ANNUAL REPORT

2018

WAIKOLOA DRY FOREST INITIATIVE

OUR INITIATIVE

We work in a disappearing landscape: native Hawaiian lowland dry forest; an amazing, diverse and resilient ecosystem that has been dramatically reduced over the past two centuries. The Waikoloa Dry Forest Initiative was created to reverse this trend toward extinction by reforesting the land and building a community of supporters to steward the forest. Our mission is to preserve, protect and restore a native Hawaiian dry forest ecosystem through land management, outreach, education, and grassroots advocacy. In our seventh year, we are reflecting on our progress and we hope you enjoy reading about our work.

BOARD OF DIRECTORS

BETTER TOGETHER

JEN LAWSON
Executive Director

When I first began working with the Waikoloa Dry Forest Initiative, there were so many questions that I couldn't answer. How long would it be before the trees we planted would start to resemble a forest? When would the trees bear their first fruit? How on earth were we going to get water to such remote sites, and could we raise enought money to implement our ambitous plans? Starting a non-profit and becoming the first employee of such an endeavor can be uncertain at times. In the beginning, there are so many paths to take, it is hard to know which ones will ultimately lead you to success. Although I wasn't certain exactly how we would get there, our end goal was always clear: a self-sustaining, native-dominant forest cared for by our community.

From the beginning, we felt that people should be an important part of our work in Waikoloa Dry Forest. Out of necessity (we needed somebody to help plant all these trees!) and a genuine desire to raise awareness and share the stories of the forest with our community, we started hosting tours, volunteer days and our Future Foresters program. At first, there were only a handful of visitors, but now, we have people in the forest most days of the week learning and volunteering with us. Together, we have made considerable progress toward our goals and built some great relationships along the way.

For me, working with our community has been the most rewarding part of our work. Introducing the forest to people for the first time, surprising students with amazing plant facts, watching children discover native flowers and insects, and seeing the profound emotional impact that the wiliwili have on people brings me a lot of joy and I am so proud that we chose this inclusive path toward our conservation goals.

I am really happy to share the forest with you and I hope that you enjoy reading about some of our current projects.

FOREST RESTORATION
HĀLĀWAI

REFORESTATION

Each year, we assume the ambitious task of transforming five-acres of invasive grassland into a diverse, native plant community. Each year, the work is challenging and it can be difficult to imagine how a rough, jagged, lava flow can become a thriving, native forest. As we begin our planting, the task can seem daunting, but with the help of our community of students, visitors and dedicated volunteers, we succeed in establishing thousands of native trees, shrubs and groundcovers and a hopeful future for the forest. This year's planting area may have been the most challenging yet. With a remote location, difficult access, two types of lava flows and no native plants in the area, we had our work cut out for us. As you look toward the horizon from the piko of the preserve, the place where we gather groups and grow our seedlings, you can see the prominence of this year's planting area which we call Hālāwai. In one meaning of the word, Hālāwai refers to the horizon line, a place where the earth and sky meet each other. Hālāwai can also refer to a meeting of people. In this interpretation of the name, we acknowledge the many people who met in this special place to donate their time and service to plant trees and give life to Hālāwai.

Plants like this ‘A‘ali‘i help rebuild the dry forest habitat. In addition to our five acres of planting, we scattered mature fruit and seeds over an additional 30 acres.

Volunteers plant the majority of the more than 1500 native trees and shrubs that we planted this year. Keiki, like these third grade students contribute to the success of our outplanting which included 29 species.

The preserve has become a sanctuary for endangered species like this Ko‘oloa‘ula, an endemic hibiscus relative. This year we planted 412 endangered plants.

ROB YAGI
PRESERVE MANAGER

Rob Yagi, our Preserve Manager, is a hard-working and dedicated conservationist responsible for many of our successes in forest restoration. He tirelessly protects the preserve through his weed management and wildfire mitigation efforts which include maintenance of a 50-acre restoration area and more than 7 miles of fuelbreaks. He also brings new areas to life each year by propagating and planting. His enthusiasm and knowledge make him a great leader who has introduced many adults and children to the dry forest and helped many of them plant their very first native tree. Rob’s energy and expertise have advanced our forest programs tremendously.

