

HE MO'OLELO 'ĀINA: A CULTURAL STUDY OF THE PU'U MAKĀ'ALA NATURAL AREA RESERVE DISTRICTS OF HILO AND PUNA, ISLAND OF HAWAI'I



View to Pu'u Maka'ala and Mauna Loa
(Photo Courtesy of DLNR-NARS)



*"Birds eye" View of the Hāpu'u and Scattered
'Ōhi'a Forest of Pu'u Maka'ala*
(Photo Courtesy of DLNR-NARS)



*'Ohāhā (*Cyanea longipedunculata*)
of Pu'u Maka'ala*
(William Mull 1975;
Photo Courtesy of DLNR-NARS)



*Julie Leialoha Describing Pu'u Maka'ala NAR
to NARS Commission Members and
Educators (Photo Courtesy of DLNR-NARS)*



Kumu Pono Associates LLC

Historical & Archival Documentary Research · Oral History Interview Studies ·
Researching and Preparing Studies from Hawaiian Language Documents ·
Māhele 'Āina, Boundary Commission, & Land History Records ·
Integrated Cultural Resources Management Planning ·
Preservation & Interpretive Program Development

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EXECUTIVE SUMMARY

At the request of Ms. Lisa Hadway, Natural Area Specialist for the State of Hawai'i Department of Land and Natural Resources—Division of Forestry and Wildlife (DLNR-DOFAW), *Kumu Pono Associates LLC*, conducted a detailed study of historical and archival literature documenting the natural and cultural landscape and history of land use in the vicinity of the Pu'u Maka'ala Natural Area Reserve, and adjoining lands of Waiākea, in the District of Hilo, and 'Ōla'a, in the District of Puna. The documentation also includes detailed oral testimonies—describing the lands, traditional and customary practices, and historical land use—from native residents of lands in the 'Ōla'a, Waiākea-Humu'ula, and Keauhou vicinity, collected in the 1870s to 1890s. The documentation cited herein is the product of years of research, and includes specific research conducted for the study between October 2003 to April 2004. The research was conducted in private and public collections, and that documentation, cited herein, includes written narratives that cover the period from antiquity to the 1980s.

The archival-historical resources were located in the collections of the Hawai'i State Archives, Land Management Division, Survey Division, Bureau of Conveyances and the Natural Areas Reserve System offices; the Hawaiian Historical Society; the University of Hawai'i-Hilo Mo'okini Library; private family collections; and in the collection of *Kumu Pono Associates LLC*. The documentation includes rich narratives translated from native Hawaiian accounts; descriptions of lands that make up the Puna, Hilo and Eastern Ka'ū mountain lands, recorded in historic surveys; a history of land tenure from 1848 to the present; records documenting the establishment of the 'Ōla'a and Waiākea Forest Reserves, and the subsequent designation of the Pu'u Maka'ala Natural Area Reserve.

The Natural Area Reserve takes its name from Pu'u Maka'ala, literally, Stay-alert Hill—named by State Forester, Ralph Daelher in the early 1960s¹—the summit of which is situated a little more than 3,600 feet above sea level. While the name of the *pu'u* is of recent origin, no older name identifiable with the hill was located while conducting this research. Many *pu'u* on the upland slopes of the Hilo and Puna Districts are named, and it is likely that in traditional times this hill too had a name or names, depending on the area it was viewed from.

The native traditions and historical accounts associated with the neighboring lands of the upper Hilo-Puna forests span many centuries, from Hawaiian antiquity to the later period following western contact. The narratives describe customs and practices of the native people who resided on these lands, walked the trails, and who were sustained by the wealth of the forest lands.

Among the most detailed descriptions of the Hilo-Puna forest lands, including documentation of traditional and customary rights, are those found in the Kingdom collections, documenting the history of land tenure, and defining the boundaries of *ahupua'a* of Waiākea and 'Ōla'a. Detailed oral testimonies from elder native tenants were taken in court proceedings of the mid to late 1800s document the occurrence of traditional and customary practices, and nature of the resources within a given *ahupua'a*. In those records, we learn of the traditional knowledge and occurrence of native practices in the lands which today are a part of, and adjoin the Pu'u Maka'ala Natural Area Reserve.

We find in native traditions and beliefs, that Hawaiians shared spiritual and familial relationships with the natural resources around them. Each aspect of nature from the stars in the heavens, to the winds, clouds, rains, growth of the forests and life therein, and everything on the land and in the ocean, was believed to be alive. Indeed, every form of nature was a body-form of some god or lesser deity. As an example, in this context, and in association with lands which are now included in a part of the landscape of the Pu'u Maka'ala Natural Area Reserve, we find that Kū-ka-'ōhi'a-Laka, is a defied guardian of the 'ōhi'a growth of 'Ōla'a; *Ua-kuahine*, is the body form of a goddess of the rains in 'Ōla'a; and *Kū-ili-ka-ua* is the god of the thick mists that envelop the forests of the upper Puna,

¹ pers comm., Ralph Daelher, former State Forester (June 9, 2004).

Waiākea, and Keauhou lands. Indeed, tradition also tells us that the gods and goddesses of these forest lands were very protective of them. In olden times, travel through them was accompanied by prayer, and care. Traditions tell us that many a careless traveler, or collector of resources, found themselves lost in a maze of overgrowth and dense mists as a result of disrespectful and careless actions.

In the Hawaiian mind, care for each aspect of nature, the *kino lau* (myriad body-forms) of the elder life forms, was a way of life. This concept is still expressed by Hawaiian *kūpuna* (elders) through the present day, and passed on in many native families. Also, in this cultural context, anything which damages the native nature of the land, forests, ocean, and *kino lau* therein, damages the integrity of the whole. Thus caring for, and protecting the land and ocean resources, is a way of life.

In the traditional context above referenced, we find that the forests and mountain landscape—the native species, and the intangible components therein—are a part of a sacred Hawaiian landscape. Thus, the landscape itself is a highly valued cultural property. Its protection, and the continued exercise of traditional and customary practices, in a traditional and customary manner, are mandated by native custom, and State and Federal Laws (as those establishing the Waiākea and ‘Ōla‘a Forest Reserves and Pu‘u Maka‘ala Natural Area Reserve; and the Endangered Species Act).

In this discussion, protection does not mean the exclusion, or extinguishing of traditional and customary practices, it simply means that such practices are done in a manner consistent with cultural subsistence, where each form of native life is treasured and protected. *Kūpuna* express this thought in the words, “*Ho‘ohana aku, a ho‘ōla aku!*” (Use it, and let it live!).

In the early 1900s, the Hilo and ‘Ōla‘a forest lands were determined to be of significance, and worthy of protection. In between 1905 to 1928, the lands of the ‘Ōla‘a and Waiākea Forest Reserves, and the neighboring Kīlauea Forest Reserve were dedicated to the public interest as unique natural resources. As a part of on-going ranching operations, and the mission of the newly formed forestry programs, hunting for pigs, and in earlier times, for wild cattle, has been practiced on lands of the Pu‘u Maka‘ala NAR. Such hunting interests remain of importance to community members and long-term management goals of the Natural Area Reserve System program.

In 1981, the Pu‘u Maka‘ala Natural Area Reserve, containing approximately 12,106 acres was dedicated as one of the extraordinary ecological systems of the Natural Area Reserve program of the State of Hawai‘i.

māua nō me ka ha‘aha‘a — Kepā a me Onaona Maly

“A‘ohe hana nui, ke alu ‘ia!
(It is no great task when done together by all!)

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INTRODUCTION

Background

As part of a state-wide program designed to protect, restore, and further the public benefit of significant Hawaiian natural resources making up three existing Natural Area Reserves, and one proposed reserve, all on the island of Hawai'i, Ms. Lisa Hadway, Natural Area Specialist for the State of Hawai'i Department of Land and Natural Resources—Division of Forestry and Wildlife (DLNR-DOFAW), requested that *Kumu Pono Associates LLC*², conduct detailed historical-archival research that would describe the traditional-cultural and historical setting of lands within existing, or proposed Natural Area Reserves on the Island of Hawai'i. This component of the study discusses several *ahupua'a*³ that contribute to the land area of the Pu'u Maka'ala Natural Area Reserve situated in the forest lands of the Hilo and Puna Districts on the Island of Hawai'i (*Figure 1*).

The Pu'u Maka'ala Natural Area Reserve (NAR) is situated on lands within the upper Waiākea *ahupua'a* of the Hilo District, and the *kalana* (sub-district) of 'Ōla'a within the District of Puna. The Pu'u Maka'ala NAR adjoins the Kīlauea Forest Reserve (in the District of Ka'ū), the Waiākea Forest Reserve (in the District of Hilo), and the 'Ōla'a Forest Reserve (in the District of Puna), which were established by Governor's Proclamations in 1928, 1923, and 1918, respectively. The Pu'u Maka'ala NAR was proposed in the 1970s, and authorized by Governor's Executive Order No. 3102, on November 16th, 1981. The NAR contains 12,106 acres, and takes its name from a *pu'u* (hill) which in the early 1960s was given the name "Maka'ala" (literally: Stay alert, be Vigilant; interpretively Lookout Hill⁴). Unfortunately, it does not appear that a traditional name for this *pu'u* was recorded in historical survey records. While several traditional and historical accounts name localities in the Waiākea-'Ōla'a uplands, they do not give the precise location of those localities, so it is not possible to know if any of those names refer to this particular feature.

In the narratives written to support the proposed establishment of the Pu'u Maka'ala NAR in the 1970s, the lands and resources of the area were described with the following narratives:

The area received its name from Puu Makaala, a cinder cone rising over 200 feet in the center of the proposed 2,612 acre tract on the slopes of Mauna Loa, Hawaii. It presently forms portions of the state-owned Waiakea and Olaa Forest Reserves and can be located on U.S.G.S Map No. N1390, Puu Makaala Quadrangle... It extends across an elevational gradient from 3,200-3,700 feet. It contains no streams. The heavy forest covering is believed to have never been disturbed by logging, grazing or other uses. The soil is very organic, with black muck that extends to a depth of several feet or more until lava rock is reached. There has been some disturbance by feral pigs...

Most of the area is an 'ōhi'a rainforest ecosystem. There is a rich assortment of native plants (some 48 species) and associated native insects, from flies and butterflies to crawling forms. It is also a habitat for at least nine native birds, of which three are endangered species. Another ecosystem present, but located only in the far southwest section, is the koa-'ōhi'a rain forest. The Kulani Project addition contains a significant amount of this type of ecosystem.

² *Kumu Pono Associates LLC*: Kepā Maly, Cultural Historian-Resource Specialist and Onaona Maly, Researcher.

³ *Ahupua'a* is a traditional term used to describe an ancient Hawaiian land unit (extending from sea to mountain lands), and remains the primary land unit of the modern land classification system.

⁴ See notes regarding naming of Pu'u Maka'ala in ca. 1962, from telephone interview with retired Forester, Ralph Daehler, at end of study.

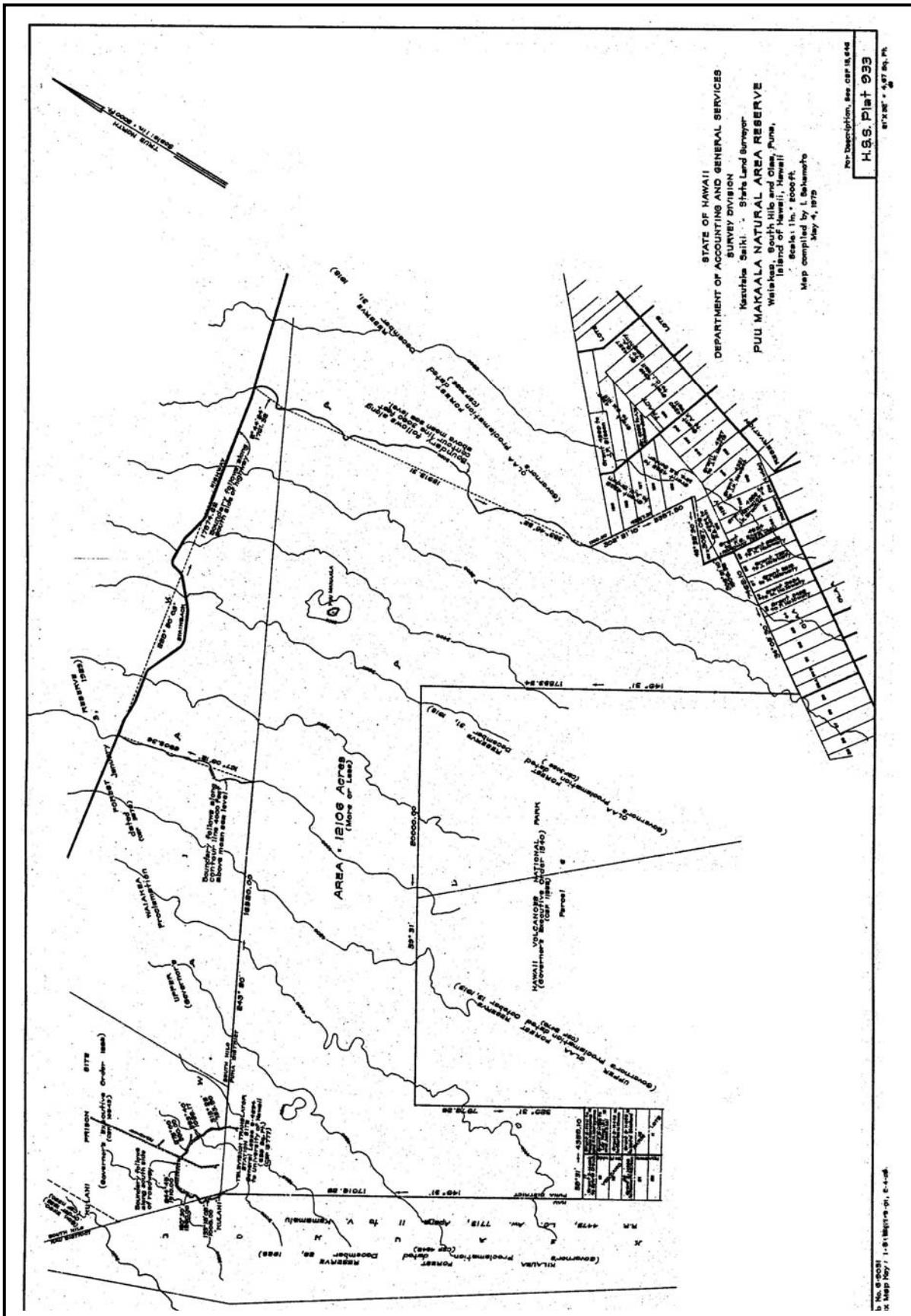


Figure 1. Pu'u Maka'ala Natural Area Reserve, and Neighboring Lands of Waiākea, 'Ōla'a, and Keauhou, Island of Hawai'i (1979)

Indicative of the dense and mature forest cover, the substrate consists of deep soils of “brown forest” and “humic” latosols. There is an average annual rainfall of 100-150 inches. The mature forest growth is a contrasting ecosystem to the developing forest condition preserved by the 640 acre Waiakea 1942 Lava Flow Natural Area Reserve about two miles away... [Pu'u Maka'ala NAR Folder, Natural Area Reserves Office]

This study seeks to provide readers with access to primary documentation on native traditions, customs, and practices associated with the Waiakea-'Ola'a forest lands; and to provide readers with a historical overview of the land and activities of people in the region from the early 1900s through the present-day. Such information will be helpful in planning phases and discussions of the Hilo-Puna community and agencies, as efforts to protect the unique natural and cultural landscape of the forest lands are undertaken. While a great deal of information has been compiled, and is presented in the following sections of this study, we acknowledge that additional information will likely be found through further research. The goal here, is to bring a significant collection of documentation into one study that will help all interested parties plan actions to ensure the well-being of the land for present and future generations.

Historical and Archival Research

The historical and archival research conducted for this study were performed in a manner consistent with Federal and State laws and guidelines for such studies. Among the pertinent laws and guidelines are the National Historic Preservation Act (NHPA) of 1966, as amended in 1992 (36 CFR Part 800); the Advisory Council on Historic Preservation's *“Guidelines for Consideration of Traditional Cultural Values in Historic Preservation Review”* (ACHP 1985); National Register Bulletin 38, *“Guidelines for Evaluating and Documenting Traditional Cultural Properties”* (Parker and King 1990); the Hawai'i State Historic Preservation Statue (Chapter 6E), which affords protection to historic sites, including traditional cultural properties of on-going cultural significance; the criteria, standards, and guidelines of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD) for the evaluation and documentation of cultural sites and practices, Title 13 Sub-Title 13:275-284 (October 21, 2002); and the November 1997 guidelines for cultural impact assessment studies, adopted by the Office of Environmental Quality Control (which also facilitate the standardized approach to compliance with Act 50 amending HRS Chapter 343; April 26, 2000).

While conducting the research, primary references included, but were not limited to—land use records, including an extensive review of Hawaiian Land Commission Award (L.C.A.) records from the *Māhele Āina* (Land Division) of 1848; Boundary Commission Testimonies and Survey records of the Kingdom and Territory of Hawai'i; and historical texts authored or compiled by—D. Malo (1951); J.P. I'i (1959); S. M. Kamakau (1961, 1964, 1976, and 1991); Wm. Ellis (1963); J. Goodrich (1826); Chas. Wilkes (1845); and A. Fornander (1916-1919 and 1996). The study also includes several native accounts from Hawaiian language newspapers (compiled and translated from Hawaiian to English, by the author), and historical records authored by nineteenth century visitors to the region.

Archival-historical resources were located in the collections of the Hawai'i State Archives, Land Management Division, Survey Division, Natural Area Reserves office, and Bureau of Conveyances; the Bishop Museum Archives; Hawaiian Historical Society; University of Hawai'i-Hilo Mo'okini Library; private family collections; and in the collection of *Kumu Pono Associates LLC*. This information is generally cited in categories by chronological order of the period depicted in the narratives.

The historical record—including oral testimonies of elder native residents of lands in the Waiakea-'Ola'a vicinity—provide readers with detailed descriptions of traditional and customary practices, the nature of land use, and the types of features to be expected on the landscape. The descriptions of land use and subsistence practices range from antiquity to the middle 1900s, and represent the knowledge of *kama'āina* (natives) of the land.

A CULTURAL-HISTORICAL CONTEXT OF THE LANDS AND FORESTS OF THE HILO AND PUNA DISTRICTS

Hawaiian Settlement

Archaeologists and historians describe the inhabiting of these islands in the context of settlement which resulted from voyages taken across the vast open ocean, with people coming from small island groups. For many years archaeologists have proposed that early Polynesian settlement voyages between Kahiki (the ancestral homelands of the Hawaiian gods and people) and Hawai'i were underway by A.D. 300, with long distance voyages occurring fairly regularly through at least the thirteenth century. It has been generally reported that the sources of the early Hawaiian population—the Hawaiian “Kahiki”—were the Marquesas and Society Islands (Emory in Tatar 1982:16-18).

For generations following initial settlement, it appears that communities were clustered along the watered, windward (*ko'olau*) shores of the main Hawaiian Islands. Along the *ko'olau* shores, in areas such as Waiākea, Punahoa-Pi'ihonua, and Laupāhoehoe, streams flowed, rainfall was reliable, and agricultural production could become established. To a lesser extent, locations in Puna, such as in the Kea'au and Hā'ena vicinity, and in the Kapoho vicinity, early populations could also find the necessary resources for establishing community centers. Along these *ko'olau* shores, sheltered bays offered access to both deep sea and near shore fisheries. The latter, being enriched by nutrients carried in the fresh water flowing from the mountain streams, and in underground lava tube systems, and by which fishponds and estuarine systems could be developed. In these early times, the residents generally engaged in subsistence practices in the form of fishing, and in agriculture on lands extending towards the uplands from the bays (Handy, Handy and Pukui 1972:287).

Over a period of several centuries, areas with the richest natural resources became populated and perhaps crowded, and by ca. 900 to 1100 AD, the population began expanding to the more remote sections of Puna and the larger Kona (leeward) side of the island (Cordy 2000:130).

As a general summary of lowland residency and cultivation of food resources in the Waiākea section of Hilo, Handy, Handy and Pukui (1972) reported that:

Hilo as a major land division of Hawaii included the southeastern part of the windward coast...the northern portion, had many scattered settlements above streams running between high, forested *kula* lands, now planted with sugar cane. From Hilo Bay southeastward to Puna the shore and inland are rather barren and there were few settlements. The population of Hilo was anciently as now concentrated mostly around and out from Hilo Bay... The Hilo Bay region is one of lush tropical verdure and beauty, owing to the prevalence of nightly showers and moist warmth which prevail under the northeasterly trade winds into which it faces...

In lava-strewn South Hilo there were no streams whose valleys or banks were capable of being developed in terraces, but cuttings were stuck into the ground and on the shores and islets for many miles along the course of the Wailuku River far up into the forest zone. In the marshes surrounding Waiakea Bay, east of Hilo, taro was planted in a unique way, known as *kanu kipi*. Long mounds were built on the marshy bottom with their surface two or three feet above water level. Upon the top and along the sides of these mounds taro was planted. Flood waters which occasionally submerged the entire mound are said to have done no harm, as the flow was imperceptible. This swampy land is now abandoned to rank grass. *Kipi* (mounds) were also formerly made along Alenaio Stream above Hilo... [Handy, Handy and Pukui 1972:538-539]

Natural Resources and Land Management in the Hawaiian Cultural System

In Hawaiian culture, natural and cultural resources are one and the same. Native traditions describe the formation (literally the birth) of the Hawaiian Islands and the presence of life on, and around them, in the context of genealogical accounts. All forms of the natural environment, from the skies and mountain peaks, to the watered valleys and lava plains, and to the shore line and ocean depths are believed to be embodiments of Hawaiian gods and deities. One Hawaiian genealogical account, records that Wākea (the expanse of the sky—father) and Papa-hānau-moku (Papa, who gave birth to the islands)—also called Haumea-nui-hānau-wāwā (Great Haumea, born time and time again)—and various gods and creative forces of nature, gave birth to the islands. Hawai'i, the largest of the islands, was the first-born of these island children. As the Hawaiian genealogical account continues, we find that these same god-beings, or creative forces of nature who gave birth to the islands, were also the parents of the first man (Hāloa), and from this ancestor all Hawaiian people are descended (David Malo, 1951; Beckwith, 1970; Pukui and Korn, 1973). It was in this context of kinship, that the ancient Hawaiians addressed their environment, and it is the basis of the Hawaiian system of land use.

Through their generations of residency, the ancient Hawaiians developed a sophisticated system of land- and resource-management. By the time ‘Umi-a-Līloa rose to rule the island of Hawai'i in ca. 1525, the island (*moku-puni*) was divided into six districts or *moku-o-loko* (cf. Fornander 1973—Vol. II:100-102). The district of Hilo is one of six major *moku-o-loko* on the island of Hawai'i. The district of Hilo itself, extends from the shore up to the 9,000 foot level on Mauna Kea, and up to the summit of Mauna Loa, where it joins the districts of Ka'ū, Kona and Hāmākua. Towards the east, Hilo joins Puna at Māwae, and continues *ma uka* (towards the mountains), adjoining the land of 'Ōla'a; and on its north eastern boundary, Hilo joins Hāmākua at Ka'ula. Within this district, today simply described as North and South Hilo, there were at least three traditional regions. The area from Waiākea to the Puna boundary was known as *Hilo Hanakāhi*—Hilo, land of Hanakāhi, one of the noted chiefs of Hilo, whose reign was one of peace. The middle section of Hilo, fronted by the sandy beach of Waiākea Bay, extending from Kanukuokamanu (at the mouth of Wailoa Stream) to Wailuku River was simply known as *Hilo One*—Hilo of the sandy shore. The remainder of Hilo, extending from the cliffs on Wailuku River to Ka'ula was called *Hilo Palikū*—Hilo of the upright cliffs.

The entire district of Hilo has been most famed for its rains, and is commemorated in many traditional *mele* (chants) and *‘ōlelo no‘eau* (poetical sayings) by reference to the rains. This may seem to some to be an undesirable epitaph, but in the Hawaiian mind, the rains were god given—manifestations of the gods Kāne and Lono, and also forms of lesser gods and goddess of the forests and expanse of the land. Rains gave life to, and healed the land, thus a land of water was a rich one.

Native tradition records that lands with “*wai*” (water) names were themselves associated with the god Lono (G.W. Kahiolo in *Ka Hae Hawaii*, July 10, 1861), thus another level of cultural significance might be associated with the land of Waiākea (Expansive-waters, or the Water of Ākea, progenitor of the Hawaiian race). We also find that one of the famous sayings of Hilo describes the beauty of the rains—source of the waters given by Lono—that seem to resonate from the leaves of the ‘*ōhi'a lehua* (*Metrosideros polymorpha*) trees which at one time grew luxuriantly from shore to mountains—

No ka pehi mau o ka ua iluna o ka lihilihī o ka lehua i ka wā a nā manu e kani hone ana a mūkīkī i ka wai e kilihune iho la i ka liko o ka lehua... o ka ua kani lehua o Hilo ia! —
Because the frequent pattering of rains upon the *lehua* blossoms is accompanied by the sweet singing of the birds as they sip the nectar which drips upon the young budding *lehua* leaves... the rain of Hilo is called the rain which resounds upon the *lehua* blossoms of Hilo! [Wise and Kihe in *Ka Hoku o Hawaii*; February 24, 1916 (Maly, translator)]

The land of ‘Ōla‘a stood alone, almost independent of other lands adjoining it in Puna, though it had no ocean frontage—being cut off by Kea‘au and Waiākea. The name connotes sacredness and sanctity; the root of the name being “la‘a.” ‘Ōla‘a is famed in native tradition for its sacred lands, forest, native birds, and olonā resources. One ancient *mele* (chant), commemorating the forests, birds, and weather of ‘Ōla‘a, noting too that man traveled across the land tells us:

<i>Ka uka holo kia ahi manu ‘Ōla‘a</i>	The birds fly like flaming darts to the uplands of ‘Ōla‘a,
<i>I pō e noe ka uahi noe i ka nahele,</i>	Where the mist and smoke darken the forest,
<i>Nōhenohea ka makani ‘ūhau pua,</i>	Spread out by the breeze which lays out the blossoms,
<i>He pua ‘oni ke kanaka, he mea laha ‘ole...</i>	Man is like flower, roving about, something that is irreplaceable... [collection of Ho‘ohila Kawelo; Maly, curator]

In the traditional system of land management, the large districts (*moku-o-loko*) like Hilo and Puna, and sub-regions ('okana and *kalana*) such as ‘Ōla‘a, were further divided into political regions and manageable units of land. These smaller divisions or units of land were tended to by the *maka‘āinana* (people of the land) (see Malo 1951:63-67). Of all the land divisions, perhaps the most significant management unit throughout the islands was the *ahupua‘a*.

