

The Leaflet
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FRONT PAGE

**Wild, Domesticated, Bred, and Engineered –
Where Did We Begin and Where Might We Go?
By Matt Dillon, Director of Advocacy, Organic Seed Alliance**

Photo: Matthew Dillon.

How did a wild, inedible, coastal plant from the Mediterranean Coast develop over thousands of years to exist as both an organic chard and as a biotech sugar beet?

In addition to being an aspect of the intergenerational life cycle of sexually producing plants and a vehicle for inheritance of thousands of previous generations of life, seed is also a narrative describing the history of plant and human relationships. In form and in essence seed shares much with story; it is information encapsulated, information that can evolve with each telling or that can stagnate and disappear. Over the last 12,000 years we have selected seeds for domestication, a taming of the wild, much in the same way that we have created mythologies to give some meaning to life and death and to civilize the chaos of the cosmos. The risk is that as we move the wild out of seed, we may lose something of its essence. Seed is potential to move into new environments, reinvent forms, and escape limitations. The loss of this potential is one of the great risks of our times. Our dominant modern seed systems want to reduce seed to no more than binary coding – a "delivery mechanism" that can be programmed to become an input that delivers very specific outputs. How did we arrive at this view, and what are the other stories being told as we attempt to envision the inheritance of generations to come?



Photo: Frank Morton provides this caption for his photo, "Here I am collecting seed of lettuce, with which I share a certain resemblance, and in the background hang apples, which somehow seem iconic to the Garden." Photo by Karen Morton.

Matthew Dillon of Organic Seed Alliance and Frank Morton of Wild Garden Seeds will tell a story which spans the history of seed: from crop domestication by hunter-gatherers to the scientific revolution; from pre-modern breeding prior to the study of genetics, including the rediscovery of Mendelian genetics and the first wave of classical breeding, the biotech boom, and the agro-ecological approach to seeds. Join us for a free public lecture from 5:30 to 7

p.m. on Friday, April 16, at the Outrigger Keauhou Beach Resort.

A Bright Idea

Photo: The Kohala Center has enlisted the help of two enthusiastic volunteers, Ezekiel Fugate (**shown here with a CFL light bulb**) and Aaron Tanimoto, who will be visiting with participating community groups to share why switching to CFL bulbs makes such good sense for Hawai'i Island families.

On April 1, The Kohala Center is launching a light bulb exchange program on Hawai'i Island. School and community groups are encouraged to join in this effort to replace old-style incandescent light bulbs with more energy efficient Compact Fluorescent Light (CFL) bulbs—free of charge!

To participate, groups must commit to replacing at least 500 incandescent bulbs with CFL bulbs. In return for your efforts to make our community more energy efficient, Blue Planet Foundation will award \$1 for every old-style bulb replaced, up to a maximum of \$500 per group. “What a great way to support the environment, reduce carbon emissions, and educate the community about energy efficiency and climate change,” says TKC Project Coordinator Guy Kaulukukui. “CFL bulbs need less electricity to produce the same amount of light. Replacing five hundred 60-Watt bulbs with our 13-Watt CFLs will keep over 375 barrels of oil from being burned to make electricity. And that means avoiding the air pollution from tons of carbon dioxide,” explains Kaulukukui.



The CFL Light Bulb Exchange Fundraiser Project is a partnership between Blue Planet Foundation (www.blueplanetfoundation.org) and The Kohala Center. Blue Planet Foundation's mission is to “end the use of fossil fuels in Hawai'i and replace them with clean, renewable, and indigenous sources of energy.” The Kohala Center is the point of contact for the bulb exchange on Hawai'i Island and will be providing direct support to participating groups. For more information on the logistics of the bulb exchange, visit <http://www.kohalacenter.org/bulbexchange2010.html>. To sign up your group for the program, e-mail bulbexchange@kohalacenter.org or call Guy Kaulukukui at (808) 887-6411. Groups will be accepted on a first-come, first-served basis until our island allotment of 5,000 CFL bulbs is exhausted.

Exploratory Research



Photo: Yale team members enjoyed dinner at the home of Kohala Center Deputy Director Betsy Cole. (**Front row**) Melissa Ivins, BinBin Jiang, Gabriel Mejias; (**Second row**) Tian Wang, Amanda Chavez-Kupp, Andrew Bostrom, Stefania Panousi, Mariana Sarmiento, Srinath Sabapathy; (**Back row**) Ezekiel Fugate, Christopher Cooke, Betsy Cole, Professor Marian Chertow, Mona Yang, Troy Savage. Photo by Lauren Barredo.

