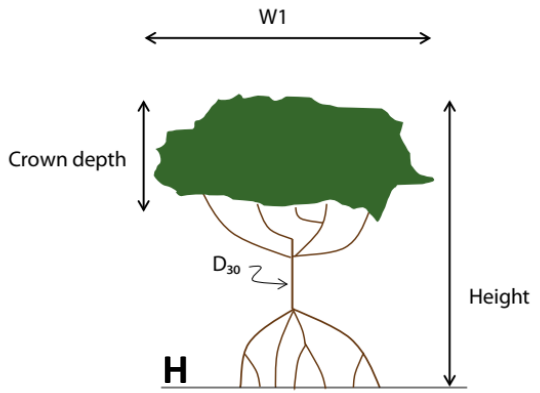
Control plot location 3BC (top left)

Source: Applied nucleation restoration guide for tropical forests. Conservation International, 2021. https://www.conservation.org/research/applied-nucleation-guide

Mangrove Restoration

- Data collection is the same in mangrove habitats, with the main stem determining which size class the tree is included in.
  - A tree is included in the survey if at least 50% of the main stem is rooted inside the plot or subplot perimeter.
  - To determine which size class a mangrove tree is placed in:
    - A) If the tree is fairly straight with a tall trunk the dbh can be measured from the ground parallel to the trunk.
    - B) If the tree is on a slope, always measure on the uphill side.
    - C) If the tree is leaning, dbh is taken according to the trees natural height parallel to the trunk.
    - D) If the tree is forked at or below 1.3 m then measure just below the fork
    - E) If the fork is very close to the ground measure as two trees.
    - F) For trees with tall buttresses exceeding 1.3 m above ground level, stem diameter is usually measured directly above the buttress.
    - G) For stilt rooted species (e.g., Rhizophora spp.), stem diameter is often measured starting above the highest stilt.
    - H) For shrubs and dwarf mangroves, the measurements consider steam diameter at 30 cm aboveground level (D30).





Source: Coastal Blue Carbon, CI, IOC-Unesco, IUCN.
https://www.thebluecarboninitiative.org/manual

Assisted Natural Regeneration (ANR)

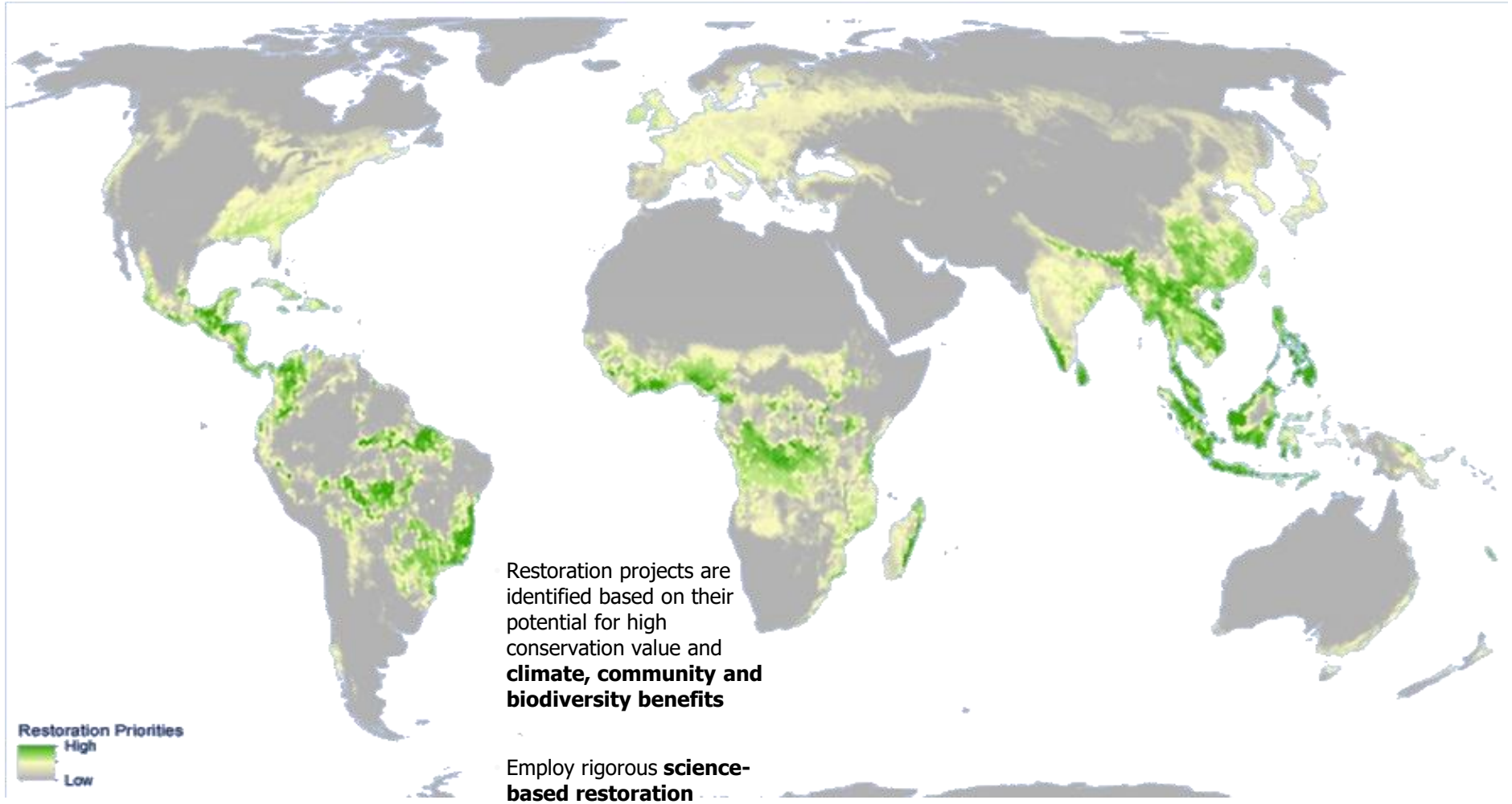
- Data collection is the same in sites with assisted natural regeneration as a restoration strategy.
- In ANR contexts, it is especially important to be able to correctly identify tree species – special consideration to species identification resources should be made prior to monitoring.
- The use of 1x1m small monitoring plots is also highly recommended for ANR, in order to detect the younger, smaller regenerants.

