



77 Hookele St., Suite 202  
Kahului, HI 96732

# **Maui Soil & Water Conservation Districts**

## **2017**

### **Annual Report**



**DLNR— Division of Water & Land Management**

**USDA— Natural Resource Conservation Service**

**Serving**

**Olinda— Kula SWCD**

**Hana SWCD**

**West Maui SWCD**

**Central Maui SWCD**



## **OFFICE OF THE MAYOR**

County of Maui  
200 South High Street  
Wailuku, Maui, Hawaii 96793

### **A MESSAGE FROM MAYOR ALAN M. ARAKAWA**

Aloha Kākou,

On behalf of the people of Maui County, I am honored to congratulate the Maui Soil and Water Conservation Districts for protecting our islands' most precious natural resources.

Our community depends on having clean water and stable, healthy soil. The Maui Soil and Water Conservation Districts have worked for many years to discover, develop, implement and constantly improve productive lands and our environment.

Through educational and outreach programs, members have fostered the science and art of natural resource conservation, which has been especially vital in these challenging times of increased demand and diminished availability.

Please accept my gratitude for each of the Maui Soil and Water Conservation Districts for their dedication and hard work, and my best wishes for another successful year.

Sincerely,

A handwritten signature in black ink, which appears to read "Alan M. Arakawa". The signature is fluid and cursive.

Alan M. Arakawa  
Mayor, County of Maui

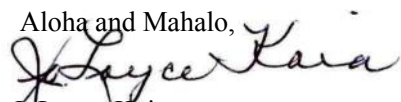


## *Hawaii Association of Conservation Districts Island of Maui VP Message*

The Maui Soil & Water Conservation Districts truly appreciate the ongoing support we receive from DLNR, USDA-NRCS, U.H. Cooperative Extension Service, Mayor Alan Arakawa, Maui County Council Members, Maui County Dept. of Public Works and Environmental Management, Office of Economic Development, State Dept. of Agriculture, Department of Health, Coastal Zone Management, Maui County Farm Bureau, and Tri-Isle Resource Conservation and Development.

Serving as the HACD Island of Maui Vice President for 18 years has been a great experience. I would personally like to thank all past and present SWCD directors for your countless hours of volunteer work and the SWCD support staff for your work in carrying out our mission.

In closing, I advise our young conservationists to know the history and importance behind the soil and water conservation movement. Learning from the past and wisely building on the future is a continuous journey.

Aloha and Mahalo,  
  
Jo Loyce Kaia  
HACD Island of Maui Vice President



## **Soil & Water Conservation Districts**

### **Who We Are and What We Do .....**

The Soil & Water Conservation Districts (SWCDs) are legally constituted, self governing units under the Hawaii Soil and Water Conservation Law, Chapter 180, Hawaii Revised Statutes. Our role is to carry out programs for the protection and conservation of soil and water resources. The Districts' responsibilities also include reviewing and providing comments on Maui County drainage and erosion control plans for land use changes, developments and subdivisions. (Chapter 20.08.080 Grubbing and Grading Permit Review). The Districts also assist in environmental education of the general public through school programs and other methods of recognition for conservation minded citizens.

The SWCDs exist under the State Department of Land and Natural Resources. Each has a board of directors consisting of five voting directors, and a number of associates. SWCD Directors are volunteer citizens from their respective communities, working to provide a healthy natural resources environment for the people by coordinating technical, financial, and educational resources.

All of the programs involving SWCDs are community based. SWCD directors welcome community input toward identifying natural resource problems. The SWCD Program carries out its activities in partnership with County, State, and Federal agencies.

To learn more about the Soil & Water Conservation Districts, visit the following websites:

- <https://dlnr.hawaii.gov/swcd>
- <http://www.nacdnet.org/about/districts/index.phtml>

**People  
Land  
And  
Nature**



**USDA Natural Resources Conservation Service**  
**District Conservationist Message**

The cooperative efforts between the USDA-Natural Resources Conservation Service, Kahului Field Office, and the Maui Soil Water & Conservation District personnel are reaching out to the community to provide conservation technical assistance to the people we serve. Conservation technical assistance and Farm Bill Programs not only provide tools and resources to make a major difference in improving Maui's natural resources, but also working lands for production for the lives of farming and ranching families and the communities in which they live. The 2014 Farm Bill Programs address soil, water, air, plants, and animals at various levels of resource treatments on grassland, non-industrial forest land, and organic and conventional cropland through financial and technical assistance for the following programs; 1) Environmental Quality Incentives Program, 2) Conservation Stewardship, 3) Agricultural Management Assistance, 4) Regional Conservation Partnership Program, 5) Agriculture Conservation Easement Program-Wetland Reserve Easements, 6) Healthy Forest Reserve Program.

This has been an exciting year in partnering with the Maui SWCD's. Together we have a cooperative agreement which assists NRCS in the additional workload of the FY 2014 Farm Bill Conservation Programs and conservation technical assistance. The outcome has been very successful as we work together to increase the people we serve getting conservation on the ground. We are hopeful to continue these funding efforts

Maui County has a very diverse land base as well as agriculturists; we are currently working with more than seventy operators and increasing due to the closure of Hawaii Commercial Sugar Company. The NRCS Kahului Field office obligated more than \$600,000 dollars to operators who have resource concerns on pasture land, cropland and forestry which includes wildlife. At the Kahului Field Office Service Center we encourage producers and individuals wanting to know more about the 2014 Farm Bill and conservation technical assistance to please contact our office at 871-5500 Ext 107.

Mahalo nui loa to our partners for their continued support throughout the years. NRCS Kahului Field Office recognizes and appreciates the support and efforts of the Maui Soil and Water Conservation Districts, Hawaii Association of Conservation Districts, Maui County Farm Bureau, Hawaii Farmers Union, Mayor Alan Arakawa, Maui County Council Members, Department of Public Works, Environmental Management, Department of Health, Department of Land and Natural Resources, Maui Conservation Alliance, Maui Axis Deer Program, UH Maui Cooperative Extension Service, Maui Invasive Species Committee, East Maui Watershed Partnership, West Maui Mountains Watershed Partnership, Pu'u Kukui Watershed, Environmental Protection Agency, US Fish and Wildlife Service, USDA- Farm Service Agency and the Tri-Isle Resource Conservation & Development.

*Ranae Ganske-Cerizo*



<http://www.nrcs.usda.gov/wps/portal/nrcs/main/pia/programs/farmbill/>

The 2014 Farm Bill was enacted on February 7, 2014. The USDA Natural Resources Conservation Service offers voluntary Farm Bill conservation programs that benefit both agricultural producers and the environment.

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/pia/contact/>

USDA is an equal opportunity provider and employer.

