

The Hawai'i Community Coconut Program - Why?

Wāhi ka niu.

Break open the coconut.

The breaking open of a young fresh coconut
for the gods was a sign of reverence in ancient times,
(Pukui, 2899. 2011)

Introduction to Coconut

Cocos nucifera Linnaeus, commonly called the coconut tree¹, is known as niu throughout Moana-nui-ākea (the expansive Pacific Ocean). Coconut is the sole living species of the genus *Cocos*, belonging to the subfamily *Cocoideae*, which includes 27 genera and 600 species which are diploids with 32 chromosomes ($2n=32$). Thriving for an estimated 80 million years, the coconut developed the means to scatter across vast areas of the ocean, overcoming many biotic and abiotic challenges to take hold in new lands (Batugal et al., 2005).

The coconut tree is one of our traditional food trees, significantly connected to global Indigenous value systems encompassing food, culture, and ecological needs. Appearing in the spiritual world in anthropomorphic nature, the coconut has deep spiritual roots in Indigenous mo'olelo (stories). Globally, coconuts are growing across more than 12 million hectares, providing a culturally and economically important livelihood crop for millions across Southeast Asia, the Asia-Pacific, Africa, and Latin America (COGENT, 2017). Some key uses of coconut include, but are not limited to, helping increase global food production, improving nutrition and human health, creating employment opportunities, enhancing equity, and helping conserve the environment in a time of global warming.

Honoring this value system, our tropical islands' ancestors collectively designated this plant as "the tree of life," highlighting its close kinship with humanity. Indeed, this is the tree of life that visually embodies stories found only in legends and myths of tropical island nations. Each part of this tree serves a functional purpose tied to many Indigenous cultural functions, offering

¹ In Hawaiian and other Indigenous cultures, as well as in the common vernacular, coconuts are generally considered to be trees. Indeed, the Hawaiian word for a growing coconut is kumu niu, which refers to a trunked (kumu) tree (Pukui and Elbert, 1964). In other Indigenous cultures, such as in ancient Sri Lankan understanding (Mahavamsa in 5th century BC and Sarartha Sangrahaya in 390 AD), the verbiage "pol gaha" (pol=coconut, gaha=tree) is used that considers coconut as a tree while many other species are categorized in their true forms such as grasses, ferns, vines, shrubs. On the other hand, in current scientific literature, coconuts are not considered to be trees but rather palms, due to their fibrous root system and lack of a woody core. Therefore, while we acknowledge the current Western scientific botanical classification as a "tree-like palm," to honor and support the Indigenous perspectives embraced throughout the Hawai'i Community Coconut Program, we will refer to the coconut throughout our publications as kumu niu or coconut tree.

nutritionally rich foods and materials that enhance daily and spiritual experiences in tropical living for thousands of years. In other words, as tropical islanders we collectively understood that thriving coconut growth equated to our own well-being when we cultivated and cared for the coconut tree. When the coconut tree thrived, so did we. In Indigenous Hawaiian culture, this functional relationship is well understood, respected, deeply connected with the spiritual world, and highlighted in the *pule niu* as: “Kupu ka niu kupu ke kanaka! When coconuts grow, humanity flourishes!” (*pule niu*, 1897).

Globally, the coconut remains to be a well-respected tree that has acted as an integral part of tropical living for many millennia, with extensive Indigenous knowledge connecting every part of this tree with meaningful functions. Since humanity took interest in the coconut tree, coconut-growing cultures have continued not only passing down millennia of legends and cultural practices that define who we are within our place in the Tropics, but also maintaining the associated knowledge and practices with close ties to human existence. The extreme usefulness of the coconut tree as food, fiber, timber, oil, thatching, mulch, fuel, appearances in the spirit world, and other uses have supported its affectionate reference as the “tree of life.” Due to the depth of time and widespread spatial nature of the coconut tree, it is not surprising that a high number of coconut varieties were developed that served a range of functions that occupy various niches. Safeguarding practices regarding coconut diversity and varieties were also developed and improved through time.

Importance of Coconut in Hawai‘i

"Niu-ole-hike (or Niuolahiki, Niuloahiki) occurs in Hawaiian legend as a mythical ancestor who can take the form of man, a coconut tree, or an eel at will, and whose stretching power serves to form a bridge along which his descendant travels from Hawaii to the land of his ancestors" (Kamakau, S.M, 1961).

