



NRCS Summary
Fiscal Year 2013
Pacific Islands Area

United States Department of Agriculture

Coral Reef Initiative—West Maui: Joshua Guth, Kahoma Ranch

by Kahana Stone, Kahului Soil Conservationist

Like any pasture in Hawaii, West Maui pastures are full of conservation potential. They have the view, most have the rainfall, and they have the forage.

Joshua Guth, a small scale rancher from Lauiniupoko, operates a 121-acre ranch in Kahoma, about 1.5 miles above the Lahaina cannery. Primarily guinea grass as the dominant forage, the pasture had been depleted due to continuous overgrazing and prolonged drought conditions. Guth was faced with poor cattle conditions, unfavorable pastures, high percentage of bare soils, and the community below the ranch was very upset with tons of soil erosion emptying out into Mala Wharf during heavy rainfall events.

Guth came to NRCS looking for answers to the issues he was faced with. The land was in poor condition and from Honoapiilani Highway (1.5 miles away), it looked like a red bandage in the mountain. Guth's objective was to have a healthy pasture with a healthy herd. Through the support of NRCS, he divided his 121-acre pasture by installing interior woven wire fencing into five paddocks. Their water source came from the mountain stream. Stock water practices planned were Watering Facility - troughs, Heavy Use Protection Area, and Pipeline. There were also areas of noxious weeds (Java Plum, Kiawe, Guava and Lantanas) that needed attention. NRCS and Guth split the core conservation practices of his grazing operation into two phases.

- Phase-I: Install cross fences, stockwater system and defer grazing during the first year of contract.
- Phase-II: Remove noxious plant species. Complete within 1.5 - 2 years or earlier.

Grazing was deferred from the beginning of his contract till today. Rains from October 2013 improved his forage conditions and showcased the potential of this pasture. Guth and NRCS are very pleased with the upward trend of the condition of his pasture. However, there are some pocket areas that Guth would like to treat by utilizing EQIP again.

Future plans include scarifying the soil surface to a depth of 6-8 inches and planting pasture grass seeds or sprigs. The grazing management plan will be revised to implement a rotational grazing system and allow stocking rates that are suitable and manageable for the pasture's climate and soil conditions. Guth has grown closer to this particular pasture because of the conservation practices he has implemented and the improved conditions of his pasture through his hard work. NRCS is glad to continue working with open-minded applicants such as Joshua Guth!



The pasture had been depleted due to continuous overgrazing and prolonged drought conditions.



Poor cattle conditions and unfavorable pastures/high percentage of bare soils.



Photo of improved pasture at the Kahoma Ranch.

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NRCS 2013 Accomplishments



*Christine Clarke
Acting Director*

The NRCS staff and partners of the Pacific Islands Area (PIA) have worked together to compile this summary of a few key projects accomplished in 2013. Hopefully the stories will inform and inspire the reader in the areas of agriculture, conservation, water quality, forestry and soils. From the youngest farmer like Jake Sakamoto on Molokai to Edwin Otsuji on Oahu, NRCS is actively engaged in offering technical and financial assistance to those engaged in generating food and conserving our natural resources.

Our PIA staff is fortunate to have strong local partners in the Soil and Water Conservation Districts who understand the value and importance of managing natural resources for the future generations. During field visits, I have been touched by the enthusiasm and dedication of our staff and customers. Of special note is the newly formed Board of Directors for the Pohnpei Soil and Water Conservation District.

As in any very large organization, there are always opportunities to improve. We welcome your comments and feedback on the stories found here. These stories represent our collaborative success and only together can we continue to move forward and address the critical resources issues in the Pacific Islands Area.

Christine Clarke
Acting Director
Pacific Islands Area

Otsuji Farm Tour

Otsuji Farm has been practicing conservation and producing high quality crops since 1959 in Hawaii Kai. Mr. Edwin Otsuji became a South Oahu Soil and Water Conservation District Cooperator in 1971, after taking over the farm from his father. Over the years he has received assistance from the USDA's Farm Service Agency (FSA) and the Natural Resources Conservation Service (NRCS) on a variety of programs and services. The conservation efforts that Mr. Otsuji implemented have allowed his operation to remain viable and be sustainable.

