

East & West Kauai

Soil & Water Conservation Districts



2017 Annual Report



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Message from the Mayor

Aloha! I am pleased to recognize the members of the East and West Kaua'i Soil and Water Conservation Districts for their tremendous work throughout the years! We have all benefitted from your efforts to conserve and protect our precious resources.

Every year, we look forward to a new stewardship theme provided by your organization in partnership with the National Association of Conservation Districts. This year's theme "Healthy Soils are Full of Life!" offers us a great opportunity to reflect upon where our food comes from, and reminds us to do our part to care for the `aina upon which we all depend.

On behalf of the people of Kaua'i and Niihau, I extend my deep appreciation for the legacy you have built over the years, ensuring that the next generation will be prepared to make wise decisions on managing the island's natural resources.



Aloha Pumehana,



Bernard P. Carvalho, Jr.
Mayor, County of Kaua'i
State of Hawai'i

A Message of Aloha

It is our pleasure to extend our warmest aloha to our conservation partners, supporters, and friends and to report our activities and accomplishments for fiscal year 2017.

The East and West Kaua`i Soil and Water Conservation Districts (Districts) were founded in 1953. There are fourteen other districts in Hawai`i, and around three thousand nationally. The mission of the Districts is to promote stewardship and conservation of natural resources by advocating the use of conservation practices by land users and the general public.

Over time, the role of the Districts has expanded beyond soil and water conservation to include the following activities:

- * review and approve resource conservation plans for soil erosion control and water conservation on agricultural lands
- * advise land users about the agricultural exemption process of the Kaua`i County Sediment and Erosion Control Ordinance
- * participate in EPA and State Department of Health nonpoint source programs
- * support initiatives that seek to protect and maintain irrigation systems
- * promote natural resource protection and conservation outreach programs

Our Districts are locally led grassroots organizations, guided by unpaid volunteers who unselfishly contribute their time and effort. With support from conservation partners, we strive together to preserve natural resources and enhance the quality of life in our communities.

Please enjoy our annual report.

With warmest aloha,

Ed Kawamura, Jr., Chairperson
East Kaua`i Soil and Water Conservation District

Peter Tausend, Chairperson
West Kaua`i Soil and Water Conservation District

East Kaua'i Soil & Water Conservation District



Front Row, L-R:

*Jill Suga (Director),
Michael Fernandes (Director),
Jenni Scotti (Conservation Specialist),
Marj Stanphill (District Assistant),
Ed Kawamura, Jr. (Chairman)
Arryl Kaneshiro (Director)*

Back Row, L-R:

*Genoa Starrs (Conservation Specialist),
Leonard Vierra (Director),
Jerry Ornellas (Associate Director)*

Front Row, L-R:

*Marj Stanphill, Genoa Starrs,
Jenna Dunn (NRCS District
Conservationist),
David Smith (Director),
Peter Tausend (Chairman),
Jenni Scotti*

Back Row, L-R:

*Paul Togioka (County of
Kaua'i), Gary Ueunten
(Associate Director),
Howard Greene (Director),
Robin Young (Associate
Director),
Adam Killermann (Director),
Greg Williams (Director),
Blaise Boyle (Associate
Director)*

West Kaua'i Soil & Water Conservation District





KAUA`I SOIL AND WATER CONSERVATION DISTRICTS

Who We Are and What We Do

The East and West Kaua`i Soil and Water Conservation Districts (Kaua`i SWCDs) are two of sixteen conservation districts in Hawai`i and 3,000 districts in the nation.

The function of Conservation Districts is to use available technical, financial and educational resources to help local land users conserve soil, water, and related resources. In addition to the traditional mission of soil and water conservation, Kaua`i SWCDs are involved in a wide variety of related activities, including erosion control plan reviews of agricultural lands, reviewing and approving conservation plans in partnership with the USDA Natural Resources Conservation Service (NRCS), supporting farmers and ranchers in their effort to obtain government funding for installing conservation practices, involvement in the County's Sediment & Erosion Control Ordinance, control of non-point source pollution, watershed planning, wildlife habitat preservation, and conservation education.

Hawai`i's Conservation Districts are self-governing sub-units of the State government, authorized by and operating under Chapter 180 of the Hawai`i Revised Statutes. For administrative purposes, the Conservation Districts are placed under the Department of Land and Natural Resources (DLNR). Each Conservation District is governed by an unpaid board of five directors: three elected by agricultural land occupiers and two appointed by the Board of Land and Natural Resources. Directors are assisted by Associate Directors. With funding from the State of Hawai`i and the County of Kaua`i, Kaua`i's SWCDs have paid staff consisting of two Conservation Specialists and a part-time District Assistant. Hawai`i's sixteen Conservation Districts have formed the Hawai`i Association of Conservation Districts (HACD) to support and promote natural resource conservation statewide.

