



Letter of Interest and Statement of Qualifications for Terraformation Inc.

Interest Category: Office of Sustainability, Climate, Equity and Resilience
OS. 1 Ecology
OS. 3 Forestry (Watershed Management)
OS. 9 Soil Conservation

1. Name and Address

Registered Business Address:

Terraformation Inc.
73-4485 Kahilihili St
Kailua-Kona, HI 96740

Mailing address:

Terraformation Inc.
Attn. (enter name)
74-5577 Palani Road
Unit #2869
Kailua-Kona, HI 96745

Hilo Office:

367 Kaiwiki Rd
Hilo, HI 96720

2. Age of firm and avg. number of employees

Terraformation was founded 5+ years ago - in January of 2020 - and has had an average of 86 employees over the last three years.

Terraformation is a Licensed Landscaping Contractor (C-38670).

3. Team and qualifications

Our Hawai'i team is composed of many talented individuals who have a wide range of skills.

M. Johannes Seidel – Director, Hawai'i Forestry Operations - Johannes holds an engineering degree in Landscape Architecture with a minor in Landscape Planning from Weihenstephan-Triesdorf University of Applied Sciences as well as a Master of Science in Sustainable Resource Management from Technical University Munich. He has previously worked with Hawai'i Volcanoes National Park's Vegetation Program, as a research assistant as well as an environmental specialist in Bavaria, Germany before moving to Hawai'i in 2015. He has been with Terraformation since its inception in 2020 and has over 10 years of experience in landscape planning, restoration and forestry, many of them here in Hawaii.

Michael Sthresley - Manager, Agroforestry - Michael has a Master of Science in Agronomy from the University of Florida and a Bachelor of Science in Agroecology and Plant Science from University of Hawai'i at Hilo as well as a certificate in Forestry Resource Management & Conservation. His experience as a restoration field technician and restoration manager provides him with a diversity of skill sets useful in forming restoration strategies. His work in agricultural research also influences his approach to problem solving for both field and nursery challenges. Michael leads our Agroforestry team and is involved in project planning and execution.

Kimberly De Souza - Manager, Restoration Forestry - Kimberly has a Bachelor of Science in Environmental Studies from Champlain University. She specializes in project management with a focus on organizing the execution and logistics of a project, communicating the goals and timelines of the project to the field team, and providing project updates to stakeholders.

Brian Tucker - GIS Specialist and FAA Part 107 Licensed Drone Pilot - Brian has a Bachelor of Science in Natural Resources Conservation and Management from the University of Wisconsin-Madison and a certificate in Environmental Studies. He started working in Hawai'i conservation in 2003 as a field biologist protecting endangered species habitat. Soon thereafter his work focused on GIS and data management to support conservation projects. His skills include capturing and processing high-resolution aerial imagery for mapping and monitoring. He specializes in cartography, GPS data integration, and developing mobile data collection using Esri Field Maps. His work has been recognized by the US Army Garrison with multiple awards.

Thomas Bolton - Site Infrastructure Manager - Thomas has a Bachelor of Arts in Environmental Studies from University of Hawai'i at Hilo with a focus on GIS. He also served as a heavy duty diesel mechanic in the United States Marine Corps. His work covers all facets of restoration operations including nursery build, permit handling, base yard setup, small and large

engine repair, and irrigation system design. His management and problem-solving skills are well adapted to working in new terrain.

Lehua Todero - Seed Bank Manager - Lehua has a Bachelor of Arts in Geography from the University of Hawai'i at Hilo as well as a certificate in Environmental Studies. She has experience in native seed collection and handling for restoration projects and extensive knowledge of seed behavior in both wet and dry ecosystems in Hawai'i. Her knowledge of species databases and propagation literature is an asset for launching any seed collection initiatives.

Becky Hart - Nursery Manager – Becky has a Bachelor of Science in Natural Resources and Ecology from the University of Vermont. She has ample knowledge of seed collection and processing in addition to managing two nursery locations on Hawai'i island. She is a specialist in the use of Terraware for managing germplasm from initial seed collection through to germination, growth, and deployment into restoration sites. Becky has a strong understanding of nursery processes having worked in four different nursery settings.

Nyree Hulme - Project Planner - Nyree has a Bachelor of Science in Biology from the University of Hawai'i at Hilo with a concentration in Ecology, Evolution and Conservation as well as a minor in Chemistry. She focuses on project planning, in areas of budgeting, mapping, and logistics. For the first three years of her time with Terraformation, she specialized in dryland restoration, managing our North Kohala dryland site. She is also proficient in seed collecting and Terraware.

Executive Leadership and International Experts

Yishan Wong - Founder and CEO. Yishan is the former CEO of Reddit, a Silicon Valley unicorn startup now worth \$10 billion. Prior, he served as Director of Engineering for Facebook, Consultant at Square, and was an early engineer at PayPal. A Hawai'i resident, he is responsible as principal leader for strategic development and investment for Hawaii and international programs.

Berry Kennedy - VP of Operations. Prior to her work with Terraformation, Berry was General Manager for Uber Eats and VP of Operations and Strategy at Built (worth >\$1 billion). She is responsible for the overall day-to-day operations of Terraformation's global work and the financial health of the organization.

Damien Kuhn - VP of Forestry. Damien is former COO of Kinomé with reforestation experience across 545,000 ha of REDD+ and ARR projects in Senegal, Guinea Bissau, Ivory Coast, and Togo. He has worked with JP Morgan, the World Bank and several other strategic funders and development agencies. He has also served as a strategic advisor to the government of Ivory

Coast and Senegal. He is responsible for overseeing all international forest creation work and strategic partnerships.

