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Cultural Traditions and Food: Kānaka Maoli and the Production of Poi in the He'e'ia Wetland

**Hōkūlani K. Aikau and Donna Ann
Kameha'ikū Camvel**

University of Hawai'i at Mānoa

Abstract

For five years, a Native Hawaiian non-profit organization has been working to restore wetland taro farming in the ahupua'a of He'e'ia. This article argues that the cultivation of taro and the production of poi are critical means of resilience and Indigenous resurgence for Kānaka Maoli. Participant observations indicate that the modern-day farming of taro for poi is a struggling and backbreaking enterprise often hampered by funding shortages, lack of infrastructure, management challenges, an insufficient supply of taro and, more critically, access to fresh clean water. The primary objective of this article is to articulate how the agronomics of taro farming and poi milling manifests as resilience in and through the kanaka 'ōiwi body. What drives this kind of commitment to such an arduous undertaking? Through ethnographic field observations, field notes, surveys, and interviews the authors show how resilience is an embodied and regenerative experience; one that transforms both kalo and kanaka. The obstacles and grueling realities in the cultivation of kalo and the production of poi are highlighted from an Indigenous perspective, one that articulates the daily difficulties and successes in integrating Kānaka 'Ōiwi customary traditions or practices with modern-day management strategies but, more critically, identifies as cognate the relationship between kalo and kanaka.

Keywords: Native Hawaiian foodways, taro cultivation, poi, tradition, customary, contemporary practices

Introduction

Located on the windward side of the island of O'ahu lies a wide expanse of wetland in He'e'ia Uli, an 'ili (smaller land section) in the ahupua'a of He'e'ia.¹ Consisting of an expansive 405 acres of 'āina or land, the waters of this fertile marshland meet, at the end of their downstream course, the coastal shoreline where the infusion of salty ocean water mixes with the wetlands' sweet, fresh water, creating the muliwai or estuarine brackish waters that were essential spawning grounds for Native Hawaiian species of fish and shrimp. These waters then flow into an eighty-acre fishpond, Kāne'ohe Bay and out to the near-shore fisheries. In the late eighteenth and early nineteenth centuries, this lush and fertile wetland was completely used to grow kalo (*taro*, *Colocasia esculenta*) using traditional cultivation practices that required channeling wai (fresh water) into and through 'auwai (ditch system). These lo'i (irrigated taro fields) were banked by pōhaku (stone) revetments that were fitted precisely so as not to allow leakage of water from the lo'i. The He'e'ia community hāpai pōhaku (passed each rock hand to hand) to build these compact and tight walls. The 'auwai brought water down from the springs and streams in the mauka (forested upland) sections of the 'ili into the lo'i allowing for the life-giving waters to flow through each pond field before returning to its original source, the stream. These lo'i, in conjunction with walled fishponds and systematic dry-land cultivation, contributed to what anthropologist Marion Kelly refers to as "the dynamics of production intensification in pre-contact Hawai'i" (Kelly 1989, 83).

Although it is clear that our Hawaiian ancestors were able to efficiently and successfully cultivate and manage 405 acres of lo'i kalo to produce poi (cooked and mashed taro mixed with water), duplicating that effort in today's drastically altered cultural, social, economic and political environment presents a most challenging front. Drawing on ethnographic research conducted between July 2013 and March 2015 the authors argue that, despite the dramatic differences between historical and contemporary contexts, the process of producing poi continues to be critical to a Kanaka Maoli consciousness and an important benchmark toward sustainable self-determination (Corntassel 2008);² planting kalo and making poi returns Kanaka 'Ōiwi to the 'āina and to the life-giving properties found therein.³ It also breathes new life into, as Kānaka geographer Kapā Oliveira suggests, "our deep consciousness and appreciation for the natural environment." We developed such a keen understanding of our environment, she argues, through a generations-long, sustained interaction with 'āina, which produced a distinct "sense ability." "In this context," she writes, "'sense ability' is the capacity to receive and perceive stimuli from our oceanscapes, landscapes, and heavenscapes and to respond to these sensory stimuli in ways that contribute to our overall understanding of the world" (Oliveira and Nakoa, 2014, 94). We argue that when kōnaka work in the lo'i and make poi we begin the process of re-enlivening our sense abilities by restoring the physical, genealogical, and sensual relationship that connects kanaka (a person), 'āina and kalo.

The Ahupua'a System of Hawai'i

Kanaka 'Ōiwi scholar, Dr. Kamanamaikalani Beamer, describes an ahupua'a system as "a contemporary phrase used to describe 'Ōyst resource management in ancient times" (Beamer 2014, 33). Paul F. Nahoa Lucas, a Kanaka 'Ōiwi attorney, defines ahupua'a as a "unit of land" or "a land division usually extending from the uplands to the sea" (Lucas 1995, 4). The ahupua'a has also been described geographically as a wedge-shaped section of land, running from the ridgeline of the mountain to the near-shore fisheries, often the first reef beyond the shoreline. While all of these definitions are correct, missing from them are the spiritual and culturally complex relationships that exist between the 'āore (land) and the kupa (those people well acquainted with the land). It was here, in the ahupua'a, that the maka'āinana (people of the land) lived; those who made up the ranks of farmers, fishermen, gatherers, kapa or bark cloth beaters, wood carvers, adze makers and others whose stewardship of the 'āina, along with the production of food crops, was essential in both mālama 'āina (to care for the land) and aloha 'āina (having a deep love for the land).

This relationship was expressed through mo'okū'auhau (genealogy), mo'olelo (stories and histories) and ka'ao (traditional literature and legends) that were specific to particular places and remembered by the people who were from there. Additionally, each place had a special significance or connection to certain akua (religious deities). To know a place was to know the names of the akua, winds, rains, and clouds, and to be able to recite the mo'okū'auhau and mo'olelo of a place.

The relationship of kanaka to 'āina was personal and continues to persist through the cultural practices performed on the land in places across Hawai'i. As we describe below, the story of Hāloanakalaukapalili (the first-born son of Wākea and Ho'ohōkūkalani) and his younger brother, Hāloa, serves as a cultural and practical guide for contemporary Hawaiians working to restore our personal and familial relationship to 'āina. The story of Hāloa motivates and frames the work Kāko'o 'ōiwi is doing in the lo'i to grow kalo and produce poi, to manage the flow of water, and to mitigate the impacts of climate change. The story of Hāloa motivates volunteers to work until muscles ache and sweat runs down like rivers on their backs. The story of Hāloa motivates us to be Hawaiian scholars who work to restore our lāhui (nation and People).