Ahupua‘a are subdivisions of land that were usually marked by altars with images or representations of a pig placed upon them, thus the name *ahu-pua‘a* or pig altar. In their configuration, the *ahupua‘a* may be compared to wedge-shaped pieces of land that generally radiate out from the center of the island, extending to the ocean fisheries fronting the land units. Their boundaries are generally defined by topography and geological features such as *pu‘u* (hills), ridges, gullies, valleys, craters, or areas of a particular vegetation growth (see Boundary Commission testimonies in this study; and Lyons, 1875).

The *ahupua‘a* were also divided into smaller manageable parcels of land—such as the *‘ili*, *kō‘ele*, *mahina ‘ai*, *māla*, and *kīhāpai*—that generally run in a *mauka-makai* orientation, and are often marked by stone wall (boundary) alignments. In these smaller land parcels the *maka‘āinana* cultivated crops necessary to sustain their families, and supplied the needs of the chiefly communities they were associated with. As long as sufficient tribute was offered and *kapu* (restrictions) were observed, the common people who lived in a given *ahupua‘a* had access to most of the resources from mountain slopes to the ocean. These access rights were almost uniformly tied to residency on a particular land, and earned as a result of taking responsibility for stewardship of the natural environment and supplying the needs of ones’ *ali‘i* (see Malo 1951:63-67 and Kamakau 1961:372-377).

Entire *ahupua‘a*, or portions of the land were generally under the jurisdiction of appointed *konohiki* or subordinate chief-landlords, who answered to an *ali‘i-‘ai-ahupua‘a* (chief who controlled the *ahupua‘a* resources). The *ali‘i-‘ai-ahupua‘a* in turn answered to an *ali‘i ‘ai moku* (chief who claimed the abundance of the entire district). Thus, *ahupua‘a* resources supported not only the *maka‘āinana* and *‘ohana* (families) who lived on the land, but also contributed to the support of the royal community of regional and/or island kingdoms. This form of district subdividing was integral to Hawaiian life and was the product of strictly adhered to resource management planning. In this system, the land provided fruits, vegetables and some meat in the diet, and the ocean provided a wealth of protein resources.

We find that the system described above, is documented in native testimonies recorded as a part of court proceedings in the 1870s, by elder Hawaiian residents of Waiākea, ‘Ōla‘a and neighboring

lands. The witnesses to the Commissioner of Boundaries reported that traditional access and use of resources in the mountain lands was controlled and monitored by landlords and chiefs. Knowledge of the boundaries of *ahupua'a*, and the extent of rights on the mountain lands was important. If someone from another land (*ahupua'a* or district) was caught taking resources from a land other than their own, the items were taken from them. Indeed, the large collection of testimonies for the island of Hawai'i record that infractions of *ahupua'a* rights led to fights and death of the intruders. Interestingly, collection of native birds such as the *mamo* and 'ō'ō, and the collection of *olonā* in the Waiākea and 'Ōla'a forest lands (presumably those which also fall within the present-day Natural Area Reserve) was recorded by elder *kama'aina*, though no reference to other forms of hunting, or pigs was made in the testimonies by natives in the 1800s (see Boundary Commission Testimonies in this study).

MO‘OLELO ‘ĀINA: NATIVE TRADITIONS AND HISTORICAL ACCOUNTS OF THE WAIĀKEA-‘ŌLA‘A FOREST LANDS

This section of the study provides readers with access to a collection of native traditions of the Hilo-Puna forest lands, some of the accounts translated from the original Hawaiian language narratives by Maly. The narratives span many centuries, from Hawaiian antiquity to the later period following western contact. Some of the narratives make specific references to places on the mountain lands associated with the Pu‘u Maka‘ala NAR, while other accounts are part of larger traditions that are associated with regional and island-wide events. The traditions describe customs and practices of the native people who resided on these lands, walked the trails, and who were sustained by the wealth of the mountain lands, the *kula* (plains and plateau lands), and the adjacent marine fisheries. It is also appropriate to note here, that the occurrence of these traditions—many in association with place names of land divisions, cultural sites, features of the landscape, and events in the history of the lands which make up the Pu‘u Maka‘ala NAR—are an indicator of the rich native history of those lands.

***“He Kaaō no Pikoiaakaalala, ke Keiki Akamai i ka Pana”* (The Tradition of Pikoiaaka‘alalā—Describing Canoe Making and Bird Hunting in the Uplands of Waiākea and ‘Ōla‘a)**

The tradition of Pikoiaaka‘alalā (Pikoia-son-of-the-crow), printed in the Hawaiian language newspaper, *Ku Okoa*, in 1865-1866, is one of the earliest written accounts, that provides detailed narratives of the traditional and customary practices associated with the upland forests of Waiākea and ‘Ōla‘a. The tradition was submitted to the paper by S.M. Kaui, and ran from December 16th, 1865 to March 10th, 1866.

Pikoiaaka‘alalā was born to ‘Alalā and Koukou on the island of Kaua‘i, and his family were *kūpua* (beings with supernatural powers and multiple body-forms). Pikoiaaka‘alalā possessed exceptional sight and excelled in the Hawaiian art of *pana pua* (shooting with bow and arrow). Through the tradition of Pikoiaaka‘alalā, readers learn that many localities throughout the islands are named for places where he competed in matches with archers, shooting ‘iole (rats) and birds from great distances. The tradition is set in the late 1500s when Keawe-nui-a-‘Umi, the king of Hawai‘i Island, was in need of an expert to shoot some supernatural ‘elepaio birds that continually interrupted the work of his canoe makers in the uplands of ‘Ōla‘a and Hilo.

Keawe-nui-a-‘Umi learned of Mainele, a champion in the sport of *pana pua*, who resided on O‘ahu, and promised him that if he could rid the forest of the enemy ‘elepaio, he could wed his daughter, the beautiful Keakalaulani. As the story unfolds below, we learn that Mainele boasted of his great skills, but he was unable to kill the two birds. In the meantime, Waiākea (for whom the land of Waiākea was named), one of the stewards of Keawe-nui-a-‘Umi, befriended Pikoiaaka‘alalā, and learned that he was an expert in the art of *pana pua*.

Prior to his arrival in Hilo, Pikoiaaka‘alalā made Waiākea promise that he would not tell anyone who he was, for he had heard of the boastful nature of Mainele, and he wished to teach him a lesson. The narratives below (translated by Maly), focus on events in the uplands of Waiākea and ‘Ōla‘a. By the description of the events in this part of the tradition, we learn about the make up of the upland forests, named localities, and some of the practices of ancient Hawaiians in the region coinciding with the Pu‘u Maka‘ala NAR.

Arriving in the Hilo District Pikoiaaka‘alalā asked Waiākea:

HELU 5.

“...Aia i hea kahi o ua mau manu hanaino waa nei?” “Aia no ma waho aku o Panaewa,” “e pii hoi ha kaua i ike au,” wahi a Pikoiaakaalala.

Part 5.

“...Where are those birds who make trouble for the canoes found?” “They are there, outside of Panaewa.” Pikoiaaka‘alalā then said, “Let us go up there so that I may see.”

O ka hele aku la no ia o laua a hiki, a ike aku la o Pikoiaakalala i kahi i kau ai na manu hanaino waa, a me ke kahua kahi hoi e kalai ai na kahuna a Keawenuiaumi, o ka inoa o ia wahī, o Kalehuapueo, aia no kela wahī ma kai ae o Kaluaopele, mauka ae o Olāa, iwaena konu o ka ululaau, he ahua nae, ina e hiki ilaila, e hiki ia oe ke nana mai ia kai o Hilo, me kou ike maopopo no nae ia kai, he loihi no nae, ua ane hiki paha i ka 27 mile ka loa; a hoi aku la no laua i kai o Hilo, e like no me ka mea mau i ke kaumaha i ka manu i na la a pau a laua e hele ai; a he mea mau no hoi ia laua ka lawe pinepine aku i manu na ke alii Keawenuiaumi, a o ka ke alii mea hoohuoi mau no hoi ia, no ka nui launa ole o ka manu, a he mea mau no hoi ia Keawenuiaumi ka ninaninau mau ia Waiakea kona kahu, i ka mea nana i hoomake ina manu he nui, ike kela ano manu i keia ano manu.

Eia na inoa pakahi o na manu a Pikoiaakalala i pana ai i mea ai no ka wa maka pehu o Hilo. O ka Oo, ka liwi, ka Ou, ka Akakane, ka Amakihi, a me ka Mamo, o na manu ai-lehua no a pau o ka uka i Olāa a me ka nahele laau loloa o Panaewa; oia mau manu ka ke keiki Pikoiaakalala i panai, a o ka Waiakea hoi ia e haawi aku ai i ke alii nui me na lili malalo iho, na kaukaualii, na puali, me na koa a me na kanaka hoi o ke alii.

A no ka ninau mau o Keawenuiaumi i ka mea nana i pana kela mau manu—i hoike iae la maluna—alaila, hai aku la o Waiakea penei: “He wahi aikane no nau.” “No hea?” wahi a ke alii, “no Oahu mai no,” alaila ninau mai la o Keawenuiaumi, “O wai ka inoa oia aikane au?” “O wai la, aole i hai mai i kona inoa iau,” wahi a Waiakea, he oiaio no hoi paha ia, no ka mea hoi, aole no i ike na mea a pau o Pikoiaakalala keia, aole no hoi i hai i kona inoa ia Waiakea; aka nae, o na hana akamai a pau a Pikoiaakalala kana i ike ai, mai ko laua holo ana mai o Oahu aku a hiki i keia wahi i olelo iae nei, a ua hoopaa loa o Waiakea i kana mea i ike ai, no ke akamai lua ole o ua aikane nei ana, (Pikoiaakalala) oia hoi na pana ana i na iole mai Oahu mai a hiki ma Kohala i Hawaii.

The two traveled till they reached the place, and Pikoi-a-ka-'alalā saw where the birds who made trouble for the canoes were perched. He also saw the grounds where the canoe making priest of Keawe-nui-a-'Umi worked. The name of this place was Kalehuapueo, it is there below Kaluaopele (the Volcano), in the uplands of 'Ōla'a, in the middle of the forest. There is a small hill there, and if you go there, you will be able to look to the sea of Hilo. By the sight of the sea, you will know that it is a great distance off, perhaps 27 miles away. The two then returned to Hilo, and as was the custom, they were weighted down by birds on all the days they went to the mountains. They frequently went and took birds for the chief Keawe-nui-a-'Umi, who grew suspicious because so many birds were brought down. Keawe-nui-a-'Umi regularly asked Waiakea, who was killing these birds, for many different kinds were brought down.

Here are the names of the birds which Pikoi-a-ka-'alalā shot during his time in Hilo; the 'Ō'ō, 'I'iwi, 'Ō'ū, 'Akakane, 'Amakihi, and the Mamo, the birds which eat of the lehua blossoms in the uplands of 'Ōla'a, and the long-treed forest of Pana'ewa. Those were the birds shot by Pikoi-a-ka-'alalā, and given by Waiakea to the king, the chiefs below him, the attendant chiefs, the warriors and the men of the chief.

Because Keawe-nui-a-'Umi continually asked questions about the one who shot the birds—as described above—Waiakea answered thus: It is a friend of mine.” “Where from?” Asked the chief. “From O'ahu.” Keawe-nui-a-'Umi then asked, “What is the name of your friend?” “What indeed? He has not told me his name,” responded Waiakea. Now this is perhaps true, because very few people knew of Pikoi-a-ka-'alalā, and he had not actually told his name to Waiakea. But because of all the amazing things that Pikoi-a-ka-'alalā had done—that is the shooting of rats from O'ahu to Kohala, Hawai'i, Waiakea knew that his friend (Pikoi-a-ka-'alalā) was second to none in the skill.

(E waiho iki iho kakou i ka hoonioniolo ana no Pikoiaakalala ke keiki o Kauai o Manokalanipo, a me Waiakea hoi kahi kanaka o Kauakanilehua o Hilo Hanakahi, a e kuehu ae kakou i ka lehu o kapuahi no Mainele a me na hoe waa.)

Ia Mainele ma i noho ai iuka o Kohala i ke kalai hoe, a hala hookahi malama, a loaa ka hoe, alaila, makaukau na waa e holo aku i Hilo, kahi hoi o ke alii nana i hoouna aku e kii ia Mainele. A hiki o Mainele ma i Hilo, ua makaukau mua hoi ka ai, ka puua, me na mea no hoi a pau e lawa ai ka malihini; a o ke o no hoi ia i pii ai e pana i ko Keawenuiaumi enemi mau.

O ka hoomaka iho la no ia o ka pii o Mainele me ke alii, a me na kanaka a pau he nui, a o ka poe makaikai no hoi o kela wahi keia wahi o Hilo a me Puna. A hiki no hoi o Mainele i ke kahua kahi kalai-waa, a ike iho la nae i ke kumu koa kahi e kau mau ai ua mau manu nei, aole nae he ikeiaku o na enemi o ke alii, no ka mea hoi, aia no a koele ke koi i ka waa, alaila, o ka manawa iho la no ia e lele mai ai o ua mau manu nei a kau i ke kumu o kekahī koa nui. Hookoele no hoi na kahuna a ke alii i kekahī kaele waa kahiko no a lakou mamua i haalele ai, i mea hoi e lohe ai ua mau manu la, alaila lele mai, oiai o ka laua hana mau ia ke lohe i kekahī koi e koele ana.

O ka manawa no ia e hiki ai, me ko laua manao paha he kalai-waa, no ka mea, o ko laua enemi nui hoi ia o ke kalaiwaa. A he oi no hoi o na manu pololei nui wale i ke koho e mai no mamua i na olelo hooiloilo, e olelo mai ai penei: "E Keawenuiaumi e! haalele ia he waa ino, he waa puha, ua loli kaele." Aole no hoi ma ko Keawenuiaumi waa wale no ka laua hana e hooiloilo ai, o ka waa o kela kanaka keia kanaka ka laua e hanai.

O ka lele mai la no ia o ua mau manu la a kau mai la iluna, ma ko laua wahi mau e kau ai. I ua mau manu la no a kau mai, ike aku la no hoi o Mainele, ke akamai kaulana; o kona manawa iho la no ia i haalele koke ae ai i kana mea make, me ka olelo kaena e anae mamua o kona hookuu ana i kana pua, penei no hoi: "Heaha la ke kumu o ke ku ole ana o keia mau manu i ka poe i hele mai ai e pana i keia mau manu, ma ke kua paha

*(Let us now leave the upright nature of Pikoi-a-ka-'alalā, the youth of Kauai of Manokalanipō, and Waiākea, the man of the land of Hilo Hanakāhi, where the rains resonate on the leaves of the *lehua*; and let us stir up the ashes of the fireplace of Mainele and the canoe paddlers.)*

While Mainele and folks were residing in the uplands of Kohala, cutting wood for paddles, there passed one cycle of the moon, and they then had the paddles made. Therefore the canoes were made ready to travel to Hilo, the place from which the king had sent for Mainele and his companions. The food was made ready, the pig and all the things to be brought for the visitor; and those things necessary for the journey to the uplands to shoot the enemies of Keawe-nui-a-'Umi.

Mainele and the King, and many of the people, those who had traveled from one place or another in Hilo and Puna, began their journey to the uplands. When Mainele arrived at the canoe making grounds, he saw the *koa* trees where birds had perched, though the (bird) enemies of the king were not to be seen. But when the striking of the adzes was heard on the hulls of the canoes, the birds flew and perched atop a large *koa* tree. When the priest of the king, began to dig out one of the old canoe hulls, left by from an earlier time when they had fled; it was then, when the birds heard the chipping, that they began to fly about.

That was what they did, when they heard the digging, because their great enemy were the canoe makers. Now normally, these types of birds were foremost in stating whether worms were in the wood, but here, they called out always: "Say Keawe-nui-a-'Umi! Leave it behind, it is a bad canoe, a canoe that will shatter, a rotted hull." It was not only the canoes of Keawe-nui-a-'Umi, but the canoes of other men as well, that the two birds did this to.

These birds flew and perched at their usual place above. When the birds perched there, Mainele saw them, he then began boasting about his fame and skill with the bow, and that he could kill them for which he released his arrow: "There is no tree that these birds can land on that the people cannot shoot them. They will be shot in the back perhaps, for their bodies are large, and they land nearby..."

ka pana ana i ku ole ai? No ka mea, he nui na kino, a he kokoke loa no hoi laua e kau mai nei..."

A lohe ae la ke alii, a me ka aha kanaka e ku pu ana me ia, (Mainele) oliloli nui ae la lakou. O ke kuu aku la no ia o Mainele i kana pua, me kona manao hoi e ku aku na manu ia ia, he ole ka hoi ua mea he ku aku, mai ku no nae, o ka pololi ana o ka pua a ku no i ka mino kahiko o na manu, oia no ka mea i halai, o ka hoomau aku la no ia o Mainele i kana hana i kaulana ai o ka pana, oi pana wale a la aohe wahi mea ku aku o na manu, a po ia la, moe iho la no o Keawenuiaumi me Mainele, a me na kanaka a pau ilaila.

A i ke ao anae no, oia ka lua o ka la, i lawa no i ka maamaa anae, o ko Mainele manawa iho la no ia e panai, me ke ake nui e ku na enemi mau o ke alii, aole no hoi he komo wahi ai iki i kona opu, a no ke ku ole o na manu, olelo ae la ia i ke alii e hana i laau alanui nona e pii aku ai iluna o ke kumu koa, i kokoke i kahi o ua mau manu nei e kau ana, me kona manao a kokoke iki ae, alaila, ku ke panae. A paa ke alanui, pii ae la o Mainele alaila, pana ae la no ia i na manu, oi pana wale no ia la a ahiahi, aohe no he mea a ku iki, a moe hou no ilaila.

A ao ae la, o ke kolu ia o ka la, alua no hoi alapii, i mea hoi e kokoke ae ai o ka pana no hoi ka Mainele, o ka nana no hoi ka ke alii, a me na kanaka iluna, me ke ake nui e ku aku ana no ia Mainele na manu, hele no hoi a uakaha ka a-i o ke alii, a nalulu ka lae, me na kanaka a pau i ka ua mea o ke kali ana no ke ku o na manu i ke akamai kaulana o Mainele a po wale no ke kolu o ka la, aohe no he ku o na manu.

Moe no a ao ae, o ka ha ia o ka la, a akolu hoi alapii o ka hana ana, e like no me ka Mainele e olelo ai, pela no ke alii e olelo ai i kona poe kanaka e hana, a ane kokoke loa o Mainele ma kahi a na manu e kau ai, o kana no ka pana, oi pana wale no a aohe no he ku o ua mau manu la, he akamai no hoi o Mainele i ka pana, he akamai no hoi na manu i ka alo ana i ka Mainele mea make e lele aku ana he pua.

A po iho la ka ha o ka la, moe no ke alii, me na kanaka a pau, a ao ae la, o ka lima ia o ka la, aha no hoi alapii o ka hana ana, a ia hana ana o

Hearing this, the king and the people gathered there with him (Mainele), and were exceedingly happy. Then Mainele released his arrow, thinking that he would strike the birds, but he did not hit them. He tried again and again, his arrows hungered for the birds, but all the shots of this famous person, missed. When darkness fell, Keawe-nui-a-'Umi, Mainele, and all the people with them went to sleep.

With the light of day—this was the second day—Mainele practiced and when it was enough, he began again to shoot, with great desire for these enemies of the king. Because the birds did not land nearby, he told the king to have a wooden ladder made so that he could climb atop one of the *koa* trees, close to where the birds regularly perched. He thought that if he could get closer, he would be able to shoot them. The ladder was made secure, and Mainele climbed upon it. But again, his arrows missed, and with the coming of night, the people again slept there.

At day light, the third day, a second ladder was made so as to enable Mainele to shoot from a closer location. The king and all of the people looked on and saw the great desire of Mainele to get the birds. Looking up, the neck of the king was stiff, and his brow ached, it was so with all of the people who were awaiting the striking of the birds through the ingenuity of Mainele. But as the third night approached, the birds had not been struck.

They slept again, and arose at daylight, and had a third ladder made. Thus Mainele drew near to the place where the birds perched. He shot his best arrow, and it did not strike the birds. While Mainele was smart with the bow, the birds too were smart at dodging the deadly arrows of Mainele.

The fourth night settled in, and the king and all his people slept. At daylight on the fifth day, a fourth ladder was built, and Mainele was even

ke alapii, ua kokoke loa i kahi a na enemi e kau mau ai, a e lalau ae no o Mainele i na manu me kona mau lima, e loaa no, aole no hoi i ike na manu i ke kokoke loa o ke alapii, kahi hoi a Mainele e noho ana, a haalele la hoi i ko laua wahi e kau mua ai, i loa no i ka po a ao ae no, o ka na kahuna hana mau no hoi ka hookoele me ke koi i na kaele-waa e waaho ana... Oiai ua hiki ae o Mainele iluna o kahi i hana ia nona, i na manu no a kau mai, o ko Mainele lalau ae la no ia me kona mau lima, alo ae la no na manu, oi lalau wale o Mainele me kona mau lima huluhulu a aole he loaa iki o na manu. Hele no hoi a uluhua o Mainele i na manu, me he hoa hakaka kanaka la. A o ke alii hoi o Keawenuiaumi, ua hele a uiha, a luhi, a uakaha ka a-i, a me kona poe kanaka pu kekahi, oi noke wale o Mainele i ka lalau lima a aohe he loaa iki o na manu, a po wale ka lima o ka la, moe no ilaila a ao ae o ke ono ia o ka la, ike ae la o Mainele ua ao, hoomaka ae la ia e pii iluna o kahi ana e hopu ai i na manu, alaila pane mai la o Keawenuiaumi, "Aole au i upu i kau kaikamahine maikai a na ke kanaka akamai i ka hopu lima i kuu mau enemi, i upu au i kau mea maikai a na ke kanaka akamai i ka pana, e like hoi me oe e Mainele, wahi a ka poe i ike ia oe; a no kou lohe ana hoi ia oe he akamai lua ole i ka pana, hoouna aku ai au i kou mau hoe waa ponoi, me kou mau waa kapu, nou wale iho no, aole no hai; a ka inoa he akamai io oe, aole ka, hoi iho ilalo."

O ka hoi iho la no ia o Mainele me ka hilahila nui.
[Januari 13, 1866]

HELU 6.

E ka poe e heluhelu ana, ua ike ae la hoi kakou i ko Mainele akamai ole, a me kana mau olelo kaena e ana mamua, a me kona ku ana i ka leo a ke alii (Keawenuiaumi). A e olelo ae hoi kakou no ke keiki Pikoiaakaalala, a me Waiakea hoi kona kuleana o ka ua Kanilehua a me ke one o Ohele i Kanukuokamanu.

Ia Keawenuiaumi ma i pii ai iuka me Mainele, e like me ka mea i kii iai nona, a o Waiakea pu no hoi kekahi i na la a Mainele e pana ana, ma ke ao wale no nae, a ahiahi no hoi no o Waiakea i kai, oiai o kana aikane (Pikoiaakaalala) wale no ko ka hale, no ka mea, aohe he lana nui o kona manao i ka pii iuka e ike i ko Mainele pana ana, no ka mea hoi, ua maopopo no iaia, aohe e ku ana na manu ia Mainele, nolaila no ke kumu o ko

closer to the place where his enemy perched. Mainele then grasped for the birds with his hands, trying to catch them, but he could not, as the birds wouldn't come near the ladder, where Mainele was sitting. They left where they had originally perched through the days and nights that they had bothered the priest and the canoe carvers... Mainele was situated atop the place made for him, and the birds landed. Mainele then reached out to try and grab the birds, but he could in no way grab them. Mainele went after the birds, fighting as if they were a human enemy. The king, Keawenui-a-'Umi became wearied, and the necks of all gathered there became stiff and sore. Again, Mainele was unable to secure the birds, and the fifth night fell. They all slept and at daylight the sixth day, Mainele again climbed the ladder and tried to grab the birds. Keawenui-a-'Umi called out to him, "I did not think that I was going to give my pleasing daughter to a man who was smart at grabbing my enemies with his hands. I thought that my daughter was going to go to a man who was skilled with the bow, like I thought you were, Mainele. Everyone who told me of you said that you were second to none in your skill with the bow, thus I sent my paddlers and sacred canoes, reserved only for me, after you. But now I see that it is not so. Return down here."

Thus, Mainele returned down with great shame. [January 13, 1866]

Part 6.

So my readers, we have seen that Mainele was not so smart, as was declared by his boastful words spoken earlier, and in his rising up to the voice of the king (Keawenui-a-'Umi). Now let us speak again of our youth, Pikoiaaka-'alalā and of Waiākea, and his place in the Kanilehua rains, and the sands of 'Ohele at Kanukuokamanu.