Dr. Jeffrey Wright - Senior Forester. Dr. Wright has 30 years of forest plantation management experience across 40 countries. He is a thought leader in the tropical reforestation space, with over 70 publications. He holds a DPhil in Tropical Forestry from the University of Oxford. He is supporting international project vetting and is responsible for ensuring that forest creation project development plans are rooted in sound science.

Xavier Hatchondo - Head of Carbon Strategy. Prior to joining Terraformation, Xavier was Director of Science and Policy at WeForest. He has audited 30+ carbon projects as Lead Auditor for VCS/CCB/GS projects in Africa, South America and Asia. He is responsible for supporting feasibility study creation for Terraformation's global biodiverse carbon projects and ensuring that project development plans align with carbon verification standards.

Clients

Pacific Flight LLC - Christina Cervantes (650) 479-4625

The Peter L Merriman and Vicki P Merriman Trust - Peter Merriman (808) 283-4933

Department of Hawaiian Homelands, Land Development Division, Sara T. Okuda, 808-730-0318

National Fish and Wildlife Foundation. Grant #82222 - Establishing a Seed Collecting and Banking Program on the Island of Lāna'i - Jana Doi (415) 243-3102

Lemon Tree LLC - Post fire mitigation - Joshua Hodges (808) 339-8599



Client	Performance Period	Description of Work Performed	Value of Work Performed
Pacific Flight LLC	February 2025 - March 2028	Terraformation is implementing a native dry forest restoration project that includes 20+ species on approx. 40ac of the leeward Kohala Mountain at low elevation. This project includes the removal of invasive grasses, management and upkeep of a large solar battery powered desalination system used to irrigate plants, landscaping and infrastructure and the planting of over 10,000 native plants.	\$630,000 (contract)
Merrimans (Farm to Table Restaurant Collaborative)	May 2023 - May 2028	Merriman's Functional Forest and Canoe Crop Orchard at Halelua is a low elevation restoration project on fallow sugarcane lands. Terraformation is using a hybrid ecosystem approach to include native species as well as Polynesian introduced species to fill certain functional roles.	\$787,200 (contract)
Department of Hawaiian Homelands	March 2025 - March 2027	Through this contract, Terraformation is providing brush clearing and maintenance services in the Villages of Lai Opuia in Kailua-Kona. This includes fuel management to reduce fire risk around the developments and rare native plant preserves.	\$476,000 (contract)
National Fish and Wildlife Foundation (NFWF)	October 2024 - December 2025	Establishing a Seed Bank and Native Seed Collection Program on Lanai. During the project period, Terraformation is establishing a seed banking system with a unique solar-powered mobile seed-banking unit. The effort includes education and training within the local community. This project lays the foundation for the future restoration of the 20,000ac Kuahiwi a Kai Watershed restoration Program by establishing the seed source need for native plant propagation which will follow in future years.	\$199,034.20 (grant)

<p>Lemon Tree LLC</p>	<p>August 2024 - May 2025</p>	<p>Through this contract Terraformation is coordinating post fire remediation work that includes tree trimming and irrigation repair and installation. This project is located in the Lalamilo farm lots in Waimea/Kamuela.</p>	<p>\$166,000</p>
<p>Solusi Alam Indonesia, Ltd. (SAI)</p> <p>Ir. Fairus Mulia, IPU fairusmulia@gmail.com +62 812 924 6348</p>	<p>2023 - current</p>	<p>SAI is a social enterprise based in Indonesia. They have received training and support to develop reforestation and regeneration projects for a social forestry group on the island of Borneo. 424 people living in the community will benefit with an initial restoration project of 4,500 ha (2.8m mtCO2 sequestration) with potential to scale to 70,000 ha. The community is developing social enterprises that support vulnerable mangrove bee regeneration and improved fishing returns.</p>	<p>\$500,000 (in-kind consulting work including feasibility study development for a restoration/carbon project and 40-hours of live learning on developing investment-ready restoration projects)</p>
<p>Humans for Abundance Ecuador</p> <p>Maria José “Chochi” Iturralde chochi@humansforabundance.com +593 98 447 0084</p>	<p>2022-2023</p>	<p>Humans for Abundance is an Ecuador-based NGO which has worked with Terraformation to save endangered seeds and create a seedbanking network for local rainforest restoration efforts. Maria noted: “Terraformation is amazing at building capacity in complex restoration endeavors. We get the infrastructure and economic resources to sustain long-term transformation, and also such high-quality training and constant guidance that the project has no other alternative but to succeed.”</p>	<p>~\$250,000 (in-kind consulting services to advance regional networks)</p>

Informational Literature

Introduction

Terraformation is a US-based forest technology company headquartered on Hawaii Island that aims to be solving the biggest bottlenecks for local communities in tropical forest areas to scaling biodiverse, climate-resilient reforestation. It has built a novel end-to-end stack of tools to support the entire restoration lifecycle, from infrastructure, tracking, training, financing, to planting. To date, it has facilitated 22 projects in 14 countries, creating 4,800 hectares of new forest with 349 different native species, within a potential restoration pool of 3 million hectares. The work has created 717 jobs, more than half of which are for women. Our Terraware forestry software was developed after surveying hundreds of global forest developers. It's the first software aimed at helping forest creation teams manage their work while providing an investor portal aimed at increased funding transparency for carbon and biodiversity credit investments.