The NRCS is the Conservation Districts' prime conservation partner and technical resource agency. In addition to the NRCS, Conservation Districts work closely with and receive support from the DLNR, County of Kaua`i, Department of Water, State Legislature, County Council, US Environmental Protection Agency, HACD, UH College of Tropical Agriculture and Human Resources, State Agriculture Department, Coastal Zone Management Program, and Garden Island Resource Conservation and Development (GIRC&D).

Websites:

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/pia/people/partners/?cid=nrcs142p2_037432

<http://dlnr.hawaii.gov/swcd/>

Hawai'i Association of Conservation Districts Annual Conference on Kaua'i



HACD Annual
Conference on Kaua'i

Pictures, Clockwise:

1) Opening Ceremony with Mayor Carvalho; 2) Tour at Saiva Siddhanta Forestry Project; 3) Tour at Philip Davies Kailani Farms; 4) & 5) Tour at Steelgrass Farm

Special thanks to 6) Aina Ho'okupu o Kilauea for a spectacular lunch!

Community Outreach Activities

- **EWKSWCDs' ANNUAL REPORT:** Through the annual report, our conservation partners and the public are informed of our accomplishments and activities during the year.
- **OUTSTANDING COOPERATORS OF THE YEAR:** Annually, we honor Kaua'i ranchers, farmers and organizations who make outstanding efforts to conserve and protect our natural resources.
- **OUTSTANDING WATER CONSERVATIONISTS OF THE YEAR:** Each year, we recognize and honor Kaua'i farmers or ranchers who make outstanding efforts to conserve and protect water in operating their farms or ranches.
- **CONSERVATION AWARENESS CONTEST:** We sponsor this annual land judging contest among Kaua'i high school students. With assistance from the UH Cooperative Extension Service, the USDA Natural Resources Conservation Service, and cooperation of the State Department of Education, the students learn the importance of natural resource conservation and protection in agricultural production. The winning team competes in the State contest and the State's top team represents Hawai'i at the national competition.
- **KAUA'I COUNTY FARM BUREAU GARDEN FAIR AND FARM FAIR:** We participate in these two events, in April and August, to publicize our activities and role in natural resource conservation.
- **LOCAL WORK GROUP MEETINGS:** Our participation in community meetings on natural resource conservation gives us the opportunity to provide our concerns and input on natural resource conservation and protection on Kaua'i and provides input for the NRCS State level decisions for ranking Kaua'i Farm Bill Program applications.
- **COUNTY DEPARTMENT OF WATER ANNUAL "MAKE A SPLASH WATER FESTIVAL":** We participate in this event to help the County Department of Water promote awareness, appreciation, knowledge and stewardship of water resources to Kaua'i's fifth graders.
- **POSTER CONTEST:** The National Association of Conservation Districts' Poster Contest for Kaua'i's K – 6th Grade students is a national contest to encourage teachers and students to be good stewards of the land by conserving and protecting our natural resources. Posters are drawn by the grade school students to express their thoughts on natural resource conservation and protection. First place posters are sent to the national competition.

Kaua'i Conservation

Poster Contest

Written by Jenni Scotti



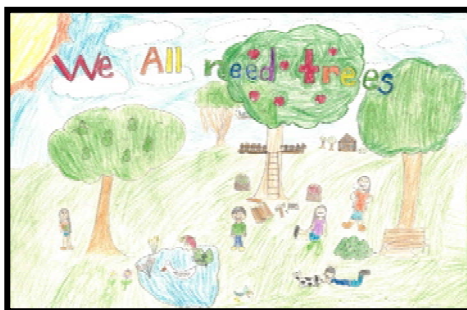
3rd Place: Kimo Rodriguez
Grade 1 / Kaua'i Christian Academy / Mrs. Snyder



3rd Place: Cyra Feliz / Grade 4 /
Kaua'i Christian Academy / Mrs. Morales



1st Place: Sean Lottermoser
Grade 1 / Island School / Ms. Feeren



1st Place: Ari Acosta
Grade 3 / Ele'ele Elementary / Mrs. Mier

Mahalo to the teachers and students from Ele'ele Elementary, Kaua'i Christian Academy, Kawaikini NCPCS, Olelo Christian Academy, Island School, Kalaheo Elementary, Kula Aupuni Ni'ihau A Kahelelani Aloha PCS, St. Catherine's School and St. Theresa's School for participating in our 2016 Conservation Poster Contest.

The local contest has three age groups: K-1st, 2nd-3rd and 4th-6th. The top three winners of each category receive a prize, and the first place in each group is sent to the national contest in Washington DC.

This year's theme was:

We rely on trees for many things in our lives: shelter, medicine, tools, clothes, food and more.

They are important to the environment, removing carbon dioxide from the air and providing oxygen, which allows us to breathe. They protect our soils and watersheds from erosion. Wildlife and native ecosystems rely upon native trees for food and shelter.

Mahalo to Kukui Grove and their staff for providing space to display the posters!