When Keawenui-a-'Umi and his companions traveled to the uplands with Mainele, Waiākea, who had gone to fetch him was there as well. He stayed during certain days when Mainele was shooting at the birds, but in the evening, Waiākea returned to the shore where his friend (Pikoiaaka-'alalā) remained at the house. This was because he had no great desire to travel to the uplands to see Mainele's efforts at

Pikoiaalala noho ana i kai, a no ka hoonanea ia hoi kekahi e ke aheape makani he Malanai, a me ka hooholu maikai ia e ka lau o ka niu o Mokuola, a o kana mea loa ia e lealea loa ana; mai kona wa i hiki mai ai a hiki i ka manawa a kakou e lohe nei. A he mea mau no hoi i ke Kama Aliiwahine a ke Alii Kalani Keawenuiaumi i ka hele mau ana ma ko Waiakea hale, no ka mea hoi, ua kaomi mau ia kona kania-i e na lawalu manu ai-lehua i ka uka i Olaa, a me ka nahele o Panaewa. A na ia mea i kau-o holookoa mai i kona nui kino e hele mai i kahi o Waiakea, a no ka halawai ana o ke kionohi o ke kaikamahine alii me ke akawaiilula o Mana (Pikoiaalala) a no laila, ua loaa i ke kaikamahine alii ka haawina kaumaha o kona puuwai palupalu no Pikoiaalala...

A eono la o Keawenuiaumi iuka, a elima hoi po, a i ke ono hoi o ka la i olelo iae la, oia hoi ka la a Keawenuiaumi i pane aku ai ia Mainele a kakou i kuehu aku nei i kela Helu.

Pii hou aku la no o Waiakea e ike no i ka Mainele hana, a o kana hana mau iho la no ia o ka pii, a o ka Pikoiaalala mea mau no hoi ka ninau, "Pehea mai la na manu?" O ka hoole no hoi ka Waiakea hana, "Aohe he ku o na manu." A ia Waiakea i hiki aku ai iuka, ike aku la oia e kulou mai anao Mainele, aohe he ekemu iki, aohe hoi he kau mai ma kona wahi mau, oiai ua hala iho la na enemi o ke alii ia Mainele.

Nolaila, ninau ae la o Waiakea i ke alii, "No keaha hoi ka mea e kulou nei o Mainele, aohe hoi he ekumu iki, aohe hoi he pana mai i na manu?" "No ke akamai ole," wahi a Keawenuiaumi.

Alaila, pane aku la o Waiakea penei, oiai he wahi kahu iwikuamoo ponoia no ke alii; "E kuu Haku e; e aho paha e hoao hoi i kau wahi pana." "Aia i hea kau pana?" wahi a Keawenuiaumi. "Aia no hoi i kai o Hilo, i kou hale no ia e noho la." Ninau mai la o Keawenuiaumi, "Noheia ia kanaka?" "No Oahu mai no hoi," wahi a Waiakea. "Oia no hoi ka mea nana e pana na haawe manu au i amo aku ai i na la maka pehu ai o kakou la, au no hoi i ninau mai ai iau la," wahi a Waiakea.

shooting. He knew that Mainele would have no luck in striking the birds, thus Pikoi-a-ka-'alalā remained at the shore, relaxing in the soothing *Malanai* breeze which causes the fronds of the coconut trees of Mokuola to sway. This was his great pleasure, from the time of his arrival through that of which we have heard. The royal daughter of King Keawe-nui-a-'Umi (named Keakalaunani), also regularly went to the house of Waiākea, where she frequently ate the broiled birds that eat the *lehua* blossoms in the uplands of 'Ola'a and the forests of Pana'ewa. Thus this fair chiefess met with the youth of the red glistening waters of Mānā (Pikoi-a-ka-'alalā). The chiefess had grown heavy, with a softness in her heart for Pikoi-a-ka-'alalā...

Now, for six days and five nights, Keawe-nui-a-'Umi was in the uplands. It was on the sixth day the Keawe-nui-a-'Umi told Mainele, that which we read above.

Waiākea went again to the uplands to see what Mainele was doing, and when he returned, Pikoi-a-ka-'alalā would ask him, "How are the birds?" Waiākea would tell him, "The birds have not been struck." When Waiākea had gone to the uplands last, he saw Mainele standing with his head bent down, he had no answer, and no place to go at all, thus the enemies of the king had passed on to Mainele.

Waiākea then asked the King, "Why is Mainele standing there with his head bent down, with the least bit to say, did he not shoot the birds?" "No, because he did not have the skill," said Keawe-nui-a-'Umi.

Waiākea then spoke as a true retainer of the king, "My lord; perhaps you will try my friend with the bow." "Where is your bow-man?" Asked Keawe-nui-a-'Umi. "There at the shore of Hilo, at my house where I live." Keawe-nui-a-'Umi then asked, "Where is this man from?" "From O'ahu," said Waiākea. "He is the one who has shot the abundance of birds, which we ate until our eyes bulged. I will ask him," said Waiākea.

...Penei hoi o Waiakea i olelo ai, "He oi wale no kela keiki akamai nui wale, ia lakou nei i holo e mai ai (Mainele ma) ma na waa kaulua mai Oahu mai, hoi mai hoi au mai ka makaikai ana mai, a hiki mai au i kahi i kau ai na waa o makou, o kou wahi waa wale no ke kau ana, a e ku ana ua keiki la malaila, a iau e hoomakaukau ana i kuu wahi waa, ninau mai la ua keiki la, E holo ana kou waa a i hea? hai aku la au, "E hoi ana au i Hawaii, o makou hoi me ka waa kaulua, i kii mai nei ia Mainele, a eia ka hoi ua hala e aku nei." Alaila, olelo mai la kela iau, "O kaua hoi ha ke holo i ike au i kou aina o Hawaii." ae aku la au, ae, o ko ia la ee mai la no ia, a o ka holo mai la no ia o maua.

...Alaila, kena koke mai la o Keawenuiaumi, "O kii hoi ha," o ke kii mai la no ia o Waiakea a hiki ana, ia hiki anaku o Waiakea...olelo aku la o Waiakea, "I kii mai nei au ia oe e pii kaua iuka e panai oe i na enemi o kuu alii Keawenuiaumi, no kou ike ana ia oe no kou akamai lua ole i ka pana, nolaila, ua hai aku nei au i ke alii i na mea a pau au i ike ai nou, a oia ka mea i hoouna mai nei o Keawenuiaumi iau e kii mai ia oe, no ka mea, ua huhu loa ia o Mainele, a ua uluhua loa no hoi ke alii no ke ku ole o kona mau enemi."

Alaila, olelo mai la o Pikoiaakaalala, "He punahele no nae paha oe ia Keawenuiaumi?" "Ae," wahi a Waiakea. Alaila, i aku la o Pikoiaakaalala, "A i na he punahele io oe ea, E pii oe a olelo aku i poi nui, e hoopihia a piha pono i ka wai, a e lawe ae a malalo pono o ke kumu o ke koa, kahi a na manu e kau ai," he ae wale no ka Waiakea. "A eia hou, ina e ike oe ua hiki aku au, alaila, e paae oe me ka pauku laau i ko lima, a iau e ku ana ma kahi o ke poi wai a nanae iluna i kahi a na manu e kau mai ana."

HELU 7.

"A pau auanei kuu nana ana iluna i na manu la ea, alaila, e hahau iho oe i kekahia kanaka o Mainele ma, oiai elima ko lakou nui mai Oahu mai. A iau auanei e kilo ana ilalo i ke poi wai la ea, alaila, hahau no oe i kekahia kanaka; pela no oe e hahau ai a pau i ka make eha kanaka, a o Mainele hoi, e waiho oe ia ia, aia a ike mai oe iau e lena ana au i kuu kikoo, a heluhelu au i ke mele, a pau ia, hookuu au i kuu pua, a make na

Waiākea then said, "The knowledge and skill of this youth is above everyone else's. When we went on our journey to O'ahu (for Mainele and companions), and the double-hulled canoes, landed on O'ahu, when we came back from our journey on land, I saw this youth standing next to my canoe. And as I prepared my canoe, the youth asked me, "Where is your canoe off to?" And I answered, "I am returning to Hawai'i, all of us and the double-hulled canoes. We have fetched Mainele, and he has gone." He then said to me, "Let the two of us travel, so that I may see your land, Hawai'i." I agreed and he boarded the canoe, and we two traveled together.

Keawe-nui-a-'Umi then ordered, "Bring him here." So Waiākea went and fetched him. When Waiākea came to stand before his friend (Pikoi-a-ka-'alalā)... Waiākea said, "I have come to bring you to the uplands, that you may shoot the enemies of my king, Keawe-nui-a-'Umi, for I have seen your unsurpassed skill with the bow. Thus I told the king all that I had seen you do, and so he is the one who sent me to get you. He is very angry with Mainele, the king is very troubled that he did not strike down his enemies."

Pikoi-a-ka-'alalā then spoke, "Perhaps you are a favorite of Keawe-nui-a-'Umi?" "Yes," answered Waiākea. Pikoi-a-ka-'alalā then said, "If you are a true favorite, you must go up there and take a large container and fill it with water. Take it below the koa tree where the birds perch." Waiākea agreed to do so. "Here also, when you see that I have arrived, strike your hand with a piece of wood until I am standing at the place where the water container is set, and I am looking up to where the birds perch." [January 20, 1866]

Part 7.

"When I am finished looking above at the birds, you must strike down one of the men with Mainele folks, for there are five of them who have come from O'ahu. And then when I gaze into the water container, you must again strike down one of the men; and so it must be that you strike and kill four men, you must only leave Mainele. You will then see me string my bow, and I shall recite a chant. When I release

manu, alaila, hahau iho no oe ia Mainele, i hookahi kona make ana me na enemi mau o ke Alii; pela auanei oe e hanai, e like me kau olelo ia oe, ke punahele io hoi oe na ke ali'i."

O keia mau olelo a pau a Pikoiaakaalala i aoao ai ia Waiakea, he ae wale no ka Waiakea. A pau ko laua kamailio ana no keia mau mea i olelo ia; hoomaka koke iho la o Waiakea e kukini mama, e hai aku i kona Haku Alii i na mea a pau a kana pana akamai, ana i kaena e ai imua o ke ali'i nona ka enemi mau o na manu.

Ia Waiakea i pii ai, oia aku no mamua o ka pii ana, mahope wali aku no o Pikoiaakaalala, o kona kumu hoi i emi hope ai, no ka walea i ke kui lei lehua mamo ai a ka manu, a me kona hoonaue pu ana aku kekahi me ka ua i Hilo one, (Keakalaulani) ia Waiakea e ahai ana i na huaolelo i haiia iaia, aole no hoi oia i ike mai i ka Pikoiaakaalala ma hoonaue ana mai mahope. A hiki e o Waiakea i kahi a ke ali'i Keawenuiaumi e noho ana, ma Kalehuapueo, a o Pikoiaakaalala ma aku no hoi a Makaulele, ike aku la o Pikoiaakaalala i ka popohe maikai mai a ka lehua ula me ka lehua kea, olelo ae la ia i ke Kama Alii Wahine, "Ina paha e ike au i ke kui ana o ka lei lehua, ina la wau ua hele e kui i lei no kaua," pane mai la ke Kama Alii Wahine opio, "Owau no kai ike, nau no e kui aku i lei nou, a paa ko lei, pii hoi oe, a hoi no hoi au a Alenoho, kakali o ka huikau o na manu i ka pua o ka lehua."

O ke kui iho la no ia o Keakalaulani a lawa na lei lehua eha. O ke kui ana a ua Kama Alii Wahine opio la i na lei lehua eha, i pauku ia ka lehua ula me ka lehua kea, a hoolei aku la no hoi o Keakalaulani ia Pikoiaakaalala i na lei; a no ke kokolo waianuhea ana mai a ke aheape makani mailoko mai o ka ululaau, a o ka laua mea hoi ia e nanea ana ma ia wahi, me ko laua manao e kali ia Waiakea a kii hou mai. Ia ia i kuehu pau mai ai ka lau o ka palai noho uka a me ka maile laulili'i i ko lakou onaona, a he mea oluolu loa i ko ke Alii Wahine manao.

A ia Waiakea hoi i hoea aku ai oia wale no, aole hoi ka mea ana i kii hou ai (Pikoiaakaalala.) Ninau mai la o Keawenuiaumi, "Auhea la hoi ke keiki

my arrow, the birds shall be killed. Then you will kill Mainele, thus his death shall come at the time of the death of the enemies of the King. These are the things that you must do, as I have instructed, then you will become the true favorite one of the king."

All of the instructions given by Pikoia-ka-'alalā to Waiākea, Waiākea agreed to. When they finished their conversation, Waiākea swiftly ran back to tell the King all about the skilled one with the bow, and what had been said about the one who had boasted before the king and the despised birds.

While Waiākea was going to the uplands, Pikoia-ka-'alalā was slowly following behind. The reason being that he was enjoying himself, making garlands of the *lehua mamo* blossoms, food of the *mamo* birds, and traveling with Keakalaulani, who was like the rains of *Hilo One*. Waiākea followed the instructions given him, but he did not know that Pikoia-ka-'alalā them, were following behind. When Waiākea arrived before the King, Keawe-nui-a-'Umi, who was then dwelling at Kalehuapueo, Pikoia-ka-'alalā them were at Makaulele, where they saw the perfect fullness of the *lehua* blossoms—red *lehua* and white *lehua*. He said to the Chiefess, "If only I knew how to string a *lei* of these *lehua* blossoms, I would make a *lei* for us two." The Chiefess answered, "I am one who knows how, let me make a *lei* for you. And when you go to the uplands, I will return and wait at 'Alenoho, waiting with tumult of the birds on the *lehua* blossoms.

Keakalaulani then made four perfect garlands of *lehua*. The four *lehua* garlands made by the young chiefess, were made in sections of red *lehua* blossoms and white *lehua* blossoms, with which she adorned Pikoia-ka-'alalā; the cool moist breeze caressed the forest, they two relaxed and awaited the return of Waiākea. They then thought to go gather the *palai* of the uplands and the *maile lauli'i*, for their fragrance was something that gave comfort to the thoughts of the Chiefess.

Now when Waiākea returned, he was by himself, the one whom he had gone to fetch, (Pikoia-ka-'alalā) was not with him. Keawe-

akamai i ka pana, au i olelo iho nei iau, a o ka makou ia e kali aku nei?" Olelo aku la no hoi o Waiākea, "Ei ae no mahope mai, i pii e mai nei au mamua nei e olelo aku ia oe, a ina oe e ae mai alaila, e olelo aku au?" "Pehea ia olelo au e ae aku ai au?" Alaila, hoopuka mai la o Keawenuiaumi i kona manao penei: "Ua ike no oukou a pau i kau mau mea i hooko ai no ka poe a pau i na mai e pio kou mau enemi manu; a ma ka lakou mau olelo wale no au e hooko aku ai; o kau mau olelo no hoi a pau au e olelo mai nei no kau akamai, pela no au e hooko aku ai." A pau ka olelo ana a ke alii, hoomakaukau ia iho la na mea a pau i oleloia. Hoopiha ia iho la kekahī poi nui a piha i ka wai, hapaiaaku la a ke kumu o ke koa. A ike iho la o Waiākea ua hooko ia kona mau olelo a pau e kona Haku.

Alaila, ua kii aku la o Waiākea ia Pikoiaakaalala, a loaa no iaia e pukukui ana no i ke anu a ka ua lililehua o Makaulele. "O oe mai la ia?" wahi a Pikoiaakaalala. "Owau keia o Waiākea o kau aikane aloha, i kii hou mai nei au ia oe, ua ae mai nei kuu Haku i na mea a pau au i kena mai ai iau e pii e mamua, a o ia hoi au i holo hou mai nei ia oe." "Ina kaua," wahi a Pikoiaakaalala o ka pii aku la no ia o laua (Pikoiaakaalala ma), a hoi no hoi o Keakalaulani ma me kona wahi kahu wahine i kai o Hilo.

Ia Pikoiaakaalala ma i hiki aku ai ma kekahī oioina, o Mahinaakaaka ka inoa, aia no kela wahi ma ke alanui e pii ana i Olaa. Ilaila, ike aku la o Pikoiaakaalala i kekahī iole nui, pane aku la ia ia Waiākea, "Ka iole nui hoi!" "Aia i hea?" wahi a Waiākea, "Ei aku mamua o kaua, ua hele ka nuku a paa i ka pulu hapuu." O ka pana aku la no ia o Pikoiaakaalala, ku no ua iole nei, o Akiakaiole, a ua pana ia no ia wahi o Akiakaiole, aia no ma Olaa. Mahope aku no hoi laua nei, a ike iho la o Waiākea i keia iole nui io e waiho ana. A pii aku la no laua nei a hiki i Kapueuhi, malaila no ko laua komo anaku, no ka mea, o ke alanui no ia e pii ai a hiki i kahua kalaiwaa o ke alii Keawenuiaumi, oia hoi o Kalehuapueo.

A hiki aku la laua nei i kahi i oleloia ae nei, pihoihoi nui mai la ka ahakanaka me na huaolelo ma ko lakou waha, "Eia ua pana akamai loa la! A pela mau ka ka aha olelo, a no ka hooho nui ana o na kanaka, oiai e noho ana no o Mainele ia Kepookulou, a i kee anae iluna, ike aku la ia ia

nui-a-'Umi asked, "Where is the youth that is skilled with the bow of whom you told me, and for whom we wait?" Waiākea answered, "He is following behind, I came to the uplands first to speak with you." "What are the words that you wish to speak?" "What do you think of these words that I have spoken to you?" Keawe-nui-a-'Umi the spoke his thoughts, "All of you know the things that I have done for the one who would extinguish my enemies. And it was only by their saying it, that I fulfilled the needs. Now, all that you have said, from your skilled one, so I shall fulfill his instructions." When the king finished speaking, all things that were instructed were prepared. A large container was filled with water and carried to the koa tree. Waiākea saw that all that he had spoken to his Lord had been accomplished.

Then Waiākea went to fetch Pikoi-a-ka-'alalā , and found him there in the cold misty rains of Makaulele. "So it is you?" said Pikoi-a-ka-'alalā. "It is I, your friend," said Waiākea, "Come to fetch you, for my Lord had agreed to all that you said, before I went up. And now I have come for you." Pikoi-a-ka-'alalā said "It is for us." So they two made preparations to go to the uplands. Keakalaulani and her female attendant returned to the shore of Hilo.

Pikoi-a-ka-'alalā and his companion arrived at a trailside resting place known by the name of Mahina'akaaka; that place is along the trail that ascends to 'Ōla'a. There, Pikoi-a-ka-'alalā saw a very large 'iole, he told Waiākea, "What a large 'iole!" "Where?" "There in front of us. The snout is held fast in the pulu of the hāpu'u." Pikoi-a-ka-'alalā then shot, and struck the 'iole named 'Aki'akia'iole. 'Aki'akia'iole is now one of the storied places in 'Ōla'a. Afterwards, Waiākea saw the great 'iole left there. They then continued upland till they reached Kapueuhi; they entered there because the trail rises up to the clearing of the canoe makers of the king, Keawe-nui-a-'Umi, that is Kalehuapueo.

They then arrived at the place spoken of above, and the people were greatly excited, and the words from their mouths were "So here is the expert with the pana!" Such were the words and murmuring of the people. Meanwhile, Mainele was sitting with his head

Pikoiaalala ma e pii mai ana, a i kona ike ana o ke keiki no a laua i pana ai i Kulaokahua, a i mua hoi o Kakuihewa, manao maopopo loa iho la ia, me ka olelo ae i kona mau hoa eha, "E make ana paha kakou," "I ke aha hoi?" wahi a kona mau hoa. O ke keiki no hoi keia a maua i pana ai iloko o ka hale o Kakuihewa i Oahu." Kai no paha he keiki e keia i olelo iae nei...

A ma ia wa i hoolii ia iho ai ko Mainele naau e ka ukana kaumaha he hilahila, me ka manao no nae hoi, o ka hilahila wale no ke loaa iaia, aole la hoi o ka make pu kekahi e hana ia nona. A ku o Pikoiaalala ma ke kumu o ke koa, kahi hoi a ke poi wai e ku ana, ka laau hoi a na manu e kau mau ai, nanae la ia iluna, a ike ae la i na manu e kau ana i ka wekiu, oiai ua hookoele e iaku mamua, i mea e lohe ole ai ka mea kaulana i ka pana; a ike lea ae la o Pikoiaalala i na manu, hoi iho la kona mau maka ilalo i ke poiwai hoomanao ae la o Waiakea i kona kauoha, hapai ae la i kana laau, a hahau iho la i kekahi kanaka o Mainele, a make loa, ka Pikoiaalala no ke kilo i ke poi wai, o ka Waiakea hana no hoi ka pepehi i kanaka o Mainele, a pau eha kanaka i ka make, a o Mainele aku no hoi ka hope, aia a heluhelu ae o Pikoiaalala i kana mele mau, alaila, o ko Mainele wa ia e make ai ia Waiakea. A ma ia wa no, hoomaka iho la o Pikoiaalala e lena i kana kikoo, me ka nana no nae o na maka ilalo i ke poiwai.

Heluhelu ae la ia i kana wahi mele mau. Penei no ia:

"Aia la, aia la o Pikoiaalala,
O Alala no ka makuakane,
O Koukou no ka makuahine,
Hanau o Kikookalani,
O Kikookahonua,
O Kikookamauna,
O Kikookamoana,
O Kikookapo,
O Kikookeao,
O Kapunanui,
O Kapunaiki,
O Ke-i,
O Ke-hamau,
Hamau - Aia ka hoi ua manu iluna,
Eia hoi au ilalo nei,
E lele ae oe e kuu pua,
O ka a-i o kela manu,

hung down, as Pikoi-a-ka-'alalā and his companion drew near. Then he knew that this was the youth with whom he had competed in the sport of *pana* at Kulaokahu'a (O'ahu), before the king, Kakuihewa. He then knew, and told his four companions, "We are going to die." Why?" they asked. "This is the youth that we competed with in the sport of *pana* at the house of Kakuihewa, at O'ahu." "Perhaps this is a different youth," they said.

Then Mainele's very core trembled with sadness and the burden of shame, knowing that only shame would be had by him; he did not know that death would be the result of his deeds. Pikoi-a-ka-'alalā stood at the *koa* tree, where the water container had been set, and below the branch where the birds regularly perched. He looked up and saw the birds perched at the very top of the tree. He then caused the tapping of the wood to begin, so that the sound of the bow of this famous one would not be heard. Pikoi-a-ka-'alalā rejoiced at seeing the birds, and then looked down into the water container. Waiākea then remembered what he had been instructed, and took up his club and struck and killed the first of the men who had accompanied Mainele; and so he killed all four of the men. Only Mainele remained. Then Pikoi-a-ka-'alalā began his chant, and that was the time that Mainele was to die. At the same time, Pikoi-a-ka-'alalā began to string his bow, while his eyes were looking down into the water container.

He recounted his mele, thus:

"Behold, there is Pikoi-a-ka-'alalā,
'Alalā is the father,
Koukou is the mother,
Born was Kīko'okalani
(Expanse of the heavens),
Expanse of the earth,
Expanse of the mountain,
Expanse of the sea,
Expanse of the night,
Expanse of the light,
Of the large spring,
Of the little spring,
That which is spoken,
That which is silent,
Silence, there are the birds above,
And here I am below,
Let you fly my arrow,

*O ka a-i o keia manu,
Huihui a kahi hookahi."*

O ka hookuu aku la no ia o Pikoiaakaalala i kana pua, oia kolili no a ku ana na a-i o a na manu a elua; i ka pua no ana a lele, o ka manawa koke iho la no ia o Pikoiaakaalala i holo ai i kai, me kona ike ole aku i ke ku ana o na manu. Uwa nui ae la ka pihe kanaka, me ka hooho ana; "a make ka manu e!" A pela mau aku no ka ikuwa hauwalaau ana o nali'i me na kanaka.

A o Pikoiaakaalala hoi, aia kela ke holo kiki la i kai, me kona manao no, aole e ku ana iaia na manu, no ka mea, he mau manu akamai loa i ka alo ana i ka pua. Eia ka auanei ua ku aku la no, a no ke ku ana ka ka mea e uwa nui ia mai nei mahope. A iaia i akakuu iki iho ai kona holo ana, ua komo aku la nae keia i ka nahele loloa o Panaewa; halulu ana hoi o Waiakea ma-hope ona, a alawa ae la ia, o Waiakea no; ninau ae la o Pikoiaakaalala, "Pehe na manu, ua ku nae paha?" "Ae, ua ku," wahi a Waiakea. "A heaha hoi kou mea i holo mai nei?" "No kou manao no aole i ku na manu..." "E hoi hou kaua," wahi a Waiakea, o ka hoi hou aku la no o laua nei a hiki i kahi o ka luahi a kana pua, o na enemi mau hoi o Keawenuiaumi."

Ku kohana iho la o Pikoiaakaalala imua o ke ali'i, nona na enemi e waiho ana i ka make. la wa, hoike ae la oia i kona inoa, a me kona akamai nui, penei no ia:

"O kuu mea i upu ai, o ka mea e make ai o kou mau enemi, alaila, e lilo kau kaikamahine i wahine hoao nana, a e hooiliaku no hoi au i kou Noho Alii maluna ona, oiai hoi, o oe ae nei ke akamai lua ole, nana i pale ae nei i ka mea uluhua a kou naau, e enemi mau ai i ke Kau me ka Hooilo, o ka noho ana o nei aina, me ka lana nui o kou manao, e lilo i keiki oe nau, a owau hoi kou makua, a o Hawaii nei ka Moku noho ia, o luna, o lalo, o uka, o kai, o ke kanaka nui, o ke kanaka iki, a hale nui, a hale iki, ua pau a me oe. A o kuu Kama Lei aloha he kaikamahine, o ka mea ia nana e hoopumehana kou poli o na po ua lanipili o ua wahi nei" (Hilohanakahi).

The target is that bird,
The target is that bird,
Joined together as one."