We are a thought leaders for conservation and restoration, having published several white papers with leading academic and research institutions (i.e. Imperial College of London, Frontier Economics), and co-founding the Seed to Forest Alliance. The World Economic Forum selected Terraformation as an UpLink “Top Innovator” for its capacity to address the Trillion Trees Goal. The International Finance Forum (G20) granted an Innovation Award for green finance in 2024. Also, we won the RestorLife/G20 Land Alliance’s Responsible Business Award for the project in April 2025 and are finalists for a Keeling Curve Prize, being announced in July 2025 at COP15 Convention on Wetlands.

In Hawai‘i, Terraformation operates its Internal Forestry team implementing projects on the ground that serve as a testing ground for Terraware as well as for novel approaches to reforestation on an island that is home to most ecosystems on earth. Terraformation’s work in Hawai‘i is taking a place-based approach to restoration and community involvement. Over the past 5 years since our inception, we have placed an emphasis on building relationships and trust as the foundation for successful restoration work. We continuously make our facilities available to community partners at no charge to hold events such as training, workshops (i.e. The Hawai‘i County Sustainability Summit), or the ‘Ōhi‘a Love Fest.

Terraformation Hawai‘i’s main operation is located at the Ridge to Reef Restoration Center (3RC) in Kailua-Kona where we partner with Arizona State University (ASU). The Ridge to Reef Restoration Center (3RC) is a 2024 addition to the ASU Center for Global Discovery and Conservation Science (ASU-GDCS), which has reached its sixth year of scientific research and community leadership for ASU in Hawai‘i since 2019 under the direction of Greg Asner. From 1998 to 2019, GDCS was operated under the Carnegie Institution for Science, also under the directorship of Asner. As a result, this 26-year program has accumulated major physical and

data assets as well as deep ties to communities of Hawai'i Island. 3RC is home to offices, a conference space, seed bank and plant nursery as well as ASU's coral nursery, offices and labs.

Restoration and Conservation Qualifications

Terraformation is currently managing three restoration projects on Hawai'i island, mostly in the Kohala region. Each site represents a distinct climactic zone. The oldest of these sites, located just north of Pelekāne Bay at ~300 feet elevation is exceptionally arid. At this 45 acre site we have planted over 6,000 native plants and also demonstrated impacts of invasive grass control on native plant establishment and growth through a controlled trial. Our wetland site is located in Hāmākua district at about 2,700 feet elevation. Thus far we have outplanted over 23,000 plants representing more than 20 species on this 174 acre site. Our most recent project is a 31 acre mesic site in North Kohala at about 200 feet elevation. This project incorporated native as well as polynesian-introduced species into a functional forest that utilizes the large or fast growing traits of the introduced species to help buffer the slower growing native species from the onslaught of the weeds from this former fallow land. Another aim of the inclusion of polynesian-introduced species is as food crops for food security so 10% of the 2,271 plants outplanted thus far are for this purpose.

By invitation, team members of Terraformation have also spent time on the ground learning about restoration practices on the island of Kaho'olawe. Over a 200 year period Kaho'olawe's landscape was extensively degraded - first by grazing ungulates, followed by military bombing operations - overall resulting in up to 15 foot losses of sediment. Recent decades of restoration efforts by the KIRK (Kaho'olawe Island Reserve Commission) brought back numerous native species to the landscape and made significant progress on sedimentation reduction. Further promotional and descriptive literature can be found on the following pages.

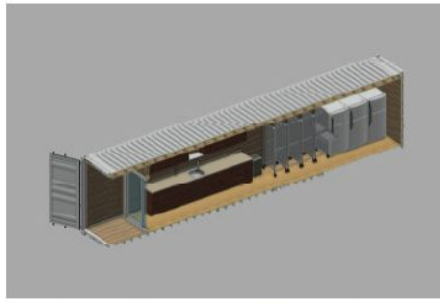
Project Maps of current projects begin next page

SEED BANKING

Insufficient native seed supply hinders large-scale biodiverse land restoration efforts. However, through consistent seed collecting and banking, we are actively increasing seed availability and the genetic diversity of our reforestation projects.

Services

- Seed processing: seeds are extracted from the fruit (fleshy or dry), and all chaff or inert material is removed
- Desiccation: seeds are brought to appropriate relative humidity targets for refrigeration or freezing
- Packaging: collections are packaged in vacuum-sealed or foil packages and labeled with pertinent information
- Bin storage: collections are stored at appropriate conditions and may be withdrawn when needed
- Transparency: Through our software "Terraware", clients have access to view their collections at any time and are in the know on what species and how many seeds are in storage



Contact us

seeds@terraformation.com

NURSERIES

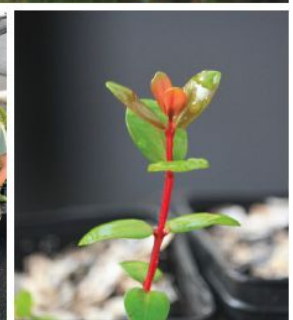
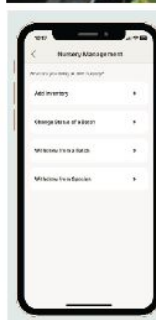
The success of reforestation projects is dependent on the health of plants leaving the nursery. Therefore, Terraformation operates two plant nurseries located at significantly different elevation. The geographical variance ensures optimal conditions for both dry forest and wet forest plants, and mitigates travel distances to restoration sites.

