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Mala Lā'au Lapa'au: Preserving the Hawaiian 'Āina and Mo'omehue

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Sandra Fogg

Honors Project Spring 2015

Project Overview

**Mala Lā'au Lapa'au:
Preserving the Hawaiian 'Āina and
Mo'omehue**

ABSTRACT

The study of medicinal plants in the western world tends to focus on the isolation and elucidation of natural products that have bioactive characteristics and potential for pharmaceutical formulation. However, the utilization of medicinal plants in cultures that still practice ancient medicine, such as Hawai'i and other Pacific Island nations, involves the use of whole plant parts in conjunction with spiritual rituals to heal illnesses and ailments. In order to gather a different perspective of the use of plants in medicine, a diverse investigation of "Lā'au Lapa'au," or the Hawaiian art of healing through the use of plants and spiritual practices for the mind, body and spirit was performed by immersion into the Hawaiian culture as a result of studying during an exchange semester in Hilo, Hawai'i.

Since Captain Cook's arrival on the Hawaiian islands in 1778, westernization of the Hawaiian archipelago has caused a drastic decrease in Lā'au Lapa'au, as industrialization and introduction of invasive species has threatened indigenous and endemic plant populations, and laws restricting Hawaiian language has prohibited the oral transmission of ancient spiritual practices. After learning about a diverse variety of medicinal plants, their uses, and their significance to the Hawaiian culture through independent research, coursework, Hawaiian locals, and a week-long service project removing invasive species and planting native seedlings, it was decided to preserve a collection of plants by creating a "Mala Lā'au Lapa'au," or "Hawaiian Healing Garden" on the University of Hawai'i at Hilo Agricultural farm. The garden was established by identifying an 85 x 93 ft plot on the agricultural farm, selecting an inventory of plants to be grown, gathering the plants from direct harvest from nature or individual donations, and planting of the desired species. 24 species were planted in different forms (as cuttings, seeds, seedlings, or whole plants) into pots and kept in two locations, a greenhouse and mist house, to grow before being transplanted to the ground. Preparation of the plot by removal of inhabiting trees, herbicide application, and fresh mulching was to be performed, but inclement weather postponed the process to after my departure from the Big Island. However, the establishment of caretakers to initiate, tend to, and expand the garden occurred, and as of recent weeks, the transplant of species from the greenhouses to the plot and addition of new species has commenced and will continue for generations to come.

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RESEARCHING HAWAIIAN PLANTS

1. Books

- a. Native Hawaiian medicines / translated and edited with an introduction by Malcolm Nāʻa Chun, 1994.
- b. Amy Greenwell Garden ethnobotanical guide to native Hawaiian plants & Polynesian-introduced plants / [compiled by Noa Kekuēwa Lincoln] ; with contributions by Peter Van Dyke ... [and others] ; photography by Noa Lincoln ... [and others], 2009
- c. Hawaiian healing plants : nutraceutical crops for Hawaii /University of Hawaii at Manoa. School of Social Work, 1998.
- d. Na Pule Kahiko : Ancient Hawaiian prayers / June Gutmanis ; drawings by Susanne Indich, 1983.

2. Journal Articles

- a. Kapulani Mossman Judd, N. J., 1997. Laau Lapaau: herbal healing among contemporary Hawaiian healers. *Pac. Health. Dial.*, 5: 239-245.

3. Coursework

HWST 211: Hawaiian Ethnobotany

This course was taught by “Kumu” (teacher) Deyson Aiona, a professor of Hawaiian culture and language at the UH Hilo “Ka Haka ‘Ula O Ke’elikō,” or College of Hawaiian Language. He is fluent in Native Hawaiian and is kind and down-to-earth teacher with an unrelenting “aloha” spirit and passion for the Hawaiian culture.

I enrolled in this course to foster a solid foundation of knowledge about native and indigenous Hawaiian plants and their uses in the Hawaiian culture. Throughout the semester, I was introduced to far more about these topics than I imagined, being afforded the opportunity to work directly with some of these plants, both inside and outside of the classroom. In addition to standard academic presentations and lectures, as part of the curriculum I created several artifacts, which granted me a sense of significance and respect to the plants in the Hawaiian culture.

