

# Waimea Valley Forest Stewardship Project

Hi'ipaka LLC

Pūpūkea, Hawai'i



Located on O'ahu's north shore, Waimea Valley is operated by Hi'ipaka LLC, a 501(c)(3) non-profit organization created to nurture and care for the valley. Their mission is to preserve and perpetuate the human, cultural and natural resources of Waimea Valley through education and stewardship. In 2014, Hiipaka LLC enrolled 101.5 acres of Waimea Valley in the Forest Stewardship Program.

The Waimea Valley Forest Stewardship project is dedicated to restoring and conserving the mesic native forest and riparian areas of Waimea Valley. The project contains diverse forest ranging from intact native forest to highly invaded, non-native forest. The goal is large-scale restoration of key plant and animal communities in a locally threatened and globally rare ecosystem.

Over the past 6 years, the project has demonstrated success in conservation of both native wildlife and flora. Conservation efforts include preservation of 'Alae'ula bird and O'opu (freshwater goby) populations and extensive native forest maintenance and regeneration. Waimea Valley has also engaged community volunteers for ungulate control and to assist their Hui Hānai 'Āi na Program, which has cleared invasive plants and planted tens of thousands of native Hawaiian plants.

## HAWAI'I FOREST STEWARDSHIP PROGRAM

The Hawai'i Forest Stewardship Program (FSP) provides technical and financial assistance on a cost-share basis to private landowners to promote the stewardship, enhancement, conservation, and restoration of Hawai'i's forests. FSP primarily provides funds for long-term forest management planning, and may support implementation of this plan for 10 years. Objectives supported by FSP include: forest productivity, native ecosystem health and biodiversity, watershed quality, wildlife habitat, agroforestry, and recreation.



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*Erosion control plantings on site.*

## Management Objectives:

Given the diversity in forest integrity, the project focuses on intensive management in five distinct forest management units: Mauka Restoration Area, Kalahe'e Reforestation Area, Lama Forest, Eugenia Conservation Area, and Wetland/Streamside Zones. In the Mauka and Lama Restoration Areas where the native forest is more intact, the objectives are to maintain and improve existing native forest cover. The Kalahe'e Restoration Area's goal is to replace the current non-native forest cover with site-appropriate native species. Overall management approaches focus on promoting growth and regeneration of target native trees and under-story species in areas protected by fences. Riparian forest management concentrates on reducing stream bank erosion by planting native species.

## Fencing:

Fencing is being installed to surround the Eugenia Restoration Area, Lama forest, and the Kalahe'e Restoration Area; the wetland area will not be fenced. Within the fenced areas, management will focus on promoting growth, invasive weed control, and monitoring to continually improve native plant populations in the three mentioned areas.



*Fencing on Mauka area, Fall 2013.*

## Ungulate Control:

One of the most significant threats to native forest integrity in Waimea Valley is the large feral pig population which disperses non-native plants and creates conditions optimal to their spread. Feral ungulate removal can achieve both conservation objectives of weed control and management. Feral pigs are controlled through a volunteer ungulate control program.



*Feral pigs captured via night video monitoring.*

## Weed Control:

Incipient weed control includes a property-wide monitoring program, weed detection, bio-control for strawberry guava, and boot cleaning protocol for staff. Herbicide is applied to primary target species including *Clidemia hirta* and *Cordia alliodora*. Manual removal of extremely high-threat species such as *Miconia calvencens* and *Cyathea cooperi* is conducted by staff and volunteers.



*Koa and a'a li'i seedlings taken over by *Clidemia hirta*.*

## Restoration Planting:

Plantings feature endemic or indigenous species documented to occur naturally on their respective restoration sites or in the Northern Ko'olau Mountains. The project is equipped with water catchment at both the Mauka restoration and the Kalahe'e reforestation area to water seedlings or for emergency irrigation. Restoring the upland forests enhances the watershed and therefore improves the water quality and quantity for the Valley and water flowing into Waimea Bay.

## Seed Sourcing and Propagation:

Waimea Valley features an on-site nursery that serves as a source of seeds for native plant species for Mauka restoration efforts. Seeds are collected either in Waimea Valley itself or in adjacent valleys or ridge-tops. Plant propagation, including accession tracking, germination (or air layering or cutting), and nursery production, are all accomplished on site using existing facilities.



## Threatened and Endangered Species



**Nioi (*Eugenia koolauensis*)**

This shrub or small tree is found near the Mauka Restoration Area and is a target for conservation. The *Eugenia* restoration area is focused on establishing a viable population.



**Lama (*Diospyros sandwicensis*)**

The project promotes the growth of Lama and its regeneration by fencing to exclude ungulates and removal of invasive plant species.

## Education and Community Outreach:

Volunteer workdays through the Hui Hānai 'Āina Program have built a network of support through the local community. In an effort to restore the native forests on the ridges and slopes of Waimea Valley, the Conservation team and volunteers have been clearing invasive plants and planting tens of thousands of native Hawaiian plants.

The Department of Land and Natural Resources

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Learn more about FSP at

<http://dlnr.hawaii.gov/forestry/lap/fsp/>

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