Over the years, Mr. Otsuji has continually refined and improved his operation into a model farm, and serves as an example for many in his community. The conservation practices he completed includes terracing, crop rotation, cover crops, irrigation (pipeline, system, and water management), mulching, nutrient management, windbreaks, and vegetative barriers. In 2010, he completed a conservation practice called windbreaks/Shelterbelt through the Environmental Quality Incentives Program (EQIP), administered by NRCS. Currently in progress is the irrigation pipeline and sprinkler system, also through EQIP. The conservation partners with Otsuji Farm includes the South Oahu Soil and Water Conservation District, FSA, and NRCS.

Another resource challenge is the Otsuji Farm's aging irrigation system and use of high quality, costly domestic water for irrigation. Replacing aging infrastructure, use of new irrigation technology and irrigation water management is needed to more effectively and efficiently apply water for crop production. The Otsuji Farm, like most farms, is not static. It is a dynamic, growing system, and the Otsuji's have been perfecting their infrastructure and techniques.



Chris Clarke (left) talks about soils to Rachel James, Constituent Services Liaison for U.S. Representative, Tulsi Gabbard.

Conservation Technical Assistance

by Cynthia Shishido, Acting Assistant Director for Operations

In 2013, NRCS soil conservationists and District planners worked with land owners to protect soil and water resources by creating 166 new conservation plans on 73,916 acres and installed 557 practices across the Pacific Islands Area.

2976 people received brief technical assistance from NRCS field staff throughout the 12 field offices.

The top 19 most utilized conservation practices in FY 2013 were:

Practice Name	Area	Practice Name	Area
Fence (382) (ft)	20,791 ft	Upland Wildlife Habitat Management (645) (ac)	362 ac
Prescribed Grazing (528) (ac)	14,553 ac	Windbreak / Shelterbelt Establishment (380) (ft)	275 ft
Deep Tillage (324) (ac)	13,935 ac	Conservation Cover (327) (ac)	219 ac
Vegetative Barrier (601) (ft)	6,064 ft	Residue Management, No-Till / Strip Till (329A) (ac)	190 ac
Irrigation Pipeline (430) (ft)	1,583 ft	Tree / Shrub Site Preparation (490) (ac)	137 ac
Brush Management (314) (ac)	1,546 ac	Nutrient Management (590) (ac)	105 ac
Cover Crop (340) (ac)	1,292 ac	Integrated Pest Management (IPM) (595) (ac)	72 ac
Mulching (484) (ac)	482 ac	Conservation Crop Rotation (328) (ac)	60 ac
Residue Management, Seasonal (344) (ac)	410 ac	Contour Farming (330) (ac)	53 ac
Irrigation Water Management (449) (ac)	397 ac		

Water & Sediment Control Basin (Before & After)



Access Road (Before & After)



Grassed Waterway and Underground Outlet (Before & After)



Farm Bill Programs

by Shirley Nakamura, Assistant Director for Programs

The 2008 Farm Bill offers incentives to America's farmers and ranchers to voluntarily conserve natural resources on privately owned land. Its conservation provisions help reduce erosion, protect streams and rivers, restore and establish fish and wildlife habitat, and improve air quality. Below is a summary of the financial assistance provided through Farm Bill Programs in the Pacific Islands Area.

New EQIP Contracts Data from the Resource Economics, Analysis, and Policy (REAP) Report

Area	Contracts	Acres	Obligations	Practices
Hawaii	99	12,298.5	\$4,171,756	Brush Management, Conservation Cover, Forest Stand Improvement, Irrigation, and Prescribed Grazing.
American Samoa	47	151.8	\$1,027,342	Composting Facility, Nutrient Management, Tree/Shrub Establishment, Vegetative Barriers, and Waste Transfer/Treatment.
CNMI	30	273.5	\$794,837	Contour Farming, Pest Management, Alley Cropping, Mulching, and Waste Utilization.
Guam	8	93.9	\$45,146	Cover Crop, Nutrient Management, Windbreak Establishment, Hedge-row Planting, and Pest Management.