Where to Restore?

How Project Developers Select Restoration Sites

WHERE TO RESTORE

Where will restoration produce the most benefit for communities and store the most carbon worldwide? Where are the key biodiversity hotspots to save the world's species?



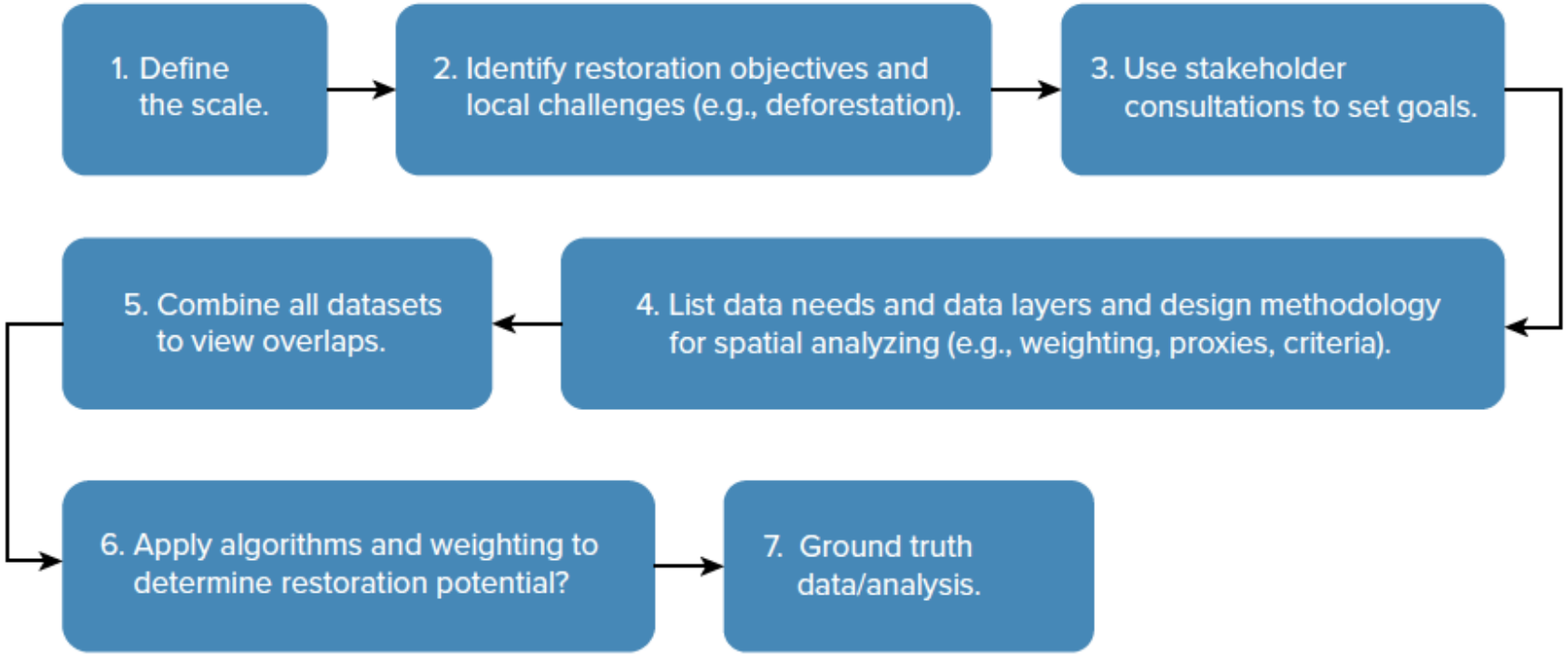
Restoration projects are identified based on their potential for high conservation value and **climate, community and biodiversity benefits**