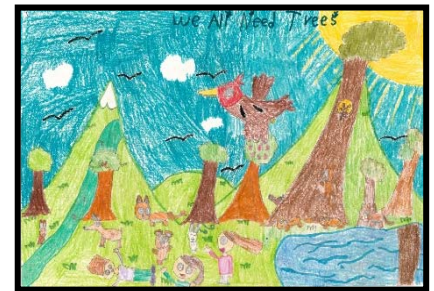
2nd Place: Markus Mohler
Grade 4 / Kaua'i Christian Academy / Mrs. Morales



2nd Place: Tyler Valencia Grade 3 /
Ele'ele Elementary / Mrs. Mier



2nd Place: Lilah Moribe-Rabot
Grade 1 / Olelo Christian Academy /
Ms. Joziat



3rd Place: Alaina Kaohelaui'i
Grade 3 / Ele'ele Elementary / Ms. Carl



1st Place: Pi'ilani Grosse
Grade 6 / Olelo Christian Academy / Mrs. Inman





EK & WK SWCDs present Conservation Poster awards to students at Ele'ele Elementary, St. Theresa's School, Olelo Christian Academy, Kawaikini, KANAKA, and Island School





Healthy Soils Are Full of Life!

Written by Jenni Scotti

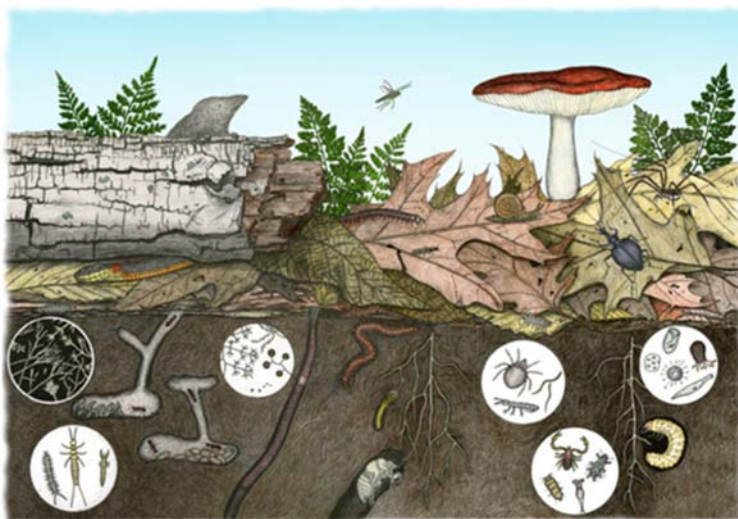
Every part of our lives depends upon soil, from foundations for our homes to the foods we eat and the clothes we wear. The basis of a healthy soil is life; soil organic matter from decomposed once-living organisms provides food, which builds good soil structure and fertility for plants, animals and people. Dig into your soils! Light colored soils with few or no plants and roots have low organic matter, which can make gardening difficult. A dark soil layer rich in roots, plant material and even the occasional bug or earthworm shows good amounts of organic matter and is a healthy soil that is full of life.

What makes up soil?

The components of soil include air, water, decaying plant and organisms (organic matter) and minerals. All of these things are important components for healthy soils and the soil ecosystem. Soil is made up of different horizons, the main ones being topsoil, where we farm and garden, followed by subsoils, with parent material at the bottom. Life is primarily located in the subsoil and topsoil, with the topsoil having the most organic matter, soil organisms, and plant roots. Healthy soils are rich and dark with organic matter and nutrients.



Photo from: Soil-net.com



Illinois Natural History Survey, Dr. James Nardi

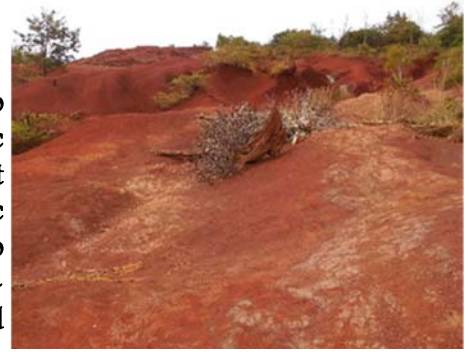
What types of life are in soils?

There are billions of organisms that make up the life present within soils all over the world. Studies estimate that the top six inches of soil in an acre have between 2500 and 5000 pounds of life. This includes tiny microorganisms such as bacteria, fungi, protozoa, mites and nematodes that are difficult to see. Soil life also includes macro organisms such as earthworms and plant roots that are easier to see.

Each organism contributes to overall soil health and development. Soil organisms contribute to the breakdown of materials, help store and cycle nitrogen, and decompose organic and inorganic particles. Earthworms decompose organic matter and create tunnels that provide soil pores, which facilitate water movement. There are organisms that parasitize other organisms that harm plants, while others unlock stored nutrients for soil fertility. Examples include protozoa, which convert organic nitrogen into inorganic forms that are easier for plants to uptake. All life is important to overall soil health.

Harmful practices to soil ecosystems

Each time the soil is tilled or disturbed, oxygen is introduced into the system, which encourages microorganisms to decompose organic matter faster. Frequent tillage can reduce organic matter over time, as it is decomposing faster than it can be replenished. Losing life and organic matter also destroys the structure of the soil, as there is no live material to hold the soil together. As a result, pores for water, air and microorganisms are lost, and the soil can become more compact and will be washed away by water much more easily, causing erosion.



