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REPORT PESTS

WE ARE COMMUNITY

Tiffani Keanini & Bill Lucey, KISC

"No one individual can cover the Territory with sufficient frequency to note all new infestations of noxious weeds Obviously this is a community enterprise. One individual can infest the whole community by allowing the pest to develop on his farm. Eradication of new noxious weeds could well become a community enterprise for any or all local civic or rancher organizations. Many states have laws which permit the establishment of "weed-free areas". Hawaii has no such laws. The only procedure now possible is the enlightened and aroused voluntary support of each community."



These words, written sixty years ago, are still true. The Kaua'i Invasive Species Committee (KISC) was formed with the intention to help fill the gaps between Kaua'i's natural resource management jurisdictions and create a communication link. These jurisdictions fall under Federal, State and County agencies, as well as private organizations and landowners. Since its inception KISC has grown to embody the "community enterprise" foreseen in 1954.

The following four stories illustrate how this idea of community plays out on the ground.

In May, the KISC field crew was accompanied by Chris D'Angelo, the environmental writer for The Garden Island newspaper. Chris wanted to gain insight for an article he was writing. His trek with the crew over mountainous terrain in the hunt for miconia inspired the article published in The Garden Island on May 4, 2014. Later that day, a newspaper subscriber called KISC to report a possible miconia growing along the riverbank in her neighborhood.

She immediately recognized the plant when she read the newspaper that morning.

KISC funders and partners

A & B Properties

Coordinating Group on Alien Pest Species

County of Kana'í

DLNR - Division of Aquatic Resources

DLNR - Division of Forestry and Wildlife

DLNR - Division of Conservation and Resource Enforcement

DLNR - State Parks

Garden Island Resource Conservation and Development

Grove Farms

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Kaua'í Albatross Network

Kaua'i Conservation Alliance

Kaua'i Endangered Forest Bird Recovery Project

Kaua'i Endangered Seabird Recovery Project

Kaua'í Farm Bureau

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Ho'omanawanui

(be patient and work with what you have)

Keren Gundersen Acting Project Manager



As we head into the summer, visions of exotic vacations involve gazing into clear turquoise waters, hounding mines for precious gems, scaling rugged mountains, or even immersing oneself in foreign countries where having wine for lunch is the norm. Well, maybe not everyone has these visions, but summertime often involves some sort of travel whether it is to auntie's house down the street or across the great blue Pacific to the mainland.

In this issue, we focus on the movement of invasive species as they travel from exotic places and land themselves in Hawai'i's passive and welcoming ecosystem. Not all "alien" species turn out to be bad, but often, newly introduced species become a major pest. They arrive without the one (or maybe more) thing that helps to keep them in check. Like kids off to college, they quickly spiral out of control.

Some of Kaua'i's biggest invasive species challenges have arrived from distant shores, some only had to make the short hop from a neighboring island. In either case, one can only conclude that measures need to be taken to prevent movement and introductions of invasive species into and around Hawai'i.

Our Travel theme is meant to raise awareness to this issue so that actions can be taken to mitigate pests hitchhiking to unintended destinations. These mitigation measures will need to involve many stakeholders: those engaged in commerce as well as every private individual.

Invasive species are everyone's kuleana.



Kaua'i Representatives Derek Kawakami, Dee Morikawa and James Tokioka honor Keren Gundersen and Katie Cassel at the 2014 HISAW awards.

As I sat there waiting under a mango tree in a nursery, watching the light fade from the sky and the stars come out slowly, I heard that familiar sound of Puerto Rican juvenile coqui frogs starting to chirp over the buzzing of mosquitos that accompany me and the crew. As we moved in to catch each frog, I pondered to myself that I thought that we were done with this night-work. With every call the frogs made, we moved in a little closer. And with each interval I remembered that when I first started with KISC in 2009, our Lāwa'i frog infestation site was still active.

When I started some years ago, I was told by friends that it would be impossible to eradicate these coqui frogs from the frog site in Lāwa'i. After working a few months, two nights a week, hearing frogs seemingly everywhere, I believed that this was true. Through persistence, we finally managed to do the impossible and eradicated coqui from our frog site. The last coqui frog was heard in May of 2011. Since 2011, the KISC crew has assisted Hawai'i Department of

Agriculture in the capture of 7 coqui frogs in various other parts of the island. Three of those we eventually caught on that recent night in April near the mango tree. Right now, I am just hoping that we do not go back to working two nights a week, carrying 50-pound bags of citric acid, and hearing the roar of the sprayer motor for hours.

