

HER 2023 Final Report

HER intensive restoration of the Keau'ohana rainforest site will reach a decade in June of this year! Mahalo nui loa to the Kosasa Foundation for your treasured support of ***Hawaii Environmental Restoration*** in 2023! We feel community around us, and are deeply grateful for the growing collaborations on local and global levels.

Crew Forest Restoration

In March HER began its 7th systematic pass, and in December its 8th, meaning we have succeeded in completing an entire pass of the ~20 acre restoration site within the year, and 2 months ahead of our proposed goal. Thanks to HER June 2023 County GIA award, our efforts were bolstered mid-year with several new hired hands, and the forest is in very good condition considering ongoing environmental challenges.

Though we learned that doing one pass can be done in so little time, we were clearly reminded of the importance in conducting repeated passes of important locations within a pass in order to be most effective. We will therefore resume a one year goal to enhance the quality of our efforts with increased maintenance and monitoring of our delicate out-planted native species. Utilizing a digital GIS database we are recording locations for all new outplantings. HER new monitoring program consists of monitoring 1 week, 1 month, and 3 months after planting, after which seedlings will be maintained on a 6 month basis. Data collected will inform future outplanting and maintenance strategies.

In 2024, we anticipate important progress should the fencing of Keau'ohana indeed pull through as proposed. We are already stimulated in our planting efforts in light of this prospect; on Solstice week, we introduced 257 new keiki into Keau'ohana grounds; the year's total has reached 487 seedlings.

Special Volunteer/Educational Events

HER enjoyed facilitating a total of 22 special events that engaged 196 volunteers, who accrued 602 volunteer hours in the forest; with admin/outreach volunteerism, 654 volunteer hours were totaled. HER now has 977 subscribers and 1,243 FB and Instagram followers. Since 2014, HER has hosted over 1,031 volunteers; 131 special events; has accrued over 7,043 volunteer hours; and planted over 1,856 out-plants.

Please view our website blog <https://hawaiienvironmentalrestoration.org/blog/> to enjoy photographs, and to learn more about the details of HER accomplishments in 2023.

Special Forest Volunteer Events:

1. January 1st -- California Iyengar Yoga group
2. March 19th -- Spring Equinox event
3. March 27th -- Pacific Quest Hilo group
4. April 17th -- Native Hawaiian Plant Month and Earth Week event
5. May 15th -- Keaau Middle School

6. June 24th --Summer Solstice planting event
7. July 3rd -- SKA, Georgia
8. July 24th -- Kamehame Alumni
9. Sept 23rd – Fall Equinox planting event
10. Oct 23rd -- Malama Waldorf School
11. Nov 20th -- Pahoia High Kupu Program
12. Nov 27th -- Malama Waldorf planting events
13. Dec 23rd -- Solstice planting event

Community Outreach, Research and Education Events

1. Feb 4th -- Revitalize Puna Program Kīlauea Recovery Team/ Council District 4 environmental resource platform for quarterly activations to bring community and County together. HER is now on the Environmental Resource Capacity Area (RCA) team to advance on broader lowland environmental issues and concerns.
2. Feb 6th-- HER hosted a University of Hawaii at Hilo research group for the collection of leaf cuttings from the endangered *Cyrtandra nanawaleensis* (ha'iwale), for the purpose of propagation and monitoring in appropriate lowland wet forest habitat, including Keau'ohana.
3. March 25th -- HER joined forces with active community organizations/ members for the *Red Road Resource Fair* in Sea View as a part of the Puna Resilience Hub.
4. June 27th -- HER offered a public presentation at the Kalani Honua Retreat Center as part of a Grow Resilience series for community free learning opportunities.
5. May 5th -- HER *Lowland Wet Forest Working Group (LFWFG)* site visit to the Keaukaha Military Reservation(KMR), with Becky Ostertag (UHH) and Susan Cordell (IPIF), we witnessed current results of hybrid ecosystems research, utilizing mixed native and non-native species to reduce invasion, promote native biodiversity and sequester carbon.
6. May 22nd – *LFWFG* Site visit to Pu'u Heiheiahulu, of Wao Kele O Puna's 126,000 acres located Keau'ohana for a Deputy Regional Forester meeting to discuss forest restoration in light of ROD; followed by a site visit to Keau'ohana (directly below) for further discussion.
7. July 8th -- Revitalize Puna Program /Kīlauea Recovery Team/ Council District Event same as above.
8. October 21st -- Revitalize Puna Program /Kīlauea Recovery Team/ Council District Event same as above.
9. November 7th -- *LFWFG* site visit to Keau'ohana by a dozen Puna/Hilo lowland wet forest specialists for deeper discussion about restoration species' choices