Our Ridge-to-Reef Restoration Center at Ooma grows coastal and dryland forest species. This nursery can have an annual capacity of around 30,000 plants. Our high-elevation nursery, located in ahupuaa of Lalamilo near Waimea, serves as the location for growing plants that require cooler, wetter conditions; this nursery can propagate about 100,000 plants/year.

Services

Nursery services are available for projects requiring 1,000 plants or more and include:

- Plant propagation
- Transparency: Through our software "Terraware", clients have access to view their nursery inventory and propagation progress at any time



Contact us

nursery@terraformation.com

NATIVE FOREST RESTORATION

Terraformation offers a thoughtful approach towards restoration by integrating traditional wisdom, scientific data, and best practices to ensure the viability of native forests for generations to come.

Services

We plan, implement and monitor restoration projects through a biodiverse local ecosystem approach. Our comprehensive services include, but are not limited to:

- Observing biotic health, and determining best practice restoration strategies in a project timeline
- Creating site-specific species lists tailored to local environmental conditions
- Conducting invasive flora and fauna eradication
- Fuel and firebreak installation and management
- Facilitating and overseeing site fencing projects
- Reduce erosion and runoff
- Utilizing geospatial software to map species composition, and provide visual data for progress updates including: growth, survival, and health
- In-field planting utilizing best practices to ensure sufficient irrigation, depth, and spacing for optimal growth
- High accuracy recording of spacing, location, and species type. Individual plant mapping optional
- Site monitoring and maintenance including watering and pest management

Contact us

hawaii@terraformation.com



AGROFORESTRY

Agroforestry is a critical component of our food systems in Hawaii to increase food security and move toward a regenerative food production. Transforming mono-crop cultures into multi species projects diversities revenue stream and enhances the conditions of local soils, increase water retention, mitigate erosion, and sequester atmospheric carbon.

Services

- Turn-key complete operations, remote design, on/off-site consultation, and assessments
- Custom-tailored plans for differing agroforestry projects, including geospatial analyses
- Rough-cut and standardized mowing procedures
- Invasive plant and animal eradication
- Brush clearing and tree removal
- Routine upkeep of firebreaks, riparian buffer strips, and orchard growth maintenance
- Pruning and crop harvesting, depending on project scope
- Direction and recommendations for farm planning, orchard financial planning, agroforestry consultation, and business planning
- Silvopasture management and project oversight for efficient and profitable operations

Contact us

hawaii@terraformation.com



Terraware

Terraformation's forestry software platform helps you track your seeds, seedlings, and outplantings, enabling you to run your forestry project more efficiently. You can also monitor and report your progress more easily, which is crucial in a project's earliest stages and for tracking carbon sequestration over time.

Overview

Terraware is a software suite that includes a [web app](#) that allows you to manage your project's inventory and a companion Android/iOS mobile app to help you collect data in the field. It replaces the outdated spreadsheets and paper records often still used.

Modules & Capabilities

1 Manage your seed bank

Organization management

Get your organization up and running fast with project-based account management that includes flexible permission choices and preferences.

Species management

Create and edit a centralized species list through guided input or bulk import. Track species attributes and ensure accuracy with our Global Botanical Index Foundation database integration.

Seed collection support

Our mobile app lets you capture seed data as you collect. It automates recording of detailed information and pushes data directly into your seed database. Offline mode is supported, and it's available on Android and iOS.

Seed inventory management

Keep track of every seed in your collection with detailed information about where it was collected. Use workflow reminders to optimize your seed bank staff, and track your seeds through every step — from processing to drying and storage. View and export inventory data to show what your team has accomplished.



2 Manage your nursery

Seedling inventory management

Get an overview of what's growing in your nurseries and track seedling progress by species — with detailed data for each stage of readiness.

Nursery optimization

Detailed insight into nursery activities helps you manage operations, avoid shortages, and streamline the overall planting process. It also enables loss tracking and analysis, which helps you maximize nursery performance.

3 Track your outplantings

Timing and location management

Batches of seedlings can be directed to specific areas of planting sites. When seedlings leave the nursery, a detailed record of planting locations is made and validated with photos and monitoring data. All of this information is then easily viewed in your planting site dashboard.

When seedlings are grown from seeds also tracked in Terraware, additional detail about the lineage of trees in the sites is available.

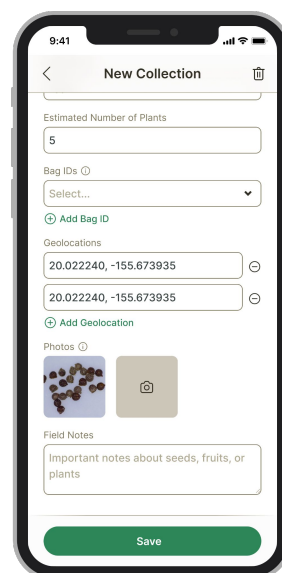
Terraware enables the efficient creation of a planting baseline for each site, helping streamline monitoring and verification at later stages of growth.

Why Terraware?

Terraware enables:

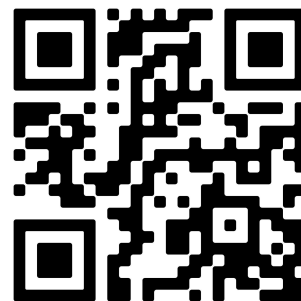
- Operational efficiency
- Better collaboration
- Adaptive management

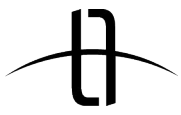
In short, it helps you run more efficient, predictable projects!