Bare soils have no life or structure, plants have difficulty growing and there is increased erosion.

Benefits of organic matter

Soil organic matter is very important to the overall function of soil. It improves overall soil structure and increases pores, which improve aeration as well as nutrient and water retention. This, in turn, provides good habitat for soil microbes, as well as plants. Organic matter is also a source of carbon, which drives soil microbial processes. Healthy soils with good amounts of organic matter both store atmospheric carbon and filter out pollutants, minimizing their impacts to the environment. Healthy soils will reduce soil erosion, which keeps more topsoil available for growing plants and reduces sediment movement to surface water, which can clog streams.

Soil organic matter is also important for water conservation. Healthy organic rich soils hold more water, minimizing runoff and evaporation. With each percentage increase of organic matter, water holding capacity increases by 27,000 gallons per acre. More water held by the soil decreases farmers' irrigation needs. Additionally, given microorganisms' roles in retaining and cycling nutrients, healthy organic matter and water content can also reduce the need for soil amendments. Managing for healthy soils can reduce the cost of farming and support continued function of the whole soil ecosystem.



What can we do to improve soil health?

Keep the ground covered, using a diversity of plants that help provide different types of nutrients and benefits to the soil. Use mulches and cover crops in your crop rotations and orchards to increase soil organic matter. Minimize tillage and other disturbances to keep the microorganisms happy with uninterrupted food, space, and water. Use compost and worm teas to introduce nutrients and microorganisms back into your garden. These practices will help soils have food, space and water for life, which will in turn provide healthy soils for plants and people. We can do our part in protecting soil health. Remember, Healthy Soils are Full of Life!!

For more information on soils and soil testing visit the University of Hawai'i College of Tropical Agriculture and Human Resources, Kaua'i office - <https://www.ctahr.hawaii.edu/site/ContactKauai.aspx> for their soils information visit <https://www.ctahr.hawaii.edu/site/ExtSL.aspx> NRCS soil health website - <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/soils/health/>

East Kauaʻi SWCD Outstanding Cooperator of the Year,
Philip Davies, Kailani Farms
Written by Jenna Dunn

East Kauaʻi Soil and Water Conservation District, EKSWCD, is proud to announce that Kailani Farms has been named their Cooperator of the Year. Kailani Farms is a Certified Organic operation comprised of approximately 30 acres in Kilauea and Moloaʻa, and sells produce to local restaurants, hotels, and supermarkets as well as to the mainland. Throughout the years Phil Davies, owner of Kailani Farms, has been working with the Natural Resources Conservation Service (NRCS) and the EKSWCD to conserve water, protect water quality, protect and enhance soil health, and responsibly farm with Threatened and Endangered species present.



Phil Davies, back right, describes his system to protect crops from Nene during the HACD Conference tour of Kailani Farms.

Mr. Davies has conserved water by developing and following an irrigation water management plan and installing a more efficient irrigation system. Water quality has been protected via responsible implementation of nutrient and pest management. Kailani Farms' commitment to soil health is demonstrated by several measures, including crop rotation, cover crop, and mulching. Mr. Davies exceeded all expectations by developing an approved system to protect his crops from Nene, without causing any harm to the bird. Mr. Davies was innovative and dedicated while working closely with State and Federal officials to devise the system and get approval to use it. He formally consulted United States Fish and Wildlife Service to get their input and permission on the structure and has followed their guidance to the letter. The result is cropped area that is protected from browsing Nene with no negative impact to the species. We would like to recognize Mr. Davies and Kailani Farms for admirably showing dedication to the health and conservation of the land as well as the local food system.

West Kaua'i SWCD Outstanding Cooperator of the Year, Kaua'i Coffee Company, LLC

Written by Jenni Scotti

We learn new things about agriculture and conservation every day. It is an ongoing challenge to have successful farm operations and products. Exploring new options in conservation to maintain soil health and manage for natural resources is important to all farmers. Doing this and keeping a large operation running is what Kaua'i Coffee has accomplished this past year.

Many farmers will say that you are not just growing crop, but managing for the soil. Fred Cowell and his team are no exception. They are using practices to ensure the overall long-term health of their soil, which will decrease soil erosion and improve plant health.

Kaua'i Coffee has completed multiple trials of various cover crop combinations to see what works best within coffee rows. The mixtures include species of grasses, legumes and forbs. Using cover crops will accomplish multiple goals including: minimizing soil erosion, increasing soil organic matter, increasing water holding capacity and combating compaction. They have demonstrated that turnip varieties with their strong taproots were successful at reversing compaction.



Fred Cowell, left, and Peter Tausend, right, displaying three varieties of several cover crops grown by Kaua'i Coffee.



Examining the root mass of an Ethiopian cabbage plant.

Weeds are always a challenge for our warm climate and soils. Kaua'i Coffee does everything they can to eradicate the invasive Mauna Loa vine, *Canavalia cathartica*, as it negatively impacts their operations and movement within fields. They cut the vine and then treat the stump with glyphosate; this minimizes the potential impact to the trees and helps to improve operations and efficiency.