Employ rigorous **science-based restoration standards** for project selection, implementation and monitoring

Source IUCN Red List and UN Environment ProgrammeWorld Conservation Monitoring Centre. 2020. Species Range Polygons. https://www.iucnredlist.org/resources/other-spatial-downloads;
Collins, Mulligan, et al. (in prep). Map of places in the world scoring highest for realized delivery across 15 ecosystem services, as calculated by version 3 of Co$tingNature.;
Cook-Patton, Susan C., Sara M. Leavitt, David Gibbs, Nancy L. Harris, Kristine Lister, Kristina J. Anderson-Teixeira, Russell D. Briggs, et al. "Mapping Carbon Accumulation Potential from Global Natural Forest Regrowth." Nature 585, no. 7826 (September 2020): 545–50. https://doi.org/10.1038/s41586-020-2686-x.

WHERE TO RESTORE

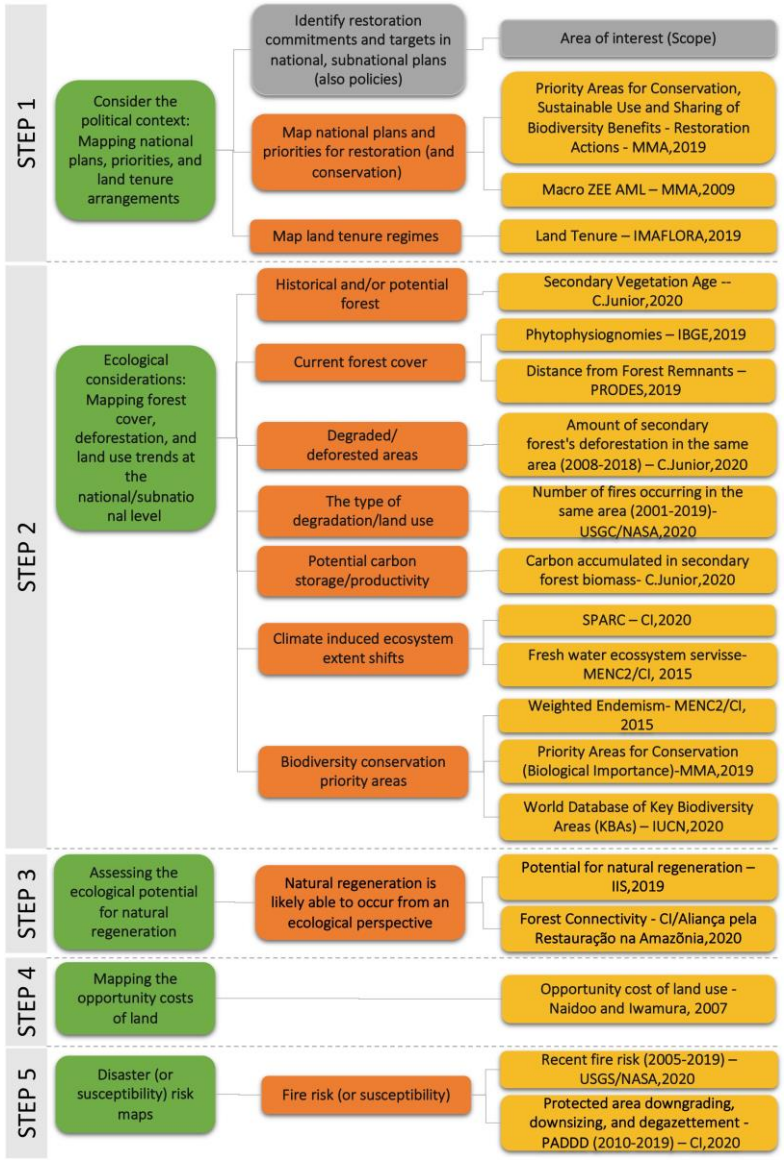
1. using spatial data to inform restoration prioritization for climate, biodiversity and community benefits