Students in the Industrial Ecology Program at Yale University were on Hawai'i Island in March to officially launch four research projects here, funded by a National Science Foundation (NSF) grant. The students, led by Principal Investigator Marian Chertow, are engaged in an effort to quantify differences between Hawai'i Island's two major urban centers: Hilo and Kailua-Kona. The NSF awarded a series of exploratory grants in 2009 to study how both human and environmental factors interact over time at selected urban sites across the country. Hawai'i Island is one such exploratory site, and NSF funding is supporting

research projects on the island to look at energy use, water and wastewater systems, imports and exports, and possible ways to recover existing “waste” streams on the island for agricultural use.

The ultimate goal of this project is to identify challenges and opportunities in the existing systems in order to maximize use of available resources and create more sustainable solutions in the long-term. The Kohala Center is a partner in this NSF research, called the ULTRA-EX Project, which is the first stage of the Long-Term Industrial Ecosystem Model-Hawai‘i Program. (See <http://www.kohalacenter.org/hawaiiislandsummit/aboutliem.html>.)

Photo: Longhorn cattle near Captain Cook in South Kona. Photo by Lauren Barredo.

The recent visit by Yale graduate students was insightful and productive. The students spent their time collecting information on material, energy, and water flows from a variety of government agencies, companies, and other entities. In their interviews, the students were struck by several recurring themes which were identified and expressed by a diverse group of island residents. These themes, which included energy independence, import dependence, the fragility of the tourist economy, food self-reliance, and waste assimilation, all stem from a systemic understanding of resource management. Because industrial ecology is founded around such an understanding, the students’ projects will provide a useful foothold for members of the island community as we work to design our systems (e.g., imports, waste, energy, and food) to flourish within the bounds of the natural world. – Ezekiel Fugate, Yale/Kohala Center Research Associate



Read more about The ULTRA-EX Project on the Back Page.

Hawai‘i Island Coastal Education and Stewardship Project



Photo: UHH Education students demonstrating the extent that our oceans cover the surface of the Earth and the significance of ocean stewardship to students in Hilo.

The HICES project is based on the premise that it is never too early to learn about and to start caring for the ocean and all the animals that live there. Getting our up and coming teachers working directly with young elementary students on coastal education and stewardship through the HICES project has been an exciting learning voyage for everyone involved. I hope all the HICES participants will keep the lessons gleaned from this adventure in their hearts as they enter the teaching profession.

–Darius Kalvaitis, Assistant Professor in the UH Hilo Education Department

Elementary students at Connections Public Charter School and Keaukaha Elementary School, UHH Education pre-service teachers, and local ocean related organizations have joined together through the Hawai‘i Island Coastal Education and Stewardship (HICES, pronounced “High Seas”) project to *mālama ke kai* (care for the ocean). The HICES project is a collaborative endeavor led by Dr. Darius Kalvaitis, an assistant professor in the UHH Education Department, and facilitated by Ho‘oulu‘āhui Erika Perry, an experienced environmental educator.

Photo: The HICES project strives to make learning meaningful and fun. Students love observing the fish up close at Mokupapapa Discovery Center.



The HICES project is helping to train pre-service teachers, educate K–6 students, and engage the broader community in ocean education and stewardship. At the same time, the project is building stronger working relationships between environmental education organizations on the island. Some of the many organizations that have joined forces in an effort to promote conservation of our coastal resources include the UHH Pacific Aquaculture & Coastal Resources Center, NOAA’s Mokupapapa Discovery Center, Hilo Bay Watershed Advisory Group, Na Pua No‘eau Center for Gifted and Talented Native Hawaiian Children, and The Kohala Center. The HICES project was funded by a grant from the Environmental Protection Agency.

“This project fosters environmental education at multiple levels by empowering its partners and participants to work together,” says Kalvaitis. “Using coastal conservation as an integrating context for learning, the HICES project promotes a lifetime stewardship ethic for all involved.”