Short term investment will have long term benefits. Farming soils and keeping them healthy will increase water holding capacity, reduce inputs needed, reduce the need for tillage practices, and minimize and control soil erosion. For their continuous work toward healthy soils, West Kaua'i Soil and Water Conservation District would like to congratulate Kaua'i Coffee as their Cooperator of the Year!

We would also like to thank Kaua'i Coffee for providing their site for the 2016 State Conservation Awareness contest. Students from all over the state came to Kaua'i to compete. Kaua'i Coffee's location had a few different soil types that allowed the contest to have a variety of conditions to judge. This participation showcases agriculture to students who may choose to work in agriculture in the future. Mahalo!

Digging Deeper into Soil History at Makauwahi Cave

Written by Dr. David Burney, Makauwahi Cave Reserve

In the sinkhole at Makauwahi Cave, a 30-foot-thick layer of sediments contains a 10,000-year history of many aspects of life on Kaua'i's south shore. Each year over 40,000 people from all over the world visit Makauwahi Cave Reserve and hear about the amazing fossil animals and plants and the rich archaeological record published from this site. Of course it is the discoveries of extinct birds, rare plant communities, and even a tsunami deposit that have attracted so much scientific interest, but these deposits also contain a surprisingly detailed account of changes in the soils of the surrounding landscape.

For Lida and me, as both paleo ecologists and farmers, this long-term record of changes in the soils contained there has provided us with lots of inspiration and practical advice from the past. For a quarter century now, we have worked with thousands of local school children, volunteers, interns, and fellow scientists to design and carry out the ecological restoration of the abandoned cane fields and piles of mine spoil that make up most of the acreage of the Reserve.

Ten millennia ago, after the last Ice Age, Makauwahi Cave was far above the sea. A dry forest vegetation grew there in a Pleistocene soil derived from recently weathered-out lava and ancient fossilized dunes. The fine red dust blowing into the cave was suddenly interrupted about 7,000 years ago. Sea-level had risen enough by then to breach the cave entrances, probably generating spectacular blowholes and eventually causing the roof in the central area to collapse, creating the familiar large sinkhole. Afterward, a brackish lake formed inside, fed by abundant groundwater flow in this area near the famous Waiopili Spring, and connected to a large shallow wetland outside the cave entrance called Kapunakea Pond on old maps.

For the next 6,000 years, soil conditions were remarkably stable, the sedimentary record shows. The dry coastal forest was inhabited by grazers like the "moa nalo," giant flightless ducks and geese, and grubbers like the Kaua'i mole duck -- but no mammals. The scarcity of fossil soil particles in Makauwahi Cave sediments suggest that erosion off the surrounding landscape must have been really slow, as sediments in this period accumulated at a rate of only about 1 millimeter (1/25 inch) per year on average. Nature was apparently a good steward of the soil.

About 900 years ago, the sinkhole sediments show through many kinds of evidence that the ancestors of the Hawaiians had arrived. After this point, the sediments are full of artifacts and bones from creatures that came on the double-hulled canoes: pigs, dogs, chickens, and rats. Sedimentation rates hardly increase over prehuman background levels though, as this layer is only a foot thick in many places inside the sinkhole, even though it represents nearly half a millennium. Then something drastic happened, we think probably a tsunami greater than any recorded historically in the islands -- something on the scale of events early this century in Indonesia and Japan. With apparent suddenness one day about 450 years ago, SOMETHING dumped over the wall of the sinkhole, a layer of boulders, cobbles, gravel, sand, and clay up to three feet thick -- all mixed up with skeletons of large sea fish and chunks of fresh coral. After this natural disaster, life apparently returned to Polynesian normal for more than a century, with evidence from the contents of the sediments that agree well with what Hawaiian tradition tells us, and the oldest maps show -- Hawaiians were farming this valley for taro, sweet potato, and other traditional crops on a big scale.

The soil characteristics change abruptly, our studies show, with the arrival of Europeans and subsequent biological invasions. Feral goats and other livestock soon denuded the coastal area of vegetation. Wind over newly barren dunes deposited sand into the sinkhole as a layer up to three feet

thick. In the early 20th century, the advent of large-scale commercial cane farming and later the channelization of Kapunakea Pond on the outside changed everything. By 1950, the rate of erosion-derived sedimentation increased *about one thousand fold* over the levels for past millennia. In the last few decades, floods occasionally lay down a new layer of eroded silty clay soil in the sinkhole, with Hurricane 'Iniki, and 'Iwa being notably recorded in the recent sediments.



This history lesson in local soil conditions has modern management implications. It has been taken very seriously in our restoration efforts at Makauwahi Cave Reserve. Feral pigs have been fenced out, top soils have recovered through establishment of native plants, and wetlands once again, through lo'i construction and planting of native sedges and Polynesian crops, hold back runoff water and sediments from the stream. Lost organic matter is returning to the recovering top soils through contributions of native water birds, native plant leaf-litter, and our herd of adopted pet giant tortoises. The latter help by eating invasive non-native weeds in our fenced restorations, and cycle organic matter very effectively, probably much in the same way as those extinct giant ducks and geese of long ago.