## USDA NRCS and Maui SWCDs Kahului Field Office Staff



Ranae Ganske-Cerizo  
USDA NRCS  
District Conservationist



Carl Hashimoto  
USDA NRCS



Kahana Stone  
USDA NRCS  
Soil Conservationist



Ryan Woolbright  
USDA NRCS  
Civil Engineer



Maggie Kramp  
Maui SWCDs  
Administrative  
Assistant



Jason Hew  
Maui SWCDs  
Conservation  
Specialist

Hannah Lutgen, Maui SWCD Conservation Specialist was born and raised in Wisconsin, developing an interest in the natural world at an early age. Hannah graduated with a B.S. degree in Sustainable Horticulture with a minor in Spanish from the University of Wisconsin-Stevens Point. She developed a deep appreciation and interest in the Hawaiian culture and landscape while learning about the flora and fauna of Hawaii during a college field biology course held in Hawaii in 2009. After graduation, Hannah did a 2 year internship on an organic farm in Wisconsin to gain invaluable hands on experience. During her farming apprenticeship she managed a cut flower CSA, completed the beginning farmers incubator course, and traveled to Mexico where she helped harvest and process coffee with an indigenous Mayan family deep in the Oaxacan Mountains. She also worked with the Farm to School Program and helped the Amish and conventional farmers organize and establish a producer-owned cooperative in rural central Wisconsin as an AmeriCorps member. After gaining valuable experience in farming vegetables, flowers, inoculating mushrooms, raising and harvesting poultry and pigs, she yearned to learn and experience farming in a warmer, temperate climate. Hannah moved to the West Coast and worked/volunteered at a variety of farms from school gardens, biodynamic farms, grass fed beef, goat dairy, and permaculture in Northern California and Oregon for over 3 years. Her passion for agriculture, conservation, local food, working and communicating with farmers from diverse cultural backgrounds ignited her to move to Maui. After moving to Maui in January 2015, Hannah was ecstatic to be chosen to work for Maui Soil and Water Conservation Districts in July 2016. Although she is still a new transplant to Maui, she loves learning and helping local farmers achieve their conservation objectives.

### DASHBOARD

Education Outreach Marketing	2014-2015			2015-2016			2016 - 2017 (numbers recorded up until May 31, 2017)			Misc. Notes/Comments
Conservation Awareness Program	Participants	Staff, Volunteers	Cost	Participants	Staff, Volunteers	Cost	Participants	Staff, Volunteers	Cost	cost does not include staff salary, directors/volunteers matching time
Conduct Training	125	5		46	3		76	4		enrollment fluctuates, pending availability of school advisors
Maui Contest	44	22	\$ 1,005.60	30	27	\$ 797.23	52	27	\$ 838.60	cost of food/beverage, awards, insurance
State Contest	20	10	\$ 950.78	20	10	\$ 1,144.55	20	10	\$ 1,942.07	cost of travel expenses for Maui team of 5 to complete in the state and national competition
National Contest	800	100	\$ 9,912.23				650/33 states	100	\$ 10,000.00	
General Public Education	Participants	Staff, Volunteers	Cost	Participants	Staff, Volunteers	Cost	Participants	Staff, Volunteers	Cost	Misc. Notes/Comments
Events: County Fair, Ag Fest, State Capitol Ag Awareness Day, HSAC, SWCD Field Trip	difficult to measure	8	\$ 9,387.77	difficult to measure	10	\$ 5,649.25	difficult to measure	12	\$ 7,791.31	travel expenses, registration fees, printing of SWCD/HACD brochures
Ag in the Classroom	23	6	\$ 1,326.34				field trip scheduled for June 22, 2017, HACD Annual Conference			featuring SWCD projects and/or cooperators
Annual Report	distribution count: 250	6	\$ 990.18	700	20	unavailable	958	20	unavailable	provide assistance to the Maui County Farm Bureau
Website Development	Participants	Staff, Volunteers	Cost	Participants	Staff, Volunteers	Cost	Participants	Staff, Volunteers	Cost	Misc. Notes/Comments
Develop Website	website under construction	5	\$ 2,456.26	Average monthly: 500 visits, 147 page views	2	\$ 192.00	Average monthly: 679 visits, 1296 page views, 439 audience size		\$ 192.00	website updates needs to be worked on
Training		2			3			1		
Maintain Website										