Agricultural Management Assistance (AMA) Opportunities for Beginning Farmers

by Ben Vinhateiro, District Conservationist, Lihue Field Office

Kauai County, Moloa'a. As part of an Agricultural Management Assistance (AMA) contract, a local producer on Kauai has installed and is utilizing the benefits of micro-irrigation, mulching and cover crops. This client is also completing the installation of a Seasonal High Tunnel for Crops, which was contracted through AMA in 2011.

This site is operated by a relatively new farmer who is an early adopter of new technology. The AMA program allowed NRCS to work with the producer to address resource problems early in the life of the farm; saving the farmer time, money and frustration. It also allowed us to work with him to diversify his operation; making it a more economically viable operation, which was one of his stated goals.

The operator is now able to grow productive and healthy plants for sale at multiple farmers markets and to numerous local food stores that without the assistance provided through AMA, his crops would have been in poorer condition or not yielded any produce at all. After his positive experience working with NRCS he has since signed up for additional EQIP contracts to address more resource problems in other locations on his 2.4 acre diversified agriculture farm.



Vegetable crop with mulch installed.

Tree/Shrub Site Prep (490) & Conservation Cover (327) - Waiakoa Watershed (Before & After)



Black wattle and eucalyptus stands have been cleared. Conservation cover has been used for quick erosion control and stabilization. Orchard and native trees will be planted soon.

Brush Management (314) & Prescribed Grazing (528) - Maliko Watershed (Before & After)



Gorse is being controlled in the upcountry Maui area. Goats and sheep are being effectively used to control the spread of gorse. Prescribed grazing for goats, sheep, and cattle is used to keep rangeland healthy.

Outreach in the Pacific Islands Area

by Jolene Lau, Public Affairs Specialist

Bernice Pauahi Bishop Museum—Science Alive Event!

NRCS participated in Science Alive! Family Sunday, on March 17, 2013. The event was a smashing success with 3,762 attendees!

There were 35 community partners from science organizations statewide including NRCS, over 50 hands-on activities, a full schedule of science lectures, planetarium shows, cultural programs, garden tours, and signature displays at each of Bishop Museum's six natural science tables.

Our booth had an interactive game on farmland ecosystems along with information about NRCS programs and services.



Greg Koob, State Biologist displaying interactive farmland ecosystem game.

Soil Health Workshop in Waimea, Hawaii



In partnership with the Mauna Kea Soil and Water Conservation District, Hawaii State Department of Hawaiian Home Lands, and the University of Hawaii's College of Tropical Agriculture and Human Resources Cooperative Extension Service, NRCS put on a Soil Health Workshop on April 18, 2013 in Waimea. 39 community members participated in the workshop that featured NRCS speakers, local farmers, and agency partners. Of the 39, 17 of the participants were farmers, five were foresters, three were wildlife managers, and two were ranchers. In the evaluations, many of them expressed interest in attending future workshops, especially to learn more about nutrient management.

Image: Amy Koch, NRCS Soil Scientist and Carolyn Wong, Hawaii County Resource Conservationist gave an excellent presentation on soil characteristics, quality and health. This was followed by infiltration and slake demonstrations using local soils. The results were impressive.

West Maui Initiative Public Meeting

The West Maui Initiative Public Meeting was held on December 4, 2012. NRCS received a lot of information from the public and had approximately 70 people attend.

Representatives came from Maui County, Maui County Council (Elle Cochran), the Ahu Moku Council, West Maui R2R Working Group, federal, state, and non-governmental partners, local businesses and many members of the community across all five watersheds - Wahikuli, Honokowai, Kahana, Honokahua, and Honolua.

Participants broke out into small groups by watershed and provided us location specific information on issues, resources of significance, threats, potential solutions, and questions to investigate. We will be reviewing these and discussing at the next meeting. We received over 150 comments from this activity.



West Maui Initiative Public Meeting.

Mahalo to everyone that helped facilitate and set up including DAR (Russell Sparks, Darla White, Emma Anders and Liz Bogdanski), NFWF (Tova Callender), CORAL (Liz Foote), NOAA (Kathy Chaston), NRCS (Sharon Sawday, Ranae Ganske-Cerizo), and our lead facilitator - Athline Clark.