With these newly arrived coqui frogs, it makes me wonder about Kaua'i's biosecurity. What is being done? On O'ahu, there is now the presence of little fire ants and coconut rhinoceros beetles. Although the little fire ant is already on Kaua'i, it has been contained to only one location. If there are more introductions, who knows what will happen? Kaua'i has a lot of coconut trees; coconut rhinoceros beetles damaging and killing off coconut trees would be devastating. We have worked so hard to maintain our peaceful nights; more introductions of coqui and their loud, chirping calls will interrupt those peaceful nights.

When these invasive species get noticed and reported to us, they could already be wide-spread. There needs to be something done to stop the introduction of new (and old) pests. Everyone needs to take an active part in preventing movement of these pests inter-island. Legislators, importers, exporters, and even the general public needs to be aware of what is at stake. Our ecosystem, health, tourist industry, and yes, our peaceful nights are at risk.

I do not want to get back to the point where KISC has to help do the impossible. Again.

DISCOVER

Quento Cico U.S.A.

WHERE THE Americas MEET

Refections on Mauritius & Hawaii

Natalia Tangalin, Living Collections and Horticulrure Botanist, NTBG

Mauritius is an island nation in the Indian Ocean about 1,200 miles from the East African coast and 2,500 miles south of the Indian subcontinent. The first time humankind became conscience of its power to cause another species to disappear from the earth forever made Mauritius famous for being home to the now-extinct dodo bird (*Raphus cucullatus*). Like Hawai'i, Mauritius is a biodiversity hot-spot; and, like Hawai'i, invasive species and habitat-destruction pose the greatest threats to the survival of many of its endemic species. According to Jean Claude Sevathian, the Mauritius Wildlife Funds (MWF) Botanist, there are 94 species of flowering plants represented by less than 10 individuals in the wild. In comparison, on Kaua'i the Plant Extinction Program is currently working with about 80 species with less than 50 individuals in the wild.



I would come to learn that the iconic Dodo was just the beginning. On Mauritius there existed a slew of odd giants: tortoises, cranes, snakes and lizards all now extinct. Skeletal evidence suggests there was a skink that would have been about the size of a toddler and, if it acted anything like the much smaller surviving endemic Telfair's skink, would have commanded the respect of an alligator. Mauritius had two species of giant tortoise that were so plentiful when the Dutch arrived (c. 1598) that records say, "one could walk across the island on their backs and not touch the ground". Many Mauritius plants still exhibit heterophylly, where by younger lower leaves are defended, and theorized to be a defense against grazing by these lumbering behemoths.

Riding with the Mauritius Wildlife Foundation (MWF) staff on

red dirt roads through a maze of sugar cane towering twice as high of the truck, I felt transported back in time to the Kaua'i of my childhood. There are currently four sugar plantations still active on Mauritius (down from about 20 in 1970) and the economy is rapidly shifting toward tourism. Increased tourism, especially to Mauritius's numerous offshore islets, is posing biosecurity problems. A few years ago, environmentalists contend that developers inadvertently introduced the Indian musk shrew (Suncus murinus) from the mainland to its largest islet, Flat Island. The musk shrew is a vivacious insectivore; it has a very high metabolism and feeds day and night. Because of its insatiable appetite, within a year of the shrew being introduced, the endemic orange-tailed skink (which had only just been discovered on Flat Island in 1995) was extinct in the wild, not being able to compete for the same food source. The shrew is virtually undetectable at low numbers, breeds year round, is difficult to trap, and has proven to be impossible to eradicate. It is now also established elsewhere in the Pacific on Guam and Palau.



As we approach Black River Gorges National Park, a MWF staffer tells me that in guava season cars and trucks line the road as most Mauritian families have a tradition of picking "Chinese Guava" (commonly known as "strawberry guava" in Hawai'i). It reminded me of my own family trips to Kōke'e State Park on the first day of plum season with my extended family; the trucks stacked with ladders and picking poles. The National Parks and Conservation Service (NPCS) are attempting to eradicate strawberry guava in specially managed areas of the National Parks.