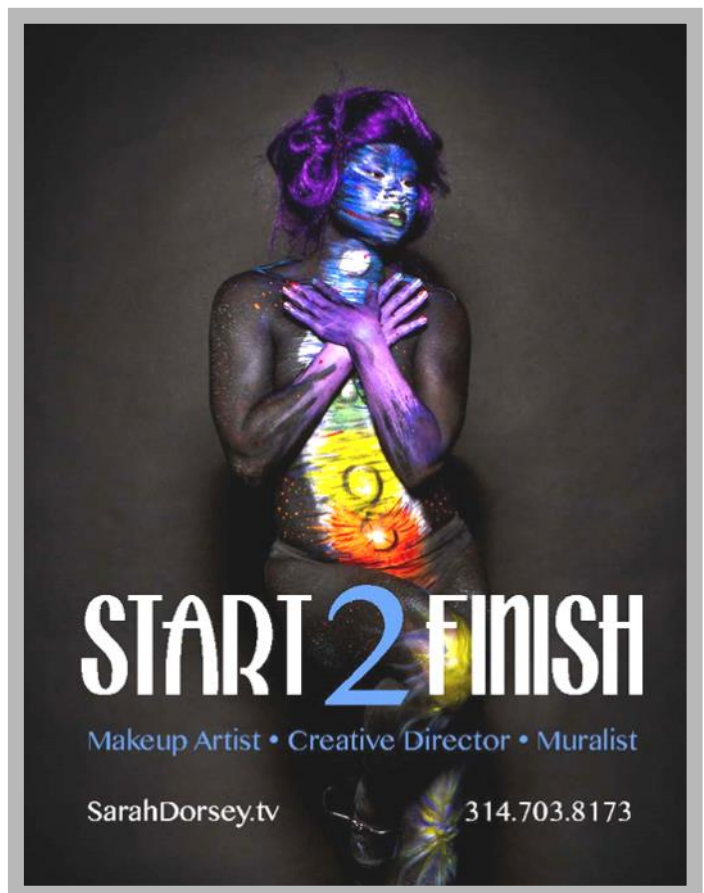
Minimize Negative Impact on Natural Resources	2014 - 2015			2015-2016			2016 - 2017 (numbers recorded up until March 31, 2017)			Misc. Notes/Comments
County Grading and Grubbing Permits	No. of Plans and/or Projects	Acres	Cost	No. of Plans and/or Projects	Affected Acres	Cost	No. of Plans and/or Projects	Affected Acres	Cost	Total cost (engineering firms, contractors, etc.) difficult to measure. Salary for SWCD technical assistant to review plans; cost does not include SWCD administrative assistant salary and director volunteer time
Review Plans and Submit	40	500	\$ 21,124.50	61	660.547	\$ 21,215.50	40	590.86	\$ 16,011.00	
Conservation Technical Assistance (CTA) and USDA Farm Bill (FB) Plans	No. of Plans and/or Projects	Acres	Cost	No. of Plans and/or Projects	Acres	Cost	No. of Plans and/or Projects	Acres	Cost	Number CTA and FB plans, acres, and cost of conservation practices. Cost of application is amount requested for FB contracts. Most of the FB contracts (USDA funds for the cooperator) started as CTA planning. Cost benefit amount does not include SWCD conservation specialist, NRCS staff salary, and SWCD directors volunteer time.
FB Applications Received	56	1962.7	\$1,884,522.00	78	4433.1	\$ 2,317,929.99	86	3589.5	\$ 1,098,187.09	
FB Contracts Obligated	19	1104	\$ 869,019.62	24	1525.1	\$ 1,353,527.31	15	240.6	\$ 482,568.53	
CTA Plans Pending Final Approval	13	291.4	\$ 434,839.74	33	692.15	\$ 680,247.14	24	1396.6	\$ 777,311.32	
CTA Plans Signed/Completed	29	805.9	\$1,047,682.64	11	81.5	\$ 9,881.73	5	325.6	\$ 199,530.31	
Follow-up/Deferred/Canceled Plans	6	49.2		9	149.05	\$ 116,846.29	5	159.1		
Watersheds	Phases/Description	Cost		Phases/Description	Cost		Phases/Description	Cost		Misc. Notes/Comments
Upcountry Maui Watershed	Phases 6-7 + laterals	\$28.55 million		Four Design Phases, \$1,254,930; Unresolved/On Hold Construction Agreements, \$28,000,300			Due to Federal budget cuts, status is unknown at this time. The SWCDs will continue its lobbying efforts for through various sources for funds needed to complete the Upcountry Maui Watershed and Lahaina Flood Control Projects.			
Lahaina Flood Control	Phases 3B, 4-5	\$ 22,567,000		Phases 3B, 4-5 on hold/unresolved	\$ 22,567,000					
Lahaina Temporary Flood Control Project	annual inspections and maintenance	donated expenses unavailable		annual inspection and maintenance	estimated cost \$3900.00		annual inspection and maintenance	\$ 4,400.00		annual maintenance work expected to be done by the end of the fiscal year
Coral Reef Initiative: West Maui Ridge to Reef Program	Ongoing Project	\$ 62,072.74		Ongoing Project	\$ 102,740.00		Ongoing Project	\$ 65,095.15		secured state funds through DLNR for watershed coordination, 1/1/16-9/30/17
West Maui Fire Prevention and Fire Erosion Stabilization Project				new project for this fiscal year			Procurement and Native Seed Hydromulch Trials to Reduce Potential Post Fire Sediment Erosion	\$ 29,966.49		This project coincides with the Ridge to Reef Program
Southwest Maui Watershed Base Plan							43,688 acre planning area, comprised of the Hapapa, Waialea and Mo'aloa watersheds	\$ 50,000.00		Watershed coordinator to update the SMWP to meet EPA and DOH Clean Water Branch requirements

# SOILS TUNNEL

Built by James Ino, Artwork by Sarah Dorsey, and Painting Assisted by Hannah Lutgen  
Paint donated by Mae Nakahata and Warren Watanabe  
Project Cost Shared by the Four Maui Soil & Water Conservation Districts



James Ino, Hannah Lutgen, and Sarah Dorsey





## 2017 Ag in the Classroom

By Jason Hew

The Maui County Farm Bureau hosted its annual Agriculture in the Classroom end of year event at Oskie Rice Arena on May 11<sup>th</sup> and 12<sup>th</sup>. The two day event hosted approximately 970 2<sup>nd</sup> graders and exposed them to different aspects of agriculture. There were 6 stations for the participants to visit presented by Monsanto, Maui Electric Company, Maui Soil & Water Conservation Districts (SWCDs), UH-Maui Master Gardeners/ College of Tropical Agriculture and Human Resources (CTAHR), Haleakala Ranch, and Haleakala Ranch- Conservation Partners in Agriculture. Each station discussed various topics related to agriculture, many with hands on activities for the students. Monsanto discussed the parts of a plant with students and gave them sweetcorn plants to bring home and grow. Maui Electric Company talked about nutrition and gave the students a pineapple snack. CTHAR/Master Gardeners talked about Hawaiian canoe plants and their importance to Hawaii's agriculture. Haleakala Ranch brought cows, goats, sheep, horses and their babies to talk to the kids about the relationship between moms and their babies and how to manage them in a ranching operation. The Haleakala Ranch Conservation Partners talked about watersheds and how conservation efforts affect our life on an island like Maui. The Maui SWCDs talked about what is soil, and how soil is important for human life. We began with asking the 2<sup>nd</sup>



*Talking to the students about soil*

The first was a trough with soil in it for the students to feel and observe. We asked them to look for the components that make up soil such as rocks, plant matter, and critters like earthworms. The second exhibit was a soils tunnel that we constructed and painted to represent being underground. All of the students were asked to go through the tunnel and look for things they would see if they were actually underground. The students had a great time getting dirty, and learning about soil.



*Students going through the soils tunnel*



*Students looking at soil*

graders what they thought soil was made of, some with impressive answers. We then talked about what soil is, and how there is life within soil and the role of soils in our lives. After a brief discussion we had the students go through 2 exhibits.



We look forward to next year's Ag in the Classroom final event!



## Photo Highlights of the Annual Conservation Awareness Program — Land Judging Contest



Where students used their knowledge about the physical features of soil, and factors affecting land use and classification, to evaluate 3 sites for the contest. The contest not only provides students with a fun way to learn about local soil and water resources, but it also taught them how to recognize resource concerns and how to address them with conservation practices.



### Maui Contest Results

**1st Place**  
**Kamehameha**

**2nd Place**  
**King Kekaulike**

**3rd Place**  
**Maui High School**

Mahalo to the Following People for Helping Make the Maui Contest Possible:

Leo Tomita, Baldwin High School; David Stolzhus, Home School Soil Squad; Duane Iwamura, Kamehameha; David Rostetter, Maui High School; Andrew Wolski and James Ino, King Kekaulike; UHCTAHR Cooperative Extension Service - Robin Shimabuku, Norman Nagata, Nancy Ooki, and Cindy Reeves; USDA-NRCS - Kahana Stone, Ranae Ganske-Cerizo, Ryan Woolbright, and Carl Hashimoto; Jon Allen, Monsanto Hawaii; the HC&S Crew; Daniel Ornellas, DLNR; Patrick Ornellas, Maui County Farm Bureau; Jay Nobriga, West Maui SWCD; Richard Sylva, Central Maui SWCD/Tri-Isle RC&D; Buddy Nobriga, Nobriga's Ranch; Pamela Kanatarova, Earth Team Volunteer; and Maui SWCD Staff - Maggie Kramp, Jason Hew, and Hannah Lutgen



**Congratulations to Kamehameha School Maui Team**  
**Nikki McGuire, Bendan Otani, Kaimana Idica, and Kupono Aguirre**  
**for Making it to the National Land Judging Contest**

If you would like to make a donation towards the Maui Soil & Water Conservation Districts' education program and other conservation efforts, contact the Maui SWCDs at 808-871-5500 ext. 3  
<http://www.mauicountysoilandwater.org/>

## Continued Support Needed to Complete Watershed Projects

### Lahaina Flood Control Project

The Lahaina Watershed Project, first proposed by West Maui SWCD, is a USDA-NRCS watershed project authorized under the Watershed Protection and Flood Prevention Act (PL-83-566). The Maui County Department of Public Works and the West Maui Soil and Water Conservation District are sponsoring this project to reduce sediment discharge to the ocean and provide flood protection to residential and commercial areas in the southern part of Lahaina town.