Mobile and web apps available

Scan for Terraware:





Terraformation

Containerized Seed Banks

Our seed bank offering is unique in the market, providing everything needed to support proper collection, processing, storage, and deployment of seeds.

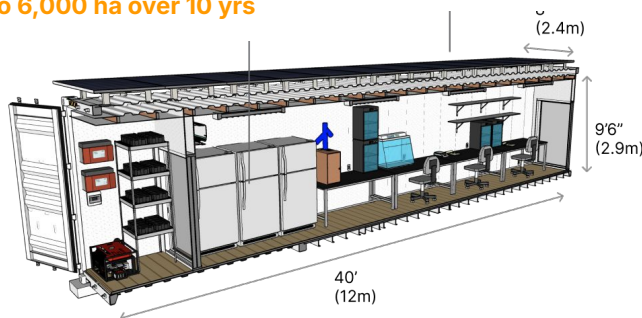
A PV solar option enables even more flexibility by delivering off-grid and hybrid power capabilities to support remote projects as required to meet your restoration goals.

Why seed banks?

To plant a trillion trees, we'll need at least three trillion seeds, but the world is facing a growing seed supply crisis. Terraformation views this as an urgent bottleneck to restoration, and we're taking action help build a global network of seed banks.

Store up to 10M seeds for 10 yrs and restore up to 6,000 ha over 10 yrs

Solar option for off-grid or hybrid power applications



We're committed to your success, so when you [purchase a Terraformation seed bank](#), it comes with the tools, expertise, and support to streamline the full workflow, including:

Quick-Start Onboarding & Ongoing Support

We guide you through the initial setup of your seed bank and onboard local staff. Plus, we provide ongoing support and expert advice in seed banking practices, infrastructure, and [Terraware](#) software, to help you get the most from your seed bank.

Terraformation Academy

Learn restoration seed banking essentials like seed collection in the field, processing, drying, storage, and data management through [online courses](#) created by our expert team.

DIY Seed Bank Guide

Not ready to purchase? [Build your own seed bank](#) with the help of our free, comprehensive DIY guide and resources.



The Local Impact of Seed Banks

Our goal is to establish a worldwide network of seed banks, but what's equally important is the profound and lasting impact each seed bank can have on local communities.

Ecosystem Services

Seed banks and the work they enable can support a broad range of ecosystem services such as increased biodiversity, better soil and air quality, and temperature stability.

Sustainable Development Goals (SDGs)

In addition, seed banks contribute to more resilient communities through job creation and economic development, and improvements to health, food security, and education.

[Learn more](#)
www.terraformation.com



Bishop Museum

Terraformation partners with Bishop Museum and donated a seed bank for supporting seed collection and restoration projects on O'ahu.



'Ōhi'a Lani at Waikoekoe

The 'Ōhi'a Lani at Waikoekoe project is a 174 acre property located near Waimea. It has been cleared and used for pasture for many decades. Terraformation will establish diverse, multi-layer native forest dominated by the 'Ōhi'a and Koa trees.



Pacific Flight at Kaupalaoa

Pacific Flight at Kaupalaoa is a 45-acre low elevation dry forest restoration project with ≤ 13 inches annual rainfall, and includes Terraformation's first off grid solar-powered desalination system which provides the water to irrigate plantings.



Lāna'i NFWF

Ridge to Reef Restoration Center (3RC)

Terraformation partners with the 'Āko'ako'a Reef Restoration Program in the first of its kind collaboration to restore native habitat from land to sea, or mauka to makai. 3RC is home to TF's Headquarters office, seed bank and nursery, the 3RC Makai Conference Room, and 'Āko'ako'a's coral reef nursery.



Merriman's Functional Forest

Orchards in Pepe'ekeo and Pāpa'ikou

Waimea Nursery at Lalamilo

Kaiwika Orchard and Office at Wainaku

Villages of La'i 'Opua

Sites

- Office / Baseyard
- Project (Restoration, Agroforestry)
- Seed Bank
- Nursery
- Solar Desalination
- Terraformation build seedbank owned and operated by 3rd party