A Generation of New Leaders



Photo: Fellows Kamana Beamer (**second from left**) and Nālani Sing (**far right**) seen here with Mellon-Hawai‘i Fellowship Selection Committee members Dr. James Kauahikaua (**far left**), Robert Lindsey (**center**), and Dr. Pualani Kanahale (**second from right**).

Dr. Kamanamaikalani (Kamana) Beamer, 2008 Mellon-Hawai‘i Postdoctoral Fellow, was recently appointed as Land Legacy Education Manager in the Land Assets Division (LAD) of the Endowment Group of Kamehameha Schools, Hawai‘i’s largest Native trust. As Land Legacy Education Manager, Beamer provides leadership for the division which manages Hawai‘i agricultural and conservation lands in an effort to achieve a balance of cultural, economic, educational, environmental, and community benefits. The division’s placed-based educational initiatives include the First Nations Futures Program, a fellowship operated in partnership with Stanford University, Maori tribal organizations and the University of Hawai‘i involving Hawaiian and Maori post-graduate, early- and mid-career individuals.

Dr. Beamer is committed to his scholarship, to his community, and to the lands of Hawai‘i. It is wonderful to see him assume such an important leadership position, in which the lands of Hawai‘i are respectfully engaged as a source of environmental and cultural knowledge for Hawai‘i’s communities. –Matt Hamabata, Executive Director, The Kohala Center

Ahupua‘a Restoration

Photo: Kāwika Winter.

Kāwika Winter, Director of Limahuli Garden and Preserve on Kaua‘i will present two free lectures as part of the *Puana Ka ‘Ike* (Imparting Knowledge) lecture series. Winter will speak on “Ahupua‘a Restoration: Melding Science and Culture to Produce Models of Sustainability” from 5:30 to 7 p.m. on Friday, April 30 at the Keauhou Beach Resort Ballroom in Kona, and from noon to 1:30 p.m. on Monday, May 3, at the University of Hawai‘i at Hilo, UCB 127.

“With upwards of 95% of our food and energy being shipped into Hawai‘i, the most remote land mass on the planet, there is room for improvement when it comes to issues of sustainability,” explains Winter. “The *ahupua‘a* (loosely translated as watershed) system of resource management existed here in these islands for at least a millennium. This management system harnessed ecosystem services to provide for a large and healthy population, while at the same time maintaining ecosystem integrity and high levels of biodiversity. Because of Hawai‘i’s current dependence on imports, there are many who are looking to live more sustainably on both community and personal levels. Instead of reinventing the wheel, we advocate for looking back to a proven system of sustainability and applying it in a modern context. We will examine five major lessons of the *ahupua‘a* system that are not only applicable to contemporary issues in Hawai‘i, but to the globe as a whole,” says Winter.



Kāwika Winter was born and raised in the *moku* (district) of Kona, O‘ahu, particularly in the *ahupua‘a* of Wai‘alae and Waikiki. He has an MS in botany from the University of Hawai‘i at Mānoa, and is currently a Ph.D. candidate focusing on theoretical ethnobotany in the same department. Winter learned of *ahupua‘a* management from the late *kumu hula* John Ka‘imikaua; and other late *kūpuna* (Hawaiian elders), most notably Eddie Kaanaana. Winter is now the director of Limahuli Garden and Preserve, a branch of the National Tropical Botanical Garden, where he oversees the longstanding Hā‘ena Ahupua‘a Project to restore the culture, ecology, and community of Hā‘ena back to a collective state of health.

For more information on Winter’s presentations, contact Natalie Deisroth at 808-322-0088, ext. 100, or e-mail info@kohalacenter.org. For a schedule of upcoming lectures and webcasts of previous lectures, visit <http://kohalacenter.org/puanakaike/about.html>. The Puana Ka ‘Ike and Eia Hawai‘i lecture series are presented via a partnership between Kamehameha Investment Corporation/Kamehameha Schools, The Kohala Center, Kīpuka Native Hawaiian Student Center at the University of Hawai‘i at Hilo, Keauhou Beach Resort, and Hawai‘i Tourism Authority.

Art in the Garden



Photo: Donna Mitts with Pa‘auilo School students Nina Corabi and Kaile Dills. The students are holding their biggest pineapple of the season, a whopping 6.75 lbs!