**Problem:**  
1880-1980  
over 25 damaging floods



**Timeline:**  
1980  
Project Initiated  
1992  
NRCS Authorized



**January 15, 2010  
Project Finally Breaks  
Ground**



**First 3 phases  
completed.  
Funding is  
needed to  
complete the  
last 3 phases of the project.**

### Upcountry Maui Watershed Project



The Upcountry waterline project was first proposed to USDA NRCS (formerly known as Soil Conservation Service) by the Olinda-Kula Soil and Water Conservation District in 1982, and is a federally-authorized implementation project. The purpose of this project is to improve agricultural water supply to small farmers in the Upper Kula area of Maui through installation of a dedicated agricultural water distribution pipeline system which bypasses the domestic water treatment facility.

As of 2016, five out of seven phases of the mainline and one lateral have been completed. Funding is needed to complete design and construction of one mainline and three laterals.

Project sponsors: Hawaii Department of Agriculture, Olinda-Kula SWCD, and County of Maui Department of Water Supply

### Lahaina Temporary Flood Control Project



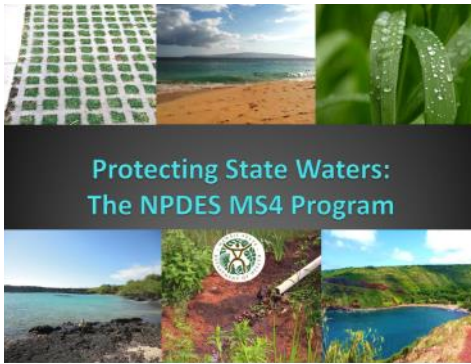
Wes Nohara, West Maui SWCD Associate Director conducting annual inspection of the Lahaina Temporary Flood Control Project. Boulders and trash were found within the trough, posing potential disaster in the event of a major flood.

Delays due to funding and priorities, West Maui SWCD installed temporary flood protection measures above Lahaina in 2000 and have been inspecting and maintaining the temporary system since then. West Maui SWCD also continued to lobby for funding and implementation of the Lahaina Watershed project.

West Maui SWCD hired West Maui Land Company to do repairs and maintenance work through grant funds received from the County of Maui County. Goodfellow Brothers, Wes Nohara, and Jason Hew also donated their time to work on other areas of the temporary flood control system.



Photo (l-r): Jason Hew, Maui SWCD Conservation Specialist; Jay Nobriga, West Maui SWCD Chairman; Kimo Falconer, WMSWCD Director; and Jay Fujimoto, Hawaiian Dredging Construction Co., Inc. discussing the grading and grubbing plans for the U.S. DOT Federal Trans. Administration - Lahaina Bypass 1B-2 project. West Maui SWCD also expressed concerns about how this project could affect the Lahaina flood control project.



## Protecting State Waters: The NPDES MS4 Program

### Hawaii's MS4 NPDES Permittees

- City and County of Honolulu (Police Stations, Fire Stations, Bus Facilities, Baseyards, Refuse Transfer Stations, Collection Yards, and Convenience Centers; Landfills; and WWTPs).
- Dept. of Transportation (highways, Honolulu Harbor, Kalaheo Harbor, Honolulu International Airport, Kahului Airport).
- Dept. of the Navy (JBPHH, PHNSY).
- Hawaii Army National Guard.
- Hawaii Community Development Authority (Kewalo Basin, Kakaako Community Development District).
- U.S. Air Force (Kaena Point Station).
- U.S. Army Garrison Hawaii.
- Marine Corps Base Hawaii.
- Dept. of Business, Economic Development & Tourism (Villages of Kapolei).
- Dept. of Education (Oahu Schools).
- Dept. of Land and Natural Resources (Harbors).
- Dept. of Agriculture.
- University of Hawaii (Manoa Campus, Leeward CC, Windward CC, Honolulu CC, Kapiolani CC, Maui College, Pearl City Garden Center, John Burns School of Medicine, West Oahu Campus).
- County of Maui (Kahului/Wailuku).
- Dept. of Health (State Hospital).

### What is a MS4?

- MS4 stands for **Municipal Separate Storm Sewer System**.
- Any structure designed or used to collect or convey stormwater (e.g. drain inlets, catch basins, pipes, gutters, channels, ditches, road side swales, and culverts).
- Owned by federal, state, county, or any public entity. Includes State Department of Transportation, universities, and military bases.
- Discharges to State surface waters (e.g. ocean, stream, gulches, and wetlands).

### Why Stormwater Matters:

- When it rains, stormwater picks up debris, chemicals, sediment, and other pollutants.
- Stormwater flows into MS4s, where it is discharged untreated into streams and coastal waters.
- Pollutants in streams and coastal waters affect water quality. They destroy aquatic habitats; cloud the water; cause algal blooms; contribute bacteria and other pathogens; and deposit debris, solvents, motor oil, pesticides, and other hazardous substances.
- Urban impervious surfaces speed up and direct the flow of stormwater into the MS4, which prevents it from being absorbed and filtered by the ground.

### MS4 Minimum Program Elements

Also known as **Minimum Control Measures**

### DOH-CWB Contact Information

Department of Health  
Clean Water Branch  
919 Ala Moana Boulevard, Room 301  
Honolulu, Hawaii 96814

- Telephone: (808) 586-4309
- Email: [cleanwaterbranch@doh.hawaii.gov](mailto:cleanwaterbranch@doh.hawaii.gov)
- Website: <http://health.hawaii.gov/cwb/>
- Public document viewer: <http://eha-web.doh.hawaii.gov/wpc-viewer/>

## CARE FOR THE LAND & WATER CAN YOU DIG IT?



The construction industry has a high level of responsibility regarding **stormwater pollution prevention**. Stormwater runoff from construction activity can flow off disturbed areas and bring dirt, nutrients, and other pollutants directly into our streams and oceans.

- Plan construction in phases that will reduce areas of exposed ground.
- Utilize gravel or stabilized entrances/exits to reduce mud tracking from construction vehicle tires.
- Halt construction during periods of heavy rain.
- Clean equipment away from storm drains, and don't wash dirt or anything else down the drain.
- Cover stockpiles to reduce runoff.
- Control dust and wind erosion by stabilizing exposed surfaces.