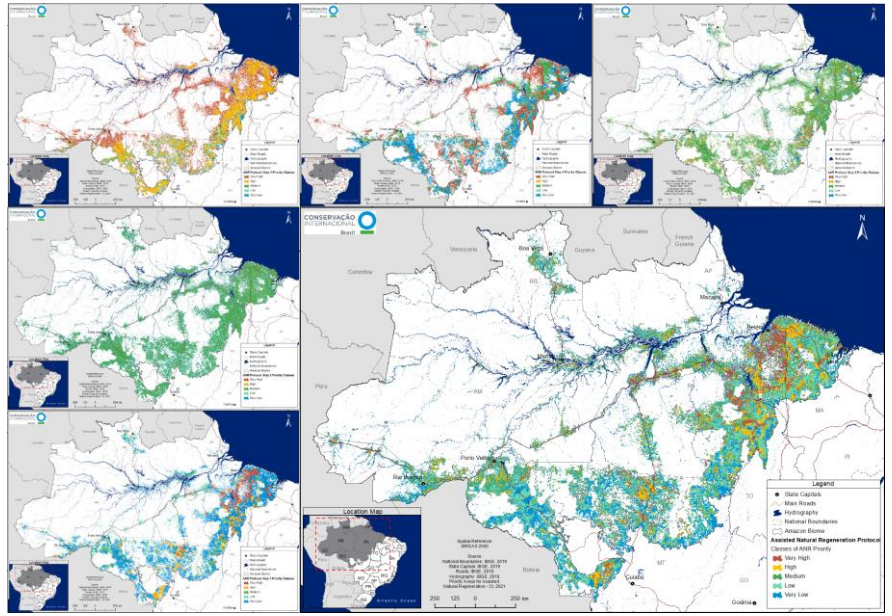


Source: Wilson, S. Metzel, R., Harrigan, E., Sprenkle-Hyppolite, S., Begeladze, S., Bukoski, J., Donatti, C., Hillman, I. 2022. Where to Restore? Using Spatial Data to Inform Restoration Prioritization for Climate, Biodiversity, and Community Benefits.

WHERE TO RESTORE

Case Example: Brazilian Amazon : The results from each step were combined into a single map for that step with multiple layers. Approximately 20 shapefiles were used to run the model. The outcome was five separate maps that were combined to produce the final map.

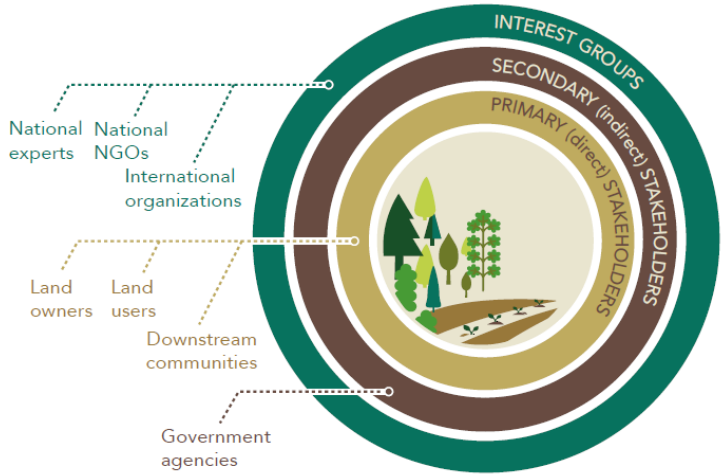




Source: Wilson, S. Metzel, R., Harrigan, E., Sprenkle-Hyppolite, S., Begeladze, S., Bukoski, J., Donatti, C., Hillman, I. 2022. Where to Restore? Using Spatial Data to Inform Restoration Prioritization for Climate, Biodiversity, and Community Benefits.

WHERE TO RESTORE

2. PARTICIPATORY MAPPING / STAKEHOLDER ENGAGEMENT

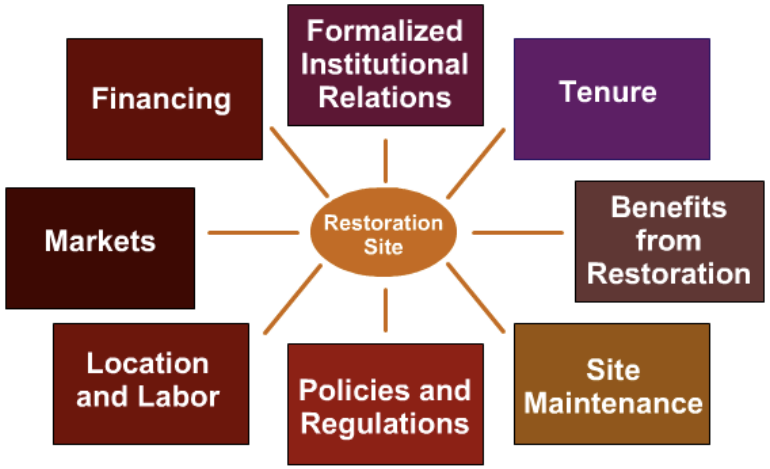


IUCN, WRI. 2014. ROAM

Questions to consider :

- Which have the most direct influence (positive or negative) on the outcomes of the restoration initiative? Which will have the least influence? Which stakeholders will have the highest interest or see the greatest benefits from restoration initiatives?
- Who benefits from restoration? Who bears the costs of restoration?
- What landscape processes might be impacted by restoration activities?
- How might an initiative for restoration change social and economic dynamics throughout landscapes?
- Are women and men, IPs, youth affected differently by these initiatives and/or the projected outcomes?

FACTORS TO CONSIDER



IUCN, ELTI. 2018.

