
ASTILLEROVERDE



Trees For Seas

2020 REPORT

Finca el Jardín

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Picture a world full of lush, healthy forests where humans and nature mutually thrive. This is the vision of AstilleroVerde's Reforestation Program; integrated, sustainable forest systems that mitigate the impacts of climate change, enhance biodiversity and ecological resilience, and promote sustainable development.

In 2020, AstilleroVerde launched our tree planting campaign, TreesForSeas. We planted 2,098 trees, 596 of which were planted at Finca el Jardín (10.066537N -84.953656W). This beautiful 38 hectare property in San Luis, Puntarenas has a similar history to much of the Monteverde region; functioning as a coffee plantation until 1980, followed by cattle pasture which degraded the soil. The land is now set to become a biodynamic coffee farm, using agroforestry techniques to shelter shade-grown organic coffee under bountiful fruit trees and towering tropical timbers.

Planting commenced in June 2020, carried out by a team of 9 people, including three paid community members, two AstilleroVerde employees, and rotating volunteers. Trees were planted with compost to improve survival. Details concerning species, date planted, and height were recorded at the time of planting.

Following planting, weekly care and monitoring has been carried out and advice sought if there appear to be any threats to the seedling survival. This has allowed for adjustments to the care routine as necessary.



Tree planters at Finca el Jardín, June 2021



GROWTH AND SURVIVAL

92%

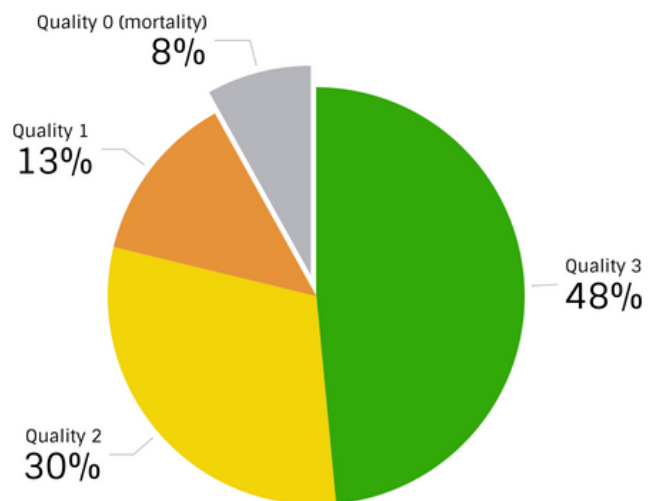
SURVIVAL

Of the 596 seedlings for which initial data was recorded, we are proud to report a **survival rate of 92%**! This is an extremely high rate of success and it is all thanks to the detailed planning and excellent care provided. When monitored in February and March 2021, seedlings were measured (**average growth rate of 0.26 meters**) and assigned a health quality score of 0-3 in order to better understand expected survival in the coming year. A quality of 0 means the seedling appears to be dead. Quality 1 means the tree is in poor condition (few leaves, severe insect damage, etc.). Quality 2 means the tree is showing some signs of damage but generally healthy. Quality 3 trees are in nearly perfect health. **Seventy-eight percent of the seedlings planted last year were rated quality 2 or 3, meaning that they will likely continue to thrive!**