Humatak Watershed Adventure

NRCS West Area staff and Earth Team Volunteers participated in a Southern Guam community watershed event to address the problem of soil erosion.

This effort is in partnership with local Government of Guam (Guam Forestry and Guam Environmental Protection Agency), many non-government agencies and the Southern Guam Soil and Water Conservation District.

This partnership is also helping to increase the awareness of NRCS conservation programs and technical services with local partners and the next generation of Guam resource managers.



Over 45 volunteers hiked over two miles to the project site.

Molokai Community Garden



Jake Sakamoto

Interval House Molokai would like to honor Jake Sakamoto for his vision, hard work and commitment to helping others.

On a small plot of land, Molokai High School senior Jake Sakamoto planted and harvested an incredible 5,180 pounds of organic eggplant, taro and tomatoes in his People's Garden, a community garden located at the USDA/NRCS Plant Materials Center in Hoolehua. In keeping with the national People's Garden initiative of creating gardens that benefit the community, are collaborative in nature, and incorporate sustainable practices, Jake donates and delivers his entire harvest to our homebound kupuna, Molokai veterans and the Molokai Youth Center.



Jake with a harvest of eggplant for the homebound elderly and elderly care center in Kaunakakai, Molokai, HI.

Jake perpetuated The People's Garden, which his sister Chelsea, created in 2011. He researched crops that were high yielding, continuous producers, and fairly easy to grow. Due to a short time frame, he selected crops that were fast producers. Tomatoes produce fruit in 60 days, eggplant in 60-70 days and taro leaves can be harvested in 90 -120 days. Jake tilled a new plot; planting, setting the mulch, weeding, trimming, fertilizing, irrigating, battling an infestation of mites, pinworms, and fruit flies, and finally harvesting and delivering his abundant, delicious, organic eggplant, taro and tomatoes.

The Hoolehua People's Garden is one of only two official USDA community gardens in Hawaii.

Research Work With Native Piligrass Seeds Earns PhD for University of Hawaii Student

The Hoolehua Plant Materials Center (PMC) in partnership with the University of Hawaii at Manoa, Department Tropical Plant and Soil Science recently had the opportunity to proudly acknowledge Orville Baldos with his PhD degree for his work on post seed storage treatments of a PMC Source Identified Germplasm Release of Piligrass, *Heteropogon contortus*.

Heteropogon contortus (piligrass) is a drought and fire tolerant grass native to the dry leeward sides of the Hawaiian Islands. Primarily utilized for revegetation of severely degraded land, it is now being evaluated for roadside revegetation, agricultural riparian buffer strips and landscaping. An important limiting factor for piligrass revegetation is its seed dormancy. Although a dry afterripening requirement has been mentioned in the literature, specific storage conditions to aid dormancy loss have not been determined. In this study, the effects of storage temperature and relative humidity on piligrass seed dormancy and viability were examined.



Orville Baldos (foreground) on a recent seed collection trip on the island of Molokai, Hawaii.

Freshly harvested piligrass seeds were incubated for 0, 1, 3, 6, 9 and 12 months in a combination of three equilibrium relative humidities (12%, 50% and 75% eRH, i.e. stabilized humidity prior to storage in sealed packets) and three storage temperatures [10oC, ~23oC (ambient in laboratory) and 30oC]. Seed germination and tetrazolium tests were conducted at each incubation period to determine afterripening/dormancy loss and seed viability. Results indicate a significant interaction between month of incubation, storage equilibrium relative humidity and storage temperature. Storage at either 12%eRH/30oC or 50%eRH/30oC significantly increased the rate of afterripening/dormancy loss. To optimize percent germination, seeds must be stored under these conditions for at least 9 months. Seed viability was maintained in all treatments except seeds stored at 75%eRH/23oC and 75%eRH/30oC. In these storage treatment combinations, significant seed deterioration and loss of viability was recorded over time.

"My personal knowledge of homebound elderly people, who are unable to get out of the house to purchase fresh produce, made me decide to create a community garden for my Molokai High School senior project. A community garden is a meaningful way to give back to our community."