Pikoi-a-ka-'alalā then released his arrow, it twirled and struck the two birds; the moment the arrow flew, Pikoi-a-ka-'alalā immediately departed for the lowlands, not knowing whether or not he had hit the birds. There was a great roar from the people there, calling out, "The birds are dead!" And such was the din of the voices of the chiefs and people.

Now Pikoi-a-ka-'alalā had arrived at the shore, not knowing if he had killed the birds or not; for the two birds were extremely clever at dodging the arrows. But he had hit them, and that was the reason for the great cry rising behind him. So he slowed down his pace, and entered into the dense forest of Pana'ewa. Waiākea was noisily following him, and saw him. Pikoi-a-ka-'alalā asked Waiākea, "How are the birds, were they hit?" Waiākea said, "Yes." "And why have you followed me?" Because at first I thought that perhaps the birds had not been hit..." Waiākea then said, "Let us two return to the place where the arrow struck the enemies of Keawe-nui-a-'Umi."

Pikoi-a-ka-'alalā stood alone before the king, and the dead enemies were there on the side. At the time he revealed his name to the king, his great skill was known, the king spoke thus:

"My desire was that my enemies be killed, and to the one who succeeded, would be wed to my daughter, and also inherit my kingdom. Therefore, because you have unsurpassed knowledge, and have protected me from my enemies—those who caused me grief summer and winter, in the dwelling upon this land—it is with great hope that you will become a son to me, and I will be your father. Hawai'i will be the Island upon which you dwell—above, below, from the uplands to the sea; the great men, the little men; the great houses, the little houses, all are for you. And my cherished daughter, a beloved lei, is the one who will warm your breast on the rainy nights of this place here" (Hilo Hanakāhi).

A pau na olelo a ke alii, o ka hoi iho la no ia o ke alii me na makaainana a pau, a halihali pu ia o Mainele me na manu i kai o Hilo, a kau ia i ka Heiau i Poo, aia no kela wahi ma Hilo one, a malaila pu o Kanukuokamanu, o ka nuku no ia o ua mau manu la... [launari 27, 1866]

When the king finished speaking, he, all the chiefs and people, and those carrying Mainele and the birds, returned to the shore of Hilo. Mainele was placed on the Temple at Po'o; that place is there on *Hilo One*, at Kanukuokamanu; and it is named for the *nuku* (beaks) of those birds... [January 27, 1866]

Another indication of the traditional importance of resources in the lands of 'Ōla'a and Waiākea is found in the writings of native historian, John Papa I'i (1959). I'i reported that following the death of Kalani'ōpu'u in 1782, the island of Hawai'i was to have been ruled by Kīwala'ō, Kalani'ōpu'u's son, while the gods and *heiau* were to be cared for by Kamehameha I. Disagreements arose over the division and redistribution of lands following Kalani'ōpu'u's death. I'i reported that while the division of lands to be made by Kīwala'ō was being discussed, his half-brother, Keōua, was told by one of his advisers:

"...Perhaps you should go to the chief and ask that these lands be given to us. Let Waiakea and Keaau be the container from whence our food is to come and Olaa the lid⁵." Keoua did so, but the other Kau chiefs objected to this and spoke disparagingly to him. When Keoua returned, his advisor asked, "How was your venture?" When Keoua told him all that had been said, the man remarked seriously, "A break in a gourd container can be mended by patching, but a break in the land cannot be mended that way..." (I'i 1959:14)

Kū-ka-'ōhi'a-Laka

The tradition of Kū-ka-'ōhi'a-Laka dates from the period of settlement of these islands, when the gods themselves took human forms and resided upon the land. It is recorded that the gods Kū-ka-'ōhi'a-Laka and his sister Ka-ua-kuahiwi came from Kahiki (the ancestral home land) to Hawai'i, and settled at Kea'au and 'Ōla'a, Puna. Kū-ka-'ōhi'a-Laka (Kū) and his wife resided near the shore at Kea'au, and Ka-ua-kuahiwi, her husband and children lived upland in 'Ōla'a. Kū's wife was stingy, and at one time denied Ka-ua-kuahiwi and her family fish that Kū had caught. Out of desperation, Ka-ua-kuahiwi turned her husband and children into rats, and turned herself into a spring of water. When Kū learned of this occurrence, he went to the spring and turned himself into an 'ōhi'a tree (cf. Green and Pukui 1995:19-20; and Beckwith 1970). This 'ōhi'a tree was known as a supernatural tree and the spring and tree were one of the *wahi pana* (special storied places) along the ancient trail leading to and from the volcano area in 'Ōla'a. The location of Kū-ka-'ōhi'a-Laka was near the 13 mile marker of the old Volcano Road (pers comm. M.K. Pukui, 1976).

Ka U'i Keamalu (Keamalu the Beauty)

There once lived at Paliuli, an upland region of 'Ōla'a, a beautiful chiefess named Keamalu. Keamalu was raised in the seclusion of the forests by her supernatural elders, and until she matured, she was never seen by anyone. A spring in 'Ōla'a is named Pūnāwai o Keamalu, and it was there, that the chiefess went to bathe. One day while at Pūnāwai o Keamalu, a young man came upon her, and he was so taken by her beauty that he asked her to become his wife. She refused, but he would not leave her, and her bird guardians took her away on their wings. Word of Keamalu's beauty went throughout Puna, and the young man's sweetheart, the beautiful Kalehua'ula and her parents spoke disparagingly about Keamalu. Keamalu's guardians were angered by the comments, and a contest was arranged so that all the people of Puna could see and compare the two beauties. Keamalu, adorned with *maile* and *lehua kea* (white blossomed *lehua*), with *i'iwi* flying over her, won the contest.

⁵ The reference to 'Ōla'a as the "lid," may be taken to imply that the fine resources of bird feathers, *olonā* fiber for cordage, and the famous *kapa* (bark cloth) called 'ō'ū-holo-wai-o-La'a were the wealth which covered the needs of the chiefs.

She and the young man were married, and they lived at Paliuli. "As for the spring of Keamalu, it was hidden and is shown to very few people" (Green and Pukui, 1995:32-33).

"Kaaō Hooniua Puuwai no Ka-Miki" (The Heart Stirring Story of Ma-Miki)

Perhaps one of the most detailed native traditions which includes rich accounts of place names and traditional practices associated with the Puna-Hilo forest lands, and associated *ahupua'a*, is the historical account titled "Kaaō Hooniua Puuwai no Ka-Miki" (The Heart Stirring Tale of Ka-Miki). The story of Ka-Miki was published in the Hawaiian language newspaper *Ka Hoku o Hawaii* (1914-1917). It is a long and complex account that was recorded for the paper by Hawaiian historians John Wise and J.W.H.I. Kihe (translators of the work of A. Fornander), with contributions from others of their peers. While "Ka-Miki" is not an entirely ancient account, the authors used a mixture of traditions, local stories, tales, and family traditions in association with place names to tie together fragments of site specific history that had been handed down over the generations.

The complete narrative include historical accounts of more than 800 place names (many personified, commemorating particular individuals) around the island of Hawai'i. While the personification of individuals and their associated place names may not be entirely "ancient," such place name-person accounts are common throughout Hawaiian and Polynesian traditions. The selected narratives below, are excerpted from various sections of the tradition, and provide readers with descriptions of the land, resources, areas of residence, and practices of the native residents, as handed down by *kama'āina* (those familiar with the land). Of particular interest, specific documentation is given pertaining to the practice of bird catchers, the nature of weather patterns, and the naming of many places on the mountain landscape.

The English translations below (translated by Maly), are a synopsis of the Hawaiian texts, with emphasis on the main events of the original narratives. Also, when the meaning was clear, diacritical marks have been added to help with pronunciation of the Hawaiian place names and words.

This *mo'olelo* is set in the 1300s (by association with the chief Pili-a-Ka'aiea), and is an account of two supernatural brothers, Ka-Miki (The quick, or adept, one) and Maka-'iole (Rat [squinting] eyes). The narratives describe the birth of the brothers, their upbringing, and their journey around the island of Hawai'i along the ancient *ala loa* and *ala hele* (trails and paths) that encircled the island. During their journey, the brothers competed alongside the trails they traveled, and in famed *kahua* (contest fields) and royal courts, against 'ōlohe (experts skilled in fighting or in other competitions, such as running, fishing, debating, or solving riddles, that were practiced by the ancient Hawaiians). They also challenged priests whose dishonorable conduct offended the gods of ancient Hawai'i.

Ka-Miki and Maka-'iole were empowered by their ancestress *Ka-uluhe-nui-hihi-kolo-i-uka* (The great entangled growth of *uluhe* fern which spreads across the uplands), who was one of the myriad of body forms of the goddess *Haumea*, one of the creative forces of nature—also called *Papa* or *Hina*—who was also a goddess of priests and competitors.

Pōhaku-loa (Long stone) The boundary point between Keauhou, Waiākea and 'Ōla'a.

Pōhakuloa was a deity of the forest lands which extended across Mauna Loa towards Mauna Kea, and he was called upon by canoe makers. In his human form, Pōhakuloa was an 'ōlohe expert and wood worker.

When Ka-Miki and Maka-'iole left 'Uwēkahuna *mā* (and companions) at Kīlauea, they traveled into the upland section of the district of Puna. Hearing the striking sounds of

ko'i pōhaku pāhoa (large adze against wood), the brothers thought that perhaps canoe makers were working nearby. As they approached the source of the sounds, Ka-Miki and Maka-'iole saw a large round house, of the type with a high pitched roof (*pū'o'a*). And at the center of the house a man was working on a *koa* log which was seven fathoms long and three feet in diameter. [September 16, 1915]

Working intently, this man was startled at hearing a voice call to him, thus he stopped his carving. Ka-Miki then asked, "Is this the path by which one would travel to Kea'au?" Angered at being interrupted, Pōhakuloa responded, "Don't you know the direction of the path upon which you two travel? If you just go straight on you will reach Kea'au." He then went on to say, "My job is not to stand here directing travelers along the trails."

Ka-Miki told Pōhakuloa, "We only asked because we thought that you were a man like us, had we known you were one of the — *Pahulu ke akua 'āhuluhulu o ka mauna* (Ghoulish broad adze gods of the mountain), we would not have bothered you."

Ka-Miki and Pōhakuloa exchanged taunts, and Pōhakuloa threatened to throw Ka-Miki and Maka-'iole into a deep pit. Ka-Miki then told Pōhakuloa, "It is unlikely that you could beat *Nana-i-ke-kihi* and *Kahuelo-ku*. It was more likely that the great grandchildren of *Ka-uluhe* and *Lani-nui-ku'i-a-mamao-loa* will bind you like a pig, and leave you along the *ala loa* for travelers to see."

Angered, Pōhakuloa leapt to attack Ka-Miki, and was immediately bound, unable to move. Though he tried with all his might and skill, Pōhakuloa was unable to free himself. Ka-Miki called out to Pōhakuloa —

Pa'a loa e Pōhakuloa. Pa'a i ka 'alihi o Kanikawī ke kōkō aīwaiwa a ku'u mau kūpuna wahine... Pa'a 'oe i ke kāwelewele o Halekumuka'aha ka 'upena ku'u a ka nananana, o Kai-halulu ia, o ku'i a holo, pi'i a noho, pupu'u a moe mālie, kau i ke Kōkī o Wailau...

Pōhakuloa is secured. Bound in the lines of *Kanikawī*, the mysterious net of my female ancestors... You are bound in the ropes of *Halekumuka'aha*, in the net set down by the spider, and though thrashing about like the sea of Kaihalulu, which strikes and runs, which rises and recedes, which mounds up and lies calm, you cannot escape, for you are placed like the shrimp at Kōkī, Wailau (Moloka'i)...

...Pōhakuloa realized that these young travelers were no ordinary people, but that they traveled with the gods, deities and guardians of the 'ōlohe, and he surrendered, acknowledging the skill and nature of Ka-Miki and Maka-'iole. Pōhakuloa also promised that from then on, he would use his knowledge wisely.

Pōhakuloa then went to his brother-in-law, Kapu'euhi, to ask his assistance in preparing food and 'awa for Ka-Miki and Maka-'iole. Kapu'euhi laughed upon hearing Pōhakuloa's story and planned to show up Pōhakuloa, by tricking and defeating Ka-Miki and Maka-'iole [September 23, 1915].

Kapu'euhi lost and vowed revenge, but Pōhakuloa remained true to his word of friendship, refusing to assist Kapu'euhi. Kapu'euhi then went to Kaniahiku to enlist her assistance [October 14, 1915].

Ka-pu'e-ahi (The yam planting mound).

The lands of Kapu'euhi, in the upper forests of Kali'u, at 'Ōla'a, were named for the 'ōlohe chief, Kapu'euhi.

Kapu'euhi went to get Ka-Miki and Maka-'iole from Pōhakuloa's compound and invited them to his house for 'awa and food. Kapu'euhi challenged Ka-Miki and Maka-'iole to drink five cups of 'awa, stating that if they were unable to drink that amount, he would throw them out of his house. Now this type of 'awa, the 'awa kau lā'au ('awa planted by the birds on tree branches) was very powerful, and few people could drink large quantities. Thus, many people were thrown from Kapu'euhi's compound and left to wonder drunk and lost in the forest. This practice of Kapu'euhi's was the source of the saying — "Lilo i Puna i ke au a ka hewahewa!" (Lost in Puna in a time of demented thoughts—drunkenness; descriptive of aimless wandering, or senseless work!).

Ka-Miki accepted the challenge, but stated that if they won, they would throw Kapu'euhi out of his compound. Ka-Miki then offered an 'awa prayer chant to *Ka-uluhe, Haumea*, and their associated god forms:

<i>Iā Kumakua-moe-awarea</i>	To (the deity) Kumakua [tall <i>lehua</i> which reclines in the afternoon sun]
<i>Iā 'Ōhi'a-nui-moe-awarea</i>	To 'Ōhi'a-nui [great 'ōhi'a which reclines in the afternoon sun]
<i>I nā Wahine-moe-awarea</i>	The women who sleep in the midday sun
<i>Iā Ka-'ohu-kolo-mai-iluna-o-ka-lā'au</i>	To the mist which creeps atop the forest
<i>Iā Ka-uluhe-nui-hihi-kolo-i-uka...</i>	To Ka-uluhe the great entangled <i>uluhe</i> fern growth of the uplands...
<i>Iā Hai-uli wahine o Mākea</i>	To Hai-uli wife of Mākea
<i>O Kamehanalani, O Kāmeha'ikana</i>	Who is also called Kamehanalani, or Kāmeha'ikana,
<i>O Haumea, O Haumea-nui-a-ke-aīwaiwa.</i>	It is Haumea, great mysterious Haumea.

Hearing Ka-Miki's prayer, his deified ancestresses responded, and *Ka-'ohu-kolo-mai-iluna-o-ka-lā'au* caused a mist to envelope Kapu'euhi's compound, and its' foundation was rocked by the strong winds, the 'ōhi'a, *kōlea*, *kāwa'u*, *kōpiko*, 'ama'u, and *koa* were all broken in the winds that blew. [September 30, 1915]

Ka-Miki and Maka-'iole drank all the 'awa and Kapu'euhi was startled at the strength of the two young strangers. Kapu'euhi tried to back out of his earlier challenge, but Ka-Miki would not release him from the arrangement, thus Kapu'euhi had to fetch more 'awa for Ka-Miki and Maka-'iole.

Now Kapu'euhi lived near the spring of Wai-uli. His compound consisted of several houses, and in one guest house he killed many travelers while they slept. He placed his compound near the *ala loa* which ran from Pana'ewa through 'Ōla'a, into coastal Puna and on to Ka'ū. Kapu'euhi's regular practice was get travelers drunk on 'awa. Once the travelers were asleep, Kapu'euhi would play a *hōkiokio* (gourd nose flute) to call his assistants who were hiding in another one of his houses. They would kill the guests and take their valuables; *kapa*, finely woven mats, feathers, and *olonā*... [October 7, 1915]

Unable to get Ka-Miki and Maka-'iole drunk, and angered that Ka-Miki discerned his true nature, Kapu'euhi leapt to attack Ka-Miki and was quickly beaten and thrown out of his compound onto the *ala loa*. Kapu'euhi was startled at his quick defeat, and he feigned friendship with Ka-Miki and Maka-'iole. Ka-Miki told Kapu'euhi that to live, he and his companions would need to give up their waylaying of travelers. Kapu'euhi asked for three days to consider, Ka-Miki agreed.

Kapu'euhi then began to plot for revenge, Pōhakuloa refused to help, so Kapu'euhi went to enlist the aid of the most feared 'ōlohe of Puna's forests; Kaniahiku and her

grandson, Keahialaka. Kaniahiku and her god Kūlilikaua were guardians of the forests of Kali‘u and Malama, damaging the forest greatly angered them. Many people died while traveling in the forests, carelessly breaking plants or loudly calling out, disturbing the silence.

Kaniahiku told Kapu‘euhi to tell Ka-Miki and Maka-‘iole that the guardians of the ‘awa grove had nearly killed him while he gathered the ‘awa. She then told Kapu‘euhi to take Ka-Miki and Maka-‘iole to the ‘awa grove of Mauānuikananuha, where she would cause them to get lost and die. This happened to many who traveled through the Puna forests. And once lost in the forest, there was no way out. Calling out in the forest caused an echo which sounded like a person calling, but following the echo led one deeper into the forest, and this is the reason that the famous saying of Puna came about. Travelers through the forest were warned —

E nihi e ka hele mai ho‘opā, mai pūlale i ka ‘ike a ka maka o ako hewa i ka nui o ka lehua, a ho‘opuni ‘ia e ka ‘ino! (Travel cautiously, being careful not to touch the *lehua*, don’t rush to see things lest you mistakenly break something and the many *lehua* become offended, causing you to become surrounded by a storm!) [October 21, 1915]

Following Kaniahiku’s instructions, Kapu‘euhi led Ka-Miki and Maka-‘iole deep into the forest of Kali‘u, under the pretext of taking them to the ‘awa grove of Mauānuikananuha. Wandering to and fro, Kapu‘euhi secretly broke *lehua*, ‘ōheo, and *kupali‘i* plants as a sign to Kaniahiku of their whereabouts in the forest. Kaniahiku then caused the mist rains and forest envelope Ka-Miki and Maka-‘iole. Kapu‘euhi then abandoned them, and was led to safety by ‘Akialoa, Kaniahiku’s dual-formed sister.

Kaniahiku then caused a heavy mist to settle upon them and the forest. The plants also grew in tangled mats, blocking the trail from sight. Ka-Miki and Maka-‘iole called upon the deity forms of *Ka-uluhe* and her god companions to assist them —

<i>Lani-pipili, Lani-‘oaka,</i>	Clinging and flashing heavens*
<i>Lani-ki‘ei, Lani-hālō,</i>	Peering and peeking gods
<i>Lani-kilo, Lani-papanu‘u,</i>	Divining and highest gods
<i>Lani-ka‘ahele, Lani-hāko‘i,</i>	Traveling and agitated gods
<i>Lani-mamao,</i>	God who clears (the heavens),
<i>Lani-Uli-wahine o Nu‘umealani</i>	Uli-wahine of Nu‘umealani
<i>Ia Haumea!</i>	Oh Haumea!
<i>Ia Haumea-nui-a ke aīwaiwa...</i>	Great mysterious Haumea...

Thus the darkening of the sun was ended, *Ka-‘ōnohi-o-ka-lā* caused the mists to recede, and the forest growth withdrew before Ka-Miki and Maka-‘iole, and was scattered as a pathway for their feet. As the forest receded, an ‘auwai [the name of a wet forest trail] was formed by *Ka-uluhe* and she led Ka-Miki *mā* to the sacred ‘awa plantation of Mauānuikananuha and Kūlilikaua.

Seeing that Ka-Miki and Maka-‘iole had escaped from her efforts at killing them in the forest, Kaniahiku sent her sister, who possessed the form of an ‘Akialoa (*Hemignathus munroi*) bird to have Mauānuikananuha and Kūlilikaua carry the ‘awa to her compound and hide in her house, where an altar was prepared. Ka-Miki and Maka-‘iole reached Mauānuikananuha before the instructions could be carried out, and Ka-Miki and Maka-‘iole climbed upon the tree-form of the god. Kaniahiku then called to

* These are all names of gods and goddesses of the forests and weather phenomena.

Mauānuikananuha to extend its' body high into the sky, and then fall to the forest, thinking this would kill Ka-Miki and Maka-'iole. *Ka-uluhe* caused forest growth to cover Mauānuikananuha, and thus this plan was thwarted as well.

Ka-Miki then captured Kapu'euhi and imprisoned him underneath the tangled branching growth of Mauānuikananuha, telling Kapu'euhi that he would remain there until Maka-'iole and he had their fill of the 'awa. *Kaniahiku* then sent her 'Akialoa formed sister to fetch her grandson Keahialaka, in preparation for hand to hand combat [October 28, 1915].

Finding Kapu'euhi with Kaniahiku, Ka-Miki confronted him with his treachery, and then securely bound him in the net of his ancestresses... Maka-'iole then entangled Kapu'euhi in the fallen branches of Mauānuikananuha, where Kapu'euhi was left bound... [November 4, 1915]

Ka-Miki went on to defeat Kaniahiku, her grandson, and other famed 'ōlohe of Puna as well... [November 11, 1915] ...Among the contestants from Puna, was the 'ōlohe master, Kahauale'a. It was agreed that Kahauale'a and Ka-Miki would compete in three contests; *uma* (hand wrestling), *kūpahu* (pushing one's opponent from the arena), and *kūkini* (running) contests. In the *kūkini* contest, Ka-Miki and Kahauale'a were required to gather certain famous items to prove that they had actually reached the designated places. These things were:

The sacred water of the goddess *Waka-keaka-i-ka-wai* and accurately describe the nature of the spring Keakaikali'ulā and forest of Pali-uli;

A valuable bark-cloth sheet—*kuina kapa* 'Ō'uholowai-o-La'a for which 'Ōla'a was famed;

Ten olonā (*Touchardia latifolia*) leaves of 'Ōla'a;

One of Puna's famed *moena makali'i pua hīnano* (fine mesh mats woven from the pandanus flower sheaths); and

To bring back living 'o'opu 'ai lehua (*Gobidae* fish) of Hi'ilawe and 'anae momona (fat plump rich mullet) which swam in the waters of Pāka'alana. [January 6, 1916]

Now the lands of Puna are famed for the forest and mist rains called *Uakuahine*. The nature of this place is described by *kama'āina* as —

Ka noe pōhina i ka uhiwai kokolo iluna o ka lā'au holo kia-ahi manu pō i ka nahele i ka uka 'Ōla'a, a me nā lehua wena o Pana'ewa-nui-moku-lehua 'ōhi'a kupu-hāo'eo'e i ka ua [kani] lehua i ka wī a ka manu a pō e!

The dark dripping mists crawl above the trees, the birds dart to and fro in the upland forest of 'Ōla'a, and the glowing *lehua* blossoms of Pana'ewa-nui-moku-lehua, the sculpted (staggered) 'ōhi'a growth in the *lehua*, rain that resounds with the song of the birds.

The mist laden forests of upper 'Ōla'a and Hilo are also described in the mele—

*Pō Puna, pō Hilo
Pō wale Hilo e
Pō Hilo i ka uahi o ku'u 'āina
Ola ia kini ke 'ā mai la no i ke ahi...*

Darkened is Puna, darkened is Hilo
Indeed Hilo is completely darkened
Hilo is made dark by the mists of my land
The multitudes live by the lighting of
the fire...

At the outset of the competition, Keahialaka provided the *kapa*, *olonā* leaves, and *moena*, thus eliminating Ka-Miki's need to gather those items. The two competitors then participated in the *uma* and *kūpahu* contests and the roar of the crowd was heard from the shore to the depths of the *waokele*, the upper forests of Kali'u and Malama. Kahauale'a was defeated in both of those contests. Then the *kūkini* contest between Kahauale'a and Ka-Miki began. Ka-Miki was carried to Pali-uli [in the uplands of 'Ola'a and Kea'au] on 'Ohia-nui-moe-awakea [one of the body forms of Ka-uluhe]. Thus, he arrived at the spring Keaka-i-ka-li'u-lā which was the dwelling place of Lā-ie-wai (who came to be called Ka-wahine-i-ka-li'ulā) and Lā-ie-lohelohi, the sacred chiefesses and wards of Waka-ke-aka-i-ka-wai and Ka-puka-i-haoa-ka-lā-o-lalo. This was an exceedingly sacred area. Guarded by Waka, it was encircled by rainbows, filled with the songs of 'iwi, and 'ōō birds, and surrounded by all manner of plants. On the lands around the spring were grown the prostrate sugar cane called *Mikioi-o-lehua*, the bananas called *Mānai-'ula-i-ka-wao*, the taro called *Pāpākole-koā'e-o-lele-kea*, and the 'awa called *Waimaka-a-ka-manu o Puna*.

Ka-Miki took a leaf of the *pāpākolekoā'e* taro, and folded it into a cup ('a'apu *lā'alo*) to hold the water...and returned to Pū'ula mā. Ka-Miki presented the water to Pū'ula and described the beauty of Paliuli to those assembled. Kahauale'a had been unable to reach Paliuli and the spring of Keakaikali'ulā, so instead, he brought the water of Waiuli at 'Ola'a. His deception was detected, because of the dark nature of the water, thus Ka-Miki won this part of the *kūkini* contest... [January 13, 1916]

Ua-kuahine (Elder sister rain – a famous mist rain of the 'Ola'a forest).

Ua-kuahine was an exceedingly beautiful woman who lived in 'Ola'a. One day while traveling on the *ala loa* through the upland forest, to visit the family of her husband in Ka'ū, a strong storm arose. Uakuahine grasped onto a tree, and her husband held on to a different tree. While waiting out the storm, a traveler held onto the same tree as Uakuahine. He inquired where she was bound on her journey, and she told him Ka'ū, to visit the family of her husband.