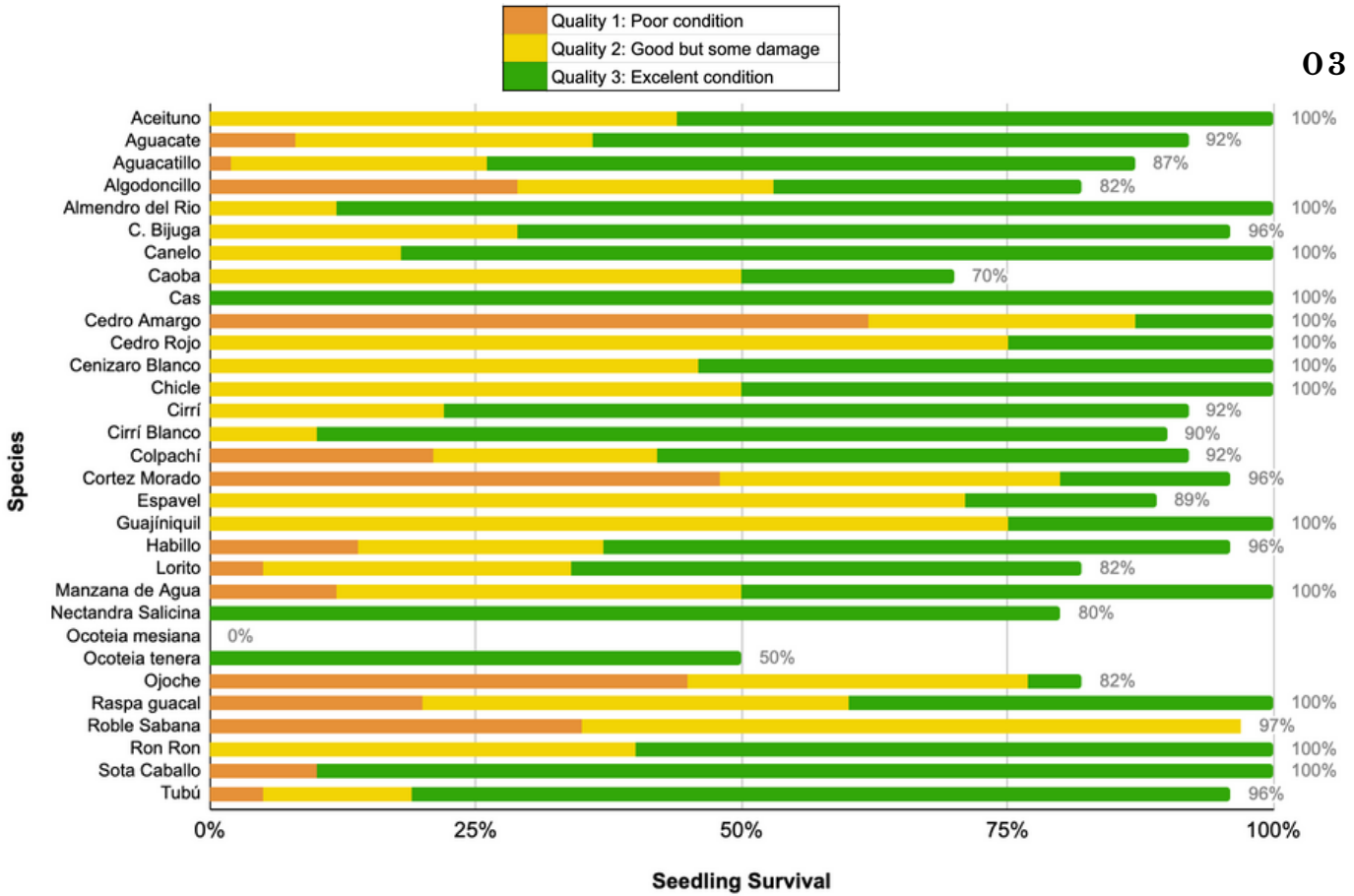
Number of trees	596
Average height 2020	0.32 m
Average height 2021	0.57 m
Average growth	0.26 m

Survival	Trees	Percent
Quality 0 (mortality)	49	8%
Quality 1	80	13%
Quality 2	180	30%
Quality 3	287	48%
Total living	547	92%

Seedling Survival



Monitoring seedling survival, March 2021. Trees were measured and given a health quality score



Of the surviving trees, this graph illustrates over all health by species. It is important to remember that each bar represents the total planted for that species only, and does not reflect the number of individuals planted for each species. Green bars represent Quality 3, yellow for Quality 2, and red for Quality 1. A full breakdown of growth and survival by species is included in the last page of this document.



View of the mountains from Finca el Jardín

In planting these trees, we have contributed to biodiversity and habitat connectivity in the area. The trees will also help to replenish the soil for future planting. As they grow, they will continue to sequester carbon, thus contributing to climate change mitigation. This effort also provided employment for community members in Monteverde, including three people for planting, and one long-term caretaker, Gregorio, employed year-round.



Gregorio, the caretaker at Finca el Jardín

"In the future, I imagine to see the trees huge, beautiful. My idea is to be able to go there and see a mountain, a forest of all the trees planted"

-Gregorio Alberto Castellano Jarquin





As this was the first season of TreesForSeas, there were many lessons learned, which we are excited and prepared to improve upon in our second season. Seedlings were labeled with the species name, written with permanent markers on plastic tags. Over the year, sun exposure broke down the marker, leaving the tags illegible and making it difficult to identify individual seedlings. Furthermore, the lack of GPS coordinates or an accurate map made finding each seedling challenging. To remedy this, our team will be returning to the site and labeling each seedling with a unique number identifier stamped on an aluminum tag, as is consistent with most scientific monitoring protocols. We will also record the GPS location of each tree. These steps will ensure our ability to collect high quality, reliable data with continued monitoring.