- Jake Sakamoto

Resource Technology Team Focused on Training in 2013

by Adam Reed, Water Quality Specialist

Conservation planning training was a major focus of the PIA Resource Technology Team (RTT) in FY 2013. PIA leadership wanted to deliver a conservation planning training course to help better equip new planners and reinforce planning principles for more experienced planners. This was the first PIA-wide conservation planner training held in PIA, with the overall objective to improve the technical skills of our conservation planners in PIA and to improve the quality of conservation plans given to our clients.

The course was split into 16 hours of classroom training and a full week of field training. In order to help make the training cost effective and to limit travel the RTT developed a series of eight 2-hour webinars. The webinars utilized new software and were recorded so they could be viewed and utilized in the future. These webinars focused on the nine-steps of conservation planning and how to properly identify and evaluate a resource concern but touched on many more aspects of conservation planning. Each member of the RTT had a role in the delivery of these webinar presentations. The field training was repeated at three locations in PIA (Oahu, Big Island, and Guam). By having the field training in different locations the trainers were able to customize the training examples to the local setting.

During the field exercises trainers reinforced the processes of evaluating resource concerns and selecting conservation practices to address those concerns. During each field training week the planners were able to practice what they had learned from the webinars at three sites representing Crop, Forest, and Range land-uses. There were also good discussions on how to address wildlife, cultural resources, and environmental compliance at each site. This was followed by demonstrations and discussions for inventory and evaluation for confined animal feeding operations, forage plants, and woody plants. On the third day the planners worked in teams to begin the process of developing a conservation plan consisting of client interviews (simulated) and field inventories. On the fourth day the planning teams analyzed their field inventories to make final determination as to what conservation practices would be most appropriate. On the final day teams presented their plans the the entire group, providing an opportunity to ask questions and discuss why the planners selected each conservation practice.

The RTT appreciates the comments and feedback received on this conservation planner training and expectations are that planners are better equipped to provide quality planning services to PIA clients.



Participants from Hilo, Kealahou, Waimea, Kahului, and Hoolehua along with trainers at the Big Island field training.



Resource Technology Team participants along with trainers at the Big Island field training.

Soils in the Pacific Islands Area

by Cynthia Stiles, Assistant State Soil Scientist

Rapid Carbon Assessment comes to Hawaii



Pictured left to right: UH's Michelle Lazaro, volunteer Alex Beaton, Amy Koch, and Mike Kolman. Photo by Kari Sever.

The carbon stocks of Hawaii soils are being evaluated in FY 2013. Hawaii and Alaska are the last two states in the US to collect soil carbon data for USDA-NRCS sponsored Rapid Carbon Assessment (RaCA).

Soil scientists Mike Kolman and Amy Koch from the USDA-NRCS Kealakekua Soil Survey Office, along with Michelle Lazaro from the University of Hawaii-Manoa, are the primary team members working this summer on soil sampling. They are being trained in RaCA methods this week by Kari Sever, a soil scientist and RaCA Coordinator from Ft. Collins, Colorado, MLRA Soil Survey Office. Support for Ms. Lazaro and for Dr.

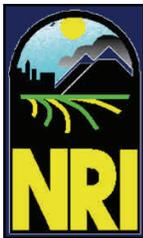


Amy Koch, Mike Kolman and Michelle Lazaro prepare to measure bulk density of a soil at a RaCA sampling location on Hawaii Island in the Kohala area. Photo by Kari Sever.

Susan Crow, also at UH-Manoa, to help with collection and processing of the many samples is being provided by an agreement through the Conservation Ecosystem Studies Unit Network. Funding for travel and logistics for the sampling personnel is provided by the National Soil Survey Center (NSSC) in Lincoln, NE.

Soils will be sampled from at least 50 locations distributed across the Hawaiian Islands, using special sampling protocols provided by the NSSC. The samples are returned to UH-Manoa for further processing and analysis and the data will be incorporated into summary tables that will be provided to Soil Survey Offices and other users. It is anticipated that these data will be incorporated into the national soils database for use in conservation planning, particularly to inform effects of conservation practices on soil carbon stocks for global carbon accounting as well as addressing soil condition resource concerns.