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He'e'ia Uli Transformed

The lo'i system in He'e'ia was highly productive and has been described as the calabash (poi bowl) for O'ahu because of the many acres of kalo grown here. However, over the past 165 years the engineering success of the irrigated pond system has been severely compromised. Three historical events, the Māhele in the 1850s, the plantation economy during the territorial period of 1900–1959, and suburban development combined with the flood of 1969, capture the transformation of the 'āina in the He'e'ia ahupua'a from a source of physical and spiritual nourishment to land as property with economic value.

In what is referred to as the *Māhele*, a systematic process of land privatization, the collective interest in land was divided amongst the *aliʻi* (chiefly class), the *makaʻāina*, and the *ʻaupuni* (the government).

Although the entire *ahupuaʻa* was awarded to Abner Kahoʻoheipahu Pākī through the *Māhele* process many government remnants and small pieces of land were claimed by those families who had already been cultivating the land. Prior to the *Māhele* the *konohiki* (the representative of the *aliʻi* and resource manager of an *ahupuaʻa*) changed when a new *aliʻi* came into power; it was common practice for *makaʻāinana*, who had been on the land for generations, to remain. Under the privatization of land, *makaʻāinana* families could apply for a *Kuleana* award or purchase parcels in fee simple. Those families who were not awarded or did not purchase land became landless.⁴

In 1871, Bernice Pauahi Bishop, Pākī's daughter who inherited her father's lands after his death, began leasing land in Heʻeʻia to Chinese planters, where rice replaced most of the *kalo* grown in the wetland.⁵ The transition from taro to rice had very little impact on the overall system. Indeed, interviews with *kūpuna* (elders) suggest that although Chinese planters moved into predominantly Hawaiian communities, Hawaiian values and practices were pervasive. They describe growing up in a multi-ethnic community where Hawaiian, Chinese, and Japanese families shared resources from the *loʻi* and from the sea.

At the turn of the twentieth century, agricultural interests in Heʻeʻia's lands escalated and KSBE leased lands for the production of sugarcane and pineapple. These endeavors dramatically modified the land causing ecological and cultural damage to the wetland, the *muliwai* (estuary), and the adjoining fishpond. One of the most significant impacts was topsoil erosion. The solution? To plant mangrove trees in the *muliwai*. Although mangroves were marginally successful in trapping downstream sediment, their planting also had a severe impact on the estuary, which formed a natural fish nursery for native fish. Today, the mangrove trees have completely inundated the stream and fishpond transforming the water quality and preventing native vertebrates and invertebrates from living in the stream.

Between 1900s and 1959, the territorial period, many *makaʻāinana* left the farming of fields and *loʻi kalo* to work in Honolulu. According to Kanaka ʻŌiwi scholar Davianna Pōmaikaʻi McGregor, the growth of the sugar plantation economy correlated with the ever-increasing need for fresh water, which led to the construction of an elaborate irrigation system. "The impact of these irrigation systems upon rural Hawaiian taro farmers," she explains, "reverberated throughout the twentieth century. Cut off from the free flow of stream waters into their *loʻi kalo* or taro pond fields, many *kuaʻāina* [rural people who were considered the backbone of the land] gave up taro farming and moved into the city to find new livelihoods" (McGregor 2007, 43). McGregor traces the migration of *kānaka* from rural communities into the city as well as those families that remained on the land creating cultural *kīpuka* (oases) where the land- and water-based practices of our ancestors were maintained. Heʻeʻia *Kūpuna* (elders) born and raised during the territorial period describe a multi-racial

community where rice and kalo continued to be cultivated in the terraced water ponds. They told stories about running along the kuāuna, of the poi mill, and of the uncle who still took care of the lo'i. But they also remember the new housing development projects that began in the 1950s that required the evictions of Hawaiian families and local farmers. Along with suburban development, the most severe impact to this once productive kalo land was the devastating flood in 1969 and resulting fallow condition over the next several decades. The effect of both non-use and misuse in the wetland of He'e'ia has been the extensive proliferation of non-native plant species, the dominant one being California grass (*Brachiaria mutica*), which was probably introduced as a feed grass for cattle. The inundation of non-native plants and the lack of management of feral pigs and cattle severely damaged the 'auwai, destroyed kuāuna, polluted the streams, slowed water flow, and reduced water quality.

In 2008 lineal descendants of the Kānaka Maoli who had once labored in the lo'i kalo of He'e'ia Uli began to talk about restoring the wetland to kalo production. The kūpuna (grandparent generation) and mākuā (parent generation) of He'e'ia provided mo'olelo (stories and histories) and precious memories about the "good old days" of kalo, poi, fish, rice, and the families who made up the community of He'e'ia. The Ko'olaupoko Hawaiian Civic Club, whose membership includes many of the lineal descendant families of He'e'ia, began an earnest effort to bring kalo cultivation back to the wetland with the intention of producing poi. Galvanized by the interest of the Nature Conservancy of Hawai'i and the landowner, Hawai'i Community Development Authority (a state entity),⁶ all three became collaborative partners in a community effort to restore the He'e'ia Uli to kalo cultivation in order to make poi.

Embodying the Hāloa Triad

Na alii o ke kuamo'o o Hāloa

(Chiefs from the lineage of Hāloa)

"Said of chiefs whose lineage goes back to ancient times—to Hāloa, son of Wākea.

Wākea mated with Ho'ohōkūkalani who had two sons, both named Hāloa.

The older Hāloa was born a taro, the younger one a man.

It was this younger brother that the high chiefs name with pride as their ancestor." (Pukui, 1983, 241)

The primary objective of this article is to explain how the agronomics of kalo farming and poi milling contributes to resilience in the kanaka 'ōiwi body. The process of removing California grass and digging out lo'i that are undetectable



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on the land due to lack of use and misuse, planting and tending to kalo once lo'i are restored, and producing poi by hand is a labor-intensive process (which we describe in detail below). What drives this kind of commitment to such an arduous undertaking? We highlight here the Hāloa Triad, a descriptor that explains the consanguineous relationship between Kānaka 'Ōiwi, 'āina and kalo.