Coconut is an Indigenous people's tree grown and cultivated for many millennia, providing us with opportunities to use every part of the tree. Niu appears in the spiritual world of dreams and has been with us to celebrate our successes while witnessing our struggles. Coconuts feed and care for us and stand up to tell the stories of who we are within places and as people. Wherever people are in tropical Islands, there are coconuts, and whether we like it or not, this tree is still telling a story - and Hawai'i is no exception! Hawai'i provides evidence of a rich Indigenous coconut culture, such as multiple *uluniu* (coconut groves) with close royal ties on each island, the naming of specific coconut varieties and defining multiple niu varieties, and stages of fruit maturity connected with associated functions (Pukui, 1986; Handy and Handy, 1972; Neal 1965; Abbott, 1972).

We must acknowledge that the Hawaiian niu genetic diversity is special for several reasons. Specifically, the archipelago of Hawai'i is one of the most isolated groups of islands in the world with many ancient *uluniu* systems—closely tied to Hawaiian royalty—and thus there is a high probability of having unique varieties of niu. In some cases, such as the *uluniu* of Ka‘akepa in

Hawai‘i Island, Mū‘olea in Maui, Kalaeloa in O‘ahu, and Mapulehu in Molokai, groves stood for many centuries with limited or no ability to cross-pollinate with other more recently introduced coconut varieties. Such conditions have naturally provided a quintessential opportunity for individual coconut varieties to maintain unique genetic lineages. In addition, historical ethnobotanical records and mo‘olelo indicate that coconut varieties associated ceremonial and spiritual practices, such as Niu Hiwa, were royally protected under the kapu (a set of sacred laws) system (Abbott 1992; Buck 1957; Handy et al. 1972; Malo 1951; Pukui and Elbert 1986).

The Hawaiian coconut grove system can be set apart from the commonly known colonial coconut plantation model, where we saw most countries with historical coconut groves heavily experience colonization and colonial-driven coconut plantation development. Across the Pacific Islands, with the exception of Hawai‘i, it was well acknowledged by researchers that the coconut landraces² which were originally created over millennia by Indigenous Pacific islanders, were progressively diluted in the mass of coconut palms selected only to produce copra. The cataclysmic socio-economic changes that affected these islands exacerbated the erosion of both traditional knowledge and biological resources. Scientists estimate that at least 50% of the coconut varieties created by Pacific Islanders over centuries were lost, and the extent of the loss of traditional agricultural knowledge is certainly much higher (Bourdeix et al., 2013). Hawai‘i however did not engage in this historical coconut colonial era of the plantation model and the uluniu system remained with the direct support of Hawaiian Royalty till late 19th century. Unlike commercially motivated coconut plantations that focused on economical value, the Hawaiian royalty supported grove system may have focused on original varieties and culturally valued practices such as producing materials for ceremonies, food, rituals, musical instruments, representation of royalty and other various community, spiritual and ecological needs.

Coconut in the Function-Based Ancient Hawaiian Practice

He niu aha kēia– What kind of coconut prayer/assembly is this?
He ‘aha niu ho‘ohui lāhui, ho‘ohui ‘ā– A prayer/assembly to unite people and land
He ‘aha niu, ho‘ohui aku, hui – A prayer/assembly to restore and reunite
(He Pule Niu, Ka Nupepa Kuokoa, 1897).

In 1875, coconuts from the uluniu of Pōka‘ī Bay in West O‘ahu were showcased by the Hawaiian community of Wai‘anae to manifest their commitment and love for Her Majesty Queen Emma. A group traveled with sweet-watered coconuts from the coconut grove of Pōka‘ī to gift to Her Majesty during her O‘ahu Island tour in October 1875 where “natives from distant Wai‘anae brought to Her Majesty quantities of their famous fine-flavored coconuts, called Pōka‘ī” (Girvin, 1910). This very uluniu was also mentioned in 1793 by Captain George Vancouver, a British Royal Navy Officer. In his log, Captain Vancouver wrote about a coconut grove along Barber's Point as well as at Pōka‘ī Bay while navigating along the coast of Wai‘anae (McGrath, 1973).

² A landrace is a domesticated, locally adapted, often traditional variety of a species of animal or plant that has developed over time, through adaptation to its natural and cultural environment of agriculture and pastoralism, and due to isolation from other populations of the species. Landraces are distinct from cultivars and from standard breeds.