“WDFI is a place that allows me to fit into Hawaii’s past, present and future through caring for the plants that are so integral to its culture” -Rob

OUR FOREST RESTORATION PROGRAM SUPPORTERS

HAWAI‘I TOURISM AUTHORITY

DORRANCE FAMILY FOUNDATION

DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE

OUR ATV WAS DONATED BY

WILL J REID FOUNDATION

PROTECTING OUR FOREST: FIRE

As we work to repair the dry forest ecosystem, we must balance our reforestation efforts with effective threat control measures. Waikoloa is one of the most fire-prone areas in the state and protecting the preserve from wildfire is one of our top priorities.

In early August, a wildfire raged through South Kohala consuming an estimated 18,000 acres of vegetation. With high winds and limited access to the burning land, the fire spread rapidly as it approached the Waikoloa Dry Forest Preserve. We have worked hard to prepare for a situation such as this, and our extensive fuel-break system was successful in diverting the fire and slowing its advance toward the preserve. Due to high winds and extensive fuel loads, the fire did jump our fuelbreak in the southeast corner of the preserve and 21.5 acres inside the fenced area burned. Fortunately, none of our native wiliwili trees or other sensitive species were impacted and the vegetation control efforts that we have invested in over the past decade prevented the fire from devastating the preserve.

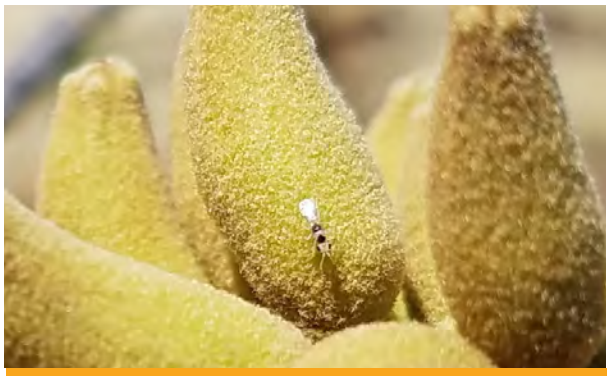
Shortly after the fire, we began an effort to reestablish native plants in the burned area by controlling the regrowth of the fire-adapted and extremely invasive fountain grass that dominates the area and collecting and broadcasting millions of native seeds. We hope to see germination and continued growth of seedlings throughout the wet season this winter.

SAVING SEEDS

Banking seeds is an important way that we can conserve native plant species for the future but it is also important to save seeds for restoration projects like ours. After the fire, we called upon our partners and seeds banks to help amass a variety of native seeds for our seed broadcasting project. Along with the millions of seeds that WDFI and our volunteers collected, these seeds were weighed and divided into 42 half--pound packages of native seeds that were then broadcast systematically across the 21-acre burned area in hopes of establishing native vegetation without planting a single tree!

PROTECTING OUR FOREST: ERYTHRINA GALL WASP

The magnificent wiliwili trees of Waikoloa are under attack by a pest known as the Erythrina Gall Wasp (EGW), a tiny parasitic creature that lays its eggs inside the wiliwili tissue and inhibits the growth and impacts the health of the trees. This pest arrived in 2005, but the damage has been mitigated by a predator wasp that was successfully released in Waikoloa as a biological control agent in partnership with Hawaii Department of Agriculture. Although the predator wasp has helped, the wiliwili trees are still susceptible to damage by the EGW, particluarly during flowering season. Infestation of the buds, flowers and developing fruit decreases the number of seeds the trees can produce each year. In an effort to limit this seed loss, we have begun a project to inoculate the wiliwili trees with predator wasps at the beginning of the flowering season. This predator wasp, belonging to the Eurytoma genus, seeks out the galls formed by the EGW and lays its own eggs in the galls destroying the EGW before they can emerge as adult wasps. Although this process has been occuring naturally in the forest since the initial releases in 2007, it often takes too long for the predator to catch up to the gall wasp which leaves many of our precious flowers vulnerable to infestation. By collecting, breeding and dispersing additional predators, we hope to curb the effects of the gall wasp on the flowers and promote seed production. Our preliminary results show that some of the trees in the study have benefited from our efforts and we are looking forward to analyzing the data and sharing the results with our partners and other forest managers in 2019.