WHERE TO RESTORE
3. SITE SELECTION

Key considerations when selecting the site

- **Goal of the restoration project** (e.g. biodiversity, erosion control)
- **Baseline** - A look-back period to ensure that land to be restored has not been recently deforested (deforestation <2010)
- **No afforestation** (historically a forested area)
- **Enabling environment**:

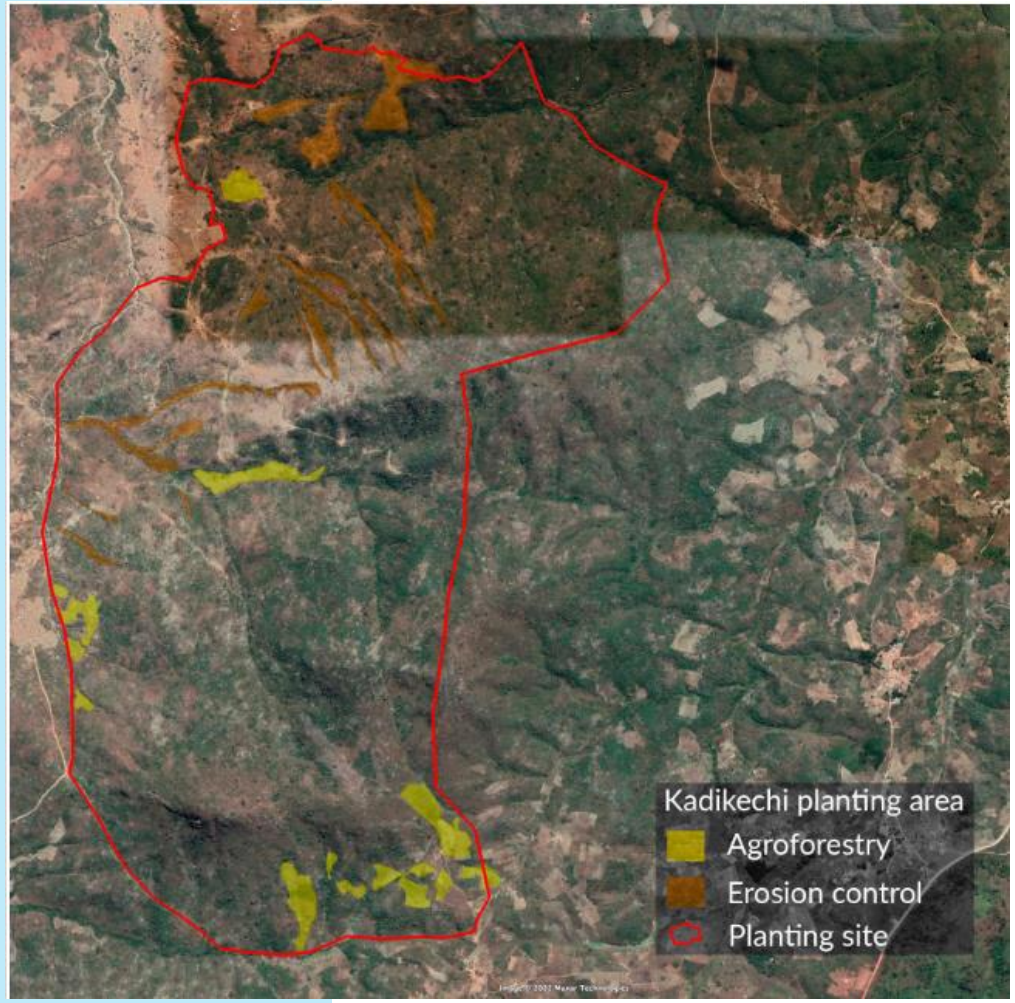
- Considering policy and governance context (e.g. land tenures, restoration policies, regulatory mechanisms)
- Ecological/biological context (e.g. what is the soil condition? Terrain type? What is the erodibility of the soil? where land use trends may best support restoration? where existing forests might facilitate restoration)
- Socioeconomic context (e.g. livelihoods of the landscape, forest and natural resource dependency)
- Risks (fires, climate, security, permanence, leakage, not an area where protected areas downgrading, downsizing or degazettement will occur)