Once the storm passed, Uakuahine's husband killed her in a fit of jealousy and buried her under a *kukui* tree there. Where she was killed, a grove of *kukui* and 'ohia trees grew, and to this day, the forest grove is called *Ka ulu kukui o Ua-kuahine*. As her skin darkened in her grave, the water in the neighboring spring also darkened, and so came to be called Wai-uli (Dark water). Uakuahine herself, was transformed into the mist which clings to the trees in the forest of 'Ola'a, and the thick mist for which the region is famed, is mentioned in *mele* and sayings like —

'Āina holo kia ahi manu ala i ka pō i ka nahele...

Land where the birds dart to and fro in the darkened forest...

Now during the contest between Ka-Miki and Kahauale'a, Kahauale'a was unable to get water from the spring Keakaikali'ulā at Paliuli, so instead, he brought the water of Waiuli. His ruse was detected, because of the dark nature of the water... [February 3, 1916]

...Following those contests, Ka-Miki and Maka-'iole befriended Keahialaka, and agreed that he could become their traveling companion. Ka-Miki returned to Kaniahiku and released Kapu'euhi who was near death. Kapu'euhi then returned to his compound and with Pōhakuloa, he prepared food for Ka-Miki, Maka-'iole and Keahialaka. When Ka-Miki, Maka-'iole and Keahialaka departed from the compound of Kapu'euhi, they descended the *ala loa* towards Hilo to continue their journey.

The travelers arrived at a large compound and community, where they saw a man coming towards them with a club. This man was Kūkulu-a-hāne'e-a-hina-pū [Kūkulu]. Kūkulu was a guardian of the chiefess and lands called Pana'ewa-nui-moku-lehua [Great Pana'ewa of the lehua forest]. Pana'ewa was a sacred chiefess of Hilo, the sister of the chiefs Waiākea and Pi'ihonua.

The chiefess' compound and surrounding community were forbidden to strangers, and Kūkulu regularly killed unaware travelers [thus the name "Pana-'ewa" (Unjust place)]. Kūkulu challenged Ka-Miki mā but he was quickly defeated, and Ka-Miki left him there as an example to other 'ōlohe and to receive his due justice. Ka-Miki mā then continued their journey into Hilo, seeking out 'Ūpēloa, Ku'u-aho-hilo-loa, and Haili-kula-manu, unjust competitors of Waiākea and vicinity... [February 17, 1916].

Bird Catching Techniques of the Ancient Hawaiians

In addition to the references cited earlier, there are a number of traditional accounts describing the arts of the class of people who caught native birds in order to collect their feathers. Several methods of bird catching were widely practiced by native Hawaiians. Except for the account of Pikoi-a-ka-'alalā, cited above, most of the early historical accounts recorded in the 1800s tell us that traditionally, the rarer birds, whose feathers were sought for ornamental purposes were not killed by the bird catchers. One account from the later period in the life of Kamehameha I, reported that as a result of growing commercial activities in the islands, traditional methods of harvesting resources and catching birds, were changing. Regarding these changes, and the response of Kamehameha I to careless collection of bird feathers, Kamakau (1961) wrote:

Troubles that arose were not of his making, and those that had to do with disputes about religion came after his time. He ordered the sandalwood cutters to spare the young trees and, not to let the felled trees fall on the saplings. "Who are to have the young trees now that you are getting old?" he was asked and he answered, "When I die my chief and my children will inherit them." He gave similar orders to bird catchers, canoe makers, weavers of feather capes, wood carvers, and fishermen. These are the acts of a wise and Christian king who has regard for the future of his children, but the old rulers of Hawaii did the same. [Kamakau, 1961:209-210]

While researching various ethnographic records of the Bernice Pauahi Bishop Museum (BPBM), the author reviewed Hawaiian language papers (handwritten and typed) collected by island historian, Theodore Kelsey. Kelsey was born in Hilo in the late 1800s, and spent his entire life speaking with elderly Hawaiian people, collecting their stories, and translating their writings. Among his papers curated at the Bishop Museum (BPBM Archives-SC Kelsey; Box 1.5), are notes on various aspects of Hawaiian culture including bird catching. Kelsey's informant, was the elder Reverend Nālimu, who shared his account of bird catching, both as a means of providing feathers used for making Hawaiian emblems of royalty, and with other birds, as a food source. The account specifically references localities in the uplands of the Hilo District and 'Ōla'a, and is a first-hand description of traditional and customary practices which had broad application in the mountain regions.

The following Hawaiian texts are presented verbatim as recorded by Kelsey in c. 1921 (including his use of diacritical marks). The English translation of the Hawaiian narratives was prepared by the author of this study, and reflects the basic tenor of the Hawaiian narratives. It should be noted here, that in the Hawaiian language, occurrences of certain words naturally imply a specific action or statement, which is reflected in the translation:

"AHELE MANU"

by H.B. Nalimu

*Po'e kia manu o Laa, oia ka po'e ahele manu, kekahi me ka laau a kekahi me ka lehua.
O ka mea ahele manu ma ka lehua malaila ka puka e hanai kokoke i ka lehua, he puka
paa ke-ia. Kekahi piko o ke kaula ma ka la-la o ka 'ohi'a e paa ai. Elim, eono paha*

anana ka lo-ahi o ke aho mai ka puka mai a hiki i ka lima o ke kanaka e paa nei i ka piko o ke aho. A o ka puka aia ma kahi kokoke i ka lehua e kiko aku ai ka manu i ka lehua. I ka wa e lele mai ai ka manu lele no a ku maluna o ke-ia puka e kiko aku i ka lehua. A ia manawa e huki ai ke kanaka i ka piko o ke kaula a paa ka wawae o ka manu. Pii ke kanaka iluna a lawe i ka manu a hana hou aku i kela puka malaila. O ka akakane a me ka ‘iiwi, a me ka ‘o-o’ iluna o ka pua lehua. Ahele me ke aho olona’ makalii. Maluna o ka mai‘a pala e ahele i’ ai ka manu o-u’.

“KĀWILI KĒPAU.”

O ke kepau oia ke kohu o ka ‘ulu. E ‘oki-oki ai i ka ‘ulu a kahe mai ke kohu ke‘oke‘o, a i ka wa e maloo ai ua kohu ‘la i ke ahiahi alaila ua paa a‘e ua kohu la.

Hele oe e ho-ulu-ulu ke-ia kohu a pau. Ho-ulu-ulu a nui, alaila lilo a‘e‘la ua‘ kohu nei i kepau. Alaila hele oe e ‘ohi i hookahi kukui maka a hemo kona iwi ‘a ‘o kona ‘i‘o malama ‘oe kela’. Hele hou oe i ka‘pa-ahi ku-kepau (kind of clover) he pa-ahi ‘ele-ele ia, a hoohue me ke kukui maka, alaila nau a wali ke kukui maka me ka pa-ahi. Hookomo iloko o ke kapa wauke (he mea uaua ia), alaila ‘uwi‘ i ka wai o ke kukui a me ka pa-ahi iloko o ka ‘opihi, oia ka “ipuhao” e kupa ‘ai iluna o ke kapuahi. I ka wa e hoomaka ai e paila alaila ‘oki-oki i ke kepau a liilii a hookomo iloko o ke-ia wai kukui me ka pa-ahi i paila ia. Kii elua ni-au ai ‘ole ia, mau laau liilii paha e koali ai iloko o ke-ia wai paila.

Pela e hanai a pau kela‘ wai a mo‘a kela‘ kepau. Hookomo iloko o ke poho ‘opihi a i ‘ole he la-i‘ a wahi i ka la-i‘. Kāwili ‘uka a‘e nei o Mokau-lele. Neenee ke pulu ‘ohi‘a o ia wahi ilalo o ka pahoehoe.

Ilalo no oe e ku ai o ka pahoehoe a hana oe i ke kepau iluna o ka pua lehua. Ina ekolu, eha‘ pua lehua au i kāwili ai i ke kēpau alaila i ka wa e pili ai kekahia pua lehua i ka manu alaila alualu a loaa. Pee hou oe iloko o ka pulu ‘ohi‘a (kāhi o ka lau ‘ohi‘a e luhe ana ilalo, oia ka pulu ‘ohi‘a) a pili hou kekahia manu. Opa‘ ke poo o ka manu a make. Hookomo iloko o kekahia eke. Hola ekolu paha alaila ho‘i, nui ka manu, i hookahi kaau, iwakalua, kanakolu paha. A kela manu makalii; ua momona—kuhikuhi kona i‘o, momona. Oia ke kāwili kēpau.

“LAAU KIA MANU.”

Ekolu, eha‘ paha anana ka lo-ahi o ka laau. Kau ia ka pua lehua iluna o ia laau nei mai kekahia ‘ao-ao o ka laau a hiki i kekahia poo o ka laau. Hana elua kanaka, kekahia ma kekahia laau a kekahia ma kekahia. Kepau maluna o ka laau a he mau pua lehua mawaena o ke-ia mau kēpau—he laau kia manu ia []. Olaa ka aina kia manu a me Piihonua. Nui ka manu o-o‘ ma Puu O-o‘. Malaila ka po‘e kia manu e hele ai a loaa na lei hulu no na lii. O Pana-‘ewa kekahia wahi kia manu.

Huki ka laau kia manu iluna mawaena o na ‘ohi‘a elua. Hana me ka ‘upena kekahia. Huki ia iluna ka ‘upena, hookahi laau maluna, hookahi laau malalo. He ‘upena ‘olona‘ maka hakahaka, a he kaula ‘olona‘ ma na poo. ‘Elima, eha‘, ekolu paha anana kela‘ ‘upena palupalu. Lele no ka manu, paa ka wawae, paa ka pekekeu. Ina‘ hookahi, elua manu, waiho no pela‘, oia na manu e kahea ana i na manu e a‘e. Nui ka manu, hookuu ilalo ka ‘upena a huki hou iluna. He ulu ‘ohi‘a ma kekahia ‘ao-ao a me kekahia ‘ao-ao. Oia ka hana ana o ka po‘e lawai‘a manu. Ho‘i i ka hale e wehe ai ka hulu o ka manu ‘o-o‘. Piha ke po‘i i ka hulu a haku lei. Malalo o ka po-ae-ae o ka o-o‘ oia ka hulu a-a‘, a maluna o ka piapia oia me pue.

Bird Snaring (or Trapping)

Bird catchers (*kia manu*) of ‘Ola‘a were people who snared (‘āhele) birds. Some with branches and others with *lehua* blossoms. The individual who snared birds among the *lehua* made a snare (lasso) close to the *lehua* flower, the snare was secured there.

One end of the line was securely fastened on the branch of the ‘ōhi‘a. The cord of perhaps five or six fathoms long, extended from the lasso (on the branch) to the man’s hand where the end of the line was held tightly. The snare was placed close to a *lehua* blossom, where the bird would step (*kīko‘o*) to the *lehua*. At that time, the man would then pull the end of the cordage and secure the feet of the bird. The man then climbed the tree, took the bird, and he would make the snare there again. The ‘akakane (‘apapane), the ‘i‘iwi, and the ‘ō‘ō were caught up in the *lehua*, snared with fine *olonā* cordage. The ‘ō‘ū bird was snared while it was on the ripe banana fruit.

Preparing Bird Lime to Kāwili, or Ensnare Birds.

The bird lime (*kēpau*) is made from the sap of the breadfruit. Cut the breadfruit bark and the white sap flows, and when the sap is dry, say in the evening, the sap is hardened. You go and gather the sap. When enough has been gathered, the sap can be made into bird lime. Then you go and gather some raw *kukui*, removing the shell, you keep its meat. You then go and get the “clover” for making bird lime (*‘ihiku-kapu*, the *Nasturtium sarmentosum*), it is a black *pā‘īhi*, and you mix it with the raw *kukui*. Then you chew it, and the *kukui* and *pā‘īhi* become slimy. This is put into a *wauke* bark cloth (it is a tough piece), then the juice of the *kukui* and *pā‘īhi* are squeezed into the ‘ōpihi (shell), it is the “pot” for cooking the broth over the fire. When it starts to boil, the (‘ulu) gum is cut into small pieces and put in the juice of the *kukui* and *pā‘īhi* so it can boil. Then get two coconut mid-ribs or perhaps little sticks to stir this boiling juice. This is how it is done until the juice is cooked and becomes the birdlime. It is then placed into the empty ‘ōpihi or a *tī* leaf, wrapped up in *tī* leaves. Kāwili is in the uplands adjoining Mokaulele. Then go to where there is low branching ‘ōhi‘a (*pulu ‘ōhi‘a*), where the *pāhoehoe* is below.

You are below on the *pāhoehoe*, and you apply the bird lime above around the *lehua* flowers. Now you *kāwili* (twist, i.e. apply) this bird lime in among three or four *lehua* flowers, then when a bird is stuck by one of the *lehua* that blossoms, you free it and it is caught. You then hide again among the low ‘ōhi‘a branches (a place where the ‘ōhi‘a tops droop down, that is the *pulu ‘ōhi‘a*), and catch another bird. You squeeze the birds head and it is killed. It is placed into a bag. Returning (home) perhaps around three ‘o clock, there are many birds, perhaps forty, twenty, or thirty. Those small birds; when fat—the meat is tasty and sweet. That’s how one prepares *kawili kēpau*, or bird lime to ensnare birds.

Snaring Birds on Branches.

The (decoy) branch is perhaps three or four fathoms long. *Lehua* blossoms are placed on this branch, from one side of the branch up to the tip of the branch. Two men do this job, one at one (end of the) branch and one at the other. Bird lime is placed on top of the branch along with many *lehua* blossoms in between this bird lime—this is a bird catchers (*kia manu*) branch [drawn] |_____|. ‘Ola‘a and Pi‘ihonua are lands of bird catchers. There are many ‘ō‘ō birds at Pu‘u ‘Ō‘ō. It is there that the bird catchers go to get the feathers for adornments (*lei*) of the chiefs. Pana‘ewa is also a place of the bird catchers.

The bird catchers (decoy) branch is pulled in between the ‘ōhi‘a *lehua* trees. One (person) uses the net. The net is pulled up, one branch is above, one branch is below. It is an open (wide) meshed *olonā* net (*‘upena olonā maka hakahaka*), and *olonā* cordage at the tip. It is a soft (pliable) net perhaps five, four, or three fathoms long. As the birds fly their feet are caught, or their wings caught. Now if there are one or two birds, they are left, these are the birds that call out to the other birds. When there are many birds the net is let down (the birds taken), then the net is pulled up again. ‘ōhi‘a growth is all around. So this is the work of the “bird-fishers,” or *lawai‘a manu*. They return to the house and then remove the feathers of the *manu* ‘ō‘ō. When the container

is filled with feathers, a *lei* is made. Below the wing-pit is where the male ‘ō‘ō bird feathers are, and above on the back by the tail, are the pale yellow feathers. [Nalimu in Kelsey; Bishop Museum , Archives—SC Kelsey; Box 1.5; Maly, translator]

One additional tradition collected by Kelsey in 1921, references named locations in the uplands of Waiākea. Kelsey's aged informant, Reverend Henry B. Nalimu, who was born in Hilo in 1835, shared with him his recollections of Ī-hālau (the long house of the chief Ī):

I, a relative of Rev. Nalimu's, constructed the ditch of I-auwai...

I-halau, the great long house of I, was *mauka* of Waiakea, near Pooholua and *mauka* of that place. Rev. Nalimu has only heard of the place. He thinks that it is in the forest. When the occupants of I-halau finished a meal they slammed the covers down onto their calabashes in unison so that the report could be heard at I-ko‘a, the fishing-grounds of I where he fished for *ahi*. The location of this *ko‘a* was obtained by bringing into line the coconuts of Papa‘i and the Cape of Anapuka (ka lae o Anapuka) on the Puna side, and on the Hilo side, the coconuts of Kau Maui (near Keaukaha), and the cape of Kiha... [Kelsey notes, 1921; in collection of June Gutmanis]

THE MAUNA LOA MOUNTAIN LANDS OF THE ‘ŌLA‘A, WAIĀKEA AND KEAUHOU VICINITY DESCRIBED BY VISITORS OF THE HISTORICAL PERIOD (1794-1875)

Because the lands of the upper ‘Ōla‘a and Waiākea region were remote, it appears that access was most frequently made by specialists in the collection of bird feathers, the makers of canoes, and collectors of other unique items for which the region may have been known. Except for the detailed narratives of the tradition of Pikoi-a-ka-‘alalā, most other traditions, and early historical accounts by native Hawaiians, seem to place the routes of travel beyond the limits of the lands within the Pu‘u Maka‘ala NAR. The main routes being out of Hilo through ‘Ōla‘a, *mauka*, near its boundary with Kea‘au, or *mauka* between Kīlauea, across Keauhou (of Kapāpala in Ka‘ū), within view of the boundary between ‘Ōla‘a (Pu‘u Kūlani), and out across the Waiākea and Humu‘ula lands of the Hilo District. Thus, there appears to be little specific reference in the historical record to the immediate study area lands.

From the journals, letters, and articles of historic visitors traveling the routes mentioned above, we are given a glimpse into the nature of the landscape, and a record of changes thereon, with the passing of time. As outlying lands were changed—resulting from the impacts of introduced grazing animals, and in some instances from lava flows of Mauna Loa—we develop a sense of why the Pu‘u Maka‘ala NAR is important to the future well-being of the Hawaiian natural environment. The NAR is a remnant of the unique cultural and natural landscape as described in the traditional accounts.

The narratives below, date from 1794 to 1875, and are the first-hand records of observations and travel across the mountain lands and in the forest adjoining the Pu‘u Maka‘ala NAR.

First Foreigner Ascends Mauna Loa in 1794

In 1793-1794, botanist, Archibald Menzies visited Hawai‘i with Captain Vancouver, during which time Menzies and crew members walked inland with native guides to botanize and take readings of the topography. While ascending Mauna Loa, Menzies observed that the Hawaiians kept "*Morai*" (*heiau* – ceremonial sites) along the trails in the forests and up the mountain, at which they regularly stopped in prayer and to make offerings (Menzies 1920:85). The following excerpts from Menzies notes describe this practice:

Forest Shrines

“So bigoted are these people to their religion that here and there, on the sides of the path, they have little Morais, or spots consecrated to their Deity, which none of them ever pass without leaving something—let it be ever so trifling—to obtain his good will, and they were highly delighted, indeed, when we followed their example in throwing a nail or a few beads, or a piece of tapa, before their Deity, which the women were not allowed to pass without uncovering their breasts and shoulders.” [Menzies 1920:85]

From Kapāpala, Menzies and party traveled *mauka* of Kīlauea, and from there, they cut across the mountain lands, to begin their ascent of Mauna Loa. Menzies narratives provide readers with the first written account of the forest lands and nature of Mauna Loa:

Kapapala.

Though we had much reason to be satisfied every step we went, with the kind attentions and unbounded hospitality of the natives, yet we could not help being now a little out of temper with them at the great distance they were taking us as it were round the foot of the mountain, till in the afternoon we reached a fine plantation called Kapapala, belonging to the king, from which they told us we were to ascend the mountain. As the chief had here to provide his last supplies of provisions for our journey up, we were obliged to stop for the night to allow him some time for that purpose...

...We were now within a few miles of the volcano, of which there seemed to be this day a considerable eruption, and as the wind blew from that direction, the smoke, dust and ashes arising from it proved very troublesome to our eyes in travelling with our faces towards it.

February 13th. Before we set out on the morning of the 13th, I observed the barometer at eight, when the mercury stood at 28 in. 20 pts., which made our height at this place 1800 feet above the level of the sea. The thermometer was at the same time 67 degs.

After breakfast, everything being got ready, and the party arranged, we continued our march through the plantation for two or three miles further, and then began our ascent up the south-east side of Mauna Loa in an easy slanting direction, passing through groves of trees and clear spots alternately by a narrow rugged path without meeting any more cultivated ground after we quitted the plantation of Kapapala, or any houses till towards sunset, when we came to two or three old huts where our guides told us we must encamp for the night. The chief no longer depended on his own knowledge of the path, but brought men with him from the last plantation to conduct the whole party up the mountain, which now lay between us and Kealakekua. We had the volcano to our right most part of this day and in the forenoon the smoke and ashes arising from it made [page 188] the air very thick, which at times proved very tormenting to our eyes.

At sunset the thermometer was at 54 degs., and the barometer stood at 26 in. 50 pts., which made our height from the sea 3,510 feet.

February 14th. At sunrise next morning the thermometer was so low as 41 degs.... the air was at this time so chilly that the natives complained so much of the cold that we did not stir from the place of our encampment till after breakfast, when we again set forward up the mountain in a reversed oblique direction to what we came the day before, but in so winding and circuitous a manner and through such pathless and rugged tracts, avoiding the clumps of forest here and there, that, had we not good guides with us, we should have met with insurmountable difficulties.

We had sight now and then of the lower edge of the snow which did not appear to be far above us... Towards evening, we reached the upper verge of the forest nearly over Kapapala, where we encamped for the conveniency of having wood at hand to burn and erect our huts with... Near our encampment [page 190] I found a large beautiful species of *Vicia*¹²⁸ clambering up amongst the thickets in full bloom.

Reaches the Upper Edge of Forest.

Being now at the upper edge of the forest I observed the barometer at six in the evening, when it stood at 23 in. 73 pts., which is equal to 6,500 ft. in altitude. This may be considered the height at which the wood ceases to grow upon the sides of this immense mountain. The thermometer observed at the same time was at 41 degs., and as we had heated ourselves a good deal in this day's march up the mountain, we felt the air after sunset remarkably chilly and cold, which induced us to keep large fires burning near our huts the whole night. Notwithstanding this precaution, many of the natives were so restless with the cold and continued coughing that they enjoyed very little repose, and not indeed without cause, for when we got up next morning, the thermometer was at 28 degs, and the grass which grew about our huts was so stiff and whitened with hoar frost, and the earth that was in anywise moist or swampy was encrusted with icy concretions about our encampment. The frost must therefore have

¹²⁸

Vicia Menziesii, Sprengel, or *V. grandiflora* Smith. This species of legume has not been found by modern collectors.

been keen during the night time, and from this circumstance I think we may consider the upper edge of the wood as the lower line of congelation upon this mountain. Meeting with it so low down as we here did and that, too, on a tropical mountain so closely surrounded by the mild temperature of sea air, will no doubt stagger the belief of those who have been led to consider the lower line of congelation within the tropics; and having a much greater altitude even in continental regions which are always allowed to be colder than islands of moderate size. [page 191]

Natives Unwilling to Proceed.

February 15th. The natives, who were all barefooted, could not stir out of their huts in the morning until after breakfast, when the cheering influence of the sun dispersed the frost, but they greatly dreaded its consequences further up the mountain where they said that the cold was so intense that it would certainly kill us and them, too, and they described its effects by contracting and shivering themselves and cautioning us very strongly against going higher up or exposing ourselves or them to such danger. Even the old chief Luhea was so strongly prepossessed of this opinion that he now entreated us in the most earnest manner to relinquish the idea of going higher, for that he and several others were already nearly overcome with the fatigue of the journey and that the cold of the mountain would kill them... [Menzies, 1920:192]

On February 16th, 1794, Menzies and party arrived at the summit of Mauna Loa, the first foreigners to do so. It was not until January 1834, that another foreigner would again reach the summit of Mauna Loa.

Waiākea Described in 1823

Following the death of Kamehameha I in 1819, the Hawaiian religious and political systems began undergoing radical changes. Just moments after his death, Ka'ahumanu proclaimed herself "Kuhina nui" (Prime Minister), and approximately six months later the ancient *kapu* system was overthrown in chiefly centers. Less than a year after Kamehameha's death, Protestant missionaries arrived from America. In 1823, British missionary William Ellis and members of the American Board of Commissioners for Foreign Missions (ABCFM) toured the island of Hawai'i seeking out communities in which to further the work of the growing Calvinist mission.

During the visit, Ellis and his companions traveled around the island and upon portions of the mountain lands. While Ellis and his party did not travel the *mauka* route between Mauna Kea and Mauna Loa to Kīlauea, Ellis did write about the mountain lands as described by others he'd spoken with:

Few Inland Settlements

There are a few inland settlements on the east and north-west parts of the island, but, in general, the interior is an uninhabited wilderness.

The heart of Hawaii, forming a vast central valley between Mouna Roa, Mouna Kea, and Mouna Huararai, is almost unknown, no road leads across it from the east to the western shore, but it is reported, by the natives who have entered it, to be "bristled with forests of *ohia*," or to exhibit vast tracts of sterile and indurated lava.

The circumstance of large flocks of wild geese being frequently seen in the mountains, would lead to the supposition that there must be large ponds or lakes to which they resort; but if any exist, they have hitherto remained undiscovered... [Ellis, 1963:4]

Travel Across the 'Ōla'a-Humu'ula Uplands in 1830

In 1830, Reverend Hiram Bingham and family visited Waimea, and in September they were joined by members of the royal household for a visit to Mauna Kea. During the same visit, a trip was made to

Kīlauea, and Bingham's journal includes as description of the journey over land to the plateau lands between Mauna Loa and Mauna Kea, on their way back to Waimea.

...After spending about thirty hours at Pele's chief seat, we set off, towards evening, on the 21st, to cross the wilderness to Waimea, which required the time of a little more than two days and two nights. Walking till late, we laid ourselves down where we could find a place. The next day we continued our journey northwardly, towards Mauna Kea, lodging out in the wilderness, in the same manner, at night, the majestic mountain being half a day's walk to the north of us.