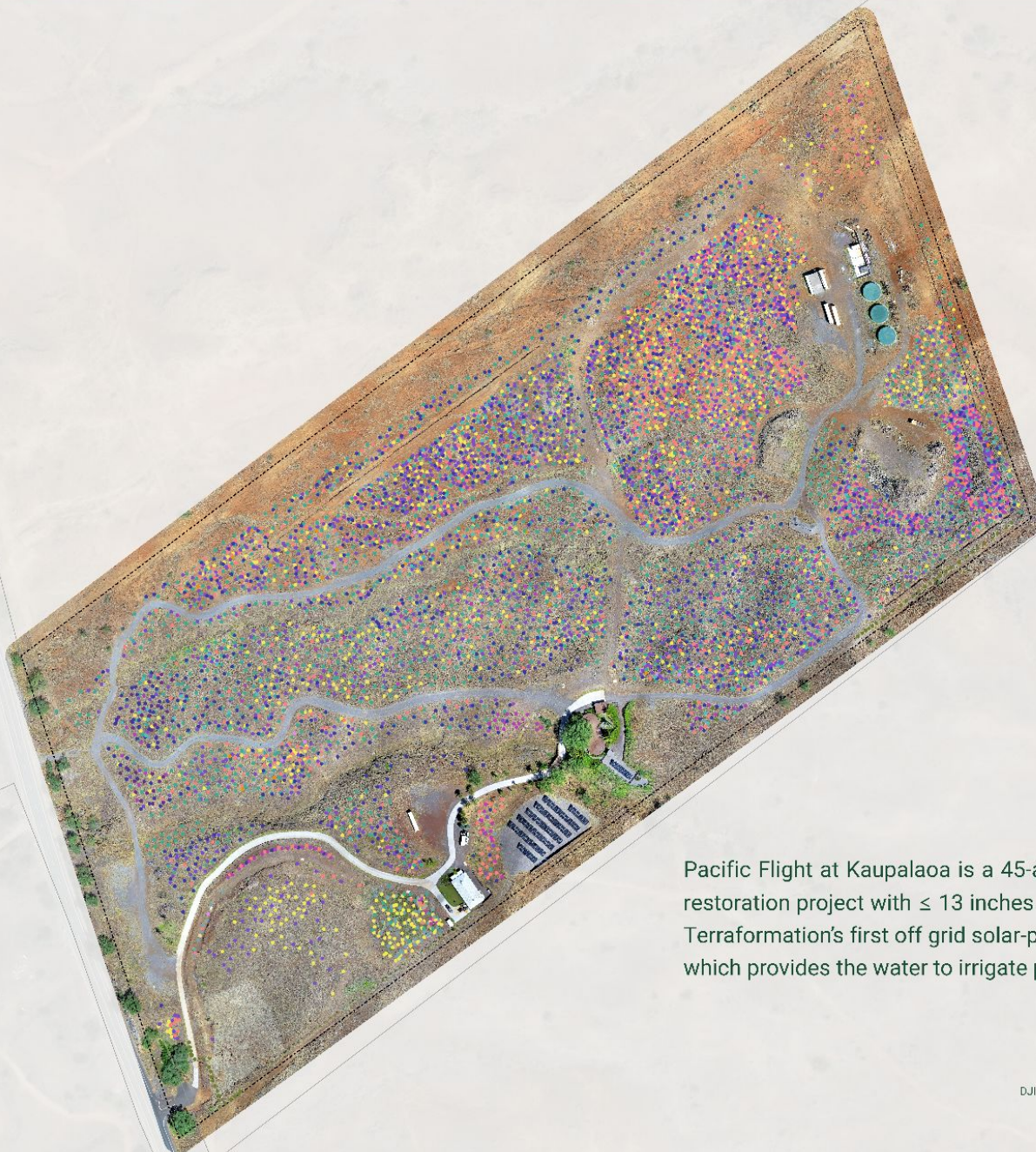


Kohala, HI



Native Hawaiian Species Planted

- 'a'ali'i - *Dodonaea viscosa*
 - 'ala'ala wai nui - *Plectranthus parviflorus*
 - alahe'e - *Psydrax odorata*
 - 'āweoweo - *Chenopodium oahuense*
 - 'āwikiwiki - *Canavalia hawaiiensis*
 - 'ilie'e - *Plumbago zeylanica*
 - 'ilima - *Sida fallax*
 - koai'a - *Acacia koaia*
 - kolomona - *Senna gaudichaudii*
 - kulu'i - *Nototrichium sandwicense*
 - loulou - *Pritchardia maideniana*
 - maiapilo - *Capparis sandwicense*
 - māmane - *Sophora chrysophylla*
 - ma'o hau hele - *Hibiscus brackenridgei*
 - naio - *Myoporum sandwicense*
 - 'ohe makai - *Polyscias sandwicensis*
 - pa'u o hi'iaka - *Jacquemontia sandwicensis*
 - pili grass - *Heteropogon contortus*
 - pōhinahina - *Vitex rotundifolia*
 - pua kala - *Argemone glauca*
 - 'ūlei - *Osteomeles anthyllidifolia*
 - wiliwili - *Erythrina sandwicensis*
- ⊞ Property Boundary



Pacific Flight at Kaupalaoa is a 45-acre low elevation dry forest restoration project with ≤ 13 inches annual rainfall, and includes Terraformation's first off grid solar-powered desalination system which provides the water to irrigate plantings.



Experimentation Trials

Pacific Flight at Kaupalaoa

Seed Production Zone

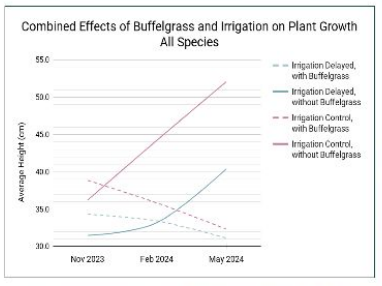
Maximize seed production of dryland species.

A 0.5 acre test plot comparing impact sprayers and drip irrigation on common restoration species such as a'ali'i, 'aweoweo, 'ilima, pa'u o hi'iaka, and kawe'u. The results may guide how we scale up to larger seed production.

Drip Irrigation Trial

Observation of the effects of progressively delayed irrigation cycles while maintaining total monthly water volume at 16 gallons.

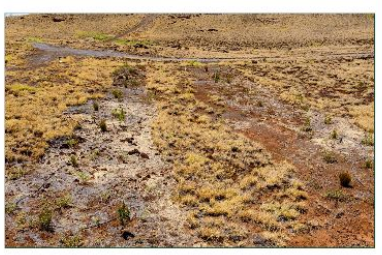
Irrigation cycles have increased every three months from 4 days (control) up to 14 days with no negative effect on plant growth. Soil moisture and temperature meters are installed to provide below-ground insights on irrigation changes and rain events.