In addition to guava, one can see the lowlands covered in

See the impacts of...

numerous invasive plants throughout Black River Gorges National Park including Ravenala madagascariensis, commonly known as Traveller's Palm. A few of those species shared with Hawai'i include: long thorn kiawe (Prosopis juliflora), haole koa (Leucaena leucocephala), Brazilian (Schinus terebinthifolius), Mauritiushemp (Furcraea foetida), and Lantana (Lantana camara). Like Hawai'i, the giant African snail (Achatina fulica) were introduced and the people there found them equally unappetizing. Mauritius got lucky and the cane toad (Rhinella marina); the toad was introduced three times but never got established. They do have mongooses and feral cats, which are thought to have been brought as early as the 15th century by Arab sailors.

If Hawai'i has Kamapua'a, the piggod associated with the God Lono, Mauritius's majority Hindu population has Hanuman: a Hindu god, who takes the form of a monkey. Crab-eating macaques (Macaca fascicularis) are

opportunistic omnivores introduced by Dutch sailors in the late 16th or early 17th Century. Until recently, the population was kept in check by a local cottage industry that captured and exported them to laboratories in Europe and Japan. Macaques eat everything including the eggs and chicks of the Mauritius kestrel, Mauritius parakeet and pink pigeons; all endemic birds battling extinction. Animal rights advocates with concerns for the macaques' welfare have halted exports in an extremely complex and ethically delicate situation that has left conservationist quietly frustrated and trying to build macaque-proof bird nesting boxes.

As native species recover in Mauritius, they can begin to compete with people for resources. Likewise, in Hawai'i, tension is mounting over the Hawaiian monks competing with some fisherman. The Mauritius flying fox is facing illegal culling by farmers. The Mauritian flying fox loves fruit, especially lychee. Farmers can see half the lychee on a tree disappear overnight. The government has a program to distribute nets to farmers so that they can be placed

over trees to protect crops. Some farmers argue it is too tedious and costly.

In Mauritius I could see parallels

to Kaua'i and the shifting generational baselines or perceptions of the see and tolerate increasing invasive species and recovering native species. On the MWF-managed islet, Ile aux Aigrettes, rats, cats, mongoose and haole koa (Leucaena leucocephala) have been

removed, while Aldabra Giant Tortoise (brought from the Seychelles), endemic birds, and endemic reptiles have been repatriated in an act of ecological replacement to show visitors and locals what things might have looked like 400 years ago, prior to

Musk Shrew I asked the young, wellof Mauritius' transition from a

"labor-abundant" to a "skill-intensive" economy) if they could envision a future where producing sugar was no longer profitable and cane fields were abandoned. They gave quizzical looks and I could tell, that although they all worked toward and believed in increasing endemic species in the National Parks and reserves, they couldn't yet foresee a time when the island's lowlands wouldn't be covered in sugarcane fields. Likewise, the same attitude I remembered having as a kid growing up on Kaua'i.

Reference: http://www.mauritian-wildlife.org/application/

Long thorn K





Congratulations Katie Cassel!

2014 HISAW Kaua'i County's MVP

Katie Cassel was recognized at the 2014 Hawai'i Invasive Species Awareness Week Award Ceremony as the Kaua'i County's MVP. Katie Cassel began the Köke'e Resource Conservation Program (KRCP), when she recognized the need for a dedicated, volunteerbased program to help control invasive species in Köke'e State Park to help protect the pristine forests. Katie has been working tirelessly to involve not only the local community but also inspiring volunteers from all over the world to participate in conservation efforts on Kaua'i. Her invaluable ability to introduce community members to conservation is essential in protecting the native ecosystems and their beauty. Many of the people working in conservation on Kaua'i got their experience working under Katie. Katie's hard work and determination has made her program an example of how effective volunteerism can be for preserving the biodiversity of Kaua'i.



continued from page 1



The next day, the KISC crew confirmed it was a mature miconia, within the known infestation buffer area. They diligently bagged up the seeds, controlled the plant, and surveyed the surrounding area. The last flowering miconia found on Kaua'i was in 2012. Unfortunately, the yearly countdown of the Kaua'i miconia seed bank begins again. Miconia seeds can successfully sprout over 19 years later. Though it is devastating to find the mature plant, it is incredible to see the community at work. The plant would still be dropping seeds if it wasn't for one reporter and a daily newspaper subscriber. We are community.