Picture, left: Recently Dr. Burney hosted a group of tsunami scientists from US Geological Survey -- down in the deep pits of Makauwahi Cave!



Picture, above: Large sulcatas tortoises (people's overgrown pets) help control invasive weeds in the understory of Makauwahi Cave Reserve's fenced native plant restorations. They also help restore the soil with much-needed organic matter and nutrients.



Picture, above: Before the arrival of humans to Kaua'i, giant flightless ducks like this Turtle-jawed Moa Nalo grazed and browsed the native woodland understory.

2016 West Kauaʻi Soil & Water Conservation District Outstanding Water Conservationist Award

McBryde Resources, Inc.

Written by George Morvis

In an island environment, we all know how important it is to conserve water. At home, while changes in habits can result in water savings without spending money, in some instances an investment can take conservation to another level, such as replacing older high-flow bathroom fixtures with newer, lower flow varieties.

The same is true for business. McBryde Resources, a subsidiary of Alexander & Baldwin, Inc. that collects and delivers water on behalf of agricultural users on Kauaʻi's sunny south shore and generates renewable hydroelectric and solar photovoltaic power, has practiced wise water conservation through the years. Recently, however, it made a multi-million dollar investment in its Alexander Reservoir irrigation system, a system that dates back nearly a century, providing water to sugar, pineapple, coffee and diversified agriculture operations from Eleʻele to Lawai, and generating clean, renewable hydropower.

The investment, targeted at increasing system efficiency, focused on three key areas:

Upgrading the Kalaheo hydroelectric turbine and generator to a higher efficiency, dual-nozzle system, allowing McBryde to generate up to 30 percent more clean, renewable energy for each gallon of water that passes through the system.

Replacing the aging Kalaheo penstock, which delivers water from the Alexander Reservoir to the Kalaheo hydro system, to minimize overall system water loss and increase delivery efficiency.

Upgrading the Alexander Dam outlet works to provide for greater flow control, enabling McBryde to deliver exactly the amount required by system users.

Supported by a team of national, Hawaiʻi and Kauaʻi engineers, surveyors and contractors, project construction was completed in roughly 100 days. These upgrades represent the latest in a series of irrigation infrastructure and renewable energy investments, totaling \$35 million, made by McBryde Resources on Kauaʻi since 2011.

McBryde Resources Vice President and General Manager Dan Sargent noted that “Over the past few years, the aging steel penstock that had been installed in the late 1950’s had become increasingly unreliable, with multiple outages during the course of the year resulting both in the loss of water and the interruption of delivery to our key users, such as Kauaʻi Coffee Company. The new penstock, which is expected to last sixty to eighty years, enables us to increase the reliability of delivery to our agricultural users, while increasing our generation of renewable energy—all with the same amount of water.”

West Kauaʻi SWCD commends McBryde Resources for its continuing efforts to conserve water, and its legacy of investing in and maintaining the infrastructure that makes agriculture viable on Kauaʻi's south shore.

Picture, see page 15:

Front Row, L-R:

Kirk Saiki, Peter Tausend, Dan Sargent, Phil Green, Ed Kawamura, Jr., Clyde Nakaya

Back Row, L-R:

Genoa Starrs, Jenni Scotti, Jenna Dunn

2016 East Kauaʻi Soil & Water Conservation District
Outstanding Water Conservationist Award
Phil Green, Green Enterprises Inc. DBA Kauaʻi Organic Farms

Written by Jenni Scotti

Efficient management of water is vital to the successful operation of a farm. If too much water is used, an important resource is wasted, costs increase, and optimal crop management becomes more complicated. Phil Green of Kauaʻi Organic Farms understands this and has implemented practices that increase the efficiency of his water use. These practices conserve water and also lower costs.

Kauaʻi Organic Farms is a ginger and turmeric operation in Kilauea. Phil replaced his main pipeline in order to increase irrigation efficiency. He also installed more efficient sprinklers in the overhead system used for his cover crops. Lastly, he put in a new micro-irrigation system that applies water to the base of the cash crop, helping to reduce weed pressure and the amount of irrigation water needed.

Phil has also implemented cover crop plantings after harvesting his crop. Cover crops reduce soil erosion, provide habitat for beneficial insects and reduce weed pressure. They also directly improve soil health by breaking up the crop cycle, ensuring that the soil will have diverse microorganisms and nutrients. Healthy soils have a higher water holding capacity, which decreases the amount of water needed for irrigation. Managing the timing of cropping cycles can also help conserve water. Phil tries to plant cover crops both after harvest, as well as before the rainy season, utilizing natural rainfall and minimizing the need for irrigation. This also decreases the need for movement of the irrigation system, which helps with the overall cost of the operation.