Buffelgrass Removal Trial

Observation of the effects of removing buffelgrass from within a five foot radius of planted native species.

The removal of buffelgrass has had a significant positive effect on plant growth irrespective of irrigation treatment. We may explore the limits of water usage through reduced water volumes in combination with delayed cycles.



Second Generation Garden

Planting area dedicated to plants produced from seed which has been collected on the property.

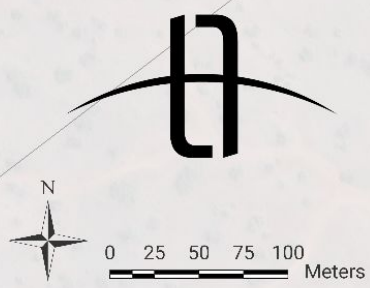
The plantings may include seed from previous outplantings or wild stock.



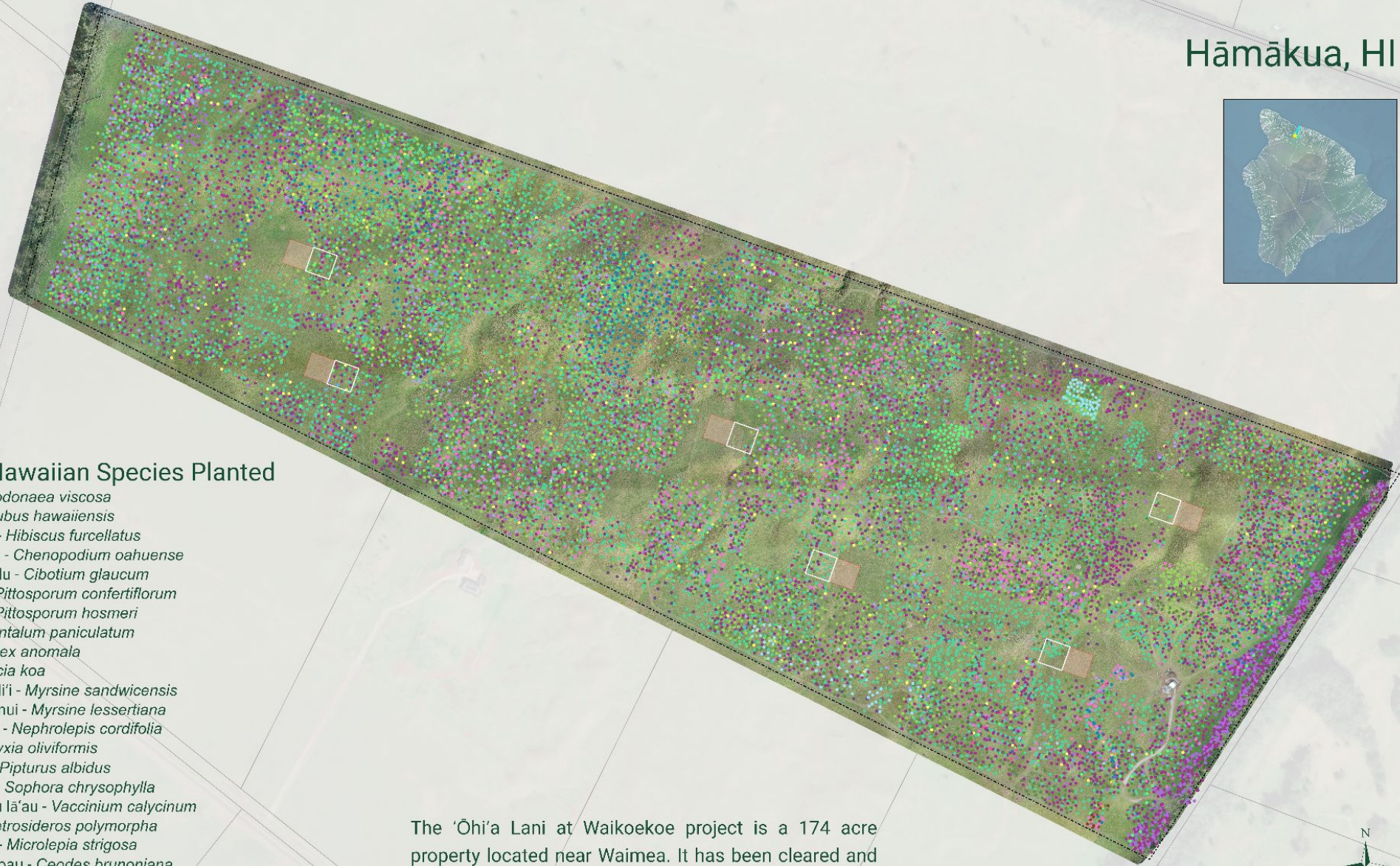
Overhead Irrigation Project

Observation of plant growth under overhead irrigation provided by impact sprinklers on two foot risers.

We have found plant growth habits differ under these irrigation conditions relative to normally used drip lines. Some species, especially ilima, assume a more natural and robust growth form under these conditions.