**Clean construction areas protect our streams and oceans!**

**Best Management Practices (BMPs)** can reduce the discharge of pollutants. The County requires BMPs to be used on ALL grading, grubbing and stockpiling projects.

**Prevent Erosion from Soiling our Waters**



County of Maui and Maui's Soil & Water Conservation Districts work together to protect natural resources and

**Save our Soil!!**



## Southwest Maui Watershed Plan Gets Maui County Funding

The Southwest Maui Watershed Plan was developed for the Central Maui Soil and Water Conservation District in 2013 to provide sediment reduction measures for the 49,688 acre planning area comprised of the Hapapa, Wailea and Mo'oloa watersheds. The area extends from the summit of Haleakalā to the coastal areas of Kihei, Wailea, and Makena. Implementation projects developed by the Plan were meant to improve water quality throughout the watershed. Unfortunately, the Plan is not currently recognized as a priority watershed by the Environmental Protection Agency (EPA) or the Hawaii Department of Health (DOH) Clean Water Branch (CWB). Because of this, the Plan in its current condition is not eligible for federal 319 Grant Program funds and the various projects for improving water quality within the watershed are not able to be implemented.

The CMSWCD has been given four specific points to address in order to elevate our watershed's status:

1. The Plan must offer load reduction estimates for each of the proposed implementation projects listed in the watershed plan.
2. We need to develop a robust monitoring and assessment methodology to capture the effects of our implementation projects.
3. We need to create maps showing the specific locations where measurements will be taken and explain why these locales were chosen.
4. We need to develop a project timeline with milestones for determining project progression.

In 2017, through a County of Maui, Office of Economic Development grant, the District was able to create a Watershed Coordinator position whose job is to address the four points listed above. Michael Reyes was named watershed coordinator and has been working closely with Richard Sylva and Maggie Kramp to ensure the District's watershed plan is given priority status. Sampling efforts are underway in the gullies and gulches above Pi'ilani Highway in Kihei. Streams are being measured for Total Suspended Solids and flow using flow meters purchased through the County grant. Maps of the implementation project areas have begun to be created and a monitoring and assessment methodology is being developed.

The implementation projects proposed in the Southwest Maui Watershed Plan will reduce sediment load in the gullies and gulches flowing into the coastal waters of Kihei, Wailea and Makena. The project will help Maui County government, residents, visitors and businesses in various ways. For the county, less erosion will mean less property and road damage caused by flooding during heavy rain storm events. Local residents will benefit from clean waters, sustainable fisheries, safe roads, and a robust economy. Clear coastal waters promote tourism and the fishing industry.



Alae Gulch at Kekaulike 4/30/17



Taking flow measurements in  
Keokea Gulch mauka of Piilani Highway



Taking flow measurements in Kulanihakoi  
Gulch just north of South  
Kihei Road.

We would like to thank Mayor Alan Arakawa, the Maui County Office of Economic Development, Maui County Council Budget and Finance Committee, and residents of Maui County for your support!

## Olinda-Kula SWCD, Est. 1948



Clark Hashimoto  
Chairman



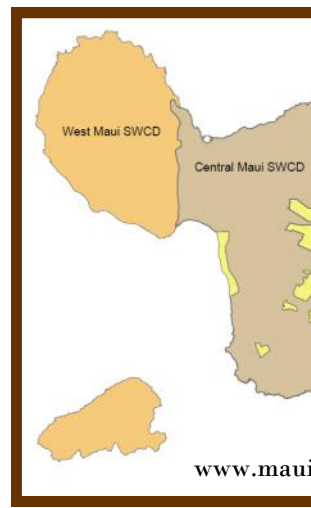
Garret Hew  
Vice Chairman



Neil Nakamura  
Secretary-Treasurer



Alan Nago  
Director



Koa Chang  
Director



Jacob Tavares  
Director



Robin Shimabuku  
Associate Director

## West Maui SWCD, Est. 1954



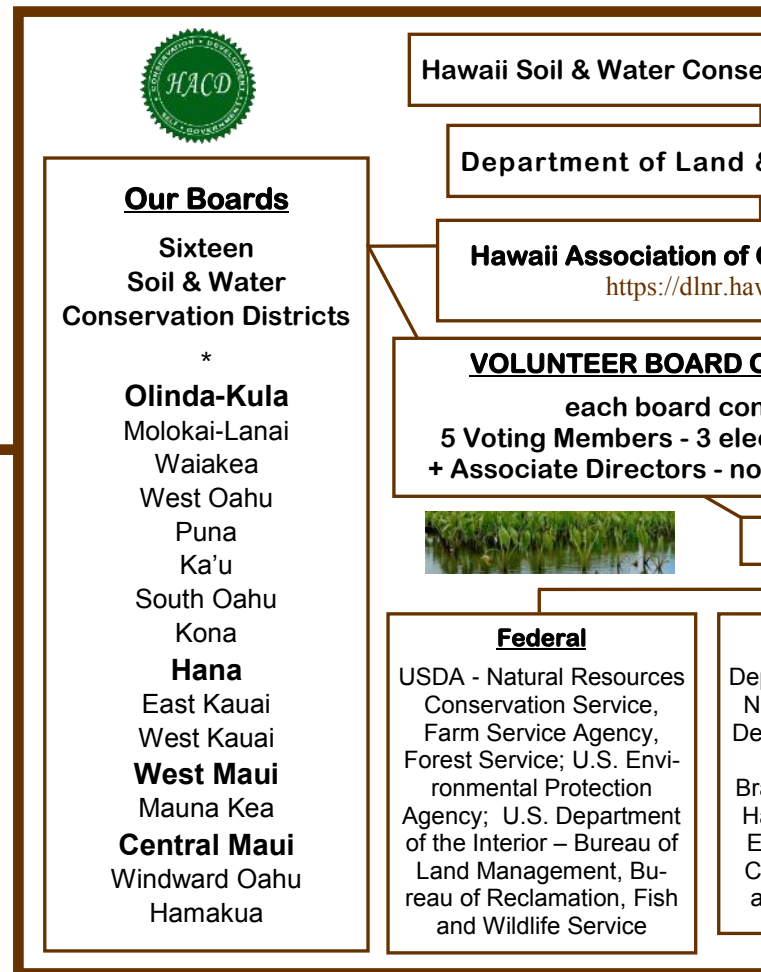
James J Nobriga  
Chairman



Daniel Pomaika'i  
Kauniaupio-Crozier  
Vice Chairman



Kimo Falconer  
Treasurer



Ian Swezey  
Secretary



Kainoa Casco  
Director



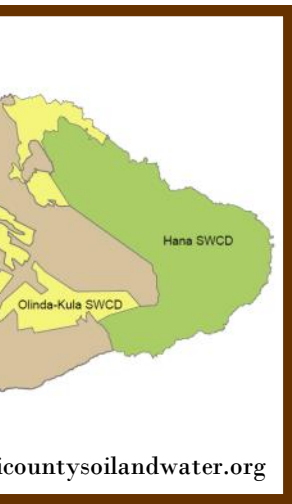
Wes Nohara  
Associate  
Director



Daniel Ornellas  
Associate  
Director



Dave Minami  
Associate  
Director



## Hana SWCD, Est. 1953



JoLoyce Kaia  
Chairwoman



Annette Smith  
Secretary



Susan Cuffe  
Treasurer

Conservation Law, Chapter 180

& Natural Resources

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**Our mission**  
is to provide a healthy natural  
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educational resources.