Of these artifacts, perhaps the most rewarding and enjoyable project was creating cordage using hau trees. To prepare the cordage, I used my bare hands to peel the fresh bark off the trees, a very laborious process which involved lots of sweat and left my fingers bruised. The wood underneath was then dried and shaved into long strips. The ancient cordage techniques utilized was a twist called the Hilo Braid. I was required to create about 10 ft of cordage.

In the beginning, I became very frustrated with the rope, as the twist would not hold and the definition between the two cords was severely lacking. I realized however, that I was approaching the project with a negative attitude as my frustration overcame me. The Hawaiians call it “lawena.” Lawena is one of the four aspects of “mauli,” the fire or essence of culture that creates your identity. Lawena is the kinetic or behavioral component of mauli, meaning how you hold yourself physically, your mannerisms, and your presence in any given situation. The way you present yourself reflects your intentions, and angry or frustrated emotions, a tense body, and cursing do not yield good results in any endeavor. I stepped away from the project and came back to it, this time with a good attitude, proper posture, and the intention to create a quality product. I succeeded quickly.

The cordage was not a medicinal use of a native Hawaiian plant. However, active learning with the plants and their alternate uses helped me gain more perspective of the culture and their reverence for plants. A lot of hard work and preparation is required to create medicines and other tools and artifacts from the plants in Hawai'i. When so much time and effort is put forth into generating goods, it is easy to see why the Hawaiian culture wholeheartedly respects the land and truly appreciates the flora found on the islands.

4. Service Learning

Over Spring Break I was privileged to travel to Kaua'i with BreakThru Adventures, an eco-service volunteer program sponsored by the UH Hilo Campus & Community Service office. In Kaua'i I volunteered alongside a group of 8 other UH Hilo students at two service locations, Limahuli Garden & Preserve and Waipa, where we gave back to the land and learned about native Hawaiian plants, as well as the Hawaiian culture.

Limahuli Garden & Preserve

Limahuli Garden & Preserve is a botanical garden and native forest preserve located in Limahuli Valley, the watershed for Makana Mountain on the northern shore of Kaua'i. The lower part of the valley is owned by the National Tropical Botanical Garden, and hosts countless species of native Hawaiian plants ornamenting the lush landscape of the valley and Limahuli river, one of the last rivers in Hawai'i unaltered by human habitation. The upper part of the valley is the forest preserve. Biologists and conservationists are actively seeking to restore the forests to their ancient conditions, as westernization and introduced species have endangered many of the endemic and indigenous plants in Hawai'i.

While camping at Limahuli, my peers and I spent two full days removing invasive species and planting native Hawaiian flora in the lower section of the preserve. Each day we trekked about 45 minutes through the tropical rainforest preserve with heavy trays of native plants in our arms. Before entering the forest, we chanted to the “akuas” or gods to seek permission to proceed, as respect for them and the Hawaiian culture. We arrived to our first restoration site where we cut

down over 20 invasive coffee and mountain apple trees. After chopping down the trees and piling the branches, we used our hands and tools to effectively discard invasive plants and weeds, making room for over 100 native papala trees, koa trees, and several grasses. The second day consisted of similar tasks at a second restoration site, where the over 50 native species were transferred from the nursery pots to the forest.

Papāla trees have been used in traditional Hawaiian medicine by utilization of the sticky sap to heal cuts or wounds. Koa trees are also very important to the Hawaiian culture, and in addition to their major contribution of wood for canoes, the plants boast medicinal properties.

This was a very rewarding experience because I truly grew a fondness for the trees. After carrying the plants up the mountain, clearing away a new home for them, and picking the perfect surface on the mountain slope to dig their holes, I felt a connection with the plant. I wished each plant good luck, and told it to grow big and strong. The Hawaiian culture cherishes the connection between a person and the “āina” or land, and I undoubtedly felt that connection in the garden with my trees.