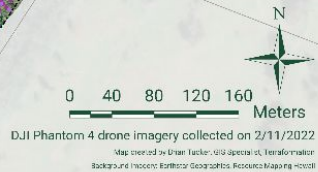
DJI Phantom 4 drone imagery collected on 11/10/2021
 Map created by Ellen Tucker, GIS Specialist, Terraformator
 Background imagery: Earthstar, Geographic, Research Mapping Journal



Native Hawaiian Species Planted

- 'a'alii - *Dodonaea viscosa*
- 'ākāla - *Rubus hawaiiensis*
- 'akiohala - *Hibiscus furcellatus*
- 'āweoweo - *Chenopodium oahuense*
- hāpu'u pulu - *Cibotium glaucum*
- hō'awa - *Pittosporum confertiflorum*
- hō'awa - *Pittosporum hosmeri*
- 'iliahi - *Santalum paniculatum*
- kāwa'u - *Ilex anomala*
- koa - *Acacia koa*
- kōlea lau li'i - *Myrsine sandwicensis*
- kōlea lau nui - *Myrsine lessertiana*
- kupukupu - *Nephrolepis cordifolia*
- maile - *Alyxia olivifolmis*
- māmaki - *Pipturus albidus*
- māmāne - *Sophora chrysophylla*
- 'ōhelo kau lā'au - *Vaccinium calycinum*
- 'ōhi'a - *Metrosideros polymorpha*
- palapalai - *Microlepia strigosa*
- pāpala kēpau - *Ceodes brunoniana*
- pilo - *Coprosma spp*
- 'ūlei - *Osteomeles anthyllidifolia*
- Natural Regeneration Study Plots
- ⋯ Property Boundary

The 'Ōhi'a Lani at Waikoekoe project is a 174 acre property located near Waimea. It has been cleared and used for pasture for many decades. Terraformation will establish a diverse, multi-layer native forest dominated by the 'Ōhi'a and Koa trees.



Experimentation Trials 'Ōhi'a Lani at Waikoekoe



Natural Regeneration Study

Monitor natural vs assisted regeneration methods, comparing one unplanted with one planted plot per pair.

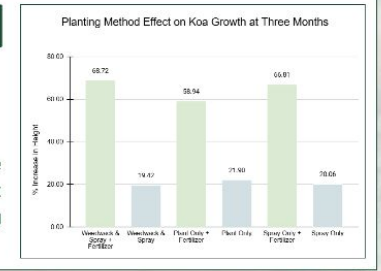
As part of an international study, data from this experiment will help determine the thresholds of conditions in which active restoration interventions are necessary for native regeneration to occur.



Planting Methods Trial

Identify best planting practices to expedite koa establishment and promote competitive advantage over invasive digitgrass.

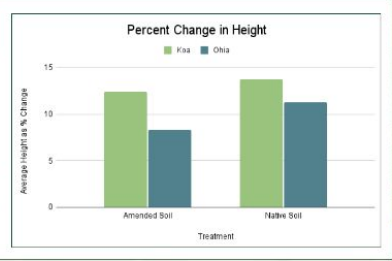
Regardless of weed preparation methods used, the addition of 2oz of fertilizer blend has a significant impact on koa growth rates. Spraying without weed whacking provided best long term weed suppression.



Amended Soil Trial

Observation of amended soil for improving Koa and Ohia establishment versus only native soil backfill.

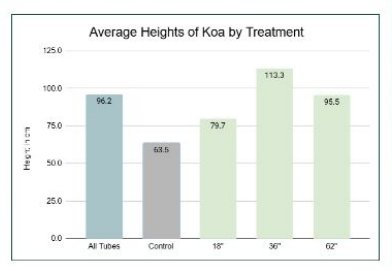
Native soil backfill performed slightly better than amended soil, but also provided a 15-30% increase in planting speed from reduced labor.



Tree Sleeve Trial

Observation of tree sleeves of varying height to facilitate tree establishment in high competition with digitgrass.

Medium sized sleeves at 32 inches were the most optimal. Tree sleeves also presented some challenges such as weed control inside the tube and spindly growth resulting in stem lodging once sleeves are removed.



Kohala, HI



Planted hillside

Species Planted

- alaha'e - *Psydrax odorata*
- hala - *Pandanus tectorius*
- hō'awa - *Pittosporum confertiflorum*
- hō'awa - *Pittosporum hosmeri*
- iliahi - *Santalum paniculatum*
- kamani - *Calophyllum inophyllum*
- koa - *Acacia koa*
- koki'o ke'oke'o - *Hibiscus waimeae*
- koki'o 'ula'ula - *Hibiscus kokia* subsp. *kokia*
- kou - *Cordia subcordata*
- kukui - *Aleurites moluccanus*
- lama - *Diospyros sandwicensis*
- manele - *Sapindus saponaria*
- milo - *Thespesia populnea*
- naio - *Myoporum sandwicense*
- neleau - *Rhus sandwicensis*
- niu - *Cocos nucifera*
- 'ohe - *Polyscias hawaiiensis*
- 'ōhi'a - *Metrosideros polymorpha*
- 'ōhi'a ai - *Syzygium malaccense*
- olopuā - *Nestegis sandwicensis*
- pāpala kēpau - *Ceodes brunoniana*
- ulu - *Artocarpus altilis*
- wauke - *Broussonetia papyrifera*
- wiliwili - *Erythrina sandwicensis*

☒ Restoration Area



Merriman's Functional Forest and Canoe Crop Orchard at Halelua is a low elevation restoration project on fallow sugarcane lands. Terraformation is using a hybrid ecosystem approach to include native species as well as Polynesian introduced species to fill certain functional roles.



Native koa emerging from tree tube



Polynesian introduced ulu thriving



