

Hoolehua Plant Materials Center Activity Report FY-2007



**USDA Natural Resources Conservation Service
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Activity Report Year 2007

Hoolehua Plant Materials Center
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Location

The Hoolehua Plant Materials Center is located on the island of Molokai and situated on the fertile agricultural plains of Ho'olehua. It is one of 27 Centers located throughout the United States. The island of Molokai is 27 miles long and 11 miles wide (261 square miles) and the fifth largest island in the Hawaiian chain. The Center is responsible for servicing the plant conservation resource needs of the Pacific Island Area, which includes the State of Hawaii, Guam, the Northern Mariana Islands, The Federated States of Micronesia, The Republic of Palau, The Republic of the Marshall Islands and American Samoa.

The Hawaii Plant Materials Program

Controlling erosion, enhancing and protecting our natural resource base through the use of plant materials, is our main mission. To do this and be consistent with the USDA objectives and NRCS Strategic Plans, the Plant Materials Program develops, tests and transfers effective state of the art plant science technology, to meet stakeholders and conservation resource needs.

Current Priorities

The Hawaii Plant Materials Program is currently involved in addressing the following concerns:

- Source of Seed and Vegetative Materials for Plants Recommended in HI Technical Guide
- Living Mulch for Cultivated Crops
- Windbreaks for Crop Lands
- Cover Crops in Orchards
- Bioengineered Solutions for Stream/Slope Problems
- Plants for Agroforestry
- Cover/Green Manure Crops
- Plants for Vegetative Barriers
- Provide Plant Materials and Technical Assistance to the Kahoolawe Island Reserve Commission (KIRC)

Source of Seed and Vegetative Materials for Plants Recommended in the Hawaii Technical Guide,

Robert J. Joy, Plant Materials Specialist/ Glenn Sakamoto. PMC Manager

The Pacific Island Area (PIA) has historically been at a disadvantage when the needs for conservation plants are required to effectively address resource concerns. Mainland seed companies are motivated by economic supply and demand and as such, are able to produce large quantities of seed. The demand for those seeds has the potential to address hundreds, if not thousands of acres of land. Hawaii however, lacks the commercial incentive for companies to produce many of the desirable conservation plants. Although, commercial plant nurseries are plentiful in the PIA, very few offer the plants and quantities that are often needed. Instead, stakeholders must rely on domestic or foreign seed imports at greatly inflated costs and unreliability to satisfy their needs.

To assist and support stakeholders in addressing the situation, the Plant Materials Program continues to pursue interested individuals to undertake the plant /seed industry. This is by no means an easy task. As an island state we are challenged by expensive start up, operational and competitive cost. In addition, most of the demand for conservation plants and seeds is based upon a niche market. This niche market is the probable deterrent that inhibits commercial production of conservation plants and seeds.

However, in recent years a success story is beginning to emerge with one such visionary entrepreneur. John McHugh of Crop Care Hawaii, LLC has taken it upon himself to venture into the seed production business. In 2007 John was able to secure a Conservation Innovation Grant (CIG), for the development of a commercial seed production business. This Federal grant was designed to stimulate the development and adoption of innovative conservation approaches and technologies, while leveraging Federal investment in environmental enhancement and protection, in conjunction with agricultural production. With the help of NRCS and private businesses John was able to secure land and machinery to start up two seed companies, Hana Hou Harvest and Crotalaria Seed Specialists.

The seed that is currently being produced is *Crotalaria juncea* 'Tropic Sun' sunn hemp. "Tropic Sun' sunn hemp is a Hawaii PMC 1982 cultivar release. It has proven itself as an excellent green manure cover crop. Unfortunately, 'Tropic Sun' sunn hemp was difficult, if not impossible to acquire. Foreign imports of other varieties of sunn hemp were the only source for this green manure cover crop. John McHugh and his two companies have produced 12,000 pounds of 'Tropic Sun' sunn hemp in 2007. Of the 12,000 pounds of seed, 7,000 pounds is available for sale.