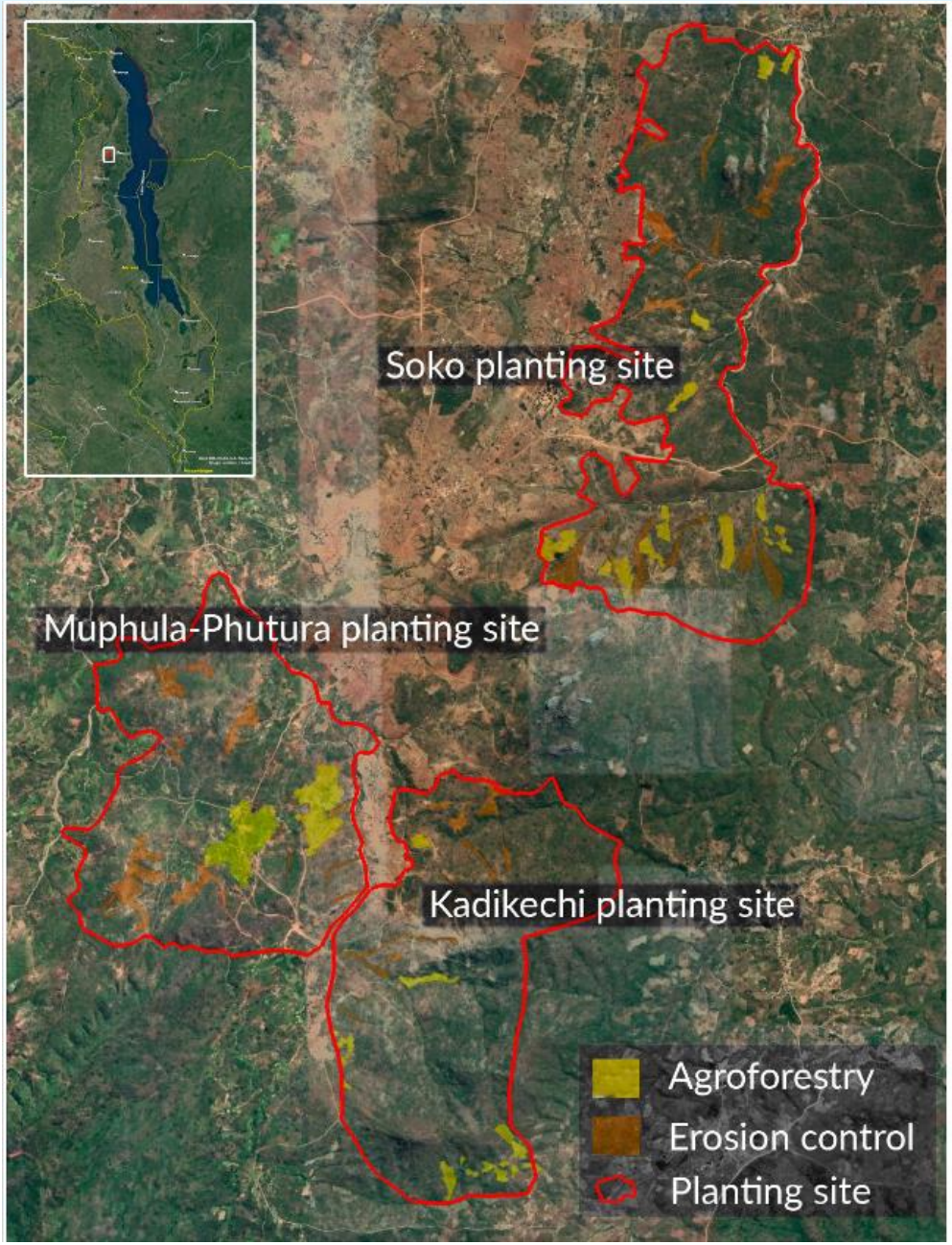
See Annex 1 for more details.

Reminder: The Ingredients of a PPC Site

- A site must be a **contiguous plot of land**, that is subdivided into sections based on intervention type (required) and other *strata* (optional).
- It includes the **area of active restoration**, which can be thought of as the area within which we will count trees towards the PPC target.
- The entire area within the boundary will be included in **vegetation monitoring** and for **remote sensing analyses** (canopy cover, hectares in restoration, carbon, etc).
  - For example, if you plant trees in one part of the site, but do erosion control uphill from where trees are planted and plan to count trees that grow from natural regeneration in the erosion control areas, then the whole area is counted as the "site."
- The only case where **multiple sites (non-contiguous areas of land) can be combined** into one is if:
  - They are managed by the same landholders, and
  - They have the same landscape characteristics (slope, soil condition, etc.), and
  - They are less than 100m apart.

Example: Wells for Zoe





Challenges Directly from Projects

- Projects negotiate with landholders for access to sites, which leads to delays in when sites can be established in the IMP.
- Communities are reluctant to give up land for reforestation if they can't benefit from the trees through partial harvesting, etc.
- Each site created means an additional monthly IMP report.
- Submitting shapefiles that meet the rigor demanded by the PPC presents a unique challenge, even to high-capacity partners.
- The 10-year no-disturbance rule is challenging to follow in countries where land use change is always happening.
- Working with hundreds of geographically separate farmers presents a challenge: Is each a separate site, even if they only plant 10 trees each?

GBM Site Selection Criteria in Makuli-Nzaui Landscape

1) How did we choose planting sites under the PPC?

Item	GBM criteria	Solutions
How does GBM select sites for the PPC project	• Under GBM Watershed-Based Approach we have a site selection criterion • Key areas of focus in this criterion are: GBM infrastructure and capacity of tree nursery groups to produce indigenous seedlings; Site significance, Accessibility, natural regeneration, site species selection and matching and also assess the threats so that high risk sites are left out • Using this criterion, we send a technical team for site selection • Site selection is followed by GIS mapping • We select site in collaboration with Kenya Forest Serve, County Government, Community Forest Associations	• Site selection and GIS mapping is done before the planting season

2) What are the challenges faced and solutions implemented?