On Saturday, April 24, from 1 to 5 p.m., the Hawai‘i Island School Garden Network (HISGN) will host its first ever “Art, Literature, and Music in the School Garden” workshop at the Hawai‘i Academy of Arts & Science Public Charter School (HAAS) in Pāhoa. This free event is open to students and their families and will feature hands-on activities which celebrate the beauty of our school gardens through art, literature, and music.

By supporting children in school gardens we help teach some very important and fundamental life skills. By exposing children to art, music, and literature in a garden setting we can help children understand the beauty and inspiration found in gardens. –Donna Mitts, East Hawai‘i Coordinator, Hawai‘i Island School Gardens Network

The Beauty of This Garden Is You! By Patti Cook and Pedro Tama

Photo: Mala‘ai: The Culinary Garden of Waimea Middle School (WMS). Photo by Craig Elevitch.

Mala‘ai formally celebrated its 5th anniversary on March 3, 2010, by accepting a prestigious Cooke Foundation Beautification Award for its ¾-acre organic garden, which was once a Parker Ranch pasture. “The real beauty of this garden is each of you,” said WMS Principal John Colson, referring to the large gathering of students and friends of Mala‘ai, as he accepted the Beautification Award from Cooke Foundation board member Thane Pratt.



At the mid-day March event, as cloud-shrouded Mauna Kea stood sentinel against a bright blue sky, the trade winds stormed across its slopes towards Waimea. Nearly 200 young and old gathered in the wind by the garden, equally divided between student-gardeners and community supporters, to hear Kumu Pua Case present the opening *pule* (prayer). In the very moving introduction that followed, Kumu Case, who is also the ‘Ike Hawai‘i teacher for Waimea Middle School, declared that, “Five years ago we pledged to create out of this land a learning tool and experience that would help make our children healthy and our school community whole—and we did.”

The school garden’s stunning visual transformation—from knee-high kikuyu grass to a beautiful, productive vegetable, fruit, and flower garden—belies a more subtle but significant shift both in school and community awareness of the value of hands-on experiential learning. Not only did Waimea Middle School students grow and harvest more than 6,000 pounds of fresh produce in the Mala‘ai school garden in 2009 to taste and share with their families, school faculty, and friends, but in the process, they learned about healthier food choices, the cycles of nature, the stories and cultural practices of past generations and civilizations, and how to work together and problem solve. They learned about food self-reliance, safety, and sustainability.



Photo: Student musicians for the 5th Anniversary celebration were (from left to right) Ocean Mercado, Jordan Asia Juan, Patrick Ka‘aihue, Quenten Anastacio, music teacher Mikiala Yardley, and Kamele Sanchez, shown here with Garden Director Amanda Rieux. Photo by Craig Elevitch.

They are not alone. In the past five years, over 50 other Hawai‘i Island schools have started or are planning to start a learning garden and have joined The Kohala Center’s Hawai‘i Island School Garden Network. Even the White House in Washington, D.C., has planted a kitchen garden with the help of public charter school students!

“Every student at our school today and hundreds and hundreds of others have practiced *pa‘ahana* (hard industrious work) alongside their teachers and volunteers from our community to make our garden the thriving, bountiful, and

beautiful place it has become,” said Mala‘ai Garden Director Amanda Rieux when thanking the Cooke Foundation for the award, which included a \$5,000 gift to the school to help sustain the classroom garden.

Rare Birds

Photo: *Alala*—found only in the forests on the Kona side of Hawai‘i Island, the last Alala disappeared in the wild in 2002. KBCC has been raising these extremely endangered birds in captivity where the population is now 67. Loss of habitat and predation are the main reasons for its demise in the wild.



On Saturday, May 15, friends of The Kohala Center will journey to the Keauhou Bird Conservation Center (KBCC) in Volcano, where they will see and learn about the rare native Hawaiian birds that this facility houses. KBCC is one of two centers operated by The Zoological Society of San Diego as part of the Hawai‘i Endangered Bird Conservation Program. This program aims to establish self-sustaining populations of birds in the wild using captive propagation and reintroduction management tools.



Photo: *Palila* are known only from the high elevation *mamane-naio* dryland forests on Mauna Kea volcano on Hawai‘i Island, where the population is less than 2,000 birds. Habitat loss due to feral animal grazing and drought are the main reasons for the wild population decline. KBCC has been captive rearing palila and successfully releasing them into protected high elevation dryland forest on the north side of Mauna Kea in an attempt to establish a new population. Currently there are 26 palila in captivity.