Waipa

The Waipa Foundation, also located on the northern tip of Kaua'i is a non-profit foundation that seeks to spread awareness of the connection between people, the community, and the land. Waipa encourages health and knowledge of the local values and lifestyles of the Hawaiian islands by maintaining one of the last remaining ahupua'a, the ahupua'a of Waipa, which is a section of land that extends from the ridges of the mountains to the sea, “makai.” Waipa's major cultural focus is Kalo, a sacred plant, which is the most significant crop in Hawaiian culture. Kalo can sustain life and is highly respected and revered in the Hawaiian community.

Every Thursday at 5:00 a.m. members of the Waipa Foundation and the community gather to make poi, a staple food made by baking the corm or root of the kalo (taro) plant, removing the skin, and pounding it into a fermented paste. I was afforded the opportunity to help with this process. I experienced many steps of poi creation including harvesting the kalo from the Lo'i fields, peeling the skin from the baked taro, washing the taro, scraping the taro, and watching it get pounded.

Taro is such an important part of the Hawaiian culture and has many health benefits, spiritual significance, and medicinal properties. It was an honor to be allowed to take part of such a cherished traditional in the beautiful landscape of Waipa.

5. Learning from Locals
Edward Johnston

I was graciously invited to the private home of world-renowned 'awa expert, Ed Johnston. Ed Johnston is one of the founders of the Association for Hawaiian 'Awa, a charitable organization created for "research, education, and and preservation of the cultural and medicinal values associated with the 'awa plant." The organization was founded in 1998 in aims to inform people living on the Hawaiian islands how to identify cultivate, maintain, and prepare countless varieties of 'awa plants. 'Awa is a polynesian-introduced plant that is used to prepare the sacred and medicinal drink, "kava." After being informed of the garden, Ed invited myself and several others to his home to teach us all about 'awa, and to donate several cultivars for the garden. At his home, I learned about the history of 'awa, the differences between cultivars, how to harvest the plant, and the uses of 'awa. He also taught me about the chemistry of kava, as the natural products responsible for its medicinal effects are starting to be studied for the first time in history.

He then showed me how to take cuttings of the 'awa plant, and how to prepare it to grow. I took cuttings of the plants and applied rooting enzymes of to the tips of the to aid in their growth. He then showed me how to place the cuttings in a bed of wet sphagnum moss, as well as the correct orientation of the cuttings. Finally he overviewed the process the cuttings would take, and the transplantation steps during the plants' development. This was a wonderful learning experience because it was hands-on learning, and it was also provided by such a revered expert in the field.

Kahuna Po'okela Ikaika Dombrigues

Ikaika Dombrigues is the Big Island's Kahuna Lā'au Lapa'au and was chosen by Papa Henry Auwae, the previous Kahuna, to pass on the knowledge of native Hawaiian plants and their medicinal uses, as well as traditional healing and spiritual practices. Kahunas are "keepers of the Huna Mana" and are the sole holders of certain traditions in caring and healing on the Hawaiian Islands. Ikaika is a direct descendent of the Hawaiian god Lono, and is guided by his ancient ancestors to keep the faith and healing of the Hawaiian culture alive.

I was fortunate enough to attend a seminar led by Ikaika himself, despite the fact that it was intended to be exclusive to native Hawaiians. In his lecture Kahuna Ikaika spoke about the Hawaiian culture, and the importance of keeping it alive in a westernized world. He taught the class about the history of healing, and his own spiritual journey since he was elected to be the next kahuna. Finally I learned from him about a variety of medicinal plants, their uses, and how to prepare them. This was the first time I was actually introduced to the physical preparation of

medicines, as he demonstrated the different steps and blending of ingredients for healing pastes and elixirs. I was exceptionally excited to be afforded this rare opportunity to learn from the island's most spiritually rooted and knowledgeable healer.