The book, *In Gardens of Hawaii*, highlights that “formally in olden days, Hawaiian[s] had large groves of coco palms [where] like other Polynesians, [they] made use of all parts of the tree...the leaves were used for thatching and for plaiting baskets and fans, the midribs of leaflets made good brooms, and were used to string kukui nuts and copra for lights, to string some kinds of leis, and for pins” (Neal, 1965 p.130). On the Island of Molokai, Uluniu of Kapuāiwa provides an example of an anthropomorphic relationship where Hawaiian Royalty selected kumu niu to represent each one of 1,000 Hawaiian warriors. This spectacular commemoration in 1860 by His Majesty King Kamehameha V created this Hawaiian coconut grove that still exists today (Handy and Handy, 1972). During the same decade, a letter written to a Hawaiian Newspaper, Nupepa Kuokoa, on 15 December 1865 by a Hawaiian mahi‘ai (farmer) named Luhua expressed a coconut concern at that time as he wrote passionately: “...my fellow farmers, let us plant coconuts. Before, when our ancient chiefs were living, all of our beaches were made beautiful by the coconut groves. But we are the new generation who have grown tired of coconut trees and let them fall. These beautiful groves which made Hawaii proud are vanishing”, he continued his concern, “this is true, and we should be ashamed of ourselves” (English translation by Pukui). The decline of Hawaiian coconut planting practices began around 1840 (Summers, 1990), and this potential loss of uluniu, growing coconut groves, may have been a common community concern that mahi‘ai Luhua had shared in writing. This absence of effort coincided with the rapid loss of the Hawaiian population through disease, cultural exposure, and the exclusivity of land ownership and capitalism. The historical records show that during that same decade of 1860, the Royal Uluniu initiative took place to establish an Uluniu at Kapuāiwa (Pukui, 1957) on the island of Molokai as perhaps one solution to addressing these on-going cultural concerns.

Current Situation of the Hawaiian Coconut Tree

Function is the cornerstone of Indigenous Epistemology
Manu Aluli Meyer

Today, nearly 160 years after the planting of Kapuāiwa, the practice of uluniu in Hawai‘i is yet to be rejuvenated. The deterioration of associated coconut knowledge, practices, and genetic material has continued, and we have even greater concerns of a larger systematic coconut genetic erosion. There has still been little done to document, preserve, and understand Hawaiian traditional coconut knowledge and/or coconut diversity within the Hawaiian Islands. With a lack of record keeping or comprehensive coconut conservation strategies, the extinction of specific and unique coconut varieties could easily go unnoticed and undetected. Unfortunately, due to an absence of a coconut research strategy or a respectable mechanism to safeguard Hawaiian coconut genetic diversity, many old uluniu have been neglected and are dilapidated today. With the importation of other coconut varieties for landscaping and agricultural production, the potential for the dilution of unique Indigenous Hawaiian niu varieties is significant. To better understand the current systematic mistreatment of coconut trees in Hawai‘i, we must understand the historical injustices inflicted on Indigenous Hawaiian peoples, along with the ongoing dismissal of Hawaiian cultural history.

After the overthrow of the Hawaiian Monarchy in 1893, “urban spaces became increasingly defined by military occupation and efforts to erase Hawaiian cultural practices, geographies, and communities where more broadly, urban has come to connote congestion, ecological degradation, poorly planned development, and the excesses of tourism” (Āina of Ka‘ōnohi at el., 2023). This increasing urbanization forced many to lose the Indigenous Hawaiian understanding of kumu niu as “the tree of life” and the culturally driven functional applications providing food, water and ecological services that made it such. The niu has now been degraded to a “tree of liability.” Systematically becoming receptive to this adaptation, the social perceptions of the coconut have shifted to thinking of these kumu niu as a fruitless and formless “ornamental palm” - the way most coconut trees are presented today. The coconut tree has become an overproduced exotic symbol of tropical islands, designed only to attract tourists. Systematic local coconut illiteracy has framed niu an “ornamental tree” and considered verdant niu a public danger, inherently promoting the importing coconut products for community needs from elsewhere.