The Hoolehua PMC continues to assist interested stakeholders who are willing to undertake this commercial venture, by maintaining a plant source of all of our

Seed source (continued)

“Official” released accessions and maintaining and distributing common conservation plant materials and pasture grasses for interested farmers



Commercial production field of 'Tropic Sun' sunn hemp, *Crotalaria juncea*, Kailua, HI



John Cox and Alike Napier at Hana Hou Harvest Kailua production fields



Pasture grass demonstration plots at PMC



PMC seed storage room with Sunn hemp seed

Living Mulch for Cultivated Crops

The Hoolehua PMC and the University of Hawaii at Manoa, College of Tropical Agriculture and Human Resources have been working together to develop and provide the technology to incorporate the use of both native and non-native living mulch crops in the Pacific Island Area (PIA).

Why Plant Cover Crops?

1. **Minimize Groundwater Pollution:** Cover crops are able to prevent the leaching of nitrates by taking up and storing left over nitrogen from nutrients applied to previous crops.
2. **Reduce Soil Erosion:** Cover crop reduces soil erosion by simply holding the soil in place and lessens the explosive impact of raindrops and thereby slows the flow of water.
3. **Control Weeds:** Many cover crops are able to out compete weeds for soil moisture and nutrients.
4. **Improve Soil Structure:** Cover crop keeps the soil in good physical condition by the addition of organic matter.

Several studies by Dr. Joeseeph DeFrank, Weed Science Specialist at the UH at Manoa incorporated the use of *Heteropogon contortus*, piligrass as a cover crop in his trial involving the establishment of native and non-native hardwood crop, that included *Acacia koa* (Koa), *Calophyllum inophyllum* (Kamani), *Swietenia macrophylla* (Big Leaf Mahogany) and *Tectona grandis* (Teak). Dr. Defrank has also been successful in establishing piligrass as a living mulch involving tropical truck crops.

The piligrass cover crop is a PMC Source Identified Release. Piligrass is a native perennial bunch that is extremely drought tolerant and is primarily, but not commonly found on all leeward sides of the main Hawaiian island. It was favored by early Hawaiians as a thatching material for their homes.

With the use of selected herbicides Dr. Defrank was able to successfully demonstrate the establishment of a hardwood forest with the use of a native cover crop.

The herbicide treatments applied to Piligrass seedlings were selected based on their use in various forestry sites or species inclusion on the product label. The **Pendulum WDG** label lists a site for use as "NONCROP AND AREAS INCLUDING TREE PLANTATIONS". **Ronstar G** can be used on container and field grown *Acacia* species. **Ronstar WP** has no application sites that can be interpreted as appropriate for use on grass and forest species grown in this demonstration. **Ronstar WP** was included purely as an experimental treatment to compare to **Ronstar G** applications. Both **Goal XL** and **GoalTender** are both labeled for use on field grown *Eucalyptus*

viminalis, *E. pulverulenta* and *E. camaldulensis*. Both labels also contain a “Fallow Bed” site on the label. Fallow bed refers to applications to a site that does not contain a crop, thus application to fields planted to Pili grass (as a cover crop and not a crop) can be interpreted as a use consistent with label instructions

The response of Pili grass to over the top applications of the herbicides described in this demonstration caused little to no injury to treated foliage and did not result in noticeable growth inhibition. For more information regarding any of the information discussed at the field day or contained in this handout contact Dr. Joe DeFrank (email: defrenk@hawaii.edu, or website at <http://www2.hawaii.edu/~defrank/>)



Piligrass living mulch with Acacia Koa



Field Day at Poamoho Experiment Station, Oahu, HI



Piligrass crop at 6 months



Piligrass mulch prior to planting cabbage seedlings

ACKNOWLEDGEMENTS

Funding for this demonstration provided by a RREA grant administered by Dr. Samir El Swaify. Seedlings provided by Nick Dudley of HARC. Web posting of field day noticed provided by Jody Smith. J.B. Friday provided technical expertise on the inclusion of appropriate forest species. Pili grass (*Heteropogon contortus*, accession # HA-5748) was provided by Glenn Sakamoto, station manager at the NRCS/USDA Plant Material Center on Molokai. Contact your local NRCS Service Center via their NRCS website (<http://www.hi.usda.gov/>) for conservation technical assistance. Thanks to the Poamoho field crew for help with mowing, weed control and mulch placement within the demonstration site.