DETERMINING A LOCATION FOR THE GARDEN

1. OPTION A – Addition to Existing Gardens on Main UH Campus

There are several existing gardens on the main UH Hilo campus. Several students in the agriculture club, as well as pharmacy students, have small gardens scattered around campus. However, these gardens are not extensive by any means. They also are not solely Hawaiian medicinal plants. Some of them contain non-native plants, while others contain native plants that lack medicinal properties. I desired to create my own garden though, in which all of the plants were endemic, indigenous, or Polynesian introduced to Hawai'i. Additionally, I desired for all the plants in the garden to contain medicinal properties.

2. OPTION B – Small Plot on Main UH Campus

Dr. Norman Arancon is the Dean of the College of Agriculture, and holds the power of designating areas on campus for construction of gardens. He offered to denitrify an area on campus to plant a garden. All I needed to do was to submit a list of plants and acquire a source of funding from UHSA or another professor. However, the location would be small and the quantity of plants would have been limited.

3. OPTION C – Large Plot on Off-Campus UH Agricultural Farm

This final option is the location I chose for my medicinal plant garden. The garden was to be created on the CAFNRM or the College of Agriculture, Forestry, and Natural Resource Management farm laboratory. The farm laboratory is located about 5 miles South of the main UH campus and serves the purpose of preparing students for future endeavors in the field of agricultural science by providing experiences in production, management, processing, and distribution of agricultural commodities. After submitting a proposal of my interest to the Dean of Agriculture and the Dean of Pharmacy, I was directed toward Janis Iyo, a research associate at CAFNRM with a growing interest in medicinal plants. With her help, under the collaboration with the Professor of Horticulture, Dr. William Sakai, a plot of the garden was designated at the farm.

The dimensions of the plot provided were 85 x 93 feet. The plot was located behind a greenhouse, where 12 guava trees resided. The plan was to have the guava trees removed, the trunks cleared, herbicide applied, and the soil tilled to get ready for planting.

ALLOCATING FUNDS

Available funding for the medicinal garden was graciously offered by the Professor of Agriculture at the UHH and CAFNRM, Dr. William Sakai. After receiving quotes for plants from the local nurseries, as well as additional material expenses, a budget proposal was to be drafted to utilize funds acquired from Dr. Sakai's AN/NH Educational Grant. The plants would serve to supplement his and his students' future botanical research endeavors as well farming techniques, so we was very excited to contribute to the garden.

The budget proposal, however, was not drafted because in lieu of myself directly ordering materials from suppliers, Dr. Sakai conducted the purchases himself with the grant money. His grant money supplied the materials to the farm, and I was then granted permission to access any necessary equipment, materials, and plants. Additionally, as will be mentioned in the next section, methods to acquiring the plants changed from when the project was first proposed to Dr. Sakai.

ACQUIRING PLANTS

Several resources were utilized to gather plants for the garden. The initial plan was to utilize funds to purchase the plants from local suppliers. After compiling a list of the desired plants to compose the garden, I contacted several local nurseries to receive a quote. Despite the fact that the nurseries were located on the island, their inventories did not contain many of the plants that were to be planted in the garden. The nurseries contacted were Aileen Yeh's Nursery - Native Plants Hawai'i and Hawaiian Sunshine Nursery. I was taken aback by the lack of plants and considered modifying the list of plants to add to the garden. However, after discussion with my Hawaiian mentor, Janis Iyo, she said that we could search for the plants ourselves. Thus, I reached out to many different resources to seek plant donations, as well as harvested naturally growing cuttings, seeds, and seedlings.

1. Donations

Russell Shioshita

Russell is a Research Associate working with Dr. William Sakai, currently performing research on *Colocasia* spp. tolerance to highly saline water.

Plants Acquired: Hāpu'u (cuttings)

Jennifer Johansen

Plants were donated from Jen, the Ho'oulu Lehua youth groups coordinator and research technician studying with UHH Biology Professor Elizabeth Stacey.