A male Erythrina Gall Wasp (EGW) on a wiliwili flower bud can be seen here. The tiny pests are only 1.0-1.5mm in length but their impact can be devastating.

This wiliwili inflorescence has been attacked by EGW which has prevented proper development of the flower buds; unfortunately these will never bloom.

Rob Yagi collects naturally occuring predator wasps from juvenile wiliwili trees for breeding and subsequent release.

FUTURE FORESTERS
KEIKI O KA ʻĀINA

LEARNING IN PLACE

The Future Foresters youth outdoor, education-adventure program is one of our longest standing and most rewarding programs. With an increased interest in our offerings, we have expanded the program to include fourth, fifth, sixth and seventh grade students that meet afterschool, four days per week throughout the school year. These students learn natural history, conduct scientific experiments, practice Hawaiian crafts, plant trees, hike and explore in the forest preserve, and take field trips to other areas around the island that are important places to learn about stewardship of our natural and cultural resources. As we welcomed our new Education Coordinator to our staff, we were able to expand our program to host 56 students per week, every week, throughout the school year. Over the first few weeks of the program, the students become familiar with the landscape and by the end of the year, they have become connected to the environment and formed strong friendships with each other. For some, the program inspires a new academic interest, for others, it is a place to enjoy nature, and give back. For most, the program and the forest has a lasting impact on how they view the place they are growing up in and we hope we have laid a strong foundation for a lifetime of stewardship.

Future Foresters learn to grow and plant trees like this koaiʻa that was brought along and planted during a field trip to a partnering restoration site on Kohala Mountain.

The wiliwili trees are an inspiring source of leanring. Students rest in the shade, collect seeds, learn about pollinators, and track the changes in weather refelcted in the leaves of the wiliwili.

Looking closely at the world around us is an important part of Future Foresters. The intricacies of Insects, seeds and pebbles are revealed under a microscope.

JACKIE MILLIGAN
EDUCATION COORDINATOR

Jackie Milligan joined WDFI in August as our Education Coordinator and has taken our Future Foresters program to an exciting and effective new level. She is a talented educator and has a strong desire to promote Hawaiian culture and native species mauka and makai. It is her passion to teach the next generation of environmental stewards in our Future Foresters afterschool program and she is a beloved and inspiring kumu in the forest.

"It is our duty as conservationists, to help inspire our keiki to love and cherish these special places. My hope is to continue to expand our program to reach more young minds through our education endeavors." -Jackie

FUTURE FORESTERS PROGRAM SUPPORTERS
HAWAIʻI COMMUNITY FOUNDATION
COUNTY OF HAWAIʻI

OUR OUTDOOR CLASSROOM WAS FUNDED BY
ALBERT D RICH

MEASURED GROWTH
OUR 7TH YEAR

The Waikoloa Dry Forest Preserve is an amazing place. The landscape is rugged, the conditions can be harsh and the trees that persist in this landscape are unique, beautiful, and tenacious creatures that thrive in the jagged lava rocks with scarce rainfall. Seven years ago, WDFI was created to take over a budding effort to protect and restore this incredible landscape. Since then, we have made significant progress toward our goal of transforming non-native grassland into the diverse plant community that is native to the area. With more than 50 acres of planting completed, visitors to the preserve can clearly see the difference that we have made in the landscape. As we have replanted the forest, our community has grown as well. Our small team of dedicated volunteers has grown to include hundreds of residents, visitors, and students that visit the preserve each year to learn about the unique forest and help us collect seeds and plant trees. Our education programs have reached thousands of students and have has a lasting impact on the children of Waikoloa who are so familiar with wiliwili trees that they have begun to give the prominent ones names. The Waikoloa Dry Forest Preserve is becoming a cornerstone of our community and an increasingly important habitat for the native species that we aim to conserve. Alongside our partners, volunteers and advocates, we have done incredible work and made considerable progress toward our mission. Thank you for being a part of our forest and for reading about our work or supporting our programs.

WAIKOLOA
DRY FOREST
INITIATIVE

PO BOX 384087
WAIKOLOA, HI 96738
WDFI@WAIKOLOADRYFOREST.ORG
PHONE: (808) 494-2208