The mo'olelo of Papahānaumoku (earth mother—she who births islands) and Wākea (sky father) establishes the foundations for the Hāloa triad, where the genealogical connections between the 'āina (Papahānaumoku), kalo (Hāloanakalaukapalili), and the first human ancestor and Ali'i Nui (Hāloa) are set forth. The mo'olelo of Papahānaumoku, Wākea and their daughter, Ho'ohōkūkalanani is established in the Kumulipo, a cosmogonic chant or mele ko'ihonua. Papa and Wākea have a daughter, Ho'ohōkūkalanai, who later mates with her father and miscarries the fetus. In this instance Papahānaumoku is Haumea, the essence of the procreant, or the goddess of birthing, bearing all fecund elements associated with the bringing forth of life. Hāloanakalaukapalili, prematurely delivered from the pū'ao or womb of Papahānaumoku (the 'āina, earth), is born of a sacred lineage, that of father and daughter. The fetus is miscarried, wrapped in his mother's walewale (slime, mucus), that biological procreative slime teeming with life-giving elements. It is then buried in the earth, mixing with the lepo momona (ancient dark rich soil) that is infused with mana (spiritual power), biological and decomposed matter and DNA, the essence of life. Hence the regenerative powers of Haumea are activated in the *planting back* of the agglutinated keiki 'alu'alu (premature baby) into the rich soil from which the kalo plant thrusts forth from the ground becoming the living metaphor for 'āina or what Pukui defines as "that which feeds." When Hāloa, the second child, is born from this sacred lineage, he is the younger sibling to Hāloanakalaukapalili and becomes the first chief among Kānaka 'Ōiwi.

The Hāloa triad represents the cognate relationship between 'āina as that which feeds, kalo as 'ai (a staple food or poi) and Hāloa as kanaka. It is important to understand how this triad functions as an analogy for the contemporary restoration of kalo. The embodiment of that reclamation by the kanaka body as kalo mahi'ai (taro farmer) signals and restores the regenerative powers of Haumea that are enacted and made tangible with the cultivation or planting, birth and delivery of kalo (Hāloanakalaukapalili), by kanaka (Hāloa), into the rich and proliferant 'āina (Papahānaumoku/Haumea). This *is* the cycle of metamorphosis or, as the Haumea mo'olelo tells us, she is reborn in this and all prior and following generations and the ancestral foundation for Kānaka Maoli. Hence, kanaka re-enact the Hāloa triad—re-immersion, re-generation and re-birth of 'āina—each time kalo is cultivated and poi pounded for food.

When the mo'olelo of Papahānaumoku and Wākea, Ho'ohōkūkalanani and her sons Hāloanakalaukapalili and Hāloa is told at the lo'i, visitors are provided with a rationale for the need to restore kalo cultivation and an explanation of how this place-based practice connects to the health and well-being of Kānaka 'Ōiwi. This mo'olelo in particular offers specific insight into how kalo fits within a Hawaiian worldview. The story highlights the reciprocal and interdependent

relationship between ‘ād i, kalo and kākāna whereby kākāna, as the younger sibling of kalo, has the kuleana (responsibility and obligation) to plant and mālama (care for) our elder sibling kalo and provides the ontological basis for the ethical practice and principle of mālama ‘āina (to care for the land; that which feeds). When kākāna mālama ‘āina, āina can achieve its reciprocal kuleana, which is to mālama and feed kākāna. The history of changes in land-use practices in He‘e‘ia reveals what happens when this interdependent relationship is disrupted or severed. The Māhuahua ‘Ai o Hoi project, which translates to “re-planting the fruit of Hoi,”⁷ strives to restore this relationship by providing the larger community with opportunities to volunteer at the lo‘i on community workdays. An invaluable aspect of the experience of volunteers is the orientation.⁸ More importantly, these events offer volunteers and staff the experience to connect with Hāloa, to enter into the lepo of Papa with hands, feet, body and mind, to plant, or weed kalo, to sink into the walewale of the ‘āina momona. For Kākāna Maoli, this is the embodiment of Hāloa on the ‘ōiwi body.

Theory and Methods

Our ethnographic findings indicate that the restoration of kalo farming and the production of poi in He‘e‘ia Uli has renewed ancestral, cultural and political pride for Kākāna Maoli in the He‘e‘ia community. The critical condition of the wetland requires more integrative and adaptive management strategies in which cultural and organizational values inform administrative decisions as opposed to a centralized management regime in which management standards are more aligned with harvested yield as a commercial commodity. In this way, the growing of kalo is an everyday act of “resistance.” For settler ecologist Fikret Berkes, the goal is the “generation of new knowledge through the synergy of combining what is already known to science and to local tradition” (Berkes 2012, xxiv). It is this kind of propagated management, to ho‘oulu (to grow, to sprout, to cause to increase) that is in alignment with traditional values. Tsalagi scholar Jeff Corntassel refers to Indigenous efforts to restore our land- and water-based practices as “the engagement of everyday acts of resurgence” (Corntassel, 2012). In this way, the planting of kalo *is* an act of resistance, a way for Kākāna ‘Ōiwi to recall, re-immense and revive the pathways of their ancestors not only in the cultivation and harvesting of kalo for poi, but as a tangible and cultural provision in the quest for food security, food sovereignty, and resilience.

In 2010, Kāko‘o ‘Ōiwi, a 501 (c) (3) nonprofit corporation, acquired a 38-year lease agreement with the State of Hawai‘i Community Development Authority (HCDA) for the wetland to implement a long-range agricultural and ecological restoration plan, one that would promote the social and economic advancement of the local community using cultural, educational and ecosystem restoration programs as the framework for resource management and sustainability.⁹ While the Māhuahua ‘Ai o Hoi project commenced in 2010, the ethnographic data gathered for this article were collected from August of 2013 to March of 2015.¹⁰ Our approach is grounded in an understanding that “being



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Indigenous today means engaging in a struggle to reclaim and regenerate one's relational, place-based existence as a continuously renewing relationship to each other and to 'āina" (Alfred and Corntassel 2005). We understand the restoration and regeneration of Indigenous place-based existence as the necessary preconditions for doing Indigenous research (Goodyear-Ka'ōpua 2009). Our approach posits customary and contemporary knowledge as the Indigenous/Kānaka Maoli centerpiece from which Māhuahua 'Ai o Hoi's ontological and pragmatic strategies are incorporated in the re-cultivation of kalo and the reproduction of poi in He'e'ia Uli.