Plants Acquired: Kanawao (seedling), Kūkaenēnē (seeds), 'Ēkaha (seedling), Ma'o (seedling), 'Ōhia Lehua (whole plants)

Edward Johnston

'Awa plants were propagated from a personal collection by Edward Johnston, a co-founder of the Association for Hawai'ian 'Awa in 1998.

Plants Acquired: 'Awa (cuttings); 6 Cultivars: 'Opihikao, Hiwa, Honokane Iki, Nene, Papa 'Ele'ele, and Papa Kea

CAFNRM

Plants Acquired: Ākala (seedlings), 'Ala'ala-wai-nui (seeds), Awapuhi (cuttings), Ōlena (cuttings), Māmaki (seedlings), , Ko'oko'olau (seeds), 'A'ali'i (seeds)

2. Harvested

CAFNRM

Plants Acquired: Kī (cuttings), Noni (cuttings), Kukui (seedlings), Moa (whole plants), Pōpolo (whole plants), 'Uhaloa (whole plants), Laua'e (whole plants), Maile Ho'hono (whole plants)

Janis Iyo

Plants Acquired: Pohe Kula (seeds)

Imiloa Garden

A UH Hilo garden with a variety of endemic, indigenous, and polynesian introduced plants found on the Hawaiian islands.

Plants Acquired: Kō (cuttings)

CREATING THE GARDEN

Creating the garden was the most rewarding experience, and the culmination of all of the knowledge I learned throughout my semester in Hawai'i. The garden is my long-lasting gift to the University of Hawai'i, the community of Hilo, and the islands of Hawaii. That being said, it is a work in progress, that hopefully will never stop growing and giving.

I hardly knew anything about gardening, however I learned bounties from my Hawaiian mentor, Janis, whose new-found interest in medicinal plants brought us together.

The plot provided for the garden, as previously mentioned, had 12 strawberry guava trees planted in it. These trees are invasive, so plans to remove the trees were already in effect. The proposal to start a garden provided the needed initiative for the farm staff to finally remove the trees. The stumps were then planned to be treated with herbicide to prevent the growth of weeds in the garden. Finally, it was established that the landscaping classes at the Hawai'i Community College located just down the road would come to the farm and turn the ground, and provide a fresh layer of dirt and mulch to prepare the garden for planting.

Meanwhile, my personal progress with the garden started with gathering the plants, growing them, and preparing them for transplant. Collecting the entire inventory of plants was a process that took several weeks. The plants were acquired in a variety of forms. Some plants to be planted consisted of seeds that were collected from both nature and plants in existing gardens. These had to be planted in mixtures of mulches, compost, and fertilizer and placed in mist houses to grow. Other species were gathered either from the ground or other places on the farm as seedlings. These seedlings were transplanted into larger pots so that they could be large and healthy enough to transplant into the ground. Additionally, whole plants that were harvested from the wild were transplanted into large pots while the garden plot was to be prepared. Finally, cuttings of several varieties of plants had to be placed in flat beds to root. Once rooting occurred, they were transferred into larger pots to await placement in the garden plot.

While preparing and transplanting all of the plants, I learned all about gardening. I was informed about different growing mediums and what plants desired, based on their regions in nature. For instance some of the plants native to the rocky lava fields required very rocky soil, while those whose habitats are closer to the beach needed sand mixtures. I also utilized different compost mixtures, including one made from broken down kukui nuts and coconut husks.

I spent the beginning of the semester initiating contacts, conducting research, coordinating plans, and seeking resources. I did not start my visits to the farm to begin planting until early March. A majority of the plants were collected and in pots in the greenhouse and mist house by mid-April. However, many of the plants had long growth periods before they would be ready to be planted into the garden plot, especially those varieties that started as seedlings and cuttings. For instance, the 'awa cuttings required 6 weeks in the moss beds to allow for root development. Unfortunately, nature cannot be

sped up, and rushing the transplants into the ground would most likely be detrimental to their health. Perhaps this could have been avoided by starting the planting earlier in the semester, however, in the first few months I was unknowledgable about Hawaiian plants, so the research and learning time was necessary.