Since this trip is currently fully subscribed, our guide Jack Jeffrey has generously provided us with three photos and brief descriptions of birds that KBCC has in captivity at the moment, for your viewing pleasure.

Photo: *Puaiohi*—found only deep in the Alaka‘i Swamp on the Kaua‘i Island, the Puaiohi, or small Kaua‘i Thrush, has a wild population of about 200–400 birds. KBCC has been captive rearing this endangered species since 1996 and has successfully released Puaiohi into the wild to bolster existing wild populations. Currently there are 15 Puaiohi in captivity. Disease, predation, and habitat loss are the main reasons for its endangerment in the wild.

To become a friend of The Kohala Center and receive notices about upcoming learning events, visit <http://www.kohalacenter.org/member.html>.



The ULTRA-EX Project



Photo: Yale team members in Pololū Valley. (From left to right) Mariana Sarmiento, Stefania Panousi, Andrew Bostrom, Lauren Barredo, BinBin Jiang, Troy Savage, Professor Marian Chertow, and Ezekiel Fugate.

The main focus of the ULTRA-EX project is to compile a contemporary snapshot and historical understanding of the urban areas of Hawai‘i Island, Hilo, and Kailua-Kona, by taking a closer look at their energy, water, and material systems. In September 2009, Principal Investigator (PI) Marian Chertow and three other PIs, Professor Karen Seto, Dr. Kamana Beamer of The Kohala Center, and Dr. Christian Giardina of the Institute of Pacific Islands Forestry - USDA Forest Service received a grant from the National Science Foundation under the Urban Long-Term Research Area -

Exploratory Awards, or ULTRA-EX program. The four research projects launched in March 2010 will provide valuable data and insights to ULTRA-EX researchers about material flows and consumption patterns on Hawai‘i Island.

Photo: A visit to the Waimea Homestead Farmers’ Market. Photo by Lauren Barredo.

From March 7–14, twelve Yale industrial ecology students, mostly master's candidates from the School of Forestry and Environmental Studies, conducted field research on Hawai‘i Island under the direction of Professor Marian Chertow. While on the island, the students met with County officials, representatives from private companies, and community members in order to gather data related to their research. The students were also oriented to cultural and socioeconomic issues on the island by Kohala Center staff.



Students were divided into teams and assigned to the following four research projects:

Project 1 – Energy

Hawai‘i Island meets approximately 90% of its energy needs with imported petroleum-based fuels. These energy resources must travel a minimum distance of 2,400 miles from the nearest continental shoreline. As a result, energy prices in Hawai‘i are among the most expensive in the United States. This project will analyze energy systems and energy use in the island's two major urban areas—Hilo and Kailua-Kona. This study will consider energy use by



various sectors of the island economy, including buildings and facilities, transportation, food production, water and wastewater processing, and manufacturing.

Photo: A functioning wind farm at South Point. Photo by Gabriel Mejias, of the Energy Team.

The Yale Energy Team consists of Gabriel Mejias, Christopher Cooke, and Lauren Barredo. Team members met with representatives of HELCO, Puna Geothermal Venture (PGV),

Hawai'i County Department of Research and Development, and UH Hilo, and toured several renewable power facilities. At PGV students witnessed the drilling of a new geothermal well at a depth of over 3,100 feet beneath their feet. "We were amazed to realize by the potential for renewable energy on the island," remarked team member Gabriel Mejias.

Project 2 – Water and Wastewater Systems

Water is a precious resource on Hawai'i Island. Hilo, on the windward side of the island, is one of the rainiest urban centers in the nation, receiving an average of 3,300 mm of rainfall each year. In contrast, Kailua-Kona, on the leeward side of the island, receives nearly 13 times less rainfall in a typical year and is currently experiencing extreme drought conditions. Despite this drastic difference, these two areas have similar water consumption rates, leading to substantially more pumping, storage, and import in Kailua-Kona. This project will analyze water and wastewater systems in the two major urban areas on the island with the goal of quantifying water and wastewater flows across all sectors of the economy.

Photo: (From left to right) Water Team members Andrew Bostrom, Amanda Chavez Kupp, Casey Mullins (plant employee), and Melissa Ivins standing on the trickling filter tower at the Hilo Wastewater Treatment Plant.