Noam Sirota carrying seedlings to plant on his coffee farm

We would like to emphasize that this report is only for **Finca el Jardín** (one of the two planting sites of 2020). At this site, data was well recorded, consistent care was provided, and as a result we experienced this incredibly high success which we expect to be a model for future planting seasons. Official monitoring has not yet taken place at the second planting site (**Dr. Sybil Gotsch's Land**) but observations suggest a lower survival rate than that at Finca el Jardín. We believe this is mostly due to the adverse site conditions, as Sybil's property is open, degraded pasture with few trees to provide shade and an infestation of invasive star grass which outcompetes the small seedlings. We recognize this as an extremely valuable learning experience for how to approach reforestation in future planting season. In addition, the fruit trees planted on site at **AstilleroVerde** are doing well with daily care provided by our team of gardeners. If you would like to know more about how things are going at these other two sites, feel free to contact us at info@astillerverde.org.

By Species	Total Planted	Quality 0	Quality 1	Quality 2	Quality 3	Total Living	Growth (m)
Aceituno	9	0%	0%	44%	56%	100%	0.43
Aguacate	25	8%	8%	28%	56%	92%	0.14
Aguacatillo	49	12%	2%	24%	61%	88%	0.19
Algodoncillo	21	19%	29%	24%	29%	81%	0.46
Almendro del Rio	8	0%	0%	12%	88%	100%	0.13
C. Bijuga	21	5%	0%	29%	67%	95%	0.34
Canelo	11	0%	0%	18%	82%	100%	0.19
Caoba	10	30%	0%	50%	20%	70%	0.19
Cas	9	0%	0%	0%	100%	100%	0.14
Cedro Amargo	8	0%	62%	25%	13%	100%	0.02
Cedro Rojo	4	0%	0%	75%	25%	100%	0.23
Cenizaro Blanco	24	0%	0%	46%	54%	100%	0.35
Chicle	30	0%	0%	50%	50%	100%	0.13
Cirrí	46	9%	0%	22%	70%	91%	0.26
Cirrí Blanco	10	10%	0%	10%	80%	90%	0.41
Colpachí	62	8%	21%	21%	50%	92%	0.27
Cortez Morado	25	4%	48%	32%	16%	96%	0.12
Espavel	17	12%	0%	71%	18%	88%	0.2
Guajíniquil	4	0%	0%	75%	25%	100%	0.06
Habillo	44	5%	14%	23%	59%	95%	0.34
Lorito	21	19%	5%	29%	48%	81%	0.18
Manzana de Agua	8	0%	12%	38%	50%	100%	0.14
Nectandra Salicina	5	20%	0%	0%	80%	80%	0.15
Ocoteia mesiana	1	100%	0%	0%	0%	0%	0
Ocoteia tenera	2	50%	0%	0%	50%	50%	0.39
Ojoche	44	18%	45%	32%	5%	82%	0.03
Raspa guacal	5	0%	20%	40%	40%	100%	0.36
Roble Sabana	26	4%	35%	62%	0%	96%	0.19
Ron Ron	5	0%	0%	40%	60%	100%	0
Sota Caballo	10	0%	10%	0%	90%	100%	0.62
Tubú	22	5%	5%	14%	77%	95%	0.94

We want to express our utmost gratitude to the landowners of Finca el Jardín, Noam Sirota and Mili Rodríguez, for their continued collaboration and friendship. We also wish to thank Gregorio Alberto Castellano Jarquín for the exceptional and diligent care he has provided to the seedlings, enabling them to grow and flourish. The seedlings were donated by the Monteverde Institute, Instituto Costarricense de Electricidad, and Council on International Educational Exchange, all of whom we thank and look forward to partnering with in future planting seasons. Thank you to the planting crew for their hard work, and to Nikki Blyth-Wood and Mariel Romero Mendez for their excellent project execution and coordination. Photos are credited to Nikki Blyth-Wood, Mariel Romero Mendez, Jeremy Starn, Grace McLeod, and are the property of AstilleroVerde. The assistance of Russel Haddow and Finn Richardson for data collection was greatly appreciated, and we would like to recognize Grace McLeod for conducting the data analysis and compiling this report.

Lastly, a huge thank you to all of the donors to this program whose generosity made this possible.

AstilleroVerde is a registered 501(c)3 organization. Tax deductible donations made to this project through our partners CRUSA and Amigos of Costa Rica are what makes all of this possible.

Thank you for planting trees with us.



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