Even if I had started the gardening process earlier in the semester though, the major obstacle in creating the garden was the rain. Hilo is the rainiest U.S. city with an average annual rainfall of 130 inches! Additionally, March and April have the highest average rainfall of any of the other months, with the only exception being November. With that being said, it rained for almost 6 weeks straight while I was there, around the same time that the actual gardening was starting to occur. When it rains in Hilo, it pours. This prevented the farmhand Ryan from clearing the guava trees.

These factors meant that I did not get the chance to plant any of the seedlings or small plants into the garden. However, I do not deem the garden a failure. It is a work in progress, that many people in the community are excited about.

LETTER OF INTENT

Sandra Fogg
North Kingstown, RI 02852

University of Hawaii at Hilo
Students, Faculty, and Staff
Hilo, HI 96720

May 20, 2015

Dear UHH students, faculty, and staff and the surrounding Hilo community,

It is with the greatest aloha that I present you all with the UHH Mala La'au Lapa'au. Spending a semester on exchange here at the University of Hawai'i at Hilo has been the most rewarding and amazing opportunity that I've ever had the pleasure to experience. The people and the island itself have taught me so much about Hawai'i, the world, life, and myself. Being a Pharmaceutical Sciences major, my profound interest in natural products led me to Hawai'i to study the introduced, indigenous, and endemic medicinal plants used in traditional Hawaiian culture. One of the sayings I held on to dearest while in Hawai'i was "malama ka 'āina," care for the land. The land cares for its people, and provides them with what they need. In turn, people must give back to the land and care for it. Thus, in studying traditional medicinal plants and practices, I decided to give back to the land by creating a mala la'au lapa'au. This garden demonstrates my appreciation and gratitude towards the people of UHH and the Hilo community.

My intentions for this garden are to preserve the plants and medicinal practices of the ancient hawaiian culture, as westernization of the islands continues to expand. My hopes are that students, faculty, and staff, as well as members of the Hilo community will visit, learn from, and help to expand this garden for generations to come. My contribution was not to establish a complete garden that will die after I leave, but to begin a project that will forever continue to educate and engage others. I invite the College of Pharmacy students and faculty to use the garden as source for natural products pharmaceutical research. I encourage students of the College of Agriculture, Farming and Natural Resource Management to tend to the garden and expand it with their own additions of other indigenous and endemic medicinal Hawaiian species. Outside of the college, I hope that the students in the Ho'oulu Lehua youth groups led by Jen Johansen will gain knowledge about the plants and their significance to the Hawaiian culture, and

foster their own interest in preserving these helpful species. Finally I hope that other members of the community will come to the CAFNRM garm to view the collection of these wonderful plants in one convenient location, where they can learn about them, and hopefully someday be given seeds or cuttings from the garden to spread these precious species into personal gardens around the island.

Aloha and Mahalo,

Sandra Fogg

EDUCATION AND UTILIZATION OF GARDEN

By creating this garden, I am helping to preserve the 'āina (land) and the mo'omeheu (culture) of the Hawaiian islands. There are several gardens on the UH Hilo campus and farm that host native species, but so far there have been none exclusively housing plants used in traditional medicinal practices. The need and desire for this type of garden has been present, but nobody had yet taken initiative to make it a reality. Upon hearing news of the garden, many hands have reached out to help contribute to the garden. Aside from the generosity of donations, many have vowed to help with the establishment of the garden on the plot, and continue to maintain and add to it. I planted the seed of this mala, and intend for it to grow indefinitely, spreading not just physically with the addition of more plants, but sharing the knowledge of these plants among the Hilo community.

I am greatly blessed by the enthusiastic individuals and groups that have volunteered to tend and expand my donated garden. I am also honored by others in the community and school system that will use the garden for their own education, and to share the knowledge of Hawaiian medicinal plants and their uses with generations to come.