On June 26th, KISC and HDOA presented to Hawaii Department of Transportation employees and contractors as part of the invasive species training for state road project. Less than one week later, KISC received a long thorn kiawe report from a contractor that attended the training. The small infestation was confirmed in a new location. The KISC crew was able to control the infestation and will continue monitoring. The report by the contractor, quick response by KISC, and subsequent control demonstrates how KISC work is dependent on community. We are community.



On July 1st, Ray Kahaunaele, KISC Field Operations Supervisor, assisted HDOA in responding to a coqui frog report in the Wailua Homesteads. The concerned resident had recently spent the weekend on the Big Island and was familiar with the frog's call. Her dedication to help keep Kaua'i Coqui-free led her to report the frog. A few nights later, Ray and Bill Lucey, the new KISC Manager, were able to capture the culprit. The resident was so impressed with KISC's successful quick response that she called The Garden Island to share her experience. She wanted Kaua'i to know that one call can change the fate (or invasive infestation) of a neighborhood. We are community.



On July 25th, Craig Kaneshige from the Department of Agriculture received a call from plant quarantine on the Big Island. It was discovered that a ginger farmer who was moving operations to Kaua'i had an LFA infestation on his ginger racks held in quarantine. As some of the farm equipment had already been relocated from the Big Island to Kaua'i, Craig notified the KISC crew and they assisted him with a large survey at the equipment staging area. Fortunately, no LFA were detected. The rapid communication between plant quarantine, Kaua'i DOA and the KISC office show how cooperation is essential to addressing invasive movements. We are community.

We invite everyone to join this community enterprise defending the aina for the future.



Michelle moved to Kaua'i in 1995 from the frigid winter of Ohio to go surfing. After three years of working in the tourism industry, she decided it was time to go back to college and moved to the Big Island to finish her degree at University of Hawai'i, Hilo in 1998. She wanted to save endangered species and thought she might have to move to the Amazon to do it. After a few weeks at UH Hilo she discovered she was living in the "Endangered Species Capital of the USA" right here in Hawaii! Michelle earned a bachelors degree in Conservation Biology, Evolution and Ecology from the University of Hawai'i in 2001.

Michelle has now been working in the field of conservation in the Hawaiian Islands for over 15 years. She started her career helping farmers, ranchers and non-profit organizations to conserve natural resources through costshare agreements as a Soil Conservationist with the US Department of Agriculture's Natural Resource Conservation Service in 1999. In 2008, Michelle joined the US Department of Interiors Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office where she currently works as the Kaua'i Partnerships Biologist, assisting private landowners, the State of Hawai'i and other conservation organizations through cooperative agreements and technical assistance to protect and restore habitat for Kaua'i's threatened and endangered species.

Thank you, Michelle, for being KISC's partner and for all of the work you do on Kaua'i!



a hui hou

Keren Gundersen. Who would ever think, back in 2002, that so many of us would get to know, respect, and love this name? As the only KISC project manager, from the very beginning of KISC and until today, Keren has accomplished so much and made KISC a recognizable name to so many; all to the benefit of the people and natural resources of Kaua'i.

It has been no easy feat to make KISC successful. Keren has dealt with the challenges of limited funding as well as the very large challenges both on-the-ground and in the world of people and politics. She stayed the course and accomplished so much with the resources at hand. She has done an outstanding job for Kaua'i.

Some may say, "But she had a great staff!" Well, this is true. Keren has had a truly diligent staff over the years. Her staff has been, indeed, a reflection of her tenacity and integrity with focus on the tasks at hand. Keren made it happen.

Some may say, "But KISC was given funding and is supported by government!" While this may also be true, Keren used lessons learned, as well as her never-say-it-cannot-be-done disposition, to make sure that KISC was not overlooked or forgotten at times when funding and government support were as scarce as endangered species.