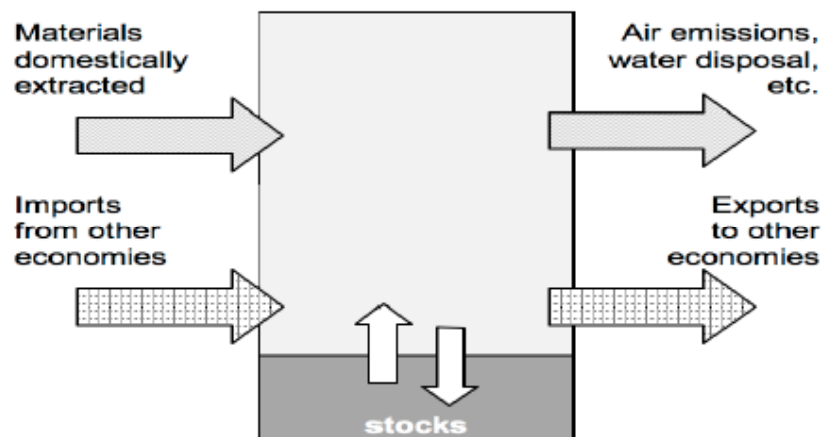


The Yale Water Team consists of Andrew Bostrom, Amanda Chavez-Kupp, and Melissa Ivins. The team met with representatives of the State's Clean Water Branch, Hawai'i County Department of Water Supply, and private resorts, and they toured the Hilo and Kona wastewater treatment plants. Andrew Bostrom shared these comments on behalf of the Water Team, "We were surprised at the optimism for the supply of water in Kona, despite uncertainty in sustainable yield estimates and persistent drought conditions. We were delighted, but not surprised, to have reported to us that the quality of the water in the ocean near beaches consistently passed health standards, though we were concerned by another report of vulnerability of coral to water pollution. We enjoyed the tours of the wastewater treatment plants, particularly the endangered species of birds that inhabit the settling lagoons at the Kona plant."

Project 3 – Inputs (Imports, Domestic Extraction, and Additions to Stocks)

With more than half of the world's population now living in cities, urban areas demand substantial flows of material resources to sustain themselves. On Hawai'i Island, an initial material flow analysis showed that 76% of inputs to the island's economy are imported from off the island, and the majority of materials extracted on the island are used in construction. In total, the island generates 800 tons of waste material every day.

Image: A general framework depicting the major components of a material flow analysis. Image courtesy of Yale School of Forestry and Environmental Studies.



This project will broadly focus on the left-hand side of the material flow diagram above by examining imports (raw and processed), domestically extracted materials, and changes in the material stocks of Hilo and Kailua-Kona. This study will utilize building and infrastructure records to analyze changes in the built environment in both urban areas.



Photo: (From left to right) Inputs Team members Srinath Sabapathy, Troy Savage, and Stefania Panousi at Greenwell Coffee Farm in Kona, touring the site.

The Yale Inputs Team consists of Stefania Panousi, Srinath Sabapathy, and Troy Savage. Team members visited a water bottling plant, a coffee farm, a macadamia nut processing facility, a construction contractor’s baseyard, a major supermarket, and various hotels around the island. “We were amazed by the fact that almost all the products consumed on the island are imported. Most imports arrive via ship. Consequently, it is undeniable that the sea is very significant to the Hawaiians,” remarked Inputs Team member Stefania Panousi.

Project 4 – Outputs (Exports, Wastes, and Recycling)

With only two landfills on the island, waste management and prevention is a pressing issue. The Hilo landfill that services the entire east side of the island has exceeded its capacity, yet there is local resistance to trucking waste cross-island to the landfill in West Hawai‘i and some discussions have focused on exporting waste off the island. This project will focus on the right-hand side of the material flow diagram by examining wastes and recycling in Hilo and Kailua-Kona, in addition to surveying all exports from these areas. This study will utilize data from the recently completed County of Hawai‘i Integrated Solid Waste Management Plan.

Photo: (From left to right) Mariana Sarmiento, BinBin Jiang (Teaching Assistant), Margaret Pahio, Buklarewicz, Mona Yang, and Tian Wang. The Outputs team at the Hilo baseyard of Business Service Hawai‘i (BSH), the largest commercial recycling operation on the island. Margaret Pahio is the owner of BSH, and Paul Buklarewicz is Executive Director of Recycle Hawai‘i, an NGO working on recycling in Hilo.