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## Central SWCD, Est. 1957



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## Healthy Soil is Full of Life at Fairyland Farm and Forest LLC

By Hannah Lutgen

Healthy soils are full of living microorganisms, animals, and insects. These critters decompose organic matter providing nutrients necessary for plant growth. Just like humans, plants need nutrients to grow. Humans rely on plants for food and oxygen to breathe. Soils abundant with living organisms produce healthy plants essential for animal and human nutrition.



Before Agroforestry Plan



After Agroforestry Planting Plan  
Jenta Russell and Winsome in field of  
kabocha squash cropped between  
tree rows. The tree rows border the  
exterior side of the farm



Weed Control  
cardboard with black silage tarp

Jenta Russel, Fairyland Farm and Forest LLC is an outstanding cooperater that exemplifies this year's theme of *Healthy Soil is Full of Life*. Jenta Russell's farm, is located in the Central Maui district. Her mission is to use agroforestry, pastureland, and permaculture methods to regenerate and honor land while inspiring community. Jenta is a phenomenal cooperater because she has improved the health of her soil by implementing two conservation plans.

In the summer of 2016, Jenta heard about the SWCDs through a farmer who had a positive experience working with NRCS and the SWCD. Jenta discussed her agricultural objectives and concerns with me. We worked together to develop plans to achieve her agricultural objectives of planting a food forest, with native and non-native fruiting bodies, and pasture management.

At first, Jenta wanted to establish an Agroforestry system, which is a combination of trees and shrubs grown around crops. Jenta wanted help determine plant spacing in a 1 acre meadow dominated by invasive weeds. I created a conservation technical assistance (CTA) plan, which included a tree/shrubs planting design. The plan also incorporated a native windbreak to protect crops from damaging winds. Jenta stated that Maui SWCD conservation plan was extremely helpful. She is nearly finished with her agroforestry plan and has transformed the invasive meadow into a diverse multi-layered forest of fruit tree rows, intercropped with vegetables.

The health of her soil has significantly improved in numerous ways. Jenta used sustainable methods of weed control. Cattle browsed the field, then she laid cardboard with a black silage tarp on soil surface to solarize weeds. This method efficiently killed the weeds and prepared the soil for planting without tilling or using herbicides. Second, mulching with cardboard, old leaves and grass stems added carbon & nitrogen to the soil providing food for soil microbes. Third, she intercropped drought tolerant food crops such as Kabocha squash within and between tree rows to suppress weeds and conserve soil moisture. And now her soil is thriving with earthworms, beetles, and is rich in organic matter.

After her first successful Agroforestry plan, Jenta requested assistance for pasture management. Her goals are to be prepared for drought by providing sufficient forage to feed her cattle. Due to rocky, soil type and low rainfall, drought is an imminent threat in Jenta's pasture. The best alternative to manage her cattle operation is by following a NRCS pasture plan, which includes monitoring rainfall, adding cross fences to create more paddocks, and rotating cattle. With the



Close-up of what lies beneath the cardboard/silage tarp after 3-4 weeks. The decomposed grass, earthworm and fungal hyphae are indicators of healthy soil.



Monarch butterfly in Agroforest field indicates healthy soil & diversity of flowering plants.

help of NRCS and the Maui SWCD, Jenta will hopefully receive financial assistance to execute her plan. Regardless of funding, Jenta is committed to implementing her pasture plan to achieve her conservation objectives.

Prior to working with the Maui SWCD, Jenta continuously grazed 11 beef cows in both fields 1, 2 with one trough. During the planning process, I advised Jenta to close the gate, move cattle into 1 field and see what happens. After giving the grass a 30 day rest period in field 2, and she was astonished by the changes. The recovery period allowed desirable forage grasses to re-grow & set seed. The roots grew back, producing more grass seedlings in areas with exposed soil. Jenta appreciates the assistance she received from the Maui SWCD and NRCS in developing her pasture plan, and has already noticed improvements in soil health and pasture resiliency.

The Maui Soil and Water Conservation Districts would like to thank Jenta Russell, Fairyland Farm and Forest LLC for her donation of compost & earthworms for the agriculture in the classroom event. Furthermore, we applaud Jenta for efforts in protecting Maui's natural resources.



Continuous Grazing  
Grass is eaten below stubble height affecting root growth.



After 30 days of rest, grass is lush and healthy



Koa and Aalii windbreak row with cardboard/grass mulch.



*To the Maui Soil & Water Conservation Districts . . .  
Preserving the best of Maui for future generations.*



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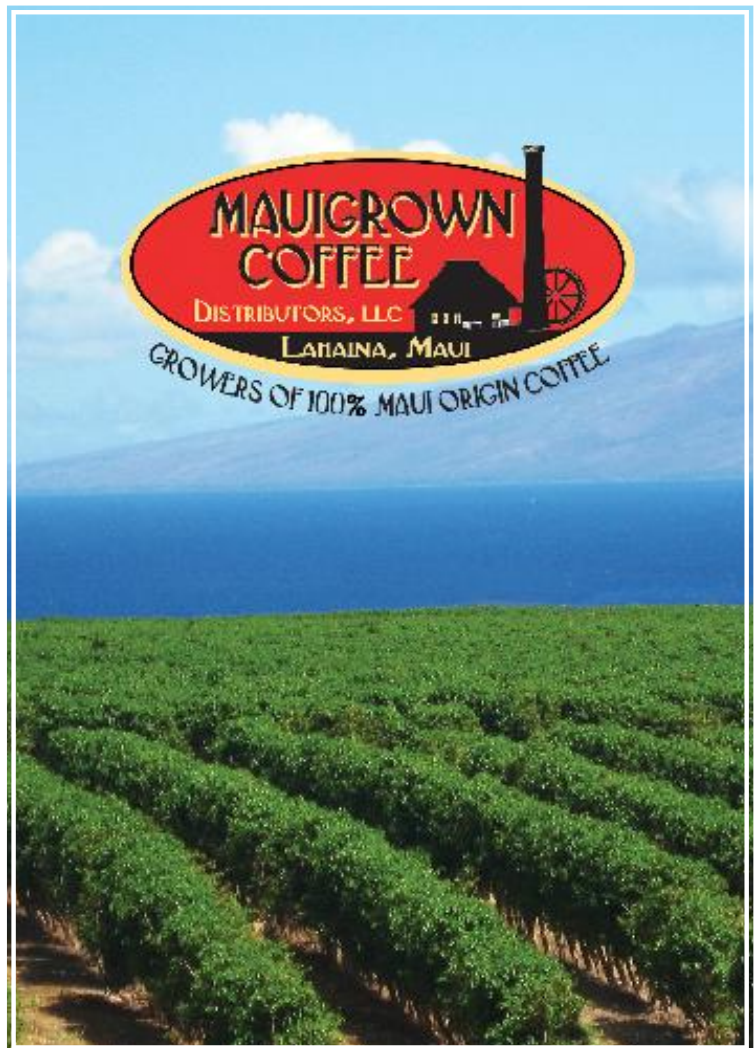
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# West Maui Fire Prevention and Post Fire Erosion Stabilization Supply Procurement and Native Seed Hydromulch Trials to Reduce Potential Sediment Erosion Project