HER Expansion

In 2023 HER expanded its environmental reaches in the Puna District by welcoming additional native forest restoration projects; the Halepua`a Forest Reserve restoration previously administered through Malama O Puna since 2009; the Koa`e Native Plant Nursery established in 2014; and stewardship of newly acquired Wai`ele PONC lands.

Firstly, in support of the native forest restoration corridor in the Halepua`a section of the Nanawale State Forest Reserve, project director Dr. Ann Kobsa has been controlling invasives and outplanting native plants for 15 years. Over 500 native plants of various ages have been outplanted, maintained, and defended against pig damage, with the most successful species being `ohe, `akia, hapu`u, and hala; Diga Kern was welcomed onboard in 2019 to help with the Halepua`a restoration effort.

The second project is the Koa`e Native Tree Nursery, in a shade-house space donated by Koa'e resident David Anderson, and managed with untold volunteer hours by Ann Kobsa. This project truly seeds native forest restoration efforts, with a cumulative distribution of over five thousand trees of over 30 native, rare and endangered species.

It has been a primary source for the Keau`ohana outplanting efforts since 2014, and we are honored to support it!

Third, HER is supporting restoration plans for recently purchased Wai`ele PONC lands located in the Koa`e region to provide appropriate stewardship of these special culturally rich lands.

Finally, HER will be leasing a house in Pahoia town beginning in mid-February to facilitate HER's mission to preserve Hawaii's unique cultural and biological resources through environmental restoration and education. The space will be donated in support of HER mission by Ann Kobsa. Uses of the premises will include workshops and presentations on topics related to the environment, native Hawaiian plants and ecosystems, sustainability, food security (growing and preparing food), Hawaiian cultural activities, permaculture, and bike repair. The space will be available to HER for office use and to community groups for meetings and events.

Other Collaborations

With every year *HER* furthers in its alliances with like-minded organizations within our local and global communities. We value these growing collaborations and recognize that this work can only be accomplished by joining forces. We at *Hawaii Environmental Restoration* face the future with growing inspiration and are sincerely grateful to all who recognize our contribution to Hawaii's challenged environment.

- **Local, U.S. mainland and international schools and community organizations** – Coordinating volunteer restoration/ educational opportunities