Janis Iyo

As my second mentor, this project would have not happened without Janis. Janis, an expert on edible tropical plants, had developed a growing interest in medicinal plants, particularly those native to Hawai'i. I was pointed in her direction by the Dean of the College of Agriculture. She has overwhelmed with excitement at the prospect of a medicinal garden and was eager to help me get started. She taught me everything I needed to know about gardening, and provided me with the names of many people in the community that could help make the garden a reality, as well as teach me about medicinal plants, such as Ed Johnston. We worked alongside each other in the greenhouse, exchanging our own new findings on medicinal plants and practices, as the topic was new for both of us. As an employee on the farm, she has promised to keep the garden progressing, and continually sends me updates of its progress. Additionally, upon hearing my recently acquired ethnobotany knowledge she proposed a new accompanying garden adjacent to the medicinal garden containing plants used in other traditional goods, such as those used for cordage and tools.

Dr. William Sakai

Dr. Sakai has many classes of students in the College of Agriculture, Farming, and Natural Resource Management that regularly visit the farm for hands-on coursework. As the provider of funds and resources, such as mulch, fertilizer, pots, tools, and other equipment for the garden, naturally he procured quite an interest in utilizing the garden. He explained that his classes would come to the farm to learn about gardening and plants, but they have not been afforded the opportunity to work with exclusively native plants. He was very eager to teach students about the medicinal plants and is

planning to have them work on the expansion and maintenance of the garden as an integral part of their curriculum.

University of Hawaii at Hilo College of Pharmacy

Several members of the College of Pharmacy were also excited about the new garden. Though there are already several native plant gardens on campus, there currently are not any locations where an abundance of medicinal plants are in one confined garden. The chemistry of the active compounds of many Hawaiian plants has not been extensively studied. Due to the cultural traditional of these plants, the ancient practices involving them are passed down through generations. These plants are just known to heal, though the natural compounds that cause the healing remain a mystery. Due to my pharmaceutical background, I am intrigued by the potential uses of these plants in medicine if certain compounds could be isolated. The students of the College of Pharmacy similarly have the same ambition. I spoke with pharmacy professor Dr. Dana Lynn Koomoa-Lange, who expressed her own interest, as well as the interest of her students in utilizing the garden as a source garden for natural product research.

Jennifer Johansen

Jen is the coordinator of Ho'oulu Lehua youth programs which provide native Hawaiian children growing up in difficult family circumstances a chance to escape by teaching them about gardening and nature. She hopes to utilize the garden to teach her students about plants found on their own island, and how they can be used.

Members of the Hilo Community

My intentions for this garden are to preserve this knowledge for members of the Hilo community, even those outside of the University. The lecture I attended with Kahuna Ikaika was hosted by a native Hawaiian healing clinic. Ikaika stressed the importance of a public community garden, so that members of the town can have access to some of the rare and endangered native plants in Hawaii. Janis and I mentioned the garden and the attendees were ecstatic. We expressed the welcomeness of the public to come to the garden to learn about and view the plants, as well as the possibility of sharing seeds and cuttings to individuals interested in starting their own mala la'au lapa'au.

Per the updates of Janis as of mid-June, all of the guava trees have been cleared and the garden and the herbicide applied to the stumps. Plans are in effect to plant some of the larger trees, the kukui, 'ōhia lehua, māmakī, and noni this week. Shortly afterwards some of the shade loving plants will be planted underneath the trees. In a couple of weeks the plants that started as seeds should be ready to be transplanted, and hopes are to have the whole garden completed by the end of July!

The failure for my own two hands to prepare the plot and plant all of the native plants into the garden, does not mean that the garden will never be finished, and that my efforts

were all a waste. There are many members of the community and the college that are very excited about the new garden, and are eager to be a part of it! I learned so much about Hawai'i, it's history, the culture, the fauna, and the flora than I could have ever imagined. I feel infinitely indebted to all of the people that shared their knowledge with me, as well as the island itself. I gained so much from Hawai'i and my experiences there that I wanted to give something back. What I chose to give back was this Mala La'au Lapa'au, and I hope it helps to preserve culture and spread knowledge of Hawaiian plants for generations to come!