By Jason Hew



Figure 1 Effects of fire and erosion on the landscape

The West Maui SWCD administered the West Maui Fire Prevention and Post Fire Erosion Stabilization Supply Procurement and Native Seed Hydromulch Trials to Reduce Potential Sediment Erosion project. The project manager was Pomaika'i Kaniaupio-Crozier, Vice Chair of the West Maui SWCD. One of the project's main goals was to improve coastal water quality and coral ecosystem function and health by reducing land-based pollution. To achieve this goal, the project needs to reduce the pollutant load to surface water and groundwater through site specific actions and best management practices. The pollutant targeted in the project focused on sediments transported and deposited from water erosion. Lands in West Maui are prone to fire, and once cleared are subject to mass erosion in storm events. Figure 1 shows the effects of a fire and erosion on the mountainous landscape of West Maui.



Figure 3 Marker with minimal erosion



Figure 4 Marker that has experienced significant erosion

One objective of the project was to secure, test, and store post-fire stabilization materials. Some of the materials include fire suppression tools (fire control hand tools), hydromulching erosion control equipment and materials, and plant restoration supplies (native seeds, soil tests, etc.). The first 2 trial plots (10' X 10') using the native seed and hydromulching equipment were tested. The first plants to emerge were koa (*Acacia koa*) and aalii (*Dodonaea viscosa*) (Figure 2). The next step is to repeat the trial on a larger scale, a few hundred square feet. It is a little early to say if the plot was a success, but there is promise from the germination rate observed.



Figure 2 Koa sapling and aalii plants with hydromulch material

Evidence of post fire erosion is demonstrated with markers that have been placed in the ground in order to measure the amount of soil that has been eroded. Figure 3 shows a marker that is in an area that has not experienced much erosion, whereas Figure 4 depicts a marker that is in an area that has experienced a significant of soil loss.

Pomaika'i has been hugely influential in the creation and implementation of the project. He has a passion for conserving all natural resources. He is determined to create a program that minimizes the chance for mass erosion events using ahupua'a based management. This project has the potential to create a new way of managing lands effected by fire, not only on Maui or the state of Hawaii, but anywhere that can support the growth of native plant species.



Foreground - Pomaika'i (right) discussing the project with field trip participants Jay Nobriga (left), Hannah Lutgen (middle) and others (not shown in photo). Background - past fire location that has not reestablished vegetation due to erosion



close-up of past fire location



Sally Jewell, U.S. Secretary of the Interior and Pomaika'i Kaniaupio-Crozier

Pomaika'i Kaniaupio-Crozier, WMSWCD Vice Chairman, pictured in the middle of photo as a conch shell blower during the Hawaii Conservation Alliance opening ceremony at IUCN



Pomaika'i Kaniaupio-Crozier on IUCN panel discussion and presentation regarding unified practice of nature, culture, and spirit



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*Thank you to the*  
***Maui Soil & Water Conservation Districts***  
*for their invaluable service to the community.*

## Maui Office Attorneys

Paul M. Ueoka  
 Craig G. Nakamura  
 Catherine L. M. Hall  
 Nancy H. Zhao

*One Main Plaza, Suite 400*  
*2200 Main Street*  
*Wailuku, Maui, Hawaii 96793-1086*  
*P 808.242.4535 F 808.244.4974*

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A&B map shows possible uses for fallow sugar fields



A&B planning pongamia project on former HC&S land



A demonstration project to grow pongamia on old Hawaiian Commercial & Sugar Co. land in the Maalaea/north Kihei area could get underway in mid-May, an Alexander & Baldwin official said. The tree from India and Australia could produce 400 gallons of biofuel per acre from its seeds. -- TerViva photo

# TRI-ISLE RESOURCE CONSERVATION AND DEVELOPMENT COUNCIL, INC.

*The MISSION of Tri-Isle Resource Conservation & Development is to protect, preserve, develop and serve island communities with a focus on Maui County through the implementation, management and fiscal sponsorship of agricultural, civic, cultural, economic and environmental projects.*

*Our VISION is of a community where partnerships address problems and their solutions, and needs and opportunities in order to enrich the lives of all its members.*



## Who We Are

The Tri-isle RC&D Council is a community-based non-profit 501(c)(3) organization. A 12-member volunteer Board of Directors, representing all of Maui County governs the Tri-Isle RC&D Council.

## History

In 1962, Congress established a unique program within the U.S. Department of Agriculture that empowered rural communities to improve themselves while protecting and developing their natural resources. The focus on local direction and control made Resource Conservation and Development one of the most successful rural development programs of the Federal Government. Currently there are three hundred seventy-five approved RC&D areas.

## What We Do

TIRCD provides a mechanism for local residents and community leaders to work together and actively address community, economic, environmental, and agricultural needs. We help utilize the abilities, knowledge and energy of local volunteers to get projects done. Interested groups may approach TIRCD for project sponsorship by submitting a project proposal for consideration by the TIRCD Council.

The Council has taken a strong leadership role in community economic development, water quality issues, and environmental projects. In FY 2015 and FY 2016, TIRCD brought in and managed \$4,056,652.00 in public and private sector grants for over 200 different programs in Maui County. We administer, expend and audit these grant funds on a FY16 Operating Budget of \$372,000.00, of which \$161,568.00 are non-payroll costs.



Newly Installed 2017 Board of Directors of MNPDA

As Tri-Isle RC&D renews its membership with the Maui Non Profit Directors Association, we would like to congratulate our non profit colleagues/leaders. MNPDA 2017 Officers and Board of Directors, Photo (l-r): Immediate Past President Paul Tonnessen, Friends of the Children's Justice Center; Director Caroline Killhour, Hui Noeau; Treasurer Sherri Dodson, Habitat for Humanity; Vice President Bevanne Bowers, Mediation Services of Maui; Secretary Richard Carr, Habitat for Humanity; President Debbie Cabebe, MEO, Inc.; Director Laksmi Abraham, Maui United Way; Director Cesar Gaxiola, J. Walter Cameron Center

## Contact Us or Donate to:

Tri-Isle RC&D, P.O. Box 338, Kahului, HI 96733  
244 Papa Place, Suite 101, Kahului, HI 96732  
Phone: (808) 871-1010, Email: [Tri-Isle@Tri-Isle.org](mailto:Tri-Isle@Tri-Isle.org)

Tri-Isle Resource Conservation and Development Council, Inc. has these major programs around which its functional expenses are expended from its grants and other income.