Already those existing challenges are now exacerbated by the introduced coconut rhinoceros beetle (*Oryctes rhinoceros*), introduced to Hawai‘i in 2013. During the last 10 years of this CRB epidemic, we have lost an unknown number of coconut trees of many varieties. The loss, estimated to be over 1,000 trees, was experienced on the island of O‘ahu. We witnessed the loss of over 400 coconut trees in Waianae alone. Over a decade later the State of Hawai‘i is still lacking an adequate mechanism to combat the spread of CRB. Due to this apathetic and failed action of the responsible entities, the spread of CRB has reached the outer islands of Kauai and Maui. As these challenges are rising and compounding, we are aware of the immediate actions needed. Yet, there has been very little done to document, preserve, and understand Hawaiian traditional coconut knowledge and/or coconut diversity within the Hawaiian Islands. We understand that without any record-keeping of unique varieties or not having strategic coconut conservation practices to keep those populations alive, extinction could easily go unnoticed and undetected. Second, without having a reliable mechanism to document and safeguard the existence of such unique varieties we do not have a way to know if they succumb to genetic erosion. Today, we need to bring forward a respected mechanism to stop this continuous deterioration of associated Hawaiian coconut knowledge, practices, and coconut genetic material.

Establishment of the Hawai‘i Community Coconut Project

“[God] Maui observes the sun from Wailohe and see where it rises.
He fashions strong cord of coconut fiber from Peeloko (Paeloko) at Waihee.”
(Beckwith, p. 231, 1940)

The Hawai‘i Community Coconut Program is dedicated to “coconut as a relationship rooted in community and aloha ‘āina”³. By connecting with Niu Now, extending and exemplifying this

³ The saying: “We envision niu as a relationship rooted in community and aloha ‘āina” began with Niu Now - a community grass-roots movement committed to the coconut and to planting uluniu (coconut groves) since 2018. Since then, Niu Now has established 14 niu nurseries partnering with various local organizations, freely distributed

mission set by the co-founders of Niu Now, Dr. Manu Aluli Meyer and Indrajit Gunasekara, we are extending the 'ike niu (coconut knowledge) practical work to bridge the gaps in Hawaiian coconut research, associated literature and practical coconut knowledge in Hawai'i. In order to overcome generations of absence of this respected coconut mechanism, the Hawai'i Community Coconut Project was established under the Kaulunani Urban and Community Forestry Program. With Dr. Heather McMillen's guidance, Indrajit Gunasekara's leadership and Kehau Kahele-Madali's assistance, this project is now dedicated to rejuvenating Hawaiian coconut resources. This is being accomplished within our Hawaiian Island communities via strategic coconut germplasm practices and gene banking with acknowledgment of local coconut cultivars, especially the anciently known Hawaiian niu genebanking practice of the Uluniu System. Furthermore, the Hawai'i Community Coconut Program is committed to the practice of holistic conservation of our invaluable coconuts' genetic resources. We acknowledge and hold coconut as an anciently driven Indigenous resource that is rooted in community and aloha 'āina.

What do we do?

Coconut groves are among those things on earth that are worshiped.
Mary Kawena Pukui

With a sacred reverent consciousness, the Hawai'i Community Coconut Program works to harmonize both Indigenous and Scientific applications to safeguard Hawaiian coconut genetic diversity. We provide hands-on-support for the understanding Hawaiian coconut diversity and work to revitalize coconut as a vital resource of cultural, nutritional and ecological importance. In addition, we safeguard niu genetic diversity by introducing culturally grounded scientific processes to track and collect vital ethnobotanical and morphological information on coconut trees. We have begun to track down some historically known niu varieties as well as develop a data governing system to build a niu inventory database and a germplasm practice. Specific attention is given to understanding and recognizing historically respected, royalty tied, community connected ancient Hawaiian uluniu and 'old varieties of Hawaiian niu⁴.' In addition, we're contributing to building a holistic, knowledge based niu practitioner approach reaching all functional applications of niu with various communities.

The Hawai'i Community Coconut Program is a collective community effort with a shared purpose and clear goals. This coconut program takes a holistic community driven approach and aims to revitalize the use of coconut as a vital cultural, nutritional, and ecological resource by supporting those niu associated functions. With a coconut centric approach, we support Hawaiian Cultural Agroforestry movements lead by number of local community partners including

over 2,000 coconut seedlings and helped with planting 4 uluniu on Molokai. Niu Now has conducted hundreds of niu workshops and helped plant 25+ uluniu throughout O'ahu, Molokai and Maui.