Rose at four o'clock from our mountain couch, — a day's journey from any human habitation; saw lightning at a great distance at sea — our elevation being 4000 or 5000 feet; packed our sleeping *kapa*; offered our morning sacrifice in these solitudes of the centre of Hawaii, and as the day dawned, set forward on our journey. We passed over several large tracts of lava, of different kinds, some smooth, vitreous, and shining, some twisted and coiled like huge ropes, and some consisting of sharp, irregular, loose, rugged volcanic masses, of every form and size, from an [page 393] ounce in weight, to several tons, thrown, I could not conceive how, into a chaos or field of the roughest surface, presenting a forbidding area, from one to forty square miles in extent, and though not precipitous, yet so horrid as to forbid a path, and defy the approach of horses and cattle. In the crevices of the more solid lava we found the *ohelo*, somewhat resembling the whortleberry, nourished by frequent showers and dew. At ten o'clock, we halted for breakfast; raised a smoke, as a signal for the horse keeper, at the watering-place, at the south base of Mauna Kea, to approach, and moved on, till twelve o'clock, when I was very glad to see and mount the horse sent over from Waimea to meet me... [Bingham, 1969:394]

The Mauna Loa Mountain Lands Described by David Douglas (1834)

Scottish Naturalist, David Douglas toured the interior lands on Hawai'i in 1834, and also traveled to the summits of Mauna Kea and Mauna Loa. After a visit and observations at Kīlauea, Douglas traveled to Kapāpala, and made preparations for the ascent of Mauna Loa. The route traveled took Douglas *mauka* of the lands that now make up the Pu'u Maka'ala NAR, and on to the summit of Mauna Loa. Excerpts from Douglas' narratives, published in the Hawaiian Spectator in 1839, provide readers with a description of the lands traveled through, the nature and make up of the forest; and the presence of native dwellings for bird catchers:

...Tuesday, January the 28th. I hired two guides the elder of whom, a short stout man, was particularly recommended to me by the chief for his knowledge of the mountain. By profession he is a bird-catcher, going in quest of that particular kind of bird which furnishes the feathers of which the ancient cloaks, used by the natives of these islands, are made. The other guide was a young man. Three volunteers offered to accompany me; one a very stout fat dame, apparently about thirty, another not much more than half that age, a really well looking girl, tall and athletic: but to the first, the bird-catcher gave such an awful account of the perils to be under-gone, that both the females finally declined the attempt, and only the third person, a young man went with me. My original party often, besides Honori and the two guides, set out at light, with as usual, a terrible array of taro, calabashes full of *poi*, sweet potatoes, dry *poi* tied up in Ti-leaves, and goats flesh, each bearing a pole on his shoulder with a bundle at either end... [page 418] ...Among my attendants was one singular looking personage, a stripling, who carried a small packet of instruments, and trotted away, arrayed in a Cutty-Sark of most "scanty longitude," the upper portion of which had once been of white, and the lower of red flannel. Honori brought up the rear with a small telescope slung over his shoulder, and an umbrella, which owing perhaps to his asthmatic complaint, he never fails to carry with him, both in fair and foul weather.

We returned for about a mile and a half along the road that led to the Great Volcano, and then struck off to the left in a small path that wound in a northerly direction up the green, grassy flank of Mauna Roa. I soon found that Honori's cough would not allow him to keep up with the rest of the party, so leaving one guide with him, and making the bird-catcher take the lead, I proceeded at a quick rate. This part of the island is very beautiful; the ground, though hilly, is covered with a tolerably thick soil, which supports a fine sward of Grass, Ferns, climbing plants, and, in some places, timber of considerable size. Koa, Tutui, and Mamane trees. Though fallen trees and brush-wood occasionally intercepted the path, still it was by no means so difficult as that by which I had ascended Mauna Kea. To avoid a woody point of steep ascent, we turned a little eastward, after having traveled about five miles and a half, and passed several deserted dwellings, apparently only intended as the temporary abodes of bird-catchers and sandal wood-cutters. Calabashes and Pumpkins, with Tobacco, were the only plants that I observed growing near them. At eleven, A.M., we came to a small pool of [page 419] fresh water, collected in the lava, the temperature of which was 55°; here my people halted for a few minutes to smoke. The barometer stood at 26 inch., the air 62°, and the dew point 58°. The wind was from the south, with a gentle fanning breeze and a clear sky. Hence the path turns north-west, for a mile and a half, becoming a little steeper, till it leads to a beautiful circular well, three feet deep, flowing in the lava, its banks fringed with strawberry vines, and shaded by an *Acacia*-tree grove. Here we again rested for half an hour. We might be said here to have ascended above the woody country; the ground became more steep and broken, with a thinner soil and trees of humbler growth, leading towards the south-east ridge of Mauna Roa, which, judging from a distance, appeared the part to which there is the easiest access. I would recommend to any Naturalists who may in future visit this mountain, to have their canteens filled at the well just mentioned, for my guide trusting to one which existed in a cave further up, and which he was unable to find, declined to provide himself with this indispensable article at the lower well, and we were consequently put to the greatest inconvenience.

Among the brushwood was a strong kind of Raspberry bush, destitute of leaves; the fruit, I am told, is white. At four P.M. we arrived at a place where the lava suddenly became very rugged, and the brush wood low, where we rested and chewed sugar-cane of which we carried a large supply, and where the guides were anxious to remain all night. As this was not very desirable, since we had no water, I proceeded for an hour longer, to what might be called the Line of Shrubs, and at two miles and a half further on encamped for the night. We collected some small stems of a heath-like plant, which with the dried stalks of the same species of *Compositoe* which I observed on Mauna Kea, afforded a tolerably good fire. The man who carried the provisions did not make his appearance—indeed it is very difficult except by literally driving them before you, to make the natives keep up with an active traveler... [Douglas, 1839:420]

The United States Exploring Expedition, 1840-1841

In 1841, members of the United States Exploring Expedition, under the command of Charles Wilkes, accompanied by a party of native Hawaiians and foreign residents (numbering nearly three hundred individuals) traveled to the summit of Mauna Loa. The party departed from Waiākea, traveled *mauka* through 'Ōla'a, and on to Kīlauea. Observations and exploration were undertaken at Kīlauea, and then the party traveled through Keauhou, *mauka*, along the forest above the 'Ōla'a Forest Reserves and Pu'u Maka'ala NAR, and on to Mauna Loa. The following narratives are excerpted from Wilkes' account of departure from Kīlauea, and journey to the Mauna Loa summit:

At dawn on the morning of the 18th, the signal called us to make preparations for our journey, and as all things had now been more systematically arranged, we anticipated less difficulty in our onward journey. The natives seemed to be all in good spirits, and

moved with alacrity... The water that I have mentioned as being found in the small pools, the product of condensation, was exhausted before we left the crater. This was in consequence of the natives having filled their calabashes; and we had particularly instructed our servants and the sailors to do the same. The former provided themselves; but the latter, sailor-like, preferred to take their chance of meeting with it on the road, rather than carry a load for their future supply. I discovered, after we started, that they were unprovided, but was informed that there was, within about two miles, an old canoe which would be found full of [page 130] water. On our arrival at it, we found that the natives, who had preceded us, after supplying themselves had emptied out the rest.

Our route was taken at first and for a few miles in a due west line, for the top of Mauna Loa, over the extensive plain surrounding the volcano; it then deviated to the southward, over an ancient lava-bed, very much broken, that appeared never to have been traversed before. We now became for the first time acquainted with clinkers. To describe these, it is merely necessary to say, they are like the scoria from a foundry, only instead of being the size of the fist, they are from one to ten feet square, and armed on all sides with sharp points; they are for the most part loose, and what makes them still more dangerous, is that a great deal of the vitreous lava is among them. Of the origin of these immense masses and their extent, I shall have occasion to speak hereafter; suffice it for the present to say, there never was more difficult or unpleasant ground to travel over.

Our guide Puhano of Puna, who we understood had accompanied Douglass and Lowenstern on their ascents, now took the lead, but it soon appeared that he knew little of the route. I therefore, in company with Mr. Brinsmade, took the lead, compass in hand; and after walking over the broken and torn-up ground, we turned again towards the hill-side, and began a rapid ascent through a belt of long grass, where the rock was covered with white clay, and seldom to be seen. This part appeared to have suffered much from drought; for in passing along we came to several narrow and dry water-courses, but met with no water.

At two o'clock we had nearly reached the upper limit of the woods, and as the clouds began to pass over, and obscure the path, we determined to halt and encamp. We made several fires along the route, in order to guide those behind, and as a mark for the stragglers; bushes were also broken off, and their tops laid in the direction we were going, by the natives; and I likewise had the trees blazed, as a further indication, well known to our men. Chronometer sights were taken here, and the altitude by barometer was five thousand and eighty-six feet.

During the day, the reason that had induced the natives to empty the water out from the canoe, became evident in their anxiety to sell us water. My friend the consul had hired an especial bearer for his calabash of water, determining that he would have a sufficient supply. By our watching and cautioning the old man who had it in charge, he became somewhat alarmed and unsteady, as I thought also from fatigue. When he had arrived within a short distance of the camp, he stumbled on a smooth place, fell, and broke the calabash into numerous pieces. Those who were coming up, seeing the accident, rushed to partake of its contents, but the fluid quickly disappeared in [page 131] the loose and absorbent lava. This was a dreadful blow to my friend's feelings, and produced much laughter among us, in which the consul himself at length joined; although I must confess I was somewhat of his opinion, that it had been done designedly, either to secure the sale of that belonging to others, or to get rid of the load, which had been a great annoyance and trouble to the bearer all day, and for which he had already been paid...

We were now for a long time enveloped in mist, for we had reached the region of clouds. The thermometer at 6 P. M., stood at 54°; the dew-point at 44°. Instead of trade-winds from the northeast, we had a mountain breeze from the west, which caused the temperature to fall to 43°, and produced a feeling of great cold, being a fall of forty degrees since we left the coast... [page 132]

At sunrise on the 19th, we had the temperature at 48°.

As the ascent was now becoming laborious, we selected and left the things we had no immediate use for, to follow us by easy stages. We then took a diagonal direction through the remaining portion of the woods. By one o'clock we had lost all signs of trees, and were surrounded by low scraggy bushes: the change of vegetation became evident, not only in species, but in size; we also passed through extensive patches that had been destroyed by fire. Sandalwood was seen, not as a tree, but a low shrub.

During the day we had passed extensive caves, in all of which I had search made for water. These often lead a long distance under ground, and some of the men passed in at one end and out at another.

Intending to stop on Sunday not far above these caves, calabash-tops were left in one or two where water was found to be dropping, in hopes by this means to procure a small supply; but on returning the next day, it was found that very little had accumulated. These caves or tunnels had apparently been caused by a flow of lava down the side of the mountain, which on cooling had left the upper part arched or vaulted, the fluid running off at its lower extremity or opening and spreading itself over the surface. The opening into them was formed by the roof having fallen in, and partly blocked up the tunnel. At no great distance from the opening, the floor on each side was smooth and closely resembled the flow of the lava on the surface. These openings were usually known by the quantity of raspberry and other bushes around them; and they reminded me of the caverns in limestone districts... [Wilkes, 1970:133]

The landscape of the mountain lands was again described by Wilkes, when his party descended from Mauna Loa, returning to Kilauea:

.... After a rest of two hours, and obtaining new shoes, we went on and reached the Sunday Station at five o'clock, scarcely able to drag one foot after the other. Here we were soon enveloped in mist, and found the soft and delightful temperature of spring. I cannot venture to describe the effect this produced on us after our three weeks' sojourn on the cold, bleak, and barren summit. I felt for the first time in my life fairly broken down, and almost past the soothing effects of the *loomi-loomi*, which the natives at once offered as a relief to me: it may be called a lesser shampooing, and consists, as practiced in the Sandwich Islands, of a gentle kneading of the limbs, which has a great tendency to restore the circulation, and relax the muscles and joints. The natives use it for rheumatism, headache, and all kinds of pains. It requires some skill to do it well, and there is the greatest difference in the performance between persons who are practiced in it and those who are not. The chiefs generally have two persons employed at the same time. We soon had a good fire made before our Hawaiian hut; its warmth, together with an excellent supper, made us comfortable, and we were soon asleep on the dried grass.

The next morning, when I awoke, all nature seemed to be alive: the [page 166] songs of the birds, the cheerful voices of the natives, were delightful; the green foliage gave everything an air of spring. We were so stiff as scarcely to be able to move, which was all that now remained to remind us of the scenes we had left, and the fatigues we had undergone. When we again set off, it was amusing to see the whole party moving

along with their stiff and aching limbs, trying to appear but little fatigued. At twelve o'clock we reached the station where he had abandoned our chairs, and I never was more relieved than when I reached mine, for I was quite unable to walk any further. Here, also, we were met by the natives with fruit; indeed, every step we took seemed to be restoring us to the comforts of life. Late in the afternoon of the 14th we reached the crater of Kilauea, after an absence of twenty-eight days, eight of which had been consumed in travelling, six in going up and two in returning from the summit... [Wilkes, 1970:167]

Travel to Kīlauea and the Mountain Lands (1875)

In 1875, Henry M. Whitney, editor of the Hawaiian Gazette, published a "Hawaiian Guide Book." The publication was produced as one of the early promotional guides to encourage visitation to the Hawaiian Islands, and included descriptions of the islands, harbors, agriculture, plantations, scenery, volcanoes, climate, population, commerce, and places to stay while visiting. His publication of 1875 provides readers with interesting commentary on travel via the old roadways from Hilo, via 'Ōla'a Village and the half-way house (presumably Hawelu's half-way house), to Kīlauea.

To The Volcano Kīlauea [1875]

Two routes may be taken to the crater Kīlauea, on the slope of Mauna Loa, one by Puna, the other by Olaa. It will be advisable to combine both, by going one way and returning the other. Time being an object, the trip to and from the crater via Olaa can be accomplished in three days, which will give one day and two nights at the volcano house... [Whitney 1875:78]

...The short route to Kīlauea Crater, leads out of Hilo [page 80] village by Volcano street, adorned with white cottages... The road soon becomes densely fenced with the *ohia* bushes, then crosses the end of the famous Waiakea fish ponds and only fairly starts in the wilderness after passing Gov. Lyman's cattle ranch in Waiakea. It is no macadamized thoroughfare and will try the patience of most travelers. Ten miles bring the traveler into the magnificent woods...

Fifteen miles from Hilo Olaa is reached, the half-way stopping place. The intermediate territory is covered with *ti* plants and ferns, while the road consists mostly of *pahoehoe* lava, covered with bunch grass and occasional bushes and trees.

"The Half-way House" at Olaa is merely a cluster of grass houses, a passable rest for visitors... Although this point is 1138 feet above the sea level, and ten miles from Keaau, (the nearest point on the sea shore) the roar of the sea may be distinctly heard during a heavy surf. Leaving Olaa, the route is over *pahoehoe* in all its varieties, thickly covered with wild grass, straggling ferns, creeping vines, and that vegetation which in tropical lands seeks only water to become impenetrable. Fires have swept over parts of the adjoining land and the blackened rocks with their scant supplies of soil, demonstrate how little alluvial earth nature requires to run wild, when it has plenty of light, warmth and moisture. [page 81]

Here the ascent hitherto very gradual becomes more rapid, reaches into a second rim of *Koa* woods, becomes more level and after a short gallop, the traveler finds himself, (eight hours from Hilo,) on the brink of the famous crater, and, four thousand feet above the level of the sea, dismounts from his tired animal and enters the Volcano House... [Whitney 1875:82]

Whitney's narratives continue, describing travel around and through Kīlauea, and he then references the ascent of Mauna Loa. The route being across Keauhou, *mauka* of the lands that make up the 'Ōla'a Forest Reserve and Pu'u Maka'ala NAR. (Whitney 1875:93-95).

THE WAIĀKEA-‘ŌLA‘A FOREST LANDS DESCRIBED IN LAND TENURE DOCUMENTS, SURVEY RECORDS, AND GOVERNMENT COMMUNICATIONS

The most detailed historical descriptions of the Waiākea and ‘Ōla‘a forest lands, and of neighboring Keauhou, including documentation of traditional and customary rights, are those found in the Kingdom collections, documenting the history of land tenure, and defining the boundaries of *ahupua‘a* in the Hilo, Puna, and Ka‘ū Districts. This section of the study presents readers with the laws of the Hawaiian Kingdom, which established fee-simple land ownership and codified native tenant rights. Subsequent to the definition of land rights, the Kingdom set about the processes to determine the metes and bounds of the lands which had been granted in fee-simple interest to various parties. As a result, detailed oral testimonies from elder native tenants were taken in court proceedings, which further documented the occurrence of traditional and customary practices, and nature of the resources within given *ahupua‘a*. In those records, which follow below, we learn of the traditional knowledge and occurrence of native practices in the lands which today are a part of, and adjoin the Pu‘u Maka‘ala NAR.

The Māhele ‘Āina (Land Division) of 1848

In Hawai‘i prior to western contact, all land, ocean and natural resources were held in trust by the high chiefs (*ali‘i ‘ai ahupua‘a* or *ali‘i ‘ai moku*). The use of land, fisheries and other resources was given to the *hoa‘āina* (native tenants) at the prerogative of the *ali‘i* and their representatives or land agents (*konohiki*), who were generally lesser chiefs as well. By 1845, the Hawaiian system of land tenure was being radically altered, and the foundation for implementing the *Māhele ‘Āina* (a fee-simple right of ownership) was set in place by Kauikeaouli (Kamehameha III).

Following implementation of the *Māhele*, the King also initiated a land grant program, issuing fee-simple “Royal Patents” on granted land. In addition to the sale of fee-simple interests in land, the Crown and Government lands were also made available for leases and, in some cases, for sale. Together, these three land programs opened the door for the development of the large ranching interests in the lowlands below ‘Ōla‘a and Waiākea, and on the Keauhou-Kapāpala forest lands. Because of the remote nature of the lands and dense forests of the ‘Ōla‘a-Waiākea lands that make up the Pu‘u Maka‘ala NAR, no leases or conveyances were recorded for those lands. This said, it is likely that Hawaiian visitation collection of resources associated with traditional and customary practices continued in the Pu‘u Maka‘ala NAR lands for some time through the middle to late 1800s.

On December 10th, 1845, King Kamehameha III (Kauikeaouli), signed into law “Article IV. –of The Board Of Commissioners to Quiet Land Titles,” a joint resolution defining the responsibilities of the Board of Commissioners. Several actions were implemented by this law, among them:

SECTION I. His Majesty shall appoint through the minister of the interior, and upon consultation with the privy council, five commissioners, one of whom shall be the attorney general of this kingdom, to be a board for the investigation and final ascertainment or rejection of all claims of private individuals, whether natives or foreigners, to any landed property acquired anterior to the passage of this act; the awards of which board, unless appealed from as hereinafter allowed, shall be binding upon the minister of the interior and upon the applicant...

SECTION VII. The decisions of said board shall be in accordance with the principles established by the civil code of this kingdom in regard to prescription, occupancy, fixtures, native usages in regard to landed tenures, water privileges and rights of piscary, the rights of women, the rights of absentees, tenancy and subtenancy, — primogeniture and rights of adoption; which decisions being of a majority in number of said board, shall be only subject to appeal to the supreme court, and when such appeal shall not have been taken, they shall be final...

Section IX. The minister of the interior shall issue patents or leases to the claimants of lands pursuant to the terms in which the said board shall have confirmed their respective claims, upon being paid the fees of patenting or of leasing (as the case may be)... [In the Polynesian; January 3, 1846:140]

As the *Māhele* evolved, it defined the land interests of Kauikeaouli (King Kamehameha III), some 252 high-ranking *Ali'i* and *Konohiki*, and the Government. As a result of the *Māhele*, all land in the Kingdom of Hawai'i came to be placed in one of three categories: (1) Crown Lands (for the occupant of the throne); (2) Government Lands; and (3) *Konohiki* Lands. The "Enabling" or "*Kuleana Act*" of the *Māhele* (December 21, 1849) further defined the frame work by which *hoa'āina* (native tenants) could apply for, and be granted fee-simple interest in "*Kuleana*" lands (cf. Kamakau in *Ke Au Okoa* July 8 & 15, 1869; 1961:403-403). The *Kuleana Act* also reconfirmed the rights of *hoa'āina* to access on trails, subsistence and collection of resources necessary to their life upon the land in their given *ahupua'a*. The *Kuleana Act*, remains the foundation of law pertaining to native tenant rights. The Act was passed on August 6, 1850, and reads:

An Act confirming certain resolutions of the King and Privy Council passed on the 21st day of December 1849, granting to the common people allodial titles for their own lands and house lots, and certain other privileges... That the following sections which were passed by the King in Privy Council on the 21st day of December A.D. 1849 when the Legislature was not in session, be, and are hereby confirmed, and that certain other provisions be inserted, as follows:

Section 1. Resolved. That fee simple titles, free of commutation, be and are hereby granted to all native tenants, who occupy and improve any portion of any Government land, for the land they so occupy and improve, and whose claims to said lands shall be recognized as genuine by the Land Commission; Provided, however, that the Resolution shall not extend to *Konohikis* or other persons having the care of Government lands or to the house lots and other lands, in which the Government have an interest, in the Districts of Honolulu, Lahaina and Hilo.

Section 2. By and with the consent of the King and Chiefs in Privy Council assembled, it is hereby resolved, that fee simple titles free of commutation, be and are hereby granted to all native tenants who occupy and improve any lands other than those mentioned in the preceding Resolution, held by the King or any chief or Konohiki for the land they so occupy and improve. Provided however, this Resolution shall not extend to house lots or other lands situated in the Districts of Honolulu, Lahaina and Hilo.

Section 3. Resolved that the Board of Commissioners to quiet Land titles be, and is hereby empowered to award fee simple titles in accordance with the foregoing Resolutions; to define and separate the portions belonging to different individuals; and to provide for an equitable exchange of such different portions where it can be done, so that each man's land may be by itself.

Section 4. Resolved that a certain portion of the Government lands in each Island shall be set apart, and placed in the hands of special agents to be disposed of in lots of from one to fifty acres in fee simple to such natives as may not be otherwise furnished with sufficient lands at a minimum price of fifty cents per acre.

Section 5. In granting to the People, their House lots in fee simple, such as are separate and distinct from their cultivated lands, the amount of land in each of said House lots shall not exceed one quarter of an acre.

Section 6. In granting to the people their cultivated grounds, or *Kalo* lands, they shall only be entitled to what they have really cultivated, and which lie in the form of cultivated lands; and not such as the people may have cultivated in different spots, with the seeming intention of enlarging their lots; nor shall they be entitled to the waste lands.

Section 7. When the Landlords have taken allodial titles to their lands the people on each of their lands shall not be deprived of the right to take firewood, *aho cord*, thatch, or *ti* leaf from the land on which they live, for their own private use, should they need them, but they shall not have a right to take such articles to sell for profit. They shall also inform the Landlord or his agent, and proceed with his consent. The people shall also have a right to drinking water, and running water, and the right of way. The springs of water, and running water, and roads shall be free to all should they need them, on all lands granted in fee simple. Provided, that this shall not be applicable to wells and water courses which individuals have made for their own use.
Done and passed at the Council House, Honolulu this 6th day of August 1850. [copied from original hand written "Enabling Act"⁶ – HSA, DLNR 2-4]

The most important source of documentation that describes native Hawaiian residency and land use practices — identifying specific residents, types of land use, crops cultivated, and features on the landscape — is found in the records of the *Māhele Āina*. While the “Land Division” gave the *hoa'āina* an opportunity to acquire fee-simple property interest (*kuleana*) on land which they lived and actively cultivated, the process required them to provide personal testimonies regarding their residency and land use practices. As a result, records of the *Māhele Āina* present readers with first-hand accounts from native tenants generally spanning the period from ca. 1819 to 1855. The lands awarded to the *hoa'āina* became known as “Kuleana Lands” and all the claims and awards (the Land Commission Awards or L.C.A.) were given *Helu* (numbers). The L.C.A. numbers remain in use today, and identify the original owners of lands in Hawai‘i.

The work of the Land Commission was brought to a close on March 31, 1855. The program met with mixed results, and it has been calculated that the total amount of land awarded to *hoa'āina* (native tenants – the common people of Hawai‘i) equaled approximately 28,658 acres, of a total four million available acres (see Governor’s report 1902:7).

***Disposition of Primary Lands Making up and Adjoining
The Pu‘u Maka‘ala Natural Area Reserve in the Māhele***

The lands which make up the Pu‘u Maka‘ala NAR include *ahupua‘a* belonging to the Hilo and Puna Districts, and are also bounded by lands in the Ka‘ū District. In the *Māhele*, the following division of lands was agreed to by the King and participating *ali‘i* (all page references are to the “*Buke Mahele*” 1848):

Keauhou, Ka‘ū	Keauhou, <i>Ili i Kau, Kapapala</i> ; retained by V. Kamamalu (pp.5-6).
‘Ōla‘a, Puna	Olaa (Kalana); relinquished by Kaunuohua to King Kamehameha III (pp. 91-92). Retained as Crown Land by the King.
Waiākea, Hilo	Relinquished by Kaunuohua to King Kamehameha III (pp. 91-92). Retained as Crown Land by the King.

⁶ See also “*Kanawai Hoopai Karaima no ko Hawaii Pae Aina*” (Penal Code) 1850.

Within these lands, *hoa'āina* also made claims for small *kuleana*. Our review of all records of the *Māhele* revealed that the following number of claims were made in these lands⁷:

Ahupuaa	Claims	Awarded	Not Awarded
Keauhou, Ka'ū	0	0	0
'Ōla'a, Puna	1	0	1
Waiākea, Hilo	36	24	12

None of the claims by *hoa'āina* identified uses or parcels within the lands that are now a part of the Pu'u Maka'ala NAR, though it is understood (based on traditional and customary practices, and the laws cited above) that native tenants of the lands would have accessed the forest lands in order to collect resources or participate in other traditional practices.

An indicator of the cultural significance of the forest lands adjoining, if not also within the present day 'Ōla'a-Waiākea Forest Reserves and Pu'u Maka'ala Natural Area Reserve is found in the following letter of 1857, in which the important *koa* forests of the Kapāpala-Keauhou vicinity in Ka'ū are mentioned:

Waimea, Hawaii

26, March, 1857

Isaac Y. Davis; to Keoni Ana, Minister of the Interior

(Regarding status of the King's Lands at Apua, Kapapala and other locations):

...I have made a circuit of the Island of Hawaii, and I have returned.