Some may say, "But she had a great office and base yard to operate out of so that made it easy for her!" When it came to finding office and base yard space for the KISC operation, Keren had to endure many rejections. Looking back, it was no easy task to get where KISC is today. KISC's location evolved to get better and better over time: starting with very humble beginnings in Keren's living room, later moving to one room on the Kaua'i Community College farm, and then finally coming to land at the CTAHR campus. This evolution of KISC's locale is due to the combination of Keren's vision for the future, partner and community relationships, and hustle. If you look at KISC's office and base yard complex today up at the CTAHR Wailua Agricultural Research Center (thank you Roy Yamakawa), you will see probably the best Invasive Species Committee set-up in the State.

Some may say, "But dealing with invasive species is no big deal!" I will let you, the reader, be the judge of that. Keren and her staff identified the problems and just went out and dealt with them!

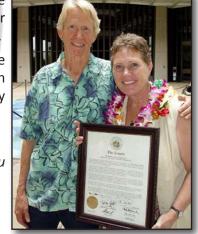
And now, after a great run with much learned at KISC, and after making

a wonderful home for her children here on Kaua'i, it is time for Keren to say good-bye as she heads to the mainland to follow her family. It is time for bittersweet good-byes.

As the Chairperson for KISC for almost the entire time KISC has been in operation, I can truly say that the hiring committee really lucked out when we hired Keren in 2002!

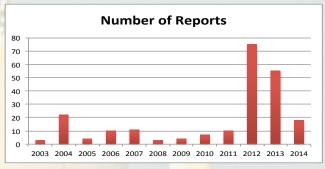
Aloha, Keren. May God's grace be upon you in all your endeavors.

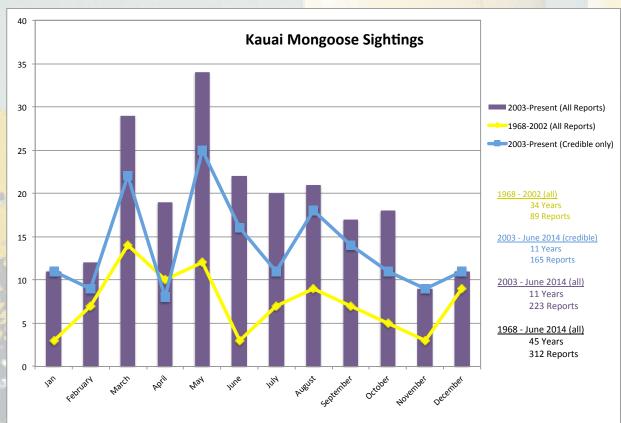
Allan Rietow, KISC Chairperson



Small Indian Mongoose Update

Credible mongoose reports continue to be received by KISC over the past year. The graph on the bottom compares three datasets: unfiltered mongoose reports from 1968 to 2002, reports that were only deemed credible from 2003 to today, and unfiltered mongoose reports from 2003 to today. As you can see, the peak reporting months remained the same, even after screening for credibility.





The disturbing information in this data is that over the first 34 years there were 89 unfiltered reports, and over the past 11 years, 223 unfiltered reports were received. This is an 674% increase in reports per year!

There have been

no new captures

mongoose were caught in 2012.

since two

Bingabing



New locations of Bingabing have been found on Kaua'i this past year. Bingabing grows 15-30ft tall in dense thickets. The large round leaves (up to 2-3ft long) shade out the forest understory. The flowers are red bracts

growing along the main stem. Please note it is different than the Parasol leaf tree that is widespread on Kaua'i. Parasol has smaller leaves and yellow flowers. Let's stop Bingabing before it becomes a problem on Kaua'i.

Species of Concern



In December 2013 a coconut rhinoceros beetle (*Oryctes rhinoceros*) was found in a USDA trap on Joint Base Pearl Harbor-Hickam on O'ahu. Further surveys found the beetles breeding in a large mulch pile located at a golf course on base near Honolulu International Airport. It is not known where the beetle came from, but the beetles are found throughout SE Asia and the Pacific islands.

The coconut rhinoceros beetle (CRB) threatens Hawai'i's iconic coconut palms. The adult beetles burrow into the palm's crown and feed on the exuding sap. The chewing beetles damage palm fronds and growing tip making it more susceptible to disease. Sustained infestation can kill coconut palms, especially younger trees. Although the beetles prefer coconut palms, they can also damage other palms, banana, sugar cane, hala, and breadfruit.