National Resource Inventory



The National Resources Inventory (NRI) is a statistical survey of natural resource conditions and trends on non-Federal land in the United States. Surveyed areas include privately owned lands, tribal and trust lands, and lands controlled by state and local governments.

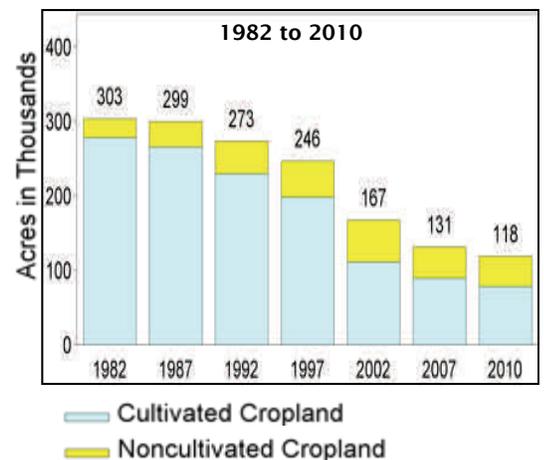
Reese Libby is the NRI State Resource Inventory Coordinator (SRIC) for the Pacific Island, and he is responsible for oversight on the NRI data collection efforts, which are done every other year since 1982. Published reports of NRI survey results come out every 5 years, and in 2010 a summary report provided the compilation of the number of acres of cropland in Hawaii for every year the survey was carried out. This report is very useful when looking for trends in land use in the islands.

Hawaii Cropland Cropland Use

Cropland Use	1982	1987	1992	1997	2002	2007	2010
Irrigated Cultivated Cropland	157.4 ± 47.5	152.5 ± 45.2	117.9 ± 39.8	75.8 ± 32.9	72.3 ± 46.2	64.0 ± 46.2	53.5 ± 46.8
Nonirrigated Cultivated Cropland	120.8 ± 31.0	113.0 ± 30.4	111.6 ± 35.1	121.8 ± 29.7	39.0 ± 17.7	25.2 ± 13.7	24.9 ± 12.8
Total Cultivated Cropland	278.2 ± 59.0	265.5 ± 55.6	229.5 ± 61.5	197.6 ± 51.9	111.3 ± 48.1	89.2 ± 51.0	78.4 ± 51.6
Irrigated Noncultivated Cropland	7.0 ± 6.3	9.4 ± 6.9	26.8 ± 11.8	28.5 ± 10.6	28.9 ± 11.7	15.4 ± 8.4	13.6 ± 8.7
Nonirrigated Noncultivated Cropland	17.4 ± 26.3	24.4 ± 27.6	16.7 ± 18.5	20.3 ± 19.2	26.7 ± 30.2	26.2 ± 31.3	26.2 ± 31.3
Total Noncultivated Cropland	24.4 ± 29.5	33.8 ± 31.1	43.5 ± 23.9	48.8 ± 23.0	55.6 ± 32.6	41.6 ± 35.2	39.8 ± 35.8
Total Cropland	302.6 ± 75.0	299.3 ± 72.6	273.0 ± 69.9	246.4 ± 59.5	166.9 ± 50.0	130.8 ± 57.6	118.2 ± 55.3

Figure: Example of the summary trends from NRI data for Hawaii cropland available from: http://www.nrcs.usda.gov/Internet/NRCS_RCA/reports/nri_crop_hi.html

Cultivated and Noncultivated Cropland



This data collection is a collaborative effort from the local NRCS staff and FSA. Our job is to verify and document the points that need local knowledge to determine the land use/land cover for this area. This information is uploaded to a central location at Iowa State University and the statisticians using modeling programs use the land cover patterns and actual ground-truth information to determine the land use/land cover across larger areas. The NRI SRIC thanks all the people that have helped out in the past on this local data collection in Hawaii, as the data collection could not be done so thoroughly and accurately without their cooperation. Another NRI survey will take place in 2014, and the NRI data collection team appreciates all the help in the future as well.