Windbreaks for Crop Lands

Windbreaks serve as an important conservation tool, primarily by protecting plants and aiding in the reduction of soil erosion related to the strong winds. Hence, essentially altering microenvironments and providing numerous benefits. Topping the list, enhancing plant growth by also acting as a 'living' noise and visual screen, which in certain scenarios, may also include protecting structures, recreational areas, as well as animals; not to mention, improving the aesthetic value. More importantly, windbreaks improve the air quality by reducing and intercepting particulate matter, preventing airborne drifts and odor nuisances. Windbreaks also add to increasing carbon storage in biomass and soils and also dramatically aids in irrigation efficiency.

Since 2005, the Erythrina Gall Wasp (EWG) has devastated Hawaii's native erythrina's populations and hence, has literally "wipedout" one of Hawaii's primary windbreaks, *Erythrina variegata* L., 'Tropic Coral'. 'Tropic Coral' or Tall Erythrina is a 1985 plant release from the Hoolehua PMC. Tall Erythrina is fast growing, easy to establish, compact and a leguminous tree. It was an extremely popular windbreak throughout Hawaii and a replacement windbreak hasn't come close to the 'Tropic Coral'. Biological control for the gall wasp is on the horizon and hence, the potential to save both the native and introduced erythrina species.

The Hoolehua PMC continues to screen promising new selections of windbreaks and have scheduled and initiated several new studies. Following is a list of different plants with promise and are therefore experimenting with:

Targeted Plant Science Studies

Evaluate, technology development, and release selections of *Panax*, *Polyscias guilfoylei*.

Evaluate, technology development, and release of selections of Alahee, *Canthium odoratum*

Evaluate and technology development of selections of *Bambusa spp.*

Evaluate and technology development of selections of *Garcinia spp.*

Evaluate and technology development of *Syzygium paniculatum spp.*

Evaluate and technology development of *Gliricidia spp.*



Syzygium paniculatum
growing along highway,
Kamuela HI.

Syzygium paniculatum, (Brush Cherry) is a moderately fast growing tree that can attain a height of 20 feet or more. It is a native to Florida and Australia. It's beautiful reddish foliage when it first emerges and shiny green mature leaves make it an attractive screen and hedge planting. The Brush Cherry may still be referred as *Eugenia myrtifolia* in some literature.



Eugenia study at
PMC



Gliricidia sepium
Hoolehua, PMC

Gliricidia sepium, (Gliricidia) is a fast growing medium-size, semi-deciduous leguminous tree that typically grows to 33 ft (occasionally reaching 50 ft.) in height, Native to Central America and possibly northern South America, its cultivation is now pan tropical. Gliricidia is widely used to provide cropshade for cacao, coffee, and other shade-loving crops, livingfence posts for pasture and property boundaries. The tree is also an important source of green manure, fodder, and fuelwood. It is easily propagated from seed and cuttings. (Elevitch and Frances 2006)



Polyscias guiffoylei, Panax
planted in 2006 stands at 11
ft. tall, Hoolehua PMC

Polyscias guiffoylei, (Panax) is a moderately fast growing columnar shrub. It is widely used throughout Hawaii and the Pacific Island Area as both a hedge and windbreak screen. Under optimal conditions Panax can reach a height in excess of 25 feet. Panax is easily propagated by cuttings and thrives in a variety of soil types.



Panax windbreak 2
yrs old



Garcinia spicata at Hoolehua
PMC. 28 year old specimen at
30 feet tall

Garcinia. spicata is a native of India and is closely related to the esteemed Mangosteen. It is a small tree to 30 feet tall with a nice shaped canopy. It is densely foliated with large, glossy, dark green leaves which when newly emerging are an attractive reddish color. The tree bears small flowers which are soon followed by highly ornamental bright orange fruits.



Canthium odoratum,
(Alahe`e), Hoolehua PMC

Canthium odoratum, (Alahe`e) is an attractive slow growing native shrub or small tree. It is found on all major island except Ni`ihau and Kaho`olawe. It's dense, durable wood was once used for tools by early Polynesians and is currently on the Federal Threatened and Endangered plant list. It tolerates a wide range of conditions, from dry windswept coastal areas to wet forest land of Hawaii.