Maintaining water efficiency will be an ongoing challenge. For all of his efforts towards water conservation in the past and the future, the East Kauaʻi Soil and Water Conservation District congratulates Kauaʻi Organic Farms being selected as their Outstanding Water Conservationist of the Year for 2016.



Conservation Awareness Contest

2016

Written by Genoa Starrs

With the inaugural competition held in 1943, land judging is a time-honored, if not widely known, tradition. It originated in Oklahoma as a way to educate students about soil and land use. Since then, it has developed into a nation-wide contest, with participants from 38 states, the majority of which are also involved in Future Farmers of America or 4-H programs. In Hawai'i, it has come to be known as the Conservation Awareness (CAP) Contest.

Land judging requires no little skill—the contest itself involves interpreting the soil and landscape conditions of various sites to determine the most suitable agricultural use. Participants must develop an understanding of the physical characteristics of soils, biological features of the landscape, and the possible effects and interactions different climate and human factors to decide the best possible management. This can be a tall order for even a trained conservationist!



Kaua'i High students and contest organizers at the County contest.

This year, we had the pleasure of hosting both the Kaua'i County CAP contest and the Hawai'i State CAP contest. Jenni Scotti (East and West Kauai SWCDs' Conservation Specialist) and I partnered with Amy Koch (NRCS State Soil Scientist) and Josh Silva (University of Hawai'i Junior Extension Agent) to organize the competitions.

The county contest was held on November 3rd, 2016 on the north shore of Kaua'i. We were generously hosted by Phil Green (Green Enterprises) and 'Aina Ho'okupu o Kilauea. The Kaua'i High School team participated, and the competition was followed by a tour of 'Aina Ho'okupu's vegetable growing operation.

The state contest was held on November 18th, 2016. Teams from four islands participated—Molokai High School (Molokai), West Hawai'i Exploratory Academy (Big Island), Kamehameha Schools (Maui) and Kaua'i High School (Kaua'i). The contest was held at Kaua'i Coffee, the largest coffee estate in the Hawaiian Islands. It boasted a variety of soils and conditions within close proximity, making it an ideal land judging site atop some of Kaua'i's famous red dirt. Kamehameha Schools took first place, Kaua'i 2nd, Molokai 3rd, and West Hawai'i Exploratory Academy 4th. Both contests benefitted from generous contributions and support from the East and West Kaua'i SWCDs' board members and donations from several supporting organizations. Monsanto's generous donations towards travel greatly assisted the visiting teams, and Kaua'i Coffee's coffee and time contributions enabled the contest to go smoothly for everyone. With strong participation throughout the state, it's good to see a group of young conservationists not afraid to get their hands dirty.



Scenes from the State CAP Contest at Kaua'i Coffee.



During the 2016 fiscal year NRCS Kaua'i provided federal dollars to agricultural producers to help implement a variety of conservation practices on crop, forest, and grazing land throughout the island. Fifteen new Environmental Quality Incentives Program (EQIP), and the Agricultural Management Assistance Program (AMA) contracts were obligated to Kaua'i farmers, ranchers, and forestland operators, totaling \$892,858.00 and covering 627.5 acres.

The table below summarizes practices installed on Kaua'i with the aid of prior year EQIP and AMA contracts as well as the applied amounts.

Practice Name	Practice Unit	Applied Amount
Tree/Shrub Site Preparation	ac	10
Windbreak/Shelterbelt Renovation	ft	828
Mulching	ac	4.5
Access Control	ac	0.7
Irrigation Pipeline	ft	2,175
Irrigation System, Micro irrigation	ac	17.9
Cover Crop	ac	6.8
Woody Residue Treatment	ac	10
Forage and Biomass Planting	ac	6.3
Prescribed Grazing	ac	4.7
Conservation Crop Rotation	ac	1.5
Irrigation Water Management	ac	8.7
Seasonal High Tunnel System for Crops	sq ft	1,152

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Conservation Specialist's Report

Written by Genoa Starrs

Aloha! As a new hire, this is my first article as the Hawai'i Association of Conservation Districts (HACD) Conservation Specialist here on Kaua'i. It has been an exciting first six months, thanks largely to the kind and hardworking people of the Lihue Field Office, the East and West Kaua'i SWCDs' board members, and the many clients we assist.

Prior to starting with HACD, I worked in a variety of conservation-related fields—I studied environmental biology and forestry at the University of California, Berkeley, interned in policy with the Society of American Foresters, and here on Kaua'i worked in horticulture and rare plant conservation. I grew up interested in agriculture at a young age, with two former cowboys for parents and a pair of overweight goats.

In this office I have the opportunity to work with and learn from a diverse group of producers, seeing the unique challenges they face here on Kaua'i and the creative ideas they come up with to address them. Although much of my first six months has consisted of getting up to speed, it's wonderful to see all the passion on this island, and I'm looking forward to helping Kaua'i's agricultural community achieve their goals. Thank you for the warm welcome, and I look forward to seeing you out in the field!



Genoa Starrs (left) and Jenni Scotti (EW & WK SWCDs) (right) in front of the 2016 SWCD Poster Contest Display.