Full NRI report is available at: <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/nra/nri/>.

by Sharon Sawdey, Civil Engineer

NRCS Watershed Programs enable the agency to partner with local entities to address broader-scale issues such as flood protection and agricultural water infrastructure. These projects typically entail multiple-year efforts spanning design, construction, and O&M follow-up. Funding for Watershed Program projects (also known as Law 83-566 projects) has been extremely limited in recent years, but PIA continues to work on project phases funded by Congressional Earmarks in 2010 and earlier. Since 2009, broader-scale issues are more commonly being addressed through landscape initiatives and targeted delivery of Farm Bill conservation programs

Lahaina Watershed Flood Control Project

This project will ultimately provide a 100-year level of flood protection to properties in Lahaina and reduce the sediment load impacting near-shore coral reefs by constructing two miles of diversion channel, four sediment basins, and a debris basin. The project is sponsored by the Maui County Department of Public Works and the West Maui Soil and Water Conservation District. During 2013, the second of six construction phases was completed, bringing the project to roughly 40% completion (based on a total estimated \$25 million construction cost). PIA staff reviewed an expanded geotechnical design analysis for Phase 2B construction; reviewed the Phase 3B design package; administered a contract monitoring marine water quality and biota; and provided data to support sponsor efforts to secure project funding.



Phase 2B of the Lahaina Flood Control Project was constructed in 2013.

Lower Hamakua Ditch Agricultural Water Supply Project

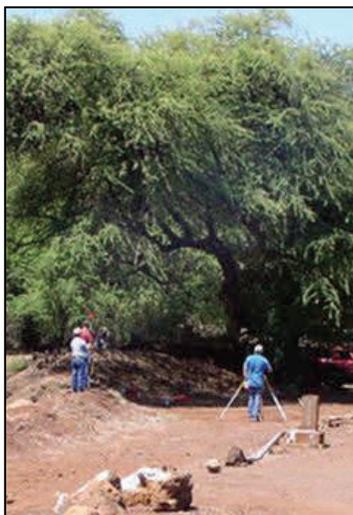
Sponsored by the Hawai`i Department of Agriculture and the Hamakua and Mauna Kea SWCDs, this project is improving water supply to small farmers and ranchers developing diversified agriculture on former plantation lands near Waimea. The ditch system fell into disrepair following the closure of sugarcane plantations in the early 1990s, and the LHD project will return the ditch system to full functionality. During 2013, progress was made on the design of ditch lining repairs, as well as obtaining permit approvals for construction involving tunnel stabilization, ditch lining, and livestock-exclusion fencing for the Lower Hamakua Ditch system.

Upcountry Maui Agricultural Water Supply Project

This project will reduce agricultural water costs by developing a non-potable water supply system to service 12,250 acres of prime Kula farmland, simultaneously reducing the demand on municipal water treatment facilities. Sponsored by the Hawai`i Department of Agriculture, the Maui County Department of Water Supply, and the Olinda-Kula SWCD, the agricultural system will include 9 miles of main pipeline and 20 miles of lateral pipeline when complete. During 2013, progress continued on designs for the main pipeline Phases 6B and 6C, and the Kealahou, Waiakoa, Kaonoulu and Waiohuli Laterals. Project construction is roughly 47% complete, based on total estimated construction costs of \$39 million.

Wailuku-Alenaio Watershed Project

Three of five approved measures for this flood protection project near Hilo were constructed in the 1980s, with the County of Hawai`i Department of Public Works and the Mauna Kea and Waiakea SWCDs serving as the project sponsors. Following significant storm damages in 2000, there was renewed interest in completing the project measures in the Kaumana Drive area. During 2013 the County assessed processes for completing a Watershed Plan Supplement, allowing the final two measures to be revised to improve their effectiveness.