Bambusa oldhamii

Bambusa oldhamii, (Giant Timber) is a clumping timber bamboo that can grow 55' tall and produce canes that are 4" in diameter. It grows quickly in this area when given ample sun (it likes full sun), water, and fertilizer. While it will grow faster with ample water, *Bambusa oldhamii* is considered to be a drought tolerant bamboo. Its edible young shoots also make it an attractive multi-purpose windbreak.

Bio-engineering Plants

Chrysopogon zizanioides, commonly known as vetiver grass, is a tough, stout, upright perennial bunch grass. It has gained worldwide recognition as a superb grass in controlling soil erosion. Originally from India, and has been used there agriculturally for generations. For years the roots of vetiver have been commercially harvested to extract its oils to manufacture perfumes, lotions, soaps, and cosmetics. It is fast growing, reaching heights in excess of 5 feet in just one year. Its stems are lignified, stiff and strong; provides the rigidity of a erosion control barrier

The utilization of vetiver grass is gaining popularity within the Pacific Island Area (PIA) as an alternative means to control soil runoff. When installed properly vetiver grass acts as a continuous vegetative filtering system. It slows down rainfall runoff, reduces rilling as well as gulying, and traps soil on the up slope side of the hedge. As a tightly planted hedge, vetiver reduces soil and nutrient loss, significantly improves soil moisture by enhancing water percolation through the soil and forms a natural terrace behind the hedge. An important aspect is that vetiver is compact and takes up very little space, it is also non-competitive with adjacent crops being cultivated.

The Hoolehua PMC is currently field testing vetiver throughout Hawaii's diverse soil types and micro-climates with promising feedback and results.

Sporobolus virginicus, Seashore Rush Grass or commonly called Aki'aki grass is a turf forming, vigorous perennial grass that spreads mainly by underground rhizomes. It is commonly found along Hawaiian shores extending down to high-tide level. Aki'aki is extremely salt and drought tolerant and has been observed growing in a variety of soils and elevations. It resembles bermuda grass, but its leaves and stems are larger and stiffer. Aki'aki can attain a height of 16 inches. The Hoolehua PMC is currently evaluating five native accessions of seashore rush grass with a scheduled "tested release" in 2009. Aki`aki grass can be used to control erosion along stream banks, shore lines, and highly erodible sites.

Eragrostis deflexa, Pacific Lovegrass or sometimes called Bent Lovegrass is an indigenous perennial bunch grass that was recently re-discovered on the upper slopes of Mauna Kea (3900-4800 ft. elevation) in the dry forests and shrublands of old lava flows and cinder cones. Pacific Lovegrass is a slender tufted bunch grass that exhibit short rhizominous roots at its base. Seeds of this accession were collected in 1998 and planted in 1999 and 2000 for initial screening with testing. It's moderately fast growth rate and short rhizominous stems made it a possible candidate for a vegetative barrier. Further testing on this plant is scheduled in the near future.

Vetiver Grass at PMC



Chrysopogon zizanioides, vetiver increase plot at the Hoolehua PMC



Nancy Bauman, Biological Technician and Kristen Coelho, AmeriCorps volunteer prepare shipment of vetiver for field planting trial on Oahu

Vetiver Grass Field Plantings



Vetiver site on Oahu before vetiver installation
2005



Vetiver grass 9 months after installation 2006

Aki`aki Grass



Bob Joy, NRCS Plant Materials Specialist stands in Aki`aki planted in the early 80's on the island of Kahoolawe, September 2006



Sporobolus virginicus, Aki`aki grass

Pacific Love Grass Increase at PMC



Eragrostis deflexa, Pacific Lovegrass



Pacific Lovegrass with its short erect rhizomatous growth

Continued Assistance to the Kaho'olawe Island Reserve Commission (KIRC) Kaho'olawe Island re-vegetation effort

The island of Kaho'olawe is the smallest major island in the Hawaiian archipelago. It is located approximately seven miles off the southwest coast of Maui and roughly covers 45 square miles. The island rises above the ocean to an elevation of 1,477 feet and has annual precipitation of 27 inches near the summit. From the early 1800's through 1992, overgrazing by feral goats and livestock left the upper one third of the island barren of vegetation, severely eroded and virtually uninhabitable. To compound the environmental problems of the island, the U.S. military used the island as a target and training area at the onset of WWII. In 1993 the island of Kaho'olawe was returned to the State of Hawaii with the responsibility of the implementation of an environmental restoration plan by the Department of Navy, so as to control the soil erosion problems of the island. In the same year the State of Hawaii created the Kaho'olawe Reserve and the Kaho'olawe Island Reserve Commission (KIRC), enabling the State to receive federal funds for their restoration efforts. In 1997, the KIRC requested the assistance of the Hawaii Plant Materials Center to provide native plant seeds and technical support in their restoration efforts. Since 1999, the Hawaii NRCS has received congressional earmarks, hence directing efforts towards the re-vegetation of the island.