Conservation planners assess a pasture during NRCS Conservation Planning on Grazing Lands training in Waimea, Hawai'i Island.



Windbreak Technology training attendees learn how careful planning can solve a multitude of problems with one well-thought out practice.



DOW's Make a Splash Festival Gathers over 730 Students

Written By Jonell Kaohelauii

Department of Water, County of Kaua'i



The Kaua'i Department of Water (DOW) hosted its 13th Annual Make a Splash with Project WET (Water Education for Teachers) Festival on September 22, 2016. This dynamic hands-on water education event is a collaboration of community members, government resource agencies, students, teachers, parents and enthusiasts of all kinds for one cause – to educate and raise awareness about water, our most precious natural resource.

Over 730 fifth-grade students from around the island gathered at the Pua Loke Arboretum in Lihue to learn about the critical role water plays in our everyday lives. Students participated in interactive hands-on activities and educational exhibits, while discovering how a healthy watershed can affect agriculture, recreation and wild-life habitats. Students also learned how they could contribute to wise water-use and protection.

“This event promotes the awareness of water use and educates Kaua'i's fifth-graders about conservation and complex water issues happening locally and around the world. It's something our staff, community and schools look forward to every year,” said Kirk Saiki, DOW's Manager and Chief Engineer. “We could not do something like this without the support of our schools, community, volunteers, county and state departments, Board of Water and DOW staff.”

The East and West Kaua'i Soil and Water Conservation Districts continue to support this event by volunteering as activity leaders and volunteers at the various water activities. Without participation from the East and West Kaua'i Soil and Water Conservation Districts, and other community businesses and organizations, the DOW would not be able to successfully host the Make a Splash with Project WET Festival year after year.

Kaua'i is currently the only island that organizes this water education festival. For the past three festivals, the State Department of Health-Safe Drinking Water Branch provided funds for the DOW to improve its festival supplies and provide resources for other counties to implement Project WET.



Above: Students enjoy Make a Splash Festival activities



Left to Right: David Smith, Ed Kawamura, Jr., Jenni Scotti, Jenna Dunn, Leonard Vierra, Arryl Kaneshiro, Darren Tamekazu

The Project WET Foundation is an established not-for-profit organization that is dedicated to worldwide water education. Their mission is achieved through various resource materials, training workshops, community events and an ongoing increase of network educators and professionals. The DOW is Project WET's Host Institution for the state of Hawaii. To learn more about Project WET, visit www.projectwet.org.

The DOW's 14th Annual Make a Splash with Project WET Festival will be held on September 28, 2017. For more information or to sign up as a volunteer, please call DOW's Information & Education Specialist, Kim Tamaoka at (808) 245-5455 or email ktamaoka@kauaiwater.org.

Staff Update for 2017 Annual Report

Written by Peter Tausend

District Assistant Marj Stanphill continues to help our Districts run smoothly. She has been with us for over 17 years! Conservation Specialist Jenni Scotti, with us since May 2013, excels in conservation planning and outreach. We welcomed Genoa Starrs as our new Conservation Specialist in October 2016. She replaced Alex Wong, who left for a Kaua'i County Planning Department position. Genoa has a background in environmental biology and forestry, and worked at Kaua'i's National Tropical Botanical Garden prior to joining us.

We continue to enjoy a close relationship with our partners at NRCS. Since starting her position on Kaua'i in April 2015, District Conservationist Jenna Dunn has led NRCS' Lihue Field Office, graciously providing District Staff office resources and daily guidance.



*Holiday Party Celebration, Front Row, L-R: Jeremy Campbell, Jenni Scotti, Robert Ishikawa
Back Row, L-R: Jenna Dunn, Marj Stanphill, Genoa Starrs, Peter Tausend*

MAHALO

We wish to thank the staff and volunteer board members of East and West Kaua'i Soil and Water Conservation Districts for their commitment and dedication to preserve and protect our precious natural resources. Mahalo to our conservation partners, who include the USDA Natural Resources Conservation Service, Governor David Ige, State Departments of Health, Agriculture, and Land and Natural Resources, UH CTAHR Cooperative Extension Service, Mayor Bernard Carvalho Jr., Kaua'i County Water Department, Kaua'i County Council, the Hawai'i State Legislature, and Hawai'i Association of Conservation Districts. We also appreciate the support of the Department of Health and the National Tropical Botanical Garden in providing space for our monthly meetings.

Lastly, we express our deep appreciation to the board members and staff of East and West Kaua'i Soil and Water Conservation Districts, Kaua'i staff of USDA Natural Resources Conservation Service, Garden Island Resource Conservation and Development, Water Department, County of Kaua'i, and UH CTAHR Cooperative Extension Service for helping to make the annual report possible.



Mahalo
nui
loa!



Faithful Volunteers above at the State Conservation Awareness Contest at Kaua'i Coffee held on November 18, 2016 and below at the April 2017 Garden Fair, L-R: Garden Fair Participant, Jenni Scotti, Leonard Vierra, Michael Fernandes