West Maui Coral Reef Initiative

2013 was the second year of a focused NRCS effort to significantly reduce sediment runoff and improve water quality from agricultural lands in West Maui. The initiative arose from partnership activities of the US Coral Reef Task Force, involving collaborative efforts of NOAA, Hawai`i DLNR, USACE, USEPA, USGS, and several other entities. In addition to offering targeted EQIP funding for the area, NRCS is contributing an alternatives analysis for streambank stabilization of Wahikuli Gulch, one of the priority projects recommended in the 2012 Honokōwai-Wahikuli Watershed Management Plan. A field reconnaissance was conducted by NRCS staff from PIA and the West National Technology Support Center, with the final analysis scheduled for delivery in 2014.

Kagman Watershed Project

This project, sponsored by the CNMI Department of Land and Natural Resources and the Saipan and Northern Islands SWCDs, is providing flood reduction benefits through the construction of Waterways A, B and C for enhanced storm water conveyance. Additional benefits will be realized when future project phases are able to complete a reservoir to store waterway discharges for subsequent irrigation use. During 2013, NRCS staff closed out the waterways construction contract and provided Sponsors and Department of Agriculture technicians with a field overview of O&M responsibilities. The Sponsors remain committed to fund the next design and construction phases and are working with various sources including CNMI legislature, Office of Insular Affairs CIP (Capital Improvement Project) Office, EPA, NACD, National watershed coalitions, and Rep. Greg 'Kilili' Sablan's office.

Survey data was collected by Kahului FO and WNTSC staff for the West Maui Coral Reef Initiative.

Dryland Restoration Forest

by Carolyn Wong, Hawaii County Resource Conservationist

Project Summary: With support from EQIP (At-Risk Species Habitat), a local producer is successfully restoring native Hawaiian dryland forest one acre at a time.

Conservation Partners: NRCS, US Fish and Wildlife Service, Kohala Watershed Partnership, Hawaii DLNR Division of Forestry and Wildlife Forest Stewardship Program and landowners Will and Judy Hancock of Kalopi Ranch and local volunteers.

Resource Challenges: The South Kohala area has been almost completely altered from original native dryland forest to grazing land. Native forest had been replaced by naturalized forage species and invasive species through grazing, clearing and fires over the past 150 years.

Feral ungulate pressure from pigs and goats are a challenge to management and restoration today. Site is very dry, rocky, windy and prone to wildfires.

Conservation Program used: Environmental Quality Incentives Program (EQIP)

Innovations/Highlights: The Hancock's have been strategically restoring blocks of native dryland forest species across their property and use controlled grazing to manage fuel loads in their surrounding pastures to protect their property and trees from occasional wildfires in the area.

They have developed a surface water collection and storage system that provides water to their homestead, livestock and native plantings. They have also found innovative ways to improve survival of native out plantings including a careful successional restoration strategy of restoring over story species first and supporting natural regeneration and out plantings of native understory species later.

The Hancock's also repurpose discarded hydroponic growing media (coconut coir) from a local tomato farmer and use it as a mulch and source of organic matter around plantings.

Results and Accomplishments: When Will and Judy Hancock acquired the property in 1987, there were only 7 trees across their 72 acres. One of the last known specimens of a very rare endangered native plant, *Achyranthes mutica*, struggled to survive on a nearly vertical cliff in a gulch on the edge of the property - the only place it was out of reach from browsing cattle and feral goats.

Since then, Will and Judy have planted over 10,000 mostly native trees in their effort to restore over 17 acres of the native environment that used to exist here. With the help of EQIP, the Kohala Watershed Partnership and the USFWS, the Hancocks have completed a feral goat proof fence around the entire property to help protect existing and future native plantings.

EQIP also supported the preparation and planting of a new 1.6 acre area of native plantings. The Hancock's have planted over 600 seedlings of koaia, iliahi, awe-oweo, a'ali'i, ilima, 'ulei, kolea and 'olopua in this 1.6 acre area.

With the help of a committed volunteer, they continue to water and weed these seedlings weekly to ensure their establishment in this harsh environment. In addition, Judy has been propagating new *Achyranthes* plants and establishing more of them in the understory of koaia trees she planted along the gulch twenty years ago!



Twenty year old Koaia tree planted by the Hancocks with naturally regenerating native understory.



South Kohala landscape of naturalized pasture and invasive lantana and Panini cactus.



Judy Hancock with a young koaia sapling in EQIP area.



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