We used a multi-methods approach to understand how and where Kāko'o 'Ōiwi uses kanaka protocol and practices in its restoration process. We conducted participant observations of community workdays at Māhuahua 'Ai o Hoi. Kāko'o 'Ōiwi hosts these community workdays on the second Saturday of every month. Participation in the workday involves interfacing with community volunteers, Kāko'o 'Ōiwi staff and interns as well as working on the farm in a variety of capacities: clearing fields, restoring lo'i kalo, removing trash, clearing brush, etc. At each community workday, we used field notes to record the information presented to volunteers during the orientation, paying particular attention to how staff and interns describe the cultural importance of restoring lo'i kalo, the eco-system services from restoration work, and the role of native species, healthy wetlands, and clean, accessible water in the ahupua'a.

We conducted semi-structured interviews with Kāko'o 'Ōiwi staff, which were audio-recorded and transcribed. The interviews provided information regarding the goals of community workdays, asked staff how they came to be associated with the Māhuahua 'Ai o Hoi project, and inquired about the Hawaiian cultural and environmental impact of the restoration on the wetland, the fishpond and coral reefs. In August 2013, we documented the poi production process through participant observations recorded in field notes and through informal "talk story" with staff and community volunteers who participated in cleaning kalo. These talk story sessions were also recorded in field notes. We now turn to two vignettes, one by each author. The first reflects on the process of clearing non-native invasive grasses from the freshwater ponds so that kalo can be planted. The second vignette recounts the process of producing poi without proper resources. We use the first-person narrative voice in order to remind the reader that mo'olelo (stories) are repositories of Indigenous knowledge. Stories about people and places provide the original instructions for how best to live in a relational and reciprocal way in specific places (Nelson 2008).

Clearing Space, Growing Kalo: Reflections from the Field

Any romantic notions of farming and the agronomics of kalo cultivation quickly crumble as one steps into the wet, slimy, muddy terraces, sometimes waist high, to pull out stubborn weeds, collect kalo corms, plant huli (taro tops) or clear auwai (waterways) in prepared lo'i (irrigated terraces). Clearing



Fig 1: Volunteers working in lo'i 'eha clearing California grass. Photograph by author.

California grasses from lo'i is not a job done once (see Figure 1). It grows and spreads so quickly it seems as though we will never get rid of it.

I have cleared California grass from lo'i 'eha (the fourth lo'i) too many times to count. Today was no exception. We had a small group of volunteers and our goal was to finish clearing California grass from the back half of the lo'i. Last month the volunteers started working on the front half of the lo'i. I get to the lo'i after the rest of the group has already started working. I see they are nearly waist deep in water. I worry the lo'i might be too deep for my five-year-old daughter who is with me today. Although she has been coming with me to the lo'i since she was 2 years old, I still worry she could get hurt.



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We make our way to the edge of the lo'i. I slide in first, testing my footing. The ground seems firm, solid near the edge but as I slowly take a few steps away from the bank the ground drops off and I sink to my thighs in the cool muddy water. I realize it might in fact be too deep for my daughter but she is begging me to get in. I reach my hand out to help her slide from the kuāuna into the lo'i. She loves to be in the muddy water. She releases my hand and moves expertly through the watery mud even though its up to her waist.



Fig 2: Volunteers cleared all of the California grass in the right corner of the lo'i. Volunteers scheduled for the next week will remove the grasses piled on the kuāuna and in the lo'i. Photograph by author.



Fig 3: On the left is kalo being milled in the meat grinder. On the right are bowls of pa'i'ai ready for distribution. Photograph by author.

Immersed in the cool thick mud of the lo'i I am reminded of the insights of kanaka 'ōiwi geographer Kapā Oliveira who details how "Kānaka developed keen intellectual perception informed by our interactions with our environment and our kūpuna" (Oliveira and Nakoa, 2014, 94). My daughter already exhibits a "sense ability" that comes from having grown up working in the lo'i.

I realize almost immediately that I forgot to get a sickle from the shed so I cannot help cut the California grass. I decide to move around to the far side of the lo'i and help drag the cut grasses to the kuāuna. I partner with the newest member of the staff. Although he is new to Kāko'o 'Ōiwi, he is not new to farming kalo. He grew up growing kalo with his family in their lo'i two ahupua'a north of He'e'ia. He uses the sickle to cut the hollow stocks of the grasses in order to clear a little space to reach the roots that feel like carpet soaked in mud. He floats bundles of grass to me and I drag them towards the sides and push them up onto the banks. We repeat this process until we get to the roots. The root bunches are thick and heavy with mud, centipedes, crawfish (and these are only the critters we see). It takes the two of us to roll the three-feet long mass of mud-encrusted roots out of the water and onto the bank of the lo'i. The eighteen-inch to three-feet deep dense thick root system traps the muddy soil making them very heavy and difficult to remove. It is not enough to pull the grasses up by the tops, which is also difficult due to the prickly fine "hairs" that cover the leaves; we have to remove the roots. We are struggling; it is heavy. We make one more strenuous effort and finally get it onto the bank. We rest on the edges of the lo'i, taking a breath before getting back to work. We have almost met our initial goal of breaking through the mass to meet up with the group on the other side of this island of grass.

As we work we talk story. My daughter helps to drag smaller bundles to the sides. She is most interested in catching crawfish and toads with her small net. We are making progress. We meet up with the other group, which inspires us to work harder to get this last mound of weeds out of the lo'i. It feels like this last bunch is the most persistent but we clear it one mass at a time. I look at my watch and realize it's time for my daughter and me to leave. We finish helping to clear this last bunch and then we prepare to leave. The rest of the group will spend another thirty minutes or so clearing the grasses from the other side of the lo'i. As we walk away, my daughter, disappointed we have to leave so early, and I look back at what we accomplished in the 90 minutes while we worked. I feel really good; my arm muscles ache but I feel good. (See Figure 2)



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The authors have often wondered if volunteers know what they are getting into when they show up at 8:00 a.m. on these Saturday mornings. Do volunteers have any idea about the kind of effort that is required for those pristinely sealed

and stacked bags of poi to be available on supermarket shelves? For first-time volunteers, working in the lo'i can be a very dramatic change from their other life experiences. I am reminded of one young man who volunteered at the lo'i a few years ago who was visiting from Virginia and grew up farming tobacco with his family. When he was told he would be working at a farm he had very different expectations, which was evident in his attire: Wrangler™ jeans, work boots, and a utility knife on his belt. When he stepped into the lo'i he sunk thigh deep into the mud and had to be pulled out. Despite getting stuck, he got back into the lo'i and worked for the next two hours to dig out five-foot-high weeds. Afterwards, during lunch, he expressed a sense of gratitude for having had an opportunity to work with his hands in the soil again. Yes, it was unlike anything he had experienced growing up but it was deeply satisfying.