⁴"Old type Hawaiian Coconut Varieties" is defined as the "trees that have strong ethnographic evidence to have clear lineage to pre-European contact that those coconut varieties are in Hawai'i and a high likelihood of genetic isolation from introduced varieties" (Gunasekara et al., 2024).

Kaulunani Urban and Community Forestry Program, Niu Now, the Waianae Coast Comprehensive Health Center, Ka‘ala Farms, Ulupō Heiau, Pu‘uhonua Society, Koali Niu Project (Maui) and Paeloko Learning Center (Maui), Nihipali ‘Oahan (Moloka‘i) and other community members within the Islands of Hawai‘i looking for food trees to plant in and around their lives, projects, public and living areas.

We are aware that the coconut is a complex subject, especially when it comes to the establishment and maintenance of the uluniu system. This practice requires sophisticated knowledge and an understanding of the complexity of the niu’s biological reproductive functions and genetic diversity, as well as its ecological and socio-economic functions. We believe that this knowledge system belongs to the common people of Hawai‘i. The people whose cultures are shaped around food, art, and spiritual inspiration of their uluniu are the ones who have safeguarded these practices for centuries. Therefore, the kumu niu - coconut palm - is a vital source of our collective and cultural emergence because of its capacity to support life for over one hundred million people around the world. We believe that the coconut holds cultural mana, telling the tropical islands’ Indigenous stories of who we are within places we live, and as human beings.

We understand that Hawai‘i has inherited an ancient royal uluniu system: one of the most valuable and precious resources that does not translate to the English language as “coconut plantation.” This grove system is defined much differently within Indigenous cultural understanding, as the difference between uluniu and coconut plantation are significant as mentioned above in this paper. We understand that like many Island nations throughout the tropical zone, Hawai‘i shares a common ancient royal practice known as the establishment of “coconut grove” - a sustainable grove system with an intentional focus on the wellbeing of the community, mainly targeting cultural and traditional practices rather than a direct economic gain as aimed in the coconut plantation.

Therefore, today we must continue this collective kinship with the coconut tree and see the kumu niu (coconut tree) as *the tree of life*. We must see that caring for uluniu – coconut groves - is a royal and ancient practice and one of the highest callings for us who live in a place of heritage-based coconut understanding. Therefore, we as the Hawaii Community Coconut Project are here today to set a systematic coconut genetic resource management strategy capable of safeguarding Hawaiian coconut diversity. We humbly ask for your support to stand with the Hawai‘i Community Coconut Program to preserve, protect, and perpetuate a relationship with our coconut groves to connect with coconut as a cultural resource and healing food. Let us plant more coconut and rejuvenate the uluniu of Hawai‘i nei!

‘Aha-niu, ‘aha-aloha—A coconut prayer/assembly, a loving assembly
‘Aha-ho‘ohui lāhui - e ho‘ohui—A prayer/assembly to unite the Hawaiian nation
‘Aha-ho‘ohui ‘āina - e ho‘ohui—A prayer/assembly to unite land and people
Mau ka pono o ka niu—The nature of the coconut is continuous
Mau ke ea o ka ‘āina—The life of the land is infinite

(He Pule Niu, Ka Nupepa Kuokoa, Volume XXXVI,
Number 42, 15 October 1897)

Author's Note

In Hawaiian and other Indigenous cultures, as well as in the common vernacular, coconuts are generally considered to be trees. Indeed, the Hawaiian word for a growing coconut is kumu niu, which refers to a trunked (kumu) tree (Pukui and Elbert, 1964). In other Indigenous cultures, such as in ancient Sri Lankan understanding, (Mahavamsa in 5th century BC and Sarartha Sangrahaya in 390 AD) my home culture, the verbiage “pol gaha” (pol=coconut, gaha=tree) is used that frames coconut as a tree while many other species are categorized in their true forms such as grasses, ferns, vines, shrubs. In current scientific literature, however, coconuts are not considered to be trees but rather palms due to their fibrous root system and lack of a woody core. While we acknowledge the current Western scientific botanical classification of coconut as a “tree-like palm,” to honor and support the Indigenous perspectives embraced throughout Hawaii Coconut Program, we will refer to the coconut throughout our publications as kumu niu or coconut tree.