The Yale Outputs Team consists of Mariana Sarmiento, Tian Wang, and Mona Yang. This team visited the island’s two landfills, recycling facilities around the island, sewage treatment plants, hotels, and Parker Ranch. Team member Tian Wang commented that at 198 feet in height, the Hilo landfill is an



impressive sight to behold. Tian also shared these thoughts on behalf of the Outputs Team, “We spent five days on Hawai‘i Island driving back and forth from the east side to the west side, gathering as much information as we possibly could on waste production and management, recycling, and exports. We talked with county officials, recycling businesses, and agricultural producers, all of whom helped us to understand the controversial waste management practices on the island, as well as the changes in exports that have occurred over time.”

Photo: The vent at Halema‘uma‘u Crater. Photo by Lauren Barredo

In addition to their research, the Yale students had the opportunity to experience many of the island's best sights, sounds, and tastes. Highlights of their visit included a Puana Ka 'Ike lecture by Dr. Keanu Sai on King Kamehameha III and the transformation of Hawaiian land tenure, hikes into Waipi'o and Pololū Valleys, a trek into Hawai'i Volcanoes National Park, and visits to Pu'ukoholā Heiau, Mauna Kea Beach Resort, Hāpuna Beach, Kekaha Kai State Park, and Kahalu'u Bay. Students also enjoyed local eateries and an evening with the Cornell students in the Earth and Environmental Systems Field Program, who treated the Yale students to a smorgasbord of freshly prepared, locally sourced delicacies.

Photo: A Kona sunset. Photo by Lauren Barredo.

In May 2010, the students will submit final reports on their team research projects as part of the requirements for a course in industrial ecology taught by Yale Professors Marian Chertow and Thomas Graedel. These reports, the first essential pieces of the larger ULTRA-EX project, will form the foundation of a contemporary and comparative analysis of material, energy, and water flows in Hilo and Kona. And they will also provide the springboard for further research into the historical components of the ULTRA-EX project. Look for the initial results of these research projects on The Kohala Center's Web site in fall 2010.



A Lifetime Stewardship Ethic



Photo: HICES pre-service teachers at Wailoa River Park after a lesson from Keone Chin of Na Pua No'eau Center for Gifted and Talented Native Hawaiian Children about how to connect to the local culture and children.

The first HICES cohort consists of 20 pre-service teachers who make regular visits to lower elementary school classrooms at Connections Public Charter School and Keaukaha Elementary School. The teacher candidates deliver science and environmental education lessons utilizing curriculum focusing on Hawai'i's rocky shorelines and coral reefs. The HICES project is currently

working with three 2nd grade classes at Keaukaha Elementary School and four kindergarten through 3rd grade classes at Connections Public Charter School.

“It is exciting when you see UHH Education students enthusiastically working closely with very young children,” shares Darius Kalvaitus. “Everyone is having a lot of fun learning about something that connects us all here in Hawai'i—the ocean. Our HICES pre-service teachers know that students learn best through fun activities and hands-on experiences,” says Kalvaitus.

Photo: UHH pre-service teacher teaching elementary students about coral reef stewardship.



The elementary students are excited to learn about ocean critters and how to protect them in their own classrooms. A second grade student commented, “I like to help the ocean by cleaning up rubbish. I also like to see the animals and play with the animals in the ocean.” Classroom learning is extended when the children attend HICES field trips to local sites, including Mokupapapa’s Discovery Center’s science wet-lab where they engage in hands-on activities involving the ocean animals they have been studying.

The work of the first HICES cohort will be highlighted at a culminating event at Mokupapapa Discovery Center in downtown Hilo from 9 to 11:30 a.m on Saturday, April 24. This celebratory event will include demonstrations of student work, HICES film screenings, and service learning projects for *keiki*, parents, and community members.



Photo: Young students using scientific equipment to make discoveries about ocean animals. You are never too young to be a scientist and to *mālama ke kai*.

It is important to promote students’ interests in ocean science and stewardship as early as possible in order to facilitate their learning and give them chances to develop a caring ethic for the ocean and coastlines here in Hawai‘i. The HICES project does just that. –Ho‘oululāhui Erika Perry, HICES Project Facilitator

For more information or to get involved in the HICES project, please contact Perry via e-mail at hpery@hawaii.edu.