#### Environment and Watershed Protection and Restoration

Projects in this category are important to watersheds on each island in Maui County. These watersheds, which are in the uplands, are important to the environmental health of the lands below them. It is crucial that these projects continue to protect all lands and ecosystems of our ahupua'a, the traditional mountain-to-the-sea land divisions on each island. All of Maui County's watersheds are recipients of these projects. It is important to realize that these watershed projects enjoy public funding support from all governments; federal, state and county and, increasingly, from private foundations as well. It is also important that we become facilitative and collaborative in an inter-active and inter-connected system of watershed protection, restoration and management.

#### Invasive Species Eradication, Mitigation and Remediation

Projects in this category become more important each year, as new invasive species on the islands of Maui County, and throughout Hawai'i, are identified. These species not only upset the ecosystems and habitats of our native species, but also infringe on the quality of life of an increasingly urban population, especially on the island of Maui. It is important that these projects continue as many of our native flora and fauna continue to be on endangered species lists. These projects also need resources to continue to educate the general public, including visitors to these islands, about the importance of conservation, environmental protection and natural resource development. Of particular concern is the increase of invasive species, especially ungulates, on former sugar cane lands now lying fallow. It is important that we keep in touch with the Maui County Government, as it becomes more pro-active, at the local level, to eradicate, mitigate and remediate invasive species on all three islands.

#### Native Forests, Ecosystems, and Habitat Protection and Restoration

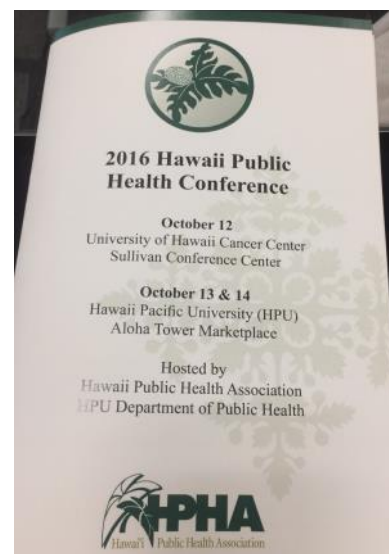
The indigenous ecosystems of the islands of Maui County continue to be compromised and are in demise, decreasing in size and less able to positively contribute to the environments and climates so important to island life. These projects need to continue, as our native flora and fauna (contribute to how our environments and ecosystems) are major contributors to the nurturing of our climate and weather. These projects also need resources to continue to educate the general public, and visitors to these islands, about the importance of conservation, environmental protection, and natural resource development. Our membership in the Maui Conservation Alliance (MCA) helps us to understand and seek new funding streams, as well as to work with new and emerging environmental and resource conservation projects.

#### Indigenous Species Protection and Restoration

As a critical number of our native flora and fauna are on endangered species lists, projects in this category help keep these species as viable components within our environments and ecosystems. It is important to understand that we have already lost many of our indigenous species and that we must protect, replenish and repopulate the remaining species on all the island of Maui County. These projects also need resources to continue to educate the general public, and visitors to these islands, about the importance of conservation, environmental protection and natural resource development. Our membership in the Maui Conservation Alliance (MCA) helps us to understand and seek new funding streams, as well as to work with new and emerging environmental and resource conservation projects.

#### Social, Community, Cultural, Civic and Economic Development

Maui County is a culturally, socially and ethnically diverse jurisdiction. Our mission was expanded, through a strategic planning process in 2012, and revised in 2015, to include projects that build, nurture and improve quality of life for the people living in our communities. These projects contribute to social, cultural, environmental, health, and political factors important to civic and community life on all the islands of Maui County. These projects become more important as the population of Maui County continues to grow both in numbers and diversity. We work with emerging community organizations that have innovative projects, including events, which need a combination of public and private funding, as well as donations from the general public, in order to fulfill their goals and objectives.



HPHA Conference



Phase II Bench Installation,  
Kamaole Beach Park



Planners of the 2017 4-H  
Upcountry Fair: Former Tri-Isle  
RC&D Project Coordinator  
Barry Gay, Ginger Camara,  
Kumu Napua Greig, and Tri-Isle  
RC&D Executive Director  
John Hau'oli Tomoso



Annual Strategic Planning  
October 4, 2016

We are fortunate to have legislators who believe farming is the backbone of our community, and that the soil and water conservation program will preserve our resources for future generations. They have helped our program with financial aid both locally and statewide

The Maui Soil and Water Conservation Districts and the people of Maui want to express our thanks and appreciation to the following Senators and Representatives for their active support of the SWCDs in Maui County. Due to their efforts, the Maui Soil and Water Conservation Districts have been able to accomplish their objectives.



**Senator**  
**J. Kalani English**

District 7  
Hana, East and Upcountry  
Maui, Molokai, Lanai, Ka-



**Senator**  
**Rosalyn H. Baker**

District 6  
South and West Maui



**Senator**  
**Gilbert S.C. Keith-Agaran**

District 5  
Wailuku, Waihee, Kahului

**Representative**  
**Joseph M. Souki**

District 8  
Kahakuloa, Waihe'e, Waiehu,  
Puuohala, Wailuku, Kahului



**Representative**  
**Kyle T. Yamashita**

District 12  
Sprecklesville, Pukalani, Makawao, Kula, Keokea, Ulupalakua, Kahului



**Representative**  
**Angus L.K. McKelvey**

District 10  
West Maui, Maalaea, North Kihei



**Representative**  
**Lynn DeCoite**

District 13  
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**Representative**  
**Kaniela Ing**

District 11  
Kihei, Wailea, Makena



**Representative**  
**Justin Woodson**

District 9  
Kahului, Puunene, Old Sand Hills, Maui Lani



The Maui Soil and Water Conservation Districts sincerely appreciate and thank the Maui County Council Members for their active support for the SWCD program in Maui County.

The Maui County Council Members are our strongest unifying factor in the soil and water conservation movement. They help our program with financial aid and believe the soil and water conservation district program will preserve our community for future generations.

**Mike White**  
Council Chair  
Makawao-Haiku-Paia



**Don S. Guzman**  
Council Vice Chair  
Kahului



**Yuki Lei Sugimura**  
Council Member  
Upcountry



**Alika Atay**  
Council Member  
Wailuku,  
Waihe'e, Waikapu



**Robert Carroll**  
Council Member  
East Maui



**Elle Cochran**  
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West Maui



**Kelly T. King**  
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