Item	Challenges	Solutions
What challenges are faced during site selection?	• Most sites in the forest have a lot of invasive species and in Makueni Lantana camara and the ferns are the most common ones. • Inaccessibility to some sites which makes it difficult to transport seedlings there • Grazing threats from the community adjacent which compromises survival	• GBM select sites of low risk and less investment, especially clearing costs • Community empowerment to address these challenges • Select sites which are most viable • GBM has post planting care

3) What recommendations do we have for other projects and the program as a result?

GBM Recommendations	• **Strong site selection criteria** • **Ensure accessibility to the sites** • **Plan for post-planting care** • **Community empowerment before and after planting** • **Provide alternatives to the communities to reduce pressure on the forest**

Faja Lobi

Reforesting our future

Reforestation: Community awareness & assignments

- Invitation to collaborate on reforestation / invitation by village
- First explanation & accord with notability
- Land Use dialogue with whole population/village
- Delimitation, definition of borders of terrain
- Contract, assignments & member of Faja Lobi to create community forests, cahier de charge
- Socio-economic program with agroforestry to create an economic stability

Challenges & Risks: Analyse!

- Discussion about ownership terrains between:
  - Clans
  - Families (who decides in the clan: authority problems)
  - Check eventually old agreements with farmers
- Agreement autority, don’t forget them:
  - Chef de terre & chef de clan
  - Chef de groupement
  - Chef de secteur
- Diaspora (people who live in Kinshasa/Europe/USA/Canada
  - They can oppose. Know them!
- Create stability, after agreements, and define the role of facilitator & networker