Kamana Beamer

Photo: Kamana Beamer.

Kamana Beamer was among the first cohort in the Mellon-Hawai‘i Fellowship Program which supports Native Hawaiian scholars who are committed to the advancement of scholarship on Hawaiian cultural and natural environments, Hawaiian history, politics, and society. The program provides Native Hawaiian scholars the opportunity to complete their dissertations or to publish original research. A graduate of Kamehameha Schools in Honolulu, Beamer received bachelor’s degrees in Hawaiian studies and philosophy, and his master’s and doctorate degrees in geography from the University of Hawai‘i at Mānoa.

During the Mellon-Hawai‘i Fellowship year, Beamer completed a book manuscript, *Na Wai Ka Mana? Native Agency and European Imperialism in the Hawaiian Kingdom*, now under consideration by university presses. His research is published in:

- Journal of Historical Geography;
- *AlterNative*, An International Journal of Indigenous Scholarship; and
- Hawaiian Journal of Law and Politics.



In addition to his scholarly pursuits, Beamer is a taro farmer who continues to maintain his family taro farm in Waipi‘o Valley on Hawai‘i Island. He also perpetuates the musical traditions of the Beamer family as a recording artist.

The Mellon-Hawai‘i Fellowship, established by The Andrew W. Mellon Foundation, Kamehameha Schools, and The Kohala Center, aims to develop intellectual and scholarly leadership from Hawai‘i—for Hawai‘i and the world. The fellowship program was established in the academic year 2008–2009. The third cohort of Mellon-Hawai‘i Fellows will be announced in April 2010.

Read “A Brighter Future,” a brief autobiographical sketch by Kamana Beamer in the March 2009 Leaflet at The Kohala Center’s Web site.

Inspiring the Genius Within



On April 24 from 1 to 5 pm, Garden Teachers Donna Mitts (Pa‘auilo School) and Chioke Mims (HAAS) will lead participants through an exercise in painting with garden objects. “This activity will help foster imagination and creativity and help to deepen our appreciation of the beauty found in our gardens,” says Donna.

Photo: Janice Crowl.

Children’s author Janice Crowl will read from her story *Pulelehua and Mamaki* and discuss its various themes. Participants will learn the different parts of the mamaki plant and their cultural uses, and they’ll propagate mamaki to take back to their own gardens. They’ll also learn how to find and identify the native Kamehameha butterfly in various stages of its life cycle, learn why this butterfly is so special, and discover where it can be seen in nature.

“*Pulelehua and Mamaki* was specifically written to use in Hawai‘i school garden programs, with consideration given to Hawai‘i Content and Performance Standards and place-based education,” explains Janice. “There are plenty of books about the non-native Monarch butterfly and its habitat in North America, but I wanted to create a narrative that helps our mission to teach keiki about Hawai‘i’s own unique cultural and ecological heritage. *Pulelehua and Mamaki* celebrates our interrelationships—to our families, our communities, and our environment,” she says.

Photo: Ecological Cellist Nelson Denman.

Cellist Nelson Denman will help participants to write stories, songs, and poems which reflect their multicultural, interdisciplinary garden wisdom. Participant’s work will be added to the existing Literature in the Garden Curriculum used by HISGN schools. “To inspire the creative genius within each of us, I will be playing solo cello and guitar and telling stories from my new musical CD entitled *Songs and Stories of the Healing Island*,” explains Nelson.



Photo: Kumu Loke Evans-Bautista reads to children from the Junior Master Gardener Literature in the Garden series.

To cultivate the connections between children’s gardening experiences and great books, the Junior Master Gardener (JMG) program developed the Literature in the Garden series. This curriculum utilizes Growing Good Kids Book Award-winning titles to inspire learning through outdoor activities, creative expression, and open exploration. Becky Settlage will familiarize participants with the JMG Literature in the Garden curriculum. She will also make available other JMG resources for participants to view and will explain how folks can become involved with the Junior Master Gardener Program. “I would like to continue Growing Great Kids by introducing teachers and youth to some of the great resources from the Junior Master Garden Program,” says Becky.

To register for the “Art, Literature, and Music in the School Garden” workshop or for more information, please call Donna Mitts at (808) 333-5649 or (808) 936-2117.