I have seen all the places that I visited, and saw the lands of the King in Puna, Kau & Kona, some are good, and some are not good...

Kapapala, Ahupuaa in Kau, is a large land, but one side is stone, but, the side joining the mountain is good, plenty of earth, the land is rich and green as I observed. The canoe *koa* forest in Kau belongs to Kapapala, there is also a pond, but I did not visit it, and this land is similar to Waimea.

I called the people to come, and I told them my desire to lease said land hoping that I would be able to get between \$300.00 and \$500.00, and if five hundred, all the better, but the natives said only \$50.00 to \$60.00, and then up to a hundred, and not more, so I did not consent... [HSA Interior Department Lands]

The forest lands of 'Ōla'a are noted for their growth of *hāpu'u* (*Cibotium*) tree ferns. The collection of *pulu* was one of the activities undertaken in the 'Ōla'a section, as mentioned in the following letter from 1866. At the time, the applicant, T. Spencer, also applied for the right to run a few head of animals in the forest lands:

Honolulu, Oahu

23, April, 1866

Thomas Spencer. to J.O. Dominis:

...I would respectfully ask of you as a favor, to grant, or procure for me, a *Pulu* privilege on the land called *Oiaa*— I do not ask you for "The privilege," but a *Pulu* privilege, and to run what few animals I have connected with the business. I cannot afford to pay but a small sum, as the business will not warrant it—I am barely making both ends meet, I assure you, out of it. I called this morning on Mr. Rufus Lyman for information, in regard

⁷ The on-going research of Kumu Pono Associates LLC in the nearly 60,000 records of the *Māhele* 'Āina, may lead to modifications in these numbers at a later date.

to this business who referred me to you, and has kindly promised me to write you for instructions. Be so good as to grant me this favor... [HSA Interior Department Lands]

Later in 1866, we find that native applicants were seeking “*pulu* privileges” in ‘Ōla‘a as well, and that they had knowledge of the native birds and other resources in the uplands:

Hilo, Sept. 18th, 1866

R.A. Lyman; to J.O. Dominis:

...Kaaukai & Kaaua are the ones who wish to lease *Olaa* for five years from the first of next January. Provided that they are allowed to have the *pulu*, and only the *pulu*. Birds, & *awa*, to be reserved. They would like to have two or three weeks more to consider about it, and wish to know whether you will allow them to pay on the 1st of July of each year, or whether they will have to pay the first of every year. Please let me know about this, and I will let you know as soon as I can if they will take it... [HSA Interior Department Lands]

Proceedings of the Boundary Commission: Documenting Traditional and Customary Practices, and Land Boundaries (1873-1875)

In 1862, a Commission of Boundaries (the Boundary Commission) was established in the Kingdom of Hawai‘i to legally set the boundaries of *ahupua‘a* that had been awarded to *Ali‘i*, *Konohiki*, and foreigners during the *Māhele*. In 1874, the Commissioners of Boundaries were authorized to certify the boundaries for lands brought before them (W.D. Alexander in Thrum 1891:117-118). The primary informants for the boundary descriptions were old native residents of the areas being discussed (generally born between the 1780s to 1820s). The native witnesses usually spoke in Hawaiian, and their testimony was translated into English and transcribed as the proceedings occurred.

Readers will note that there are significant inconsistencies in spelling of various words, including place names, people names, and features on the landscape. This is problematic, but with the help of maps produced as a part of the surveys to establish boundaries, and other period maps (e.g. Register Map No.’s 42 & 524; and Land Court Application Map No. 1053), many of the locations described can be identified. We have also observed that in some testimonies, when the original translator-transcriber used two of the same vowels, it indicated that he/she heard a lengthened pronunciation of a particular vowel. This emphasis of pronunciation is now indicated by a macron mark—for example, the word “neenee” (for *nēnē*), the native goose formerly hunted on the mountain lands above the Pu‘u Maka‘ala NAR. While in the modern context of the language, two of the same vowels are generally both pronounced, and broken by an ‘okina or glottal mark.

The narratives cited below, are verbatim transcripts from the testimonies given by native residents or land owners, and those given by surveyors who recorded the boundaries based on the testimony of native guides. The testimonies include descriptions of the lands of ‘Ōla‘a and Kea‘au (Puna); Waiākea (Hilo) by association with the adjoining lands of ‘Ōla‘a, Kukuau, Kaūmana and Humu‘ula; and Keauhou (Ka‘ū).

While the excerpts from the testimonies, extend beyond the specific limits of the Pu‘u Maka‘ala NAR, they are important as they demonstrate thorough knowledge of the landscape, and demonstrate continuity in the types of traditional and customary practices described at various elevational zones. Thus, while something may not have been recorded for ‘Ōla‘a or Waiākea, the description of practices in a neighboring land, suggests that such knowledge existed within lands that make up the study area. The witnesses generally described the boundaries as they rose form the ocean or lowlands, running through the forest lands, to a point where they reached the slopes of Mauna Loa. ‘Ōla‘a and Waiākea are both cut off by larger lands of the Hilo and Ka‘ū Districts. The primary upland boundary points given are Pōhakuloa, Kūlani, Kīpū, and Māwae.

Also, while situated in the *ahupua'a* of Waiākea and 'Ōla'a, access to the forest resources of what is now the Pu'u Maka'ala NAR and adjoining areas, would have sometimes been gained from neighboring lands such as Kea'au, Kukuau, Humu'ula, Keauhou and Kapāpala. The selected native testimonies describe a wide range of traditional practices in the uplands of Waiākea, 'Ōla'a, and in adjoining lands. The types of usage includes: travel on native trails, land use in a wide range of elevational zones; collection of resources; the collection of, or "hunting" of birds; canoe making; and the subsequent practices associated with hunting introduced ungulates—all under the control of *Konohiki*⁸. The testimonies also record that changes had occurred on the landscape during the lifetime of the witnesses. It is of importance to note that the boundaries were known by the native tenants, and the rights to take or hunt resources in traditional times were fiercely protected—individuals without chiefly, genealogical claims, or residency ties to given lands were not allowed to trespass and take resources from the *ahupua'a*.

Underlining, square bracketing, bold and italic print are used by the compilers here, to highlight place names and particular points of historical interest recorded in the testimonies. The proceedings for the cited lands are given in alphabetical order, and date of recordation.

In the days leading up to the recordation of testimonies regarding the boundaries of Waiākea and Humu'ula, Hilo; and Keauhou, Ka'ū, we find that a difference of opinion had arisen among the witnesses. The commission proceedings standardized the boundaries of these lands, sometimes without following the former traditional boundaries:

Hilo May 1st 1873

R.A. Lyman; to J.O. Dominis, Agt. of Crown Lands

(Regarding hearings for Crown Lands before Boundary Commission):

I have set the 2d of next June for the hearing of testimony for the settlement of the boundaries of Punahoa, Makahanaloa & Pepekeo in Hilo, Keaau & Keahialaka in Puna, Honuapo & Pakaniiki in Kau. I will have the hearing at Hilo. The Crown Com. are interested in the lands of Pihihona & **Humuula** joining Makahanaloa & Pepekeo, Ponahawai joining Punahoa 1st, **Waiakea & Olaa** joining Keaau in Puna.

Please to authorize some one to appear at the hearing and look after your interests...
[HSA – ID Lands]

Hilo, June 9, 1873

R.A. Lyman, to J.O. Dominis, Agent of Crown Lands

(Regarding Boundaries of Humu'ula and Neighboring, and Disposition of Pi'iuhonua):

...Enclosed, please find a list of lands as near as I can make it out at present. I have written to Mr. Wiltse and Hoapili asking them to send you correct lists of lands in their districts and to forward me copies as soon as possible. Please to send me surveys of as many of the lands as you can. If the surveys made by my brothers have been lost, I think that any brother could make out new copies of most of them. The survey of **Humuula** made by Wiltse cuts way into Waiakea as surveyed by Webster and cuts off several miles of Kapapala and Keauhou.

Kahue, Wiltse's *Kamaaina* swears that they did not go to a single point on the boundary of Humuula along in the woods and did not put any flags there but that he pointed out some above the woods where he guessed the points were and they sighted to them.

⁸ In regards to hunting, it will be noted that descriptions of traditional hunting practices are limited to native species of birds, including the *ua'u*, *nēnē*, *mamo* and *'ō'ō*; while description of historical hunting practices are limited to goats, which were hunted under contract of *Konohiki*, the Crown, or the Government.

The Piihonua people are very much put out about the survey of **Humuula** as they supposed they had leased Piihonua by the ancient boundaries and the survey of Humuula cuts off a strip several miles wide clear across the head of the land and leaves no wild cattle to speak of for Piihonua. They say they cannot afford to pay \$100 a year for the woods of Piihonua now. [HSA, Crown Lands File]

The Ahupuaa of Humuula

District of Hilo, Island of Hawaii

Boundary Commission, Hawaii, Volume A No. 1:238-240

Honolulu, July 7, 1873

R.A. Lyman, Esq.
Hilo

Dear Sir

Mr. F.H. Harris is authorized by the Commissioners of Crown lands to make application to you as Commissioner of Boundaries to have the boundaries of all Crown lands on the Island of Hawaii defined. He has a list of the lands with him.

I have also authorized Mr. F.H. Harris to make application to you for the settlement of boundaries of all lands belonging to Est. of His late Majesty and Her Excellency, R. Keelikolani.

I expect to be in Kona by the trip of the "Kilauea" which leaves here on the 28th inst. Can't you make it convenient to come round as the steamer goes to Hilo on that trip.

I wish also to apply for the settlement of the boundaries of Honohina.

I remain,
Yours Respy.
Jno. O. Dominis

Honorable R.A. Lyman
Boundary Commissioner
for Island of Hawaii, Haw. Is.

The undersigned would herewith make application for the settlement of the boundaries of the following named Ahupuaas or Lands belonging to the Crown, viz.:

Waiakea in the District of Hilo bounded by ***Keaaau, Olaa, Kapapala, Humuula, Piihonua***.
Piihonua in the District of ***Hilo***, bounded by Punahoa, ***Waiakea, Humuula*** and Puueo, Paukaa & Alae and other lands

names not known... [page 238]
Humuula in the District of Hilo bounded by
Kapapala, various lands in Kona and Kohala
and Hamakua, and Hakalau, Makahanaloa,
Papaikou, Paukaa, Piilhonua and Waiakea
in the District of Hilo... [page 239]
...*Olaa* in the District of Puna, bounded by
Keaau, Wm. C. Lunalilo, H. M. *Waiakea*
& *Kapapala*...

Your Honor will therefore please appoint
a day for hearing the evidence
in the foregoing named lands and having
decided upon the same to grant a certificate
to that effect to the undersigned.

Hilo Hawaii, August 16th A.D. 1873

(Signed) Jno. O. Dominis
Crown Land Agent.
by F.H. Harris
atty. at law. [page 240]

Ahupuaa of Humuula
Boundary Commission, Hawaii Volume B:28-59

The *Ahupuaa of Humuula*, District of *Hilo*,
Island of Hawaii, 3d J.C.

On this, the 3d day of November A.D. 1873 by adjournment from the 30th October, the Commission of Boundaries for the Island of Hawaii, 3d J.C. met at the Court House in *Hilo*, on the application of J.O. Dominis, Agent of Crown Lands for the settlement of the boundaries of *Humuula*, situated in the District of *Hilo*, Island of Hawaii. Notice personally served on owners or Agents of adjoining lands, as far as known. Also served by publication in the Hawaiian Gazette of _____ and *Kuokoa* of _____.

Present, E.G. Hitchcock for applicant, for Mrs. L.K. Dominis, Her Ex. R. Keelikolani, the Estate of Kamehameha V, C.R. Bishop and self, D. Kamai for Hawaiian Government Lands in *Hilo*, and D. Alapai.

For Petition see Folio 238, Book A.

Testimony.

J.A. Simmons ^{K.}, Sworn:
I have lived on Hawaii for forty two years and in Hilo, District about half of that time. I shot wild cattle on Humuula for eight years.

This was soon after I came into the Country, but
I have been there since. I used to live with
Ned Gurney at Lahohino [Lahohinu], a place above the
woods on Humuula...

Makaulaula ^{K.} and Opukeike ^{K.}, old bird
catchers of Piihonua, also pointed out the
boundaries to me, when I lived at Pahukea,
saw mills on Piihonua... [page 28]

...A great deal of the forest has been killed
out by the cattle barking the trees and
destroying the underbrush. Therefore the
woods do not extend so far *mauka* as they
did twenty years ago.

Know the place called Puuoo, a big hill
on the plains of Humuula is now called
by that name, but the original Puuoo is
a hill covered with *ohia*, and was told it was on the land
of **Waiakea**. It is *makai* of the hill on
Humuula, and I am certain it is not on
that land...

Nainoa ^{K.} Sworn.
I am a *kamaaina* of Hamakua, at the time
of Aipala [famine of ca. 1811], know a part of the boundaries
of **Humuula**, as they were pointed out to
me by people who are now dead.
Li. Kauwila (his father) and Pali, who
were *kamaainas* of **Humuula** showed
me the boundaries, and told me not to go
to certain places... [page 30]

...I went with the *kamaaina*.
They told me that **Humuula** was bounded
by **Kapapala** of Kau, **Keauhou** of Kona,
and **Kaohe** of Hamakua. I have never
heard that **Kaalaala** of Kau or **Waiakea** of
Hilo joined **Humuula**. The old trail
from **Humuula** towards **Piihonua** used
to run along the *mauka* edge of the woods,
near the boundary, not in the woods.

The **Humuula** and **Piihonua** people
used to go after water at Kelewa [Kaelewa]... [page 31]

...When I went after birds on **Humuula**
Li told me not to catch the birds in *koa*
and *mamani*, as they belong to the *makai*
lands, and would be taken away by the people
of those lands if I caught them... [page 32]

Kahue ^{K.} Sworn:

I was born at **Humuula**, am seventy three years of age, and a *kamaaina* of the land and know its boundaries. Kalaimaka, Mohaiku, Eekamoku (all dead) were *kamaaina* of **Humuula** and pointed out the boundaries to me... [page 33]

...**Kahiliku**, a *lae laau* [a section of forest that extends out from the surrounding forest on to an open area], outside of the woods. Thence to **Mawae**, a crack in the woods that runs from makai. I have heard that **Waiakea** joins **Humuula** here, but I do not know which side of the lava flow of 1854 or 1855, the lands join. Thence the boundary of **Humuula** runs to **Kawaauwauwai a kau-hale**; the boundary running to this point in scattering bush. The forest ends at **Elekalua**...[page 34]

...**Kapapala** is said to cut **Humuula** off to **Pohakuhanalei**. Boundary runs near **Puuonioni** on **Humuula**; the boundary is a little beyond. **Wekahuna** [Uwēkahuna] is a hill on **Humuula**. **Waiakea** ends at **Pohakuloa**, and from there **Humuula** is bounded by **Kapapala** to **Pohaku-hanalei** (I do not know whether **Kapapala** extends to **Pohakuhanalei**). From Pohakuhanalei to Koahe it is bounded by **Kaalaala** of Kau... [page 35]

Witness rested until 10 o'clock tomorrow morning Nov. 4th 1873.

R.A. Lyman
Com. Boundaries 3d J.C.

Hilo Nov. 4th 1873. Court opened according to adjournment...

[Witness Kahue, continued]:
I went with Wiltse one time when he surveyed the land of **Humuula** [Register Map 668]... [page 36]

I do not know the places called Punaluu (on **Mauna Loa**), **Kaamaumaloa**, **Puulaula** and **Puu-kulua**, **Puuonioni** and **Wekahuna**. I have not seen, but have heard that they are on the boundaries. **Humuula** does not reach to **Kulani**. **Puuiki** is by the boundary of **Humuula** and **Waiakea**... [page 37]

Waiki ^{K.} Sworn:

I live at **Humuula**, was born there after the battle of Kekuakalani [1819], and know the boundaries of the land. My parents told them to me. Eekamoku was my father and Koapunini my grandfather, they were bird catchers

and canoe makers. Kalaimaka, father of my wife pointed out the boundaries and told them to me... [page 38]

...Kahiliku kauhale manu [a bird catcher's house at Kahiliku]; thence to Kaelewa, where there is now water. Thence to Kawauwai by the edge of the forest. Thence to Kaieie; Waiakea and Piilohua join Humuula between these two places. Thence along the edge of the forest to Kalapaohelo. I have been there with my parents, an old lava ground. Thence to Pohakuloa, a large rock where Kaehu Paki laid down on the side of the mountain towards Kau of Kalapaohelo. There I [page 40] staid with my *kupuna* and they said the boundary runs from here up the mountain to Pohakuhanalei, a rock on the slope of the mountain towards Kaleieha. Waiakea bounded it to Pohakuloa, but they did not tell me what lands bounded Humuula from there to Pohakuhanalei... [page 41]

Kaaua ^{K.} Sworn.
I was born at Waiakea Hilo, at the time of Akakai Mokuokai [Hakaka i Mokuohai, the Battle of Mokuohai in 1782]. I have always lived there, and know where Waiakea joins Humuula. I was told by Olaa kamaaina, Opuloa and others (whose names I have forgotten) at the time Webster surveyed Waiakea. I have always heard that Waiakea joins Humuula from Puuhuluhulu to Mawai [Mawae]. Webster set flags on Puuhuluhulu when he surveyed Waiakea... [page 55]

The Ahupuaa of Kaumana

**District of Hilo, Island of Hawaii, 3^d J.C.
Boundary Commission, Hawaii Volume B:1-2**

On this 29th day September A.D. 1873...

Kekai ^{K.} Sworn:
Kaiahua, a bird catcher (now dead) showed me the boundaries of Kaaumana, Waiakea and Piilohua, in the woods. Kapulu is at the mauka corner of Kukuau, and at the junction of Waiakea and Kaaumana. Thence the boundary between Waiakea and Kaaumana runs mauka to Kalapanui, an *oioina* [trailside resting place] and place where we used to catch birds; a high ridge on the Hilo side of the lava flow of 1852. There used to be an old road for bird catchers to Hoaa, a place on Waiakea, where we

used to catch mamo. **Kaaumana** is on the Hilo side of this ridge; thence mauka to **Kapualei**, now covered by the lava flow of 1855. Thence to **Kalaekoieie, lae koa** [a section of koa forest extending onto a lava flow] mostly destroyed by the lava flow. **Kaaumana** ends at the *mawae* [fracture], *makai* of this place, and mauka of the tall woods, at the junction of **Piihonua** and **Waiakea**. Thence the boundary of **Kaaumana** runs *makai* [page 1] along **Piihonua to Kapili**, an old *kauhale* [house site], now covered by the lava flow; thence *makai* to **Kilohana**, now covered by lava; thence to **Kawaauwauwai**; thence *makai* to **Nahaleoelolele**, the mauka corner of **Ponohawai**.

C.X.'d... [page 2]

The Ahupuaa of Keaau

**District of Puna, Island of Hawaii, 3^d J.C.
Boundary Commission Testimony – Volume A. No. 1:191-198
June 4, 1873**

Uma K. Sworn: I was born at Keauhou at Keaau Puna, at the time of the return of Kamehameha 1st from Kaunakakai, Molokai [ca. 1791], I have always lived there and know the boundaries between Keaau and Waikahekahe. My parents pointed them out to me when we went after birds and sandal wood... [page 191]

...Alaalakeiki, which is the end of Waikahekahe Iki and Kahaualea joins Keaau. This place is at an old *kauhale manu* [bird catchers compound] (opposite a rise of ground, above the seventeen mile post, on the Volcano Road, about two miles above Kanekoa), thence mauka to Palauhulu, an *ahua* [rise] on the road to Kilauea, at the place where the road to Panau branches off. The boundary between Keaau and Kahaualea is on the South east side of Palauhulu about as far away from Hilo Court House to seashore. Thence the boundary runs mauka to Omaolaulau (*he oioina* [a resting place] on *pahoehoe*) near the woods at Reeds bullock pen... thence mauka to Keekee, *Kauhale kahi olona* [house for stripping *olona* bark for cordage] in Olaa. The boundary is a short distance from the Government road on the South East side. Thence to Kauwaanahunalii (*he oioina*) this place is on Keaau and the boundary runs to the South East side of it. This is at the high ground where you can look down in the woods where the bullock pen is, thence to Kawaiaeae

a large water pond (South East side of the road). The boundary of Keauau and Kahaualea is close to the pond, on the south east side, thence *mauka* to Kalaninauli, the land on the south east side being only about six chains wide thence to Puuenaena (large *ohia* trees on the road *makai* of the *koa* woods) a short distance South East of the Government road. Thence the boundary runs *mauka* to a place called ***Pohakuloa***, a small cave south east of the Government road, and a very short distance above the *koa* woods, on the Government road to Kilauea. Thence Keauau is cut off by ***Keauhou***. ***Olaa*** bounds Keauau on the north west side. Keauhou cuts Keauau off to Government road to Kilauea, then runs *makai* along the old [page 192] Government road, through the *koa* woods. ***Olaa*** being on the North side of the road and Keauau on the South east side. Thence down the road passing these points ***Palauhulu*** and to ***Kapueuhi***, thence *makai* to Kahooku thence to Kanekoa, the houses on the South East side of the road are on Keauau, those on the other side are on ***Olaa***, thence to Kamahiki (14 mile post). Thence to Kalehinapua (where there is a *mauka* road which goes to Hawelu's) thence to Kaahakanaka, on the outer road passed Hawelu's thence to Kaluakaiole (Kaakeakaiole) *mauka* of where Haanio road to Kukulu leaves the present traveled road, thence to Mahinaakaaka on the outer road, out side of Kahuku, thence down to where Kahopuaku's houses used to be (Makaulele) along the old road, this is as far as I know the boundaries between ***Olaa*** and Keauau. Kahopuaku's houses were on ***Olaa***... [page 193]

Kanoi ^K Sworn: I was born at Kapapala in Kau, at the time of the building of Kiholo [ca. 1811] lived there until a few years since; know the land of Keauau and the boundaries on the mountain adjoining Kahaualea. The upper end of Keauau is bounded on the South East-side by Kahaualea, and on the mauka side by Keauhou and on the Northwest side by Olaa; Kaheana, Kaihe Kaheana², and Makanui my *Kupuna* showed me some of the boundaries of these lands. Kaheana was from Panau, Puna, and Kaihe was from Kau. These two men, with others from Kapapala showed me boundaries between Keauhou and Kahaualea where we went after the oo on ***Keauhou***. Went after sandalwood on Kahaualea. ***Keauhou*** cuts Keauau off at

Pohakuloa, the *huina alanui* [road intersection], where the marks or sign board is at the junctions of the Hilo and Puna [196] roads this side of the Kilauea House, the name of this place is Halemaumau. The boundary of Keaau runs *makai* along the Puna road to Kaluaiki, a small crater, at a place where the road runs between two craters. Onto the *mauka* side of crater Kaluaiki, said crater is on Kahaualea and Keauhou is on the South side of the road. Keaau and Kahaualea lay side and side, from Kaluaiki to Nawailoloa, a place on the road from Palauhulu to Panau. Kaluaiki is about as far Pohakuloa as from Hilo Court House to Kaina's house at Alenaio. Nawailoloa and Kilohana, two ponds of water, on the road to Panau from Palauhulu, from Nawailoloa the boundary between these two lands runs *mauka* to a grove of *Ohia* trees called Namauuo-kalahili, thence *mauka* to Puukea a hill in the woods where we used to go after sandal wood, thence *mauka* to Namamokalei where we used to catch *uwao* ['ua'u]. This place is opposite to Kuanahunahu, *mauka* of Keekee about a mile. Thence to Kaluaiki. I have often been to these points from **Waiuli** to **Pohakuloa**. I have always heard that the old Government road to Kilauea is the boundary between Keaau and Olaa, I do not know the *makai* boundaries...

Nailima^K Sworn: (same witness as for Olaa) I was born at Olaa, and know the boundaries between Olaa and Keaau. My *kupuna*, now dead, showed them to me. Keaau ends at Halemaomao at the junction of the Hilo and Puna road. Olaa on the Hilo side of the road and Keaau on the Puna side. Thence *makai* to Pohakuloa, thence *makai* to Puuenaena (big *ohia* trees) thence to Kalaninauli, so called by Nahienena. Thence to Waiaiai, thence to Kauailehulehu, thence to Keanapapa at the 24 mile post thence to Kauwanahunalii, thence to Keekee, thence to Omaolaualau (at *ohia* woods, and the bullock pen) thence to **Pohakuloa**, thence to Palauhulu, thence to Kawaikahoohia. Thence to Kawaa, thence to Kaialuawai, thence to Kaluamanuahi, to Kaleinakeakua, which is at the 18 mile post, thence to Pahookui, thence to Pohakuloihi, to Punahaha, 17 mile post, thence to Kapuamau page 196]. Thence to Kawaiaiai, thence to

Kapae, 16 mile post, thence to Kanekoa, thence to Mokuhaaheo, thence to Mahiki, to Kahau, to Puualae, to Kaleiki, to Kanukea, thence to Umihali at the fifteen mile post, thence the boundary runs to Kalehuapua, *mauka* of the road to Hawelu's house (thence to Kaahakanaka, outer road to Hawelu's house). Thence follow the outer road to Popoiwi, where Haanio's road branched off to go to Kukulu. Thence follow the outer road to Mahinaakaaka, opposite Kahuku, thence to Kapuhu, and *ohia* grove, where the road turns towards Hilo on the *makai* side, thence to Ahuapuu, a *puuhala* tree by the road, thence to Makaulele, a little *makai* of this place, Keaau road joins at this point the boundary leaves the Hilo road, and turns *mauka* along *Olaa*, to Kilohana, an *ahua* or mound with orange trees. Thence the boundary runs up *mauka* along *awaawa* on Kau side of Kilohana, up a hill covered with *puu hala*, thence to *pali* Puuaehu, the boundary on the brow of *pali*, this side of Keaani, which is the name of an *ohia* grove on the side of the *pali*, some distance *mauka* of Haanio's road, thence to Kaanamanu a place inside the woods. I have never been there and only heard of this place. Thence to Kaaipuaa, an old village, where people used to live. Thence to Waiaeli [also written Waiae in text], a pond of water with *aweoweo* growing in it. Said pond is on the old road from Olaa to Pooholua. Have heard *Waiakea* joins *Olaa* and Keaau at Waiae, Mawae is near there and have always heard that it is the boundary between Keaau and Waiakea. From the Government road to Olaa, seashore Kawiakawaa is at sea shore... [page 197]

***The Ili of Keauhou, Ahupuaa of Kapapala
District of Kau, Island of Hawaii
Boundary Commission, Hawaii, Volume A, No. 1:245-246***

Honorable R.A. Lyman
Boundary Commissioner
for Island of Hawaii

The undersigned would herewith make application for the settlement of the Boundaries of the following named Ahupuaas or lands belonging to the Estate of the Kekuanaoa & V. Kamamalu, viz...;

...Keauhou Ili of **Kapapala**, District of Kau Hawaii adjoining lands **Kapapala**, Apua... [page 245]

...Your Honor therefore will please appoint a day for the hearing of said application, and grant a certificate in accordance therewith,

(sig) J.O. Dominis, admnts.
J.F.H. Harris, Atty at Law
Hilo August 16th A.D. 1873 [page 246]

**Keauhou, Ili of Kapapala Ahupuaa
District of Kau, Island of Hawaii
Boundary Commission, Hawaii, Volume A No. 1:444-446**

The Ahupuaa of **Keauhou**, District of Kau, Island of Hawaii, 3d J.C.