The farming of kalo is intensely strenuous but there is something quite satisfying for having worked that hard with others working equally hard. Just as Oliveira's theory of a k  naka "sense ability" incorporates our bodies and our relationships with the elements that surround us, Leanne Simpson explains in *Dancing on Our Turtle's Back* that the process of resurgence must also be fully embodied. In order to access the knowledge needed for Indigenous resurgence, she writes, "we have to engage our entire bodies: our physical beings, emotional self, our spiritual energy and our intellect. Our methodologies, our life-ways must reflect those components of our being and the integration of those four components into a whole" (Simpson 2011, 42). Working in the lo'i provides volunteers with an opportunity to bring their physical, emotional, spiritual and intellectual selves to the work. We do not presume to suggest that the young haole (white) man from Virginia experienced the work at the lo'i in the same way as Kanaka   iwi whose work rebuilds their relationship with H  loa. But the embodied nature of the work creates a space where volunteers can leave feeling a sense of satisfaction; a sense that their labor has contributed to something meaningful. For some Kanaka Maoli, the experience at the lo'i restores or strengthens a connection that has been stretched and sometimes severed due to colonialism, development, militarism, and capitalism to name only a few of the structural forces that impact our ability to live authentic Indigenous lives in our homeland. The embodied practice of pulling weeds to clear space for kalo to be planted and grow is a powerful metaphor for and a material manifestation of the decolonial possibilities that emerge when Indigenous peoples restore our land-based practices.

Preparing Kalo for Poi: Reflections from the Field

The milling of cooked taro into poi is complicated at Hoi by limited access to fresh, clean water, lack of infrastructure, and tension amongst the staff and management. Workers also have to be conscious of a very short turn-around time in which to retain the poi's freshness so that it does not go sour. We examine notions of growing kalo and producing poi in the face of a drastically changed landscape. We argue that in spite of these challenges, the very act of cultivating taro and producing poi is, in and of itself, an act of resurgence that

provides an Indigenous pathway to food sovereignty and food security in the form of resilience. It is a reminder of the connection to Hāloa, the elder sibling, culturally, physically, and mentally.

During the summer of 2013, we found that we were not getting new information from our observations of the regular community workdays so we asked a staff member if there was any other aspects of their work that they would like us to document. The staff member suggested we take a look at their poi production process.¹² At that time they had been milling and selling poi for about a year and she thought it might be a good way for us to see how the kalo grown in the fields contributes to food sovereignty. We loved this idea and over three weeks in August 2013 we observed and recorded the poi production process. At that time, Mahuahua 'Ai o Hoi did not grow enough kalo on site to meet their orders so they procured additional kalo from a family on Māui Island. The raw kalo was usually delivered on Wednesday afternoon and the poi production process would commence.

I arrive to He'e'ia Uli about 5:00 a.m. Kānehoalani (sun) has yet to rise so it is cool and dark. I sit down on the bench of a wooden picnic table with my steaming mug of hot coffee. Nalani, who came in at 4:30 a.m., already had the kalo in the large stainless steel pot, submerged in water and cooking. They use propane stoves to boil the huge pots of kalo. I look around me, taking in the lush landscape as the sky begins to lighten. Nalani had already gotten situated and had eaten her breakfast by flashlight. We talk story a bit. I did not sense a feeling of 'ohana or kinship between the hui or core workers with their management team. Nalani tells me that another staff member, Sista, was now in charge of getting the provision needed for cleaning and milling the kalo. Things such as water, ice, bags and ties, scale, gloves were now her responsibility. Sista and Ioane arrive at 6:00 a.m. and begin to prepare the area for peeling the kalo and the arrival of volunteers from a local company. I learn that prior to cooking the taro, the corms are checked for pocket rot, a metal screen placed on the bottom of the pot to avoid sticking and burning, and the corms are layered in the pot (biggest to smallest). A second pot is on another burner with boiling water, which will be poured over the prepared corms. Once the water is ready, the corms are covered with the boiling water, burlap bags are arranged on the top of the pot, and covered with the lid, then made secure by heavy pōhaku and/or stone dowels. Nalani estimates the cooking time will be four to six hours. After about an hour and every half-hour after that, the kalo is checked for readiness until it no longer "itches" the throat when eaten.



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Nalani checks the kalo, re-arranges the thick brown burlap bags covering the kalo at the top of the pot while explaining that the bags help to hold in the heat. She estimates the cooking time to be another four hours. She inputs this data into her computer. It is now 7:30 a.m. and the sun has risen. Jensen, a volunteer, arrives and both he and Ioane leave to weed-whack an

overgrown lo'i in preparation of the volunteers. The kalo is still cooking and Nalani checks it once more at 8:00 a.m. A half hour later, she checks again and takes a piece of kalo from the pot to test for doneness, cutting pieces for sampling and she explains, "if the mouth gets itchy, it means the kalo is not done." We take a taste finding its flavor exceptional. The texture was moist but not sticky and the sweetness a characteristic of the type of kalo. The taro was almost ready for peeling and rinsing. Sista left Hoi to buy water and ice in order to soak the now fully cooked taro so as to be able to cool it before peeling the skin from the corm. The process seemed rather chaotic, but managed well by the workers. When Sista returns with the ice and water the cooked taro is placed in an ice bath in a very large cooler.

At about 8:30 Luana, the liaison from the local company, has arrived with employee volunteers. Things begin to move quickly once volunteers arrive.

8:40 the smaller pot of kalo was turned off.

8:42 Nalani checks the large pot but the kalo is not quite done.

8:52 the larger pot is turned off, the kalo finally cooked. Sista and Nalani realize they still do not have enough ice so they text Lyla to ask her to pick up ice at the pier where Māhuahua 'Ai o Hoi has an account.

9:10 and Nalani adds water from the hose into the smaller pot to boil it.