Current Status:

Assisting the KIRC in their efforts to re-vegetate Kaho'olawe's highly erodible sites continues to be one of the main focuses of the Plant Materials Program in 2006 and 2007. Although no Congressional Earmark was targeted in fiscal year 2007, ongoing discussion continued with KIRC. With no earmark slated for Kahoolawe, reimbursable funding was discussed and investigated by both NRCS and KIRC. After much consideration, KIRC decided they would wait until further information was heard from the Congressional hearings in FY-08 to see if the Kahoolawe earmark would be reinstated. The island is still many years away from recovering from the overgrazing and military maneuvers that has plagued this tiny island. It is the intent of the KIRC Commission to continue dialogue with NRCS in hopes that the Hoolehua PMC can continue to supply them with native plant materials.

The Hoolehua PMC continues to monitor the effectiveness of the native plant materials that have been sent to Kahoolawe, they include, Piligrass (*Heteropogon contortus*) hay bales, A'ali'i (*Dodonaea viscosa*) seeds, Kawelu (*Eragrostis variabilis*) seeds and Aweoweo, (*Chenopodium oahuense*) seeds on the island. Others native species showing promise are Kamonamona (*Cenchrus agrimonioides*), *Achyranthes splendens*, and I lie'e, (*Plumgago zeylanica*). Accessions of these species are currently being evaluated at the PMC.

The use of piligrass hay bales on Kahoolawe continues to be one of the main conservation materials utilized on the island. During fiscal year 2006 and 2007 approximately thirty-seven tons of pili hay bales were delivered to Kaho'olawe. These bales were used as both seed source and erosion control treatments on the island.

Kahoolawe (continued)



Kamanomano (*Cenchrus agrimonioides*) planted in October of 2005 Picture taken April of 2007



Kamanomano grass planted in gullies, Kanapou, Kaho'olawe, April 2007



Piligrass hay bales at LZ-3 Kaho'olawe April 2007



David Duvauchelle, Natural Resource Specialist (NRCS) inspects windblown soil deposition behind piligrass hay bales after one year August 2008



A`ali`i shrubs (background) and Kamanomano grass (foreground) taking hold in gullies on Kahoolawe, April 2007



Jamie Bruch, Resource Specialist for KIRC cautions volunteers to be careful as unexploded ordinances are still evident on Kahoolawe, April 2007

Native Plant Evaluation

Native plant evaluations at the Plant Materials Center continue to be an important part of the Plant Materials Program. Native plants can, but not always provide the necessary attributes to control soil and water erosion challenges. Highly erodible sites with steep sloping lands and infertile soil are not conducive to the adaptability of most indigenous Hawaiian plants. The problem is also compounded by the introduction of non-native species of plants. These plants at times can become invasive due to its competitiveness, land use change, adaptability, and hardiness. The increased awareness by the general public, State and Federal entities on the potential environmental and economic impact of invasive plant species has challenged the Plant Materials Program to evaluate and recommend more native plants for conservation use.

The following is a list of native plants that are currently being tested at the PMC:

Scientific Name	Common Name
1. ¹ <i>Thespesia populnea</i>	Milo
2. <i>Erythrina sandwicensis</i>	Wiliwili
3. <i>Cordia subcordata</i>	Kou
4. <i>Acacia koa</i>	Koa
5. <i>Nototrichium sandwicense</i>	Kului
6. <i>Meterosideros polymorpha</i>	Ohia
7. <i>Hibiscus rockii</i>	
8. <i>Myoporum sandwicense</i>	Naio
9. <i>Sophora chrysophylla</i>	Mamane
10. <i>Alphitonia ponderosa</i>	Kauila
11. <i>Dodonaea viscosa</i>	`A`ali`i
12. <i>Sesbania tomentosa</i>	Ohai
13. <i>Gossypium tomentosum</i>	Ma`o
14. <i>Sporobolus virginicus</i>	`Aki`aki
15. <i>Dubautia linearis</i>	Na`ena`e
16. <i>Canthium odoratum</i>	Alahe`e
17. <i>Cocculus trilobus</i>	Huehue
18. <i>Scaevola sp.</i>	Naupaka
19. <i>Vigna marina</i>	kukaiwaa
20. <i>Panicum torridum</i>	Kakonakona
21. <i>Eragrostis deflexa</i>	Pacific Lovegrass
22. <i>Eragrostis leptophylla</i>	
23. <i>Acacia koaia</i>	Koaia
24. <i>Plumbago zylanica</i>	Iliee
25. <i>Achyranthes splendens</i>	

¹ Early Polynesian introduction

Native Plants Being Evaluated (continued)

- | | |
|-------------------------------------|---------------|
| 26. <i>Nesoluma polynesianum</i> | Keahi |
| 27. <i>Reynoldsia sandwichensis</i> | Ohe makai |
| 28. <i>Wikstromia Uva-ursi</i> | Akia |
| 29. <i>Vitex rotundifolia</i> | Pohinahina |
| 30. <i>Cenchrus agrimonioides</i> | Kamanomano |
| 31. <i>Fimbristylis cymosa</i> | Mau`u aki aki |
| 32. <i>Mariscus javanicus</i> | Ahu`awa |

Native Plants That Show Promise for Advanced Testing



Vitex rotundifolia, Pohinahina



Pohinahina
flower

Pohinahina is a sprawling low growing native shrub occurring naturally (although rarely seen) along Hawaii's beaches. It normally grows to a height 2 feet but can attain higher growth when cultivated and protected. Its attractive lavender flower and aromatic scent make it an ideal landscape plant. It is easy propagated by seed and cuttings



Vigna marina, Nanea



Nanea flower
and seed pod

Nanea is a low growing leguminous sprawling vine that grows along Hawaii's shoreline. Its attractive yellow flowers and shiny leaves make it a useful landscape specimen



Plumbago zylanica, `Ilie`e



`Ilie`e plant

`Ilie`e is a low growing and sprawling shrub that is easily mistaken for a vine. It can grow to heights of 12 to 16 inches and is mainly found as an understory plant in dryland forest of Hawaii. It is very drought tolerant and is very competitive against non-native plants.



Cenchrus agrimonioides,
Kamanomano



Kamanomano
flower

Kamanomano is a perennial tufted grass naturally found on the islands of Maui and Oahu. Its sprawling and fast growth habit makes it an ideal erosion control plant. It is used extensively on the island of Kahoolawe due to its drought resistance. (Kamanomano is listed on the Federal List of Threatened Endangered Plants)



Fimbristylis cymosa, Mau`u
`aki`aki



Seed head of
Mau`u
`aki`aki

Mau`u `aki`aki is a clumpy perennial sedge with short rhizomes. Culms are dense and rather stiff. It is extremely wind and drought tolerant and propagates easily by seed or division. It can be found on sandy beaches, and in shallow sand or soil amongst rocks and cracks.

Kristen Coelho AmeriCorps Volunteer

Kristen Coelho was born and raised on the island of Molokai. She attended Molokai High School and upon graduating enlisted in the US Coast Guard based in Washington State. She returned to Molokai in 2006 and began working for NRCS as an AmeriCorps Volunteer in November of 2006. Since that time Kristen has logged over 1500 hours of volunteer time at the Plant Material Center.

Her job duties included assisting the PMC staff in the day to day operations of the center, which included experimental test plot installation, data collection, propagation of plant propagules, test plot maintenance, irrigation repair, weed control, crop harvesting, seed cleaning, as well as, facility and vehicle maintenance.

Kristen's tenure has been a tremendous asset to the Hawaii Plant Center (PMC). She provided the much needed help in the implementation of the many of the projects at the PMC. She is a fast learner and isn't afraid of getting her hands dirty. During her short tenure at the PMC, Kristen's enthusiastic outlook about learning new things, enabled her to attain a knowledgeable understanding of the function of the plant materials program and became skilled in the operation of various specialized farm equipment.