The female beetles lay their eggs in decomposing organic material. Dead coconut trees are preferred breeding sites, but mulch and green waste are also suitable. The eggs hatch into larvae or grubs which go through 3 stages, eventually measuring nearly 4 inches long. The larvae feed on the

decomposing organic material and do not harm trees. After several months, the larvae pupate into adult beetles which emerge from the breeding site. The beetles are active at night, taking flight after sunset to feed on coconut palms. During the day they hide in dark places. The beetles are spread long distances by hitchhiking in cargo or vehicles, or by people moving infested material such as mulch.

USDA and Hawai'i Department of Agriculture are leading the response effort on O'ahu and working closely with the US Navy to eradicate the beetles. Traps equipped with a pheromone lure are being deployed throughout the island to delimit the population. So far, beetles have only been found in traps along the

southshore of O'ahu, from Barber's Point to Kalihi. Most beetles have been found on the Pearl Harbor-Hickam base though.

In order to eradicate the beetles, all breeding sites need to be treated or destroyed. Destroying such a large amount of infested material presents a major challenge. Currently the infested material is being

treated by the US Navy using an invessel composting system. The high temperatures generated by microbial activity "cook" the beetle, larvae, and eggs. The removal of green waste from the base has been halted to prevent the spread of the beetle.

Because the infestation is located near the airport, the risk of the beetle getting to another island is high. Currently traps are deployed statewide at airports and harbors to detect the beetles. If people find a beetle or suspect beetle damage to coconut palms, they are encouraged to report it to the state pest hotline (643-PEST). The best way to prevent CRB infestation is follow good sanitation practices and dispose of dead coconut trees and green waste.



Above: Adult female CRB Top of Page: V-shaped damage in palm leaf

WELCOME KISC Project Manager, Bill Lucey

Trading in majestic views of glaciers, bears, and beluga whales, Bill Lucey and his family will be joining us here on Kaua'i mid June as KISC's new Project Manager.

Bill brings to KISC a plethora of experience that is very similar to our activities, objectives, and goals. He has helped to restore watersheds and marine waters, conducted surveys of all types, worked on many grant-funded projects, provided educational and training opportunities to the community, and interacted with and helped to preserve the oral history of native Yakutat elders to ensure the continuation of knowledge and understanding that would otherwise have been lost.

For the last 11 years, Bill has been working as the Director of Planning and Natural Resources in the City and Borough of Yakutat in the southern portion of Alaska. While there, he created a municipal watershed council that involved

coordination of tribal, government as well as local worked on a variety of projects stream mapping, invasive species assessment and control, and community forest management.

His ongoing duties included reviewing zoning compliance permits, acting as the regional NOAA marine mammal stranding responder, monitoring stream flow, conducting fisheries and wildlife assessments and reviewing natural resource policy proposals.

Previous career experience was with the U.S. Forest Service (also in Yakutat) and as a Peace Corps Volunteer in Guatemala.

Bill and his wife, Nicole, along with their son, Henry, look forward to the move to Hawai'i and leaving behind 14' of rain and 300" of snow that fall annually in Yakutat. Loving the outdoors, Bill is a hunter and fisherman, has experience with boating (having owned several fishing boats), is a Padi Open Water certified diver (he can leave his dry suit in Alaska), and loves snorkeling.



PASSPORT CHALLENGE Where would you travel to visit these PESTs in thier native habitat? Match the Country Passport stamps to the PESTS native habitat:











Answers: Sri Lanka - Coconut Rhinoceros Beetle; India-Small Indian - Miconia; San Juan, Puerto Rico -Coqui; Argentina - Little Fire Ant

Kia'i Moku - Guarding the Island

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Photos: Mugs Kaneholani or KISC unless noted **Background source**: Library of Congress

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The Kaua'i Invasive Species Committee (KISC) is a voluntary partnership of government, private and non-profit organizations, and concerned individuals working to prevent, control, or eliminate the most threatening invasive plant and animal species in order to preserve Kaua'i's native biodiversity and minimize adverse ecological, economic and social impacts. KISC is a project of the Pacific Cooperative Studies Unit and Garden Island Resource & Conservation Development, Inc.

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Kia'i Moku: Guarding the Island

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