9:28 Lyla gives the volunteers an orientation to He'e'ia Uli, its use, land history, and site for restoration. She tells them that they will be weeding one of the lo'i but does not include any other information about the places. I wonder about the lack of a cultural orientation; these volunteers will not learn the mo'olelo, names of the akua (gods), the place names or landscape associations relevant to this place. I'm a bit bothered by this because I am from He'e'ia and there is much to know about it. Meanwhile Sista is rinsing and preparing the pots needed for the ice bath for the kalo. She then washes the white coolers and red buckets, which will be used for packing the cleaned kalo. Nalani shoots down the burlap bags used in the cooking process.

9:55 the smaller pot is turned off.

10:10 Ioane and Jensen return from the lo'i and help to finalize preparations for peeling the kalo.

Although the plan for the day for the volunteers is to have them work in the lo'i, Lyla offers the opportunity for anyone interested to work back in the tented area cleaning kalo. The volunteers, who opt out of the lo'i, all women, come into the tented area where Nalani, Sista and Ioane explain the process for peeling and cleaning the kalo.

At 10:33 a.m. Ioane and Sista leave to get more purified water. Upon their return with the water, another ice bath is prepared and the instructions on how to peel and clean the kalo is shared once more as the volunteers sit down, placing transparent gloves on their hands to begin the work. Using gloved hands and spoons, the kalo seems slippery at first, but we get used to it. We remove the skin and dark spots from the kalo, scraping and digging while trying to leave as much of the corm as intact as possible.

While we did not get as muddy and wet as the other volunteers in the lo'i, there were some of us who did not leave completely dry when we were finished. Every once in a while one of the corms would be real hot and someone would quickly drop the kalo back into the pot of cool water with a slight splatter coming out of the pot once the corm splashed into it. It was an assembly line of sorts, everyone sitting in a circle on metal folding chairs, laughing, talking story, sharing responses on the art of taro cleaning and how not to get wet in the process. Hot corms were placed in two large metal pots of purified water steeped in ice. Another large pot with purified water was where the cleaned corms were placed. From there Nalani and Sista provided quality control by checking the corm a final time for any discoloration, rot, or other blemishes we might have missed.

There were six of us working and it was a pleasant experience, a transformative one for all in different ways. I shared a little bit of the Hāloa mo'olelo and the volunteers were happy to hear its tangible connection to the kalo they were physically cleaning that would become poi. Much laughter took place as the ladies were far haappier cleaning the kalo than being in the wet, muddy, lo'i and in no time at all the kalo was cleaned. Nalani and Sista took the corms and cut them into cubes then the kalo was then placed in clear plastic bags, the coolers filled with the prepared kalo and covered completely in ice to prohibit spoilage. All tubs, pots, spoons, screens are thoroughly washed, area cleaned. Nearly eight hours from our arrival to the wetland the kalo is packed and ready for the next day's milling.

Grinding and Milling Kalo: Reflections from the Field

Ke hō'ole mai nei o Hāloa.

Hāloa denies that.

Hāloa is the god of taro.

It was said that whatever business was discussed before an open bowl of poi was denied by Hāloa. (Pukui, 1983, 183)



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I arrive to He'e'ia Uli at 6:00 a.m. the following day. Ioane loads the coolers filled with kalo onto Jensen's truck for transport to Aunt Pua's house, the place where the poi will be milled about three-quarters of a mile down the road from the wetland. Jensen, a good friend of Ioane's and a dedicated volunteer, started loading the coolers onto the truck. Sista had just returned to Aunt Pua's house with purified water, which they will use to mix the poi. She has had to use her own money to buy water and ice for yesterday's cleaning and today's milling. "Why?" I ask, "No petty cash on hand for stuff like that?" "No" she replies, "and every time we ask upper management they keep forgetting! It's not like we don't need water!" Nalani arrives to Aunt Pua's with the supplies needed for bagging the poi. Ioane and Jensen roll out a large machine on wheels, an old meat grinder. They hose it down and once thoroughly cleaned, the machine is rolled to the middle of the area. I watch them put it together and turn it on. In their gloved hands they place the cut kalo pieces onto the plate and then push it into the grinder with the aid of a plastic water bottle. I smile inside thinking "reduce, reuse, recycling at it's best." I watch the grounded mass being pressed through tiny holes and come out looking like pasta only thicker and bulkier. I want to take my finger and scoop up a glob and eat it already! It looks so amazingly delicious! I take pictures of it. The process of kalo milled through the grinder again and again mesmerizes me. I feel like this is an important moment. I keep staring at the kalo as it comes out. I laugh to myself thinking it looks like pasta, but oh no, this is better than pasta. It is the perfect food and it's filled with mana (divine power) because ... yes that's it! It is the tangible connection to Hāloa. I am reminded that just as Haumea is being reborn in every generation, so too is Hāloa being reclaimed with every planting, every harvest, with each cooking, milling and preparation of the kalo into poi. Hāloa feeds us literally, spiritually and culturally. Because of Hāloa, we are resilient! Because of Hāloa we are alive. Hāloa is the literal and symbolic foundation behind the resurgence efforts of Kānaka Maoli returning to the 'āina, the reason why against all the odds, the challenges, the hardships, the frustrations and back-breaking hard work, we continue. This is an epiphany! I come back to the present and remember where I am. (See Figure 3)

The poi is placed in a large clean pot and taken to Nalani and Sista who will weigh and process the pa'f'ai (kalo that has been milled with very little water) orders. The 106 orders of Pa'f'ai are processed first. The remaining ground kalo is placed in a huge pot, purified water added, and a hand-held commercial mixer is used to turn the pa'f'ai into poi. As the poi was being ground and processed, Sista and Nalani, in gloved hands, are weighing pa'f'ai (1 lb each) and placing them into containers, lidding and then putting them into iced coolers for delivery to customers. Lyla arrives with the confirmed orders in hand, hurriedly checking the numbers to make sure there is enough pa'f'ai and poi for the orders as Jensen begins to wash the grinding machine down.

They are three hours into this process and while I am amazed at how it seems to flow, I am also privy to critical conversations taking place around me of how the workers feel regarding management, personnel and workplace issues. Peter and John, who will deliver the orders, arrive at the milling site as Lyla tastes the poi. She then voices concern about the ability to fill all of the orders. As it turned out, she was right to be concerned. There were only 135 bags for 156 orders of poi. Some of the workers including management gave up their own orders of poi in order to complete customer orders. At 11:05 a.m., Nalani and Sista left. We talk story a little longer and leave at 11:30 a.m.