- **University of Hawaii at Hilo (UHH)** - Supporting vegetation classes, student graduate studies, special events, and cooperating with the newly formed ***Lowland Wet Forest Working Group (LWFWG)***.
- **Hawaii Community College (HCC)** – Hosting service learning events and internships
- **Plant Extinction Prevention Program (PEPP), the Division of Forestry and Wildlife (DOFAW), and the Volcano Rare Plant Facility (VRPF)** – Monitor, help propagate and preserve the endangered ha'iwale
- **Natural Areas Reserves (NARS)/ DOFAW** - Fencing of all natural clusters of ha'iwale
- **USGS Pacific Island Ecosystems Research Center**-- Hawai'i Cooperative Studies Unit Developing a Restoration synthesis
- **Pacific Islands – UH Hilo Climate Adaptation Science Center** HER is a part of a project team to develop a climate-resilient restoration approach that combines functional, climate and geographic data.
- **USDA Forest Service** – Conducting ROD discussions and studies
- **Institute of Pacific Islands Forestry** - Support bio-control against target invasive species
- **United Nations Environmental Program / Restoration Road Trip** representing HER restoration efforts among worldwide efforts.
- **Revitalize Puna Program** -- Kīlauea Recovery Team/ Council District 4 environmental resource platform for quarterly activations to bring community and County together. HER is now on the **Environmental Resource Capacity Area (RCA)** team to advance on broader environmental issues and concerns.
- **Big Island Invasive Species Committee (BIISC)** – volunteer opportunity, community webinar, outreach collaborations.
- **LEMU** – Innovative conservation platform in developing an “Atlas of the Biosphere” to help revert the environmental crises by connecting and supporting organizations whose work targets forest & habitat conservation/restoration.
- **Malama O Puna (MOP)** – Initial umbrella organization for HER current efforts
- **Fruit Tree Planting Foundation (FTPF)** - Provides seedlings and out-planting support
- **Hawaiian Affairs (OHA)** – Collaboration for preservation of Wao Kele O Puna (WKOP).
- **Hawaiian Tourism Authority** -- Malama Hawaii Program directing tourists to our volunteer program
- **Rustic Pathways** - Summer volunteer events student-travel programs that empowers students through innovative and responsible travel experiences to positively impact lives and communities around the world.
- **Global Giving Community**- Fundraising support/ Global exposure
- **Give Big Community Foundation** – Local Hawaii Fundraising platform

Lessons learned

HER continues to build upon a rich network of natural resource researchers and managers. Among them, HER is now part of the *Lowland Wet Forest Working*

Group (*LFWFG*) to explore among a dozen Hilo and Puna District forest specialists, restoration strategies and species for each of our project locations in the east lowland region of the Big Island. We had the good fortune to host the group in Keau'ohana this year, which affirmed our commitment to continue utilizing only native species in our restoration efforts.

Based on our site visit to the Keaukaha Military Reservation (KMR) with Becky Ostertag (UHH), and Susan Cordell (IPIF), HER had entertained the possibility of a mixed native and non-native/non invasive species approach in the more open and disturbed pockets of the Keau'ohana site in order to build shade levels more quickly.

Our discussions lead however, to a renewed excitement in continuing to focus on a native composition despite the challenge presented by open canopy conditions due to ROD. Though we have already begun, a large part of our strategy will include increasing the number of plants and plant species in our efforts once the site is fenced, which we are projected to have completed this coming year of 2024. We will be exploring more with direct seeding of native species such as hala and neneleau in the interior, and milo on the exterior edges of the site.

Restoration Out-planting Species for Keau'ohana

Keau'ohana's common restoration species in order of abundance:

Mamaki (*Pipturus albidus*) (direct seeding)

Ohe (*Polyscias hawaiiensis*)

Hapu'u (*Cibotium spp.*)

Loulu (*Pritchardia beccariana*)

Kopiko (*Psychotria hawaiiensis*)

'Ohi'a (*Metrosideros polymorpha*)

Lama (*Diospyros sandwicensis*)

Kolea (*Myrsine lessertiana*)

Ha'iwale (*Cyrtandra Nanawalensis*)

Other species planted thus far in smaller numbers (and fairing well / need more seedlings):

Akia (*Wikstroemia sandwicensis*)

Alahe'e (*Psydrax odorata*)

'Opuhe (*Urera glabra*)

Clermontia hawaiiensis (Oha kepau)

Papala kepau (*Pisonia umbellifera*)

Hala (*Pandanus tectorius*) – not successful/pig damage

Hame (*Antidesma platyphyllum*)

Kou (*Cordia subcordata*)

Other species of interest for which seeds/seedlings are needed:

Milo (*Thespesia populnea*)

'Opuhe (*Urera glabra*)

Hame (*Antidesma platyphyllum*)

'Ahakea (*Bobea timonioides*)

Ma'o hau hele, Hau Hele (or any other native *hibiscus spp*)

Pohinahina (*Vitex rotundifolia*)

Ulei (*Osteomeles anthyllidifolia*)

Maile (*Alyxia stellata*)

Ko'oko'olau (*Bidens hawaiiensis*)

Uki (*Machaerina angustifolia*)

Pukiawe (*Styphelia tameiameia*)