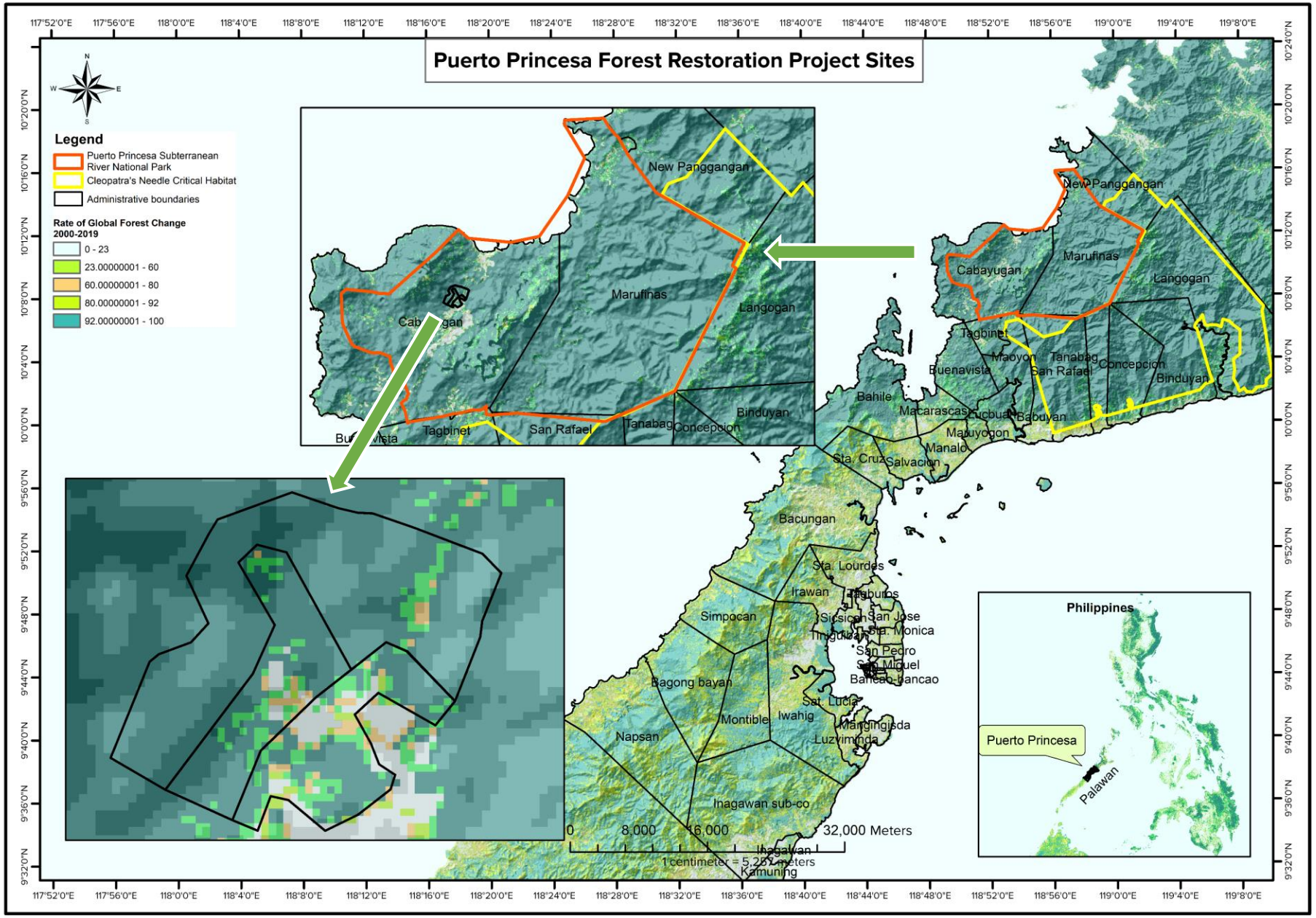
Assignment

- Clan signs principal accord
- Clan becomes member of Faja Lobi
- Faja Lobi manages & maintains the permanent community forest
- Intrest stays always for the community
- Yearly reunion with all community members, keeping balance between population & forests. Solve problems.
- Continue contacts with local nobility, know problems before they explode

PLANTING SITE SELECTION IN PUERTO PRINCESA, PALAWAN, PHILIPPINES

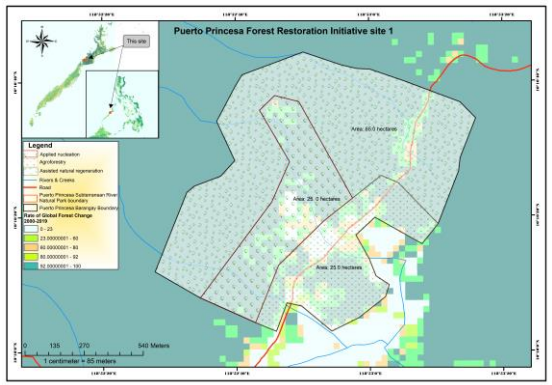
Restoration Site 1

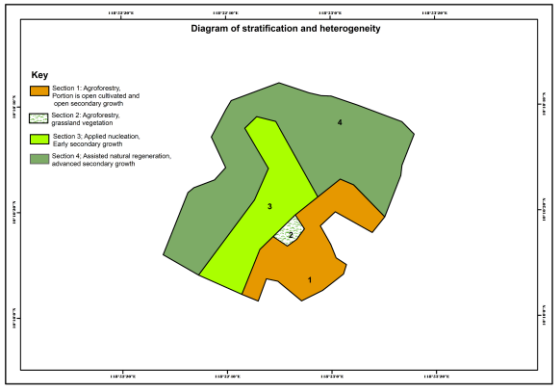
- 25 hectares for enrichment planting
- 65 hectares for assisted natural regeneration
- 25 hectares for agroforestry

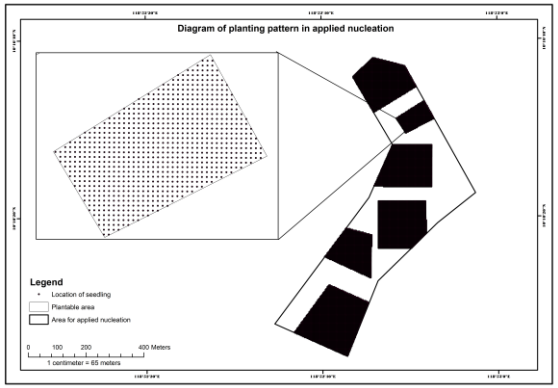


SELECTION OF PLANTING SITE

- Drone survey of vegetation cover
- Analyze drone images
- Overlay thematic data sets to generate potential restoration area
  - Protected area management zone
  - Land classification
  - Forest cover
  - Forest loss
- Validate on the ground (assessment of vegetation)
- Subdivide the potential restoration area based on strata and heterogeneity
- Identify and designate restoration intervention/s with planting patterns in the area for applied nucleation
- Delineate and mark restoration boundaries







CHALLENGES

1. Collection and processing of data

2. Need to expedite planting site selection to achieve target for 2022

3. To produce the target number of seedlings required for 2022 given the limited time between seedling production and planting season

SOLUTIONS

1. Purchase of drone; voluntary counterpart technical staff from the park management

2. As a beginner, we focused on one planting site to practice applying the protocols for site selection & vegetation monitoring instead of identifying more than one site which could have been more complicated

3. Partnership with the park management to use their existing nursery; the project engaged local men and women to scale-up seedling production in the existing nursery.

RECOMMENDATIONS

1. Beginners to identify manageable and less complicated site in order to start right, and understand the monitoring framework

2. Based on our experience, direct implementation of the restoration project is more effective and manageable. It amplifies opportunity to the communities in participating and benefiting in the restoration activities

3. Harmonize local ideas and practices with the framework

4. Provide software and training in processing collected raw data that would expedite the site selection process

5. Strong partnership

THANK YOU!