We learned more from our fieldwork than just how Kāko'o mills poi. Our observations and talk stories reveal tensions between the core workers (Sista, Nalani and Ioane) and their managers. Workers do not feel empowered, and say they are marginalized within the management structure that appears to be hierarchal and where decisions are made without the workers' input. In spite of these issues, Sista, Nalani and Ioanea, who are Kānaka Maoli, are committed to the cultivation of kalo and the production of poi and will stay unless they resign or are terminated. I ask why? They tell me because we want to see this 'āina restored, we want to see more kalo growing, more poi made. What is it that keeps them there? Hāloa.

Management Strategies for Mahuahua 'Ai o Hoi

"Maika'i ka hana a ka lima, 'ono nō ka 'ai a ka waha!"

(Good work with the hands, very delicious the food in the mouth.) (Samuel Kamuela Waha Pōhaku Grace, interview with Kepā Maly and Gilbert Kahele, Miloli'i, 2003)

Restoration projects such as this one are often burdened with contemporary governance structures, land-use issues, bureaucratic oversight, lack of funding, and the delicate management of employees. Due to the lack of consistency in the procurement of funds, the organization must constantly re-adjust its work plans in order to fulfill their funded objectives, which can include the cultivation of kalo but not always. The organization struggles with basic needs such as machinery breaking down and equipment being stolen, to challenges more structural in nature such as changing production goals and timelines, and workers who leave or are terminated and high turnover in farm managers. In interviewing both former and current staff, one of the things that was glaringly evident is the lack of consistent and committed help. We heard the phrase "We could use more hands" many times in our interviews and during our many hours of talk story. This refers not only to more volunteers, but the He'e'ia community as well.

One reason for the lack of enough hands is the lack of infrastructure on site. As an example, at the start of our observations there were three showers that could be used to rinse off after getting very wet, muddy, dirty, and sweaty. This



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water was not potable but was clean enough for volunteers to wash off the mud at the end of the day. This complicated not only the volunteers' efforts to get all that mud off after spending hours in the lo'i but on any given community workday there could be more than fifty volunteers waiting for the showers. Presently, the site has a dedicated water line and rinsing off is much easier; however, infrastructure or rather the lack of it (electricity and plumbing) is still problematic.

While not a published 'ōlelo no'eau, we have heard kūpuna say some of the following phrases, which in our observations function as such. First, "If the hand good, then the poi going be good, but if the hand no good, the poi going sour." This translates to, "if you have thoughts and behaviors that are not conducive to being pono (being in the right balance), you have no business mixing poi because it will be sour." Second, "Do not fight in front of the poi bowl, it is disrespectful to Hāloa." This 'ōlelo no'eau instructs us that "If there is negativity around the poi bowl, those who are projecting it should not eat from the bowl for the kalo is Hāloa." What the authors find striking is the way these words of wisdom move through time to align and make more meaningful the contemporary production of poi at Māhuhua 'Ai o Hoi. There have been times when, in fact, the poi has been reported as sour after delivery, or after being bought at the farmers' market. Considering the stressful environment in which it was produced, perhaps indeed the disposition of both the hands and the minds of those preparing the poi was not pono. However, there are many more times when the kalo planted in He'e'ia Uli has been harvested, prepared, and milled to produce the sweetest poi, filling many ōpū (stomachs) to satisfaction in the He'e'ia ahupua'a, sold at the farmers' market and to those who ordered and purchased poi. This is no small feat, and to be sure organizational growing pains are part of the process.

In terms of day-to-day management, we observed a very real disconnect between management, supervisors, and core workers. Lack of communication, decision-making, daily needs, administrative and overall dissatisfaction manifested in low morale and ideas of transitioning elsewhere in spite of their very real and culturally appropriate attachment to this 'āina. Management that is pono (balanced) is paramount to the success of producing taro and poi. In this case, the resilience of Kānaka Maoli is predicated on the connection to Hāloa through the fostering of 'ohana and reciprocity. Let us investigate this word 'ohana.

The word 'ohana means family, kin, group or related. Oha means to spread, thrive, to grow lush. 'Ohā describes a taro corm growing from the older root, especially from the stalk of the kalo. It figuratively means offspring, youngsters, (Pukui 1983, 276). From Hāloa, our elder sibling, we are nourished and fed, spiritually and physically. When we put cooked kalo into our mouths, or taste the cool texture of freshly mixed poi, we are being fed by Hāloa. When we think about the 'āina, that which feeds us, that which sustains us, and that from which we are connected by genealogy, how can we not embody Hāloa? We are the land and the land is us.

In tandem with the foundation of the Hāloa triad, the sustainable growth of kalo or Hāloa and its offshoots, Kāko'o 'Ōiwi's upper management and core workers must be mediated by meaningful relationships which are socially or

culturally appropriate, recognizes and incorporates economic strategies that sees humans as capital and perhaps the most critical, honors the 'āina. Indicative of the difficulty in executing a more adaptive and sustainable management strategies, Kāko'o 'Ōiwi is, nonetheless, attempting to integrate traditional customary values into the framework of triple bottom-line organizational tenets; one that seeks to make sustainability a form of environmental resilience.

Planting back is tantamount to returning to or engendering kalo as Hāloa, that is, the genealogical link between 'āina as Papahānaumoku and Kānaka Maoli. In other words, replanting both kanaka and kalo serves as a spiritual and practical guide for contemporary Kānaka 'Ōiwi working to restore personal and familial relationships to 'āina. The cultural construct of kalo as Hāloa who are rooted to the land is the piko (umbilical cord) that attaches Māhuahua 'Ai o Hoi to the 'āina. In this way, both kalo and kānaka are re-planted and re-generated, literally, physically and spiritually, into the lepo and the cultural landscape. Hence, the propagation of kalo and the making and production of poi serve as acts of resurgence, which resist settler colonial and capitalist paradigms and definitions of economic success. The restoration of these land-based practices brings to the forefront an irrepressible resistance, determined resilience, and a cultural resurgence that allows the Kānaka Maoli body, spirit, and intellect to return to Hāloa.