She is well versed in the operation of tractors, combines, balers, rakes, mowers, disks, chemical boom sprayers, loaders and various seed cleaning machines at the Center.

Kristen has been steadily gaining knowledge of conservation plants as it relates to the protection and enhancement of our resource base. She has been intimately involved in plant identification of both native and non-native plants for conservation efforts throughout the Pacific Island Area, which included district and NRCS field office demonstrations and PM field planting projects.



**Kristen Coelho PMC
Outstanding AmeriCorps
Volunteer 2006-2007**

Tours, Presentations and Training

DATE	AUDIENCE	LOCATION
10/02/2006	Protect Kahoolawe Ohana	PMC
10/23/2006	Natural Resource Academy	PMC
10/28/2006	Molokai Community College	PMC
02/02/2007	Aka'ula School	School / Kaunakakai
04/13/2007	General Public Field Day / Earth Day	PMC / Kaunakakai
04/17/2007	General Public Field Day / Open House	PMC
04/18/2007	USDA / NRCS Chief's visit to the PMC	PMC
04/19/2007	Kahoolawe Tour with the Chief	Kahoolawe
06/06/2007	Helicopter Training TNC / NRCS	PMC
06/18/2007	AmeriCorps Training	PMC
08/24/2007	Representative Mazie Hirono's visit to the PMC	PMC
09/13/2007	PM Advisory Committee Meeting	PMC



Protect Kahoolawe Ohana (PKO) volunteers say a pule (prayer) before cutting piligrass. Piligrass were cut and tied into bundles for drying and later shipped to Kahoolawe for thatching material at Hakioawa, Kahoolawe



Piligrass that was cut and bundled will be dried and ready for use as roofing material on Kahoolawe



Congressional House Representative, Mazie Hirono with PMC staff David Duvauchelle, Kristem Coelho, and Andres Juario



**Plant Materials Advisory Committee Meeting
September 2007**

Tours, Presentations and Training



NRCS Chief Arlen Lansing (center), KIRC Chairman Dr. Emmett Aluli (left) and NRCS Pacific Island Area Director, Larry Yamamoto (right), HI PMC April 2007



L-R Jamie Bruch, KIRC; Doug McKalip, PAS NRCS; Arlen Lancaster, Chief NRCS; Larry Yamamoto, Director PIA on the Kahoolawe hardpan, April 2007



Nancy Bauman, PMC Biological Science Technician explains seed cleaning process to visitors on PMC Field Day, April 2007



PMC staff and The Nature Conservancy employees get “hands on” training on how to safely work with helicopter pilots to attach cargo sling loads, June 2007



AmeriCorps volunteers, L-R Misty Nakayama, Kristy Mollena, Jacob Esteron, David Duvauchelle, and Kristen Coelho 2006 -2007 hardworking volunteers

Aloha Nancy

A New Turn In Life



After eight years at the Hoolehua PMC as Biological Science Technician, Nancy Bauman is retired from the Natural Resource Conservation Service on April 30, 2007. Nancy began her career with the federal government twenty years ago working with Farmers Home Administration (FmHA) and then with Farms Services Agency (FSA) in Illinois. Initially, Nancy moved away from Molokai to Illinois because her husband, Ron, needed to follow his career with a major corn-seed company. They have always dreamt of returning to Molokai. Fortunately for Nancy, after twelve years with FSA, a position opened at the Hoolehua PMC in 1999 just prior to her move back to Molokai.

Thank you Nancy for all the years of commitment, excellence and valuable service you have given to the Natural Resource Conservation Service. You have done well and your efforts here at the PMC have made a significant impact on the Plant Materials program. You have witnessed from the beginning, the growth of our native plant re-vegetation effort for the island of Kahoolawe. The many hours you have spent propagating, caring for, harvesting and shipping of these thousands of native plants is something you can be proud of. You have made a difference! Your dedication and professionalism truly exemplifies the spirit of NRCS excellence. Congratulations Nancy! We will miss you.



PMC Staff and the Molokai-Lanai Soil and Water Conservation District employees on Nancy's last day at the PMC, April 2007



Nancy and Kalei Kawaa transplanting piligrass Summer 2002



Nancy and Kristen secure cables for helicopter lift of piligrass to Kahoolawe island, April 2007



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