Conclusions

Our ethnographic experiences indicate that the restoration of kalo farming and the production of poi by Māhuahua 'Ai o Hoi in the He'e'ia wetland is, in and of itself, a planting back of all things Indigenous, physical and spiritual, seen and unseen. Are there challenges? Yes, the difficulties are many and complex, but those hardships test our resilience. Despite attempts to eradicate Kānaka Maoli customary practices, the growing of kalo and of kānaka in the He'e'ia wetland is not only an embodied and regenerative experience for the kānaka body and kalo, it is also the ho'oulu (re-propagation) of resource management framed by Indigenous values that help us to achieve those critical benchmarks toward sustainable self-determination (Corntassel 2008).

Our approach posits customary and contemporary knowledge as the Indigenous/Kānaka Maoli centerpiece from which Māhuahua 'Ai o Hoi's ontological and pragmatic strategies might be incorporated in the re-cultivation of kalo and the reproduction of poi more broadly. We also acknowledge that landscape degradation, deterioration of the 'adati, a serious lack of funding for various kinds of material and human resources, and management challenges are indicative of the struggles that Indigenous community-driven efforts such as Māhuahua 'Ai o Hoi experience. Yet for all of the trials and tribulations one thing remains clear: there is a resolute persistence, dedication, and commitment to the agricultural restoration of the He'e'ia wetland. The steep learning curve is part of the process of becoming resilient and resurgent once again. What the He'e'ia wetland offers is an optimal location for reclaiming and restoring Indigenous presence, one that generates traditional foods (kalo, poi, banana, breadfruit, sweet potato) for a healthy diet and a pathway to resilience. Confirmed in the



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analysis of our ethnographic field notes, observations, surveys and interviews, is that Native Hawaiian cultural knowledge and contemporary systems used at Māhuahua 'Ai o Hoi in the production of kalo and making of poi, while challenging, continues. The hardships in the milling of poi, meeting orders, having enough kalo for poi continue but while success may seem daunting, positive achievements have been made. Poi is available to the community at an affordable price. Additionally, Kāko'o 'Ōiwi staff have planted more than twenty rows of mixed greens and other vegetables, which are then sold to local restaurants. Diversification is adaptation, but the production of poi and the cultivation of kalo are a key mechanism for restoring Kānaka Maoli sense abilities born of our genealogical relation to 'āina and kalo. In this way the planting of kalo is an act of resistance, a way to recall, re-immense and revive the pathways of the ancestors not only in the cultivation and harvesting of kalo for poi, but as a tangible and cultural provision in the quest for food security, food sovereignty and resilience.

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Hōkūlani K. Aikau (Kānaka 'Ōiwi) is an associate professor of Native Hawaiian and Indigenous Politics in the Department of Political Science at the University of Hawai'i at Mānoa. She currently serves as Director of the General Education Office at UHM. She is the author of *A Chosen People, a Promised Land: Mormonism and Race in Hawai'i* (University of Minnesota Press, 2012) and is currently working on an ethnography of the wetland restoration project describe in this article.

Donna Ann Kameha'ikū Camvel (Kānaka 'Ōiwi) is working on a PhD in the Department of Political Science with a specialization in Indigenous politics at the University of Hawai'i at Mānoa. Her dissertation research focuses on historical and contemporary land and water use practices in the He'e'ia ahupua'a.

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Notes

1. The associative meanings and spellings of Hee'ia, He'e'ia, He'e'ia reflect the orthography of the Hawaiian language. In this essay we use He'e'ia because it reflects the geographical, topographical, and cultural significance of this place. The word he'e is commonly known as octopus and also means to slide, surf, slip or flee (Pukui 1983, 63). 'Ia is a particle marking passive/imperative and eia is an idiom that means here, here is, here are, this place. As such, it is understood that the He'e'ia is a place with abundant he'e and a place that is slippery from the numerous streams and springs.
2. In this essay we use Kānaka Maoli and Kānaka 'Ōiwi interchangeably to refer to the Indigenous peoples of Hawai'i. Kanaka, when used as a noun, refers to person; kānaka is the plural form. Moali and 'ōiwi are adjectives that refer to the real or true people of this place.
3. For a discussion of Indigenous resurgence as a new paradigm in Indigenous politics see Alfred (2005); Simpson (2011); Cornthassel (2012).
4. For an extended discussion of the Māhele see Kame'eleihiwa (1992); Preza (2010); (Perkins 2013); Beamer (2014).
5. All of Pauahi's lands were transferred to Kamehameha Schools Bishop Estate Trust (KSBE) after her death in 1884. The KSBE Trust managed all of Pauahi's lands (King and Roth 2006).
6. In 1991, Governor John Waihe'e, on behalf of the state of Hawai'i, entered into an agreement with the landowners Kamehameha Schools-Bishop Estate to swap state-owned land in Kaka'ako, a neighborhood in Honolulu adjacent to Waikiki, with the 400 acres of wetland. The land swap was in response to community opposition against KSBE's plans to dredge the wetland in order to develop luxury condominiums, harbors, and a golf course. Although there were efforts to turn the wetland into a public park or to restore the lo'i, they were not successful.
7. The name Māhuahua 'Ai o Hoi was given to the project area by Kumu Hula Kawaikapuokalani Hewett, a lineal descendant, Native Hawaiian language expert and noted loea from the He'e'ia ahupua'a.
8. We argue that the orientation for community workday volunteers is a critical piece in the introduction of He'e'ia Uli or Hoi to those who come there to work and to learn. Given the familial relationship between kānaka and place it is important for visitors to be properly introduced to the 'āina. Who you are and where you come from is particularly significant and, as such, protocols for entering a place are paramount because it is respectful of the 'āina. The simplest or basic forms of protocol should consist of a kāheha (a recited greeting) from the visitor, a pane (response or answer) from the host, noi (asking permission from the 'āina, the gods, as particularly associated with He'e'ia Uli), all done with ho'ihi (reverence and respect).
9. Kāko'o 'Ōiwi's mission is to perpetuate the cultural and spiritual practices of Native Hawaiians. The family of descendants of the 'āiiss and the community at large stressed the need for the project to grow kalo and make poi once again in He'e'ia Uli. The kūpuna or elders of the community who have the most ancestral ties to He'e'ia are guiding the project using integrated resource management and place-based approaches. This includes the use of science, collaborative partnerships with educational institutions, community organizations, and volunteers and preserving the cultural landscape by keeping as much open space as possible.



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10. This research was funded in part by a grant from the University of Hawai'i Sea Grant Program.
11. Where possible we omit names of Kāko'o 'Ōiwi staff members. When the narrative suffers for lack of clarity pseudonyms are used.

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