On this, the 24th day of October A.D. 1873 the Commission of Boundaries for the island of Hawaii, 3rd J.C. met at the Volcano House, Kilauea, Kau on the application of J.O. Dominis, acting for Administrator of the Estate of M. Kekuanaoa, for the hearing of the testimony in regard to the settlement of the boundaries of Keauhou, situated in the District of Kau, Island of Hawaii.

Notice personally served on J.G. Hoapili and L. Kaina; Agents for the owners of adjoining lands. Present: W.K. Moi in place of J.G. Hoapili, for applicant and for Agent of Crown lands and Kau Lands. J.N. Gilman for L. Kaina for Agent of Crown lands in Puna.

For Petition see Folio 246

Testimony

Kenoi K. Sworn
I was born at **Kapapala**, Kau at the time of Kiholo mua [ca. 1811], and lived on said land or adjoining lands until about Eleven years since. Am a *kamaaina* of **Keauhou** and know its boundaries. My Father, Kaheana (now dead) told them to me when we used to go after uwau and geese.

Kapapala bounds Keauhou on the South side; Commencing at the seashore at a *heiau* called Makoloa, thence the boundary between these two lands runs *mauka* to Lapo (Kuhalu is a small *pali* on **Kapapala** near the boundary). Lapo is the lower *pali* of the two; thence to Haleolono, a hill above the *pali*; thence to **Pohakuloa**, to an *ohia* tree on the *pahoehoe*;

thence to **Kulanaokuaike**, a *pali kahua-manu* [bird catcher's flat], where Kaina's man jumped off; thence to **Aiaawa**, *ohia* trees and *awaawa*; thence to **Kaaiwaa** or **Ahuahoiwale**, a *puu* and *ahu*; thence to **Kamokukolau**, an *ohia* grove [page 444]; thence the boundary runs to the South side of the crater, **Keanakakoi**; thence to **Wekahuna** [Uwekahuna], crossing the crater of **Kilauea** a little to the South west of the highest part of the bluff (highest bank of the crater). Thence to **Kilomoku**, a small grove of *koa* and *ohia*, the large grove to the South west being on **Kapapala**, thence to **Ohinale**, a long grove of trees in *aa*; thence to **Keakanaloa**, passing up the center of the *aa* flow; thence along the Hilo side of the *aa* to **Puukulua**, two small hills, the boundary passing between the two; a little toward Hilo of **Puuulaula**. (As I came along over the road today, and was looking at the mountain, I saw I had made a mistake in saying **Puuulaula** was the boundary.) From **Puukulua** (I do not know what land cuts if off, Waiakea perhaps) the boundary runs towards Hilo to **Kaa-mamauloa**, an *aa* flow on the Hilo side of the mountain. Cannot say where it is exactly as it is a long time since I have been there.

There the boundary turns *makai* towards **Kilauea**, to the South west side of **Kipu**, the hill *mauka* of **Kulani**; thence *makai* along **Olaa** to **Kaloulukea**, a *pili a*; thence to **Kaloi**, an open spot in the woods; thence to **Kaola-palapa**, a *pali* at the road; thence along the road to **Pohakuloa** junction of the roads to **Hilo** and **Keauhou**; thence along the road along **Keauau** to **Kaluaike**, a crater on the East side of the road & on Kahaualea. Thence along **Kahaualea**, along the road to **Namanuakalei**, a large *ohia* on the Kau side of the road, thence *makai* along the road to **Kilohana**; junction of **Keau-hou** and Puna roads; thence along the land of **Apua**, along the road to **Ohiakuapu**, a cave; thence through the bush to **Kuelua**, a cave on the road from Kau to Panau, thence to Opuohao, a cave; thence to Pali o Keawaa to a *kukui* tree on the side of the *pali*; thence to **Keamoku**, a small flow of *aa*, on the *pahoehoe*, the *aa* on Apua Boundary, is on the South west side of it; thence to Ninanuhi, a *pali* from which you can see the seashore; thence down the *pali* to **Kealaakahewahewa**, an *ahu* at the *makai* road to Puna and Kau; thence to **Okiokiaho** a pile of stones at the sea shore; two piles of stones and a *mawae* [page 445].

The land of Keauhou is bounded on the *makai* side by the sea, and has ancient fishing rights extending out to sea... [page 446]

***Ili of Keauhou Ili, Ahupuaa of Kapapala
Boundary Commission, Hawaii, Volume B:302-304***

The *Ahupuaa* of Keauhou, District of Kau Island of Hawaii, 3d J.C.

Case continued from October 27, 1873.
See Folio 446, Book A

On this, the 8th day October A.D. 1874 the Commission of Boundaries for the Island of Hawaii, 3d J.C. met at the Court House in Hilo for the examination of witnesses as to the boundaries of Keauhou, situated in the District of Kau, Island of Hawaii. Due notice personally served on owners or agents of adjoining lands as far as known.

Present: L. Kaina on part of applicant and Crown Agent in Puna, E.G. Hitchcock for Crown lands in Hilo.

Testimony

Keliilohi ^{K.} Sworn.
I was born at ***Keauhou, Ili of Kapapala*** at the time of *Okuu* [ca. 1804], and lived there till eight years since. I now live in Hilo. Am a *kamaaina* of ***Keauhou*** and know the boundaries. My *kupuna* and parents (Kaialii was my Father) told me the boundaries...

...***Keauhou***, I have always been told is bounded by Kahaualea; thence the boundary runs up the road to a large *ohia* tree and two mounds on each side of the road; this place is called [page 302] ***Namanuakalei***; thence to ***Kilohana***, a resting place *palipali* and *ohia* tree; thence to ***Mawae holopa***, a crack in the road where sticks are laid across to form a bridge; thence to ***Kaluaiki***, a crater on the Hamakua side of the road. I have heard that this crater is on ***Kahaualea***; thence to ***Pohakuloa*** which is the junction of the Hilo, Puna and Kau roads. Thence along the land of ***Olaa*** towards ***Kulani hill*** to a place called ***Kaloi***. Two open spots in the woods about as large as the Court House yard; the one toward Hamakua being the smallest, covered with *hapu* and ferns; thence to ***Ka-loulukea***, a palm tree; thence to ***Kulani hill***; thence to ***Namaunamaka***, a place where

we used to catch birds; thence along the land of
Waiakea to **Kiipu** [Kipu], a hill; thence to
Kaamamauloa aa about as far as from here
to Kalepolepo, above the woods. This is as far
as I know the boundaries. I have heard that
Waiakea bounds it on the Hamakua side.

There is a large *Mawae* there that runs *mauka*
and *makai*. Thence the boundary runs up
the mountain to **Puumahoe**, called **Puuula-**
ula and **Puuike** at the junction of **Keauhou**
and **Kapapala**. **Kapapala** bounds this
land on the Kau side. The boundary at shore
is at the Eastern base of a hill called **Kuhalu**;
thence to **Lapo**, thence to **Kalakuono**; thence
to the Kau side of **Haleolono**; thence to
Limahina; thence to **Kapuuwai**, a water
cave; thence to **Kulanakuaiki**, where Kaina's
man was killed by jumping off of the *pali*.
Thence to **Aiaawa**; thence to **Kahaualea** at
the old road to **Kilauea**; thence to **Wepiipaa**,
a *pali* on the Kau side of **Keanakaakoi**.

Kamokukolau is on **Keauhou**; thence to
Kilauea passing around the South end of the
crater, **Wekahuna**; Thence *mauka* towards the
mountain to **Puaulu aa**, to **Kauhiulii**; the *aa*
belonging to **Kapapala**, and *aa* to this land.

Thence to **Kahiolo**, *aa*, thence to **Mokuloa**, a large
aa flow; thence to **Kapuna**, a grove of small *koa*
in the *aa*; thence to **Kahoaka**, a grove of *koa*
above **Keawewai**; thence to **Puulaula** between
this and **Puuike**.

C.X.d.

I went with Lydgate when he surveyed Keauhou. [page 303]
He surveyed from **Pohakuloa** to Okiokiaho and
to the points I have testified to today...

...**Keauhou** is bounded *makai* by
the sea and has Ancient fishing rights extend-
ing out to sea.

L. Kaina on the part of the Agent for Crown lands
in Puna states that he accepts the boundary between
Keauhou and **Apua** as surveyed to boundary
between this land and **Kahaualea**, and **Olaa**
to the top of **Kulani hill**, and from thence the
boundary between **Waiakea** and **Keauhou** to
Kipu; thence as surveyed by W. Webster to **Kamaa-**
mauloa, and also the survey between **Kapapala**
and **Keauhou**.

E.G. Hitchcock on the part of the Agent from Crown Lands for Hilo accepts the boundary between ***Waiakea*** and ***Keauhou*** as given in evidence by Kelilohi, and Webster's survey, and from ***Kamaa-mauloa*** to ***Puulaula*** and ***Puuike*** according to the evidence of Kelilohi.

Testimony Closed.

Decision

The Boundaries of ***Keauhou*** are decided to be as given in evidence of Kelilohi from shore to ***Pohakuloa***, ***Kaloi*** and to top of ***Kulani***; Thence to ***Kipu***. Thence following W. Webster's survey of ***Waiakea*** to Kamaamauloa; thence up the mountain to between ***Puulaula*** and ***Puuike***. Thence following the survey of ***Kapapala*** made of J. M. Lydgate to shore. Notes of survey to be filed previous to Certificate of Boundaries being issued.

R.A. Lyman
Commissioner of Boundaries 3d J.C.

For Certificate of Boundaries see No. 62, Folio 116, Liber I.

Costs see Folio 119, Liber I. [page 304]

*Ili of Keauhou, Ahupuaa of Kapapala
District of Kau, Island of Hawaii
Boundary Commission, Hawaii, Volume C No. 3:116-119*

For Testimony of Keauhou, Kau,
See Folios 444, Book A and 302 book B.

Land Boundary
Commission No. 62
Hawaii, 3rd J.C.

Certificate of the Boundaries of
Keauhou, District of Kau, island
of Hawaii, 3rd J.C.

Upon the application of F.H.
Harris, attorney at law for
J.O. Dominis, administrator of
the Estate of M. Kekuanaoa, and
by virtue of the authority vested
in me by law, as sole Commissioner
of land Boundaries for the island
of Hawaii, 3rd J.C., I hereby
decide and certify the boundaries
of the *Ahupuaa* of Keauhou,
situated in the District of Kau,
Island of Hawaii, to be as
hereinafter set forth.

Given under my hand at Hilo, Hawaii,
This Twenty-first day of January, A.D. 1875

R.A. Lyman
Commissioner of Boundaries 3rd J.C.

Boundaries of **Keauhou**

Commencing at a pile of stones on
the sea shore at place called [page 118]

Oki-oki-aho, at the East corner of this
land, and running thence along the
land of **Apua**, Magnetic bearings;
North 11° 15' West 19392 feet;

to an *ohia* tree marked by two notches
and standing on the brow of the

Poliokeawe pali, at the lower end of
a point of *ohia* just East of
the Keauhou road;

North 20° 40' West 13250 feet;
to an *ohia* marked + at **Ohiaaku-**

puu, a large water cave;

North 11° 03' East 8200 feet;
to *ohia* tree marked ++ at **Kaloi**,
the junction of the Puna and

Keauhou roads. Thence along the land
of **Kahaualea**;

North 35° 15' West 16100 feet;
to Kaluaike crater on the volcano
and Puna road;

North 6° 40' West 3600 feet;
to Pohakuloa Koa grove on the Hilo
and Volcano road; thence along **Olaa**;

North 38° 20' West 37400 feet;
to top of large hill known as **Kulani**.

Thence along land of **Waiakea**;

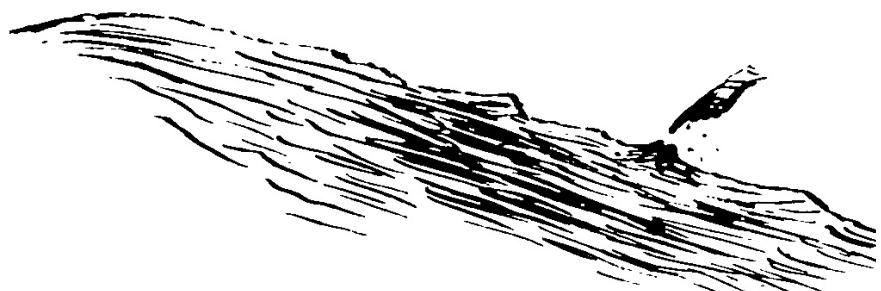
North 59° 45' west 17400 feet;

To above and opposite a small hill in
the edge of the woods called **Kipuu** [Kipu];

North 33° 00' West 17,800 feet;

Along **Waiakea** in accordance with
Webster's survey;

South 45° 00' West 31100 feet; [page 117]
along **Humuula** to a double hill
on the mountain called **Puuulaula**,
which presents somewhat this appearance
from the volcano;



Thence down along the land of
Kapapala;
South 57° 00' East 17,200 feet;
to an island in the Aa flow.
Thence down this lava flow, which is
the well defined boundary between
this land and **Kapapala**;
South 53° 35' East 46,000 feet;
To a pile of stones by the side of
the Volcano and Kau road 1556 feet
South West of a pile of stones on the
top of the **Wekahuna** [Uwekahuna] bluff;
South 55° 00' East 5140 feet;
to **Halemaumau** lake in the crater.
This is the old South Lake;
South 75° 30' East 6670 feet;
to a pile of stones a little South
of **Keanakaakoi** crater;
South 8° 50' East 7300 feet;
To pile of stones on ahua at
Kamokukolau;
South 24° 30' East 11150 feet;
To a pile of stones on **Kulanaokuaike**
pali and on the edge of the Puna [page 118]
and Kau road;
South 16° 40' East 30220 feet;
To pile of stones on the sea shore at
place called **Makoloa**, an old *Heiau*.
This place is 6111 feet East of the top
of **Kapukapu** hill. Thence along the
sea shore to point of Commencement.

Containing an Area of 50,740 Acres

R.A. Lyman
Commissioner of Boundaries 3d, J.C.

Surveyed by J.M. Lydgate... [page 119]

The Ahupuaa of Kukuau 1st (bounding Waiakea)
District of Hilo, Island of Hawaii
Boundary Commission, Hawaii Volume B:160-165

Kaikamahine ^{K.} Sworn. [page 160]
...the boundary runs to **Kanekaulukaau** an old
planting place in the woods, belonging
to **Waiakea**. **Palaa** is the name of the
adjoining planting place on **Kukuau**.
Thence to the **Hilo** side of **Ohuliipe**, a
heiau belonging to **Waiakea**. This *heiau*
is on a hill and from it you can see the sea.
The boundary line is some distance from
this hill, it follows up a ridge that runs
mauka and *makai*, and is the dividing line;
it is where *painiu* [*Astelia*] grows. Thence

from the ridge to **Nehuiki** where we used
to get canoes eight fathoms long; very large
koa grows there; thence to **Kailio** where
koa and *ohia* grow together; thence to **Kalai-**
holona; thence to **Kailihololei**, where the
bird catchers used to catch *oo*; thence to
Muanui, another bird catchers place.

This is as far as I know the boundaries of
Kukuau 1st.

C.X.d... [page 161]

Boundary Commission opened and case
continued on the 17th of December A.D. 1873
according to adjournment from the 16th inst.

Kaaua K. Sworn.

I was born at **Waiakea uka** at the time
of *Akakai Mokuakai* [The battle of Mokuohai, 1782]. I know a part
of the boundaries between **Kukuau** 1st and
Waiakea. Kuakaahalawa and Keike,
who were bird catchers and canoe makers
and old settlers on the land, and who
knew all the boundaries, told them to me... [page 163]

...**Niaheakealahau** where
Waiakea takes all the road and Kukuau 1st
is confined to the tall *ohia*; thence the
boundary runs to the Hilo side of a
bathing place called **Kuawai**; this place
is on Kukuau 1st; thence to **Kahuakamo**
(In olden times a noted place for cock
fighting); thence the boundary runs along
the line of the old road (now used for draw-
ing down wood) to **Kuaiaina**, where the
roads from Kukuau and Waiakea
join. The *pahoehoe* and trees on it belong
to Waiakea, and the forest on the Hilo
side to Kukuau 1st. Thence to **Kaai-**
popolo, a place where *popolo* now grows.

Note.

Witness states that Mr. Webster marked
a tree, on the opposite side from Kaai-
popolo, as the true boundary between
the two lands, but as he objected to that
boundary Mr. Webster changed the survey
to Kaaipopolo.

There is a large tree with a blaze on
it at this place; thence to **Kahamouli**;
thence to **Ohuliipii** [Ohuliipee], a hill on Waiakea.
I do not know of there being a *heiau* [page 164]
there in olden times; thence to a place call-
ed **Kanoa**; thence to **Nehuiki**, an old canoe

building place; thence to **Kaileo**, another canoe building spot where *koa* trees are growing. I have lived there; thence to **Kalaiholona**, a canoe building place; thence to **Kailihelelei**, a grove of *koa* trees; thence to **Muanui**, a great bird catching place; thence to **Hoaa**, the boundary is on a line with Hoaa, but the place itself is way inside of Waiakea. I have always been told that Kukuau ends at Piliiki. I do not know what other lands join above it. Opuloa ^{K.} and Nahua (now dead) and Kaawa from Olaa were the *kamaaina* with Webster. Kahaole Opunui now living in Hamakua was a *kamaaina* of Kukuau 1st.

C.X.d... [page 165]

The Ahupuaa of Olaa

**District of Puna, Island of Hawaii
Boundary Commission, Hawaii Volume B:305-306**

The Ahupuaa of **Olaa**, District of Puna
Island of Hawaii

On this, the 8th day of October A.D. 1874, the Commission of Boundaries for the Island of Hawaii, 3d J.C. met at the Court house in Hilo, on the application of F.H. Harris, Attorney at Law for J.O. Dominis, Agent of Crown Lands for the settlement of the boundaries of **Olaa**, situated in the District of Puna, Island of Hawaii. Due notice of hearing personally served on all owners or agents of adjoining lands, as far as known. Present: L. Kaina for all parties concerned.

For Petition see Folios 238 and 240, Book A.

Testimony

Nailima ^{K.} Sworn.
I was born at **Olaa** at the time of the death of Kekuakalani [1819] and lived there until about a year ago when I moved to Hilo. I am a *kamaaina* of **Olaa** and know the boundaries of the land. Kapuna, an old *kamaaina* of **Olaa** told them to me. Commencing at Pohakuloa the junction of the Hilo and Puna roads to Kilauea at the mauka corner of Olaa and Keauhou; thence the boundary of **Olaa** runs *makai* along the old road through the edge of the *koa* grove; thence *makai* still along the road through the woods to **Keekee** to **Palau-hulu**, junction of the **Panau** and **Hilo** road.

Thence along the road to **Kanekoa** following the road through houses; thence along the road to *makai* of where the old road to Puna used to run. This point is outside of Naia's houses, where you look *makai*. Thence *makai* to the junction of **Keau** road at the grove of *ohia* trees called **Pahee**. Thence following along the Hilo road to *makai* of **Makaule** to another junction of **Keau** road; thence *mauka* to *Puhala* trees on an *ahua* on the Puna side of an old *kauhale* called **Kilohana**, near some orange trees. Thence *mauka* to **Puaehu**, a *kauhale* on the **Hilo** side. Thence *mauka* to **Kanamanu**, an old *kauhale* on the boundary covered with *ohia* trees. Thence to [page 305] **Kaaipuaa**; thence to **Waiale**, a swamp in the woods; thence to **Mawae** junction of **Olaa** and **Waiakea**; thence along **Waiakea** to the upper end of land.

C.X.d.

Note.

L. Kaina declines to question the witness on the boundaries between **Olaa** and **Waakea** as the Agent of Crown Lands accepts the boundaries as surveyed by W. Webster. He also accepts the boundary of **Olaa** and **Keauhou** as given in the Decision of **Keauhou**.

No more witnesses on hand.

Case continued until the Notes of survey are made out so that the Commissioner of Boundaries can decide the point in the woods where **Keaua**, **Olaa** and **Waiakea** join as J.O. Dominis, Crown Agent and C.R. Bishop, on the part of owner of **Keaua**, leave it with the Commissioner to decide so as to save the expense of looking for the point given in evidence, as said point is in the middle of a dense forest and it is over forty years since the **kamaaina** has been there.

R.A. Lyman
Commissioner of Boundaries, 3d J.C.

**Notes of survey filed and Certificate of Boundaries issued
January 21st A.D. 1875**

See No. 60 Folio 109 Liber I... [page 306]

Certificate of the boundaries of **Olaa**,
District of Puna, island of Hawaii,
3rd J.C.

Upon the application of "J.O. Dominis,
Agent for Crown lands, and by virtue
of the authority vested in me by law
as sole Commissioner of Land
Boundaries for the island of Hawaii,
3rd J.C., I hereby decide and certify
the boundaries of the *Ahupuaa*
of **Olaa**, situated in the District
of Puna, Island of Hawaii, to be as
hereinafter set forth.

Given under my hand at Hilo, Hawaii,
This Twenty-first day of January A.D. 1875.

R.A. Lyman
Commissioner of Boundaries, 3^d J.C.

Boundaries of **Olaa**.
Commencing at the top of a wooded
Hill known as **Kulani** at the West
corner of this land and running
thence along the land of **Keauhou**,
magnetic bearings South 38° 20' East [page 109]
37,400 feet to a point on the **Hilo**
and Volcano road at **Pohakuloa Koa**
grove about 1730 feet from the junction
of the **Hilo** and Puna roads. Thence
along the land of **Keauu** North
46° 38' East 10,230 feet; North 56° 15' East
9400 feet to **O** cut in the *pahoehoe*
on a little rise in the road, about
a mile and a quarter above the
Omao woods; North 69° 18' East 6400 feet
to **O** cut in the *pahoehoe* on the
road in the belt of woods at **Omao**;
North 40° 42' East 13,070 feet to **K** cut
in the road at **Kuhalau**; North
29° 12' East 12,140 feet to **A** cut in the
road at place called **Kahooku** where
Neneleau trees are growing and from
where the houses at **Kanekoa** can first
be seen in coming down from the
Volcano; North 24° 00' East 23,810 feet
to a pile of stones on a small *ahua*
by the side of the road (East side) a
little below **Waiuli**; North 42° 10' East
12,350 feet to a pile of stones at the upper
edge of little point of *ohia* through
which the road runs; North 13° 05'
East 5600 feet to a large pile of stones at the

lower side of the road at **Makaulele**; North 16° 10' East 985 feet to O cut in the road at the extreme East corner of this Land. Thence still running along the Land of **Keaa**; South 85° 00' West 4250; South 72° 20' West 25,800 feet [page 110] to a place where the Land of **Keaa** is cut off and this land joins the Land of **Waiakea**; South 54° 45' West 60,400 feet along the land of **Waiakea** to the hill at the point of Commencement. Containing 54,260 Acres.

R.A. Lyman
Commissioner of Boundaries, 3^d J.C.

Surveyed by J.M. Lydgate... [page 111]

The Ahupuaa of Waiakea

**Waiakea Ahupuaa, District of Hilo,
and Olaa Ahupuaa, District of Puna, Hawaii.
Boundary Commission Volume A No. 1 pages 238-240**

Honolulu, July 7, 1873

R.A. Lyman, Esq.
Hilo

Dear Sir
Mr. F.H. Harris is authorized by the Commissioners of Crown lands to make application to you as Commissioner of Boundaries to have the boundaries of all Crown lands on the Island of Hawaii defined. He has a list of the lands with him.

I have also authorized Mr. F.H. Harris to make application to you for the settlement of boundaries of all lands belonging to Est. of His late Majesty and Her Excellency, R. Keelikolani.

I expect to be in Kona by the trip of the "Kilauea" which leaves here on the 28th inst. Can't you make it convenient to come round as the steamer goes to Hilo on that trip. I wish also to apply for the settlement of the boundaries of Honohina.

I remain,
Yours Respy.
Jno. O. Dominis

Honorable R.A. Lyman
Boundary Commissioner
for Island of Hawaii, Haw. Is.

The undersigned would herewith make application for the settlement of the boundaries of the following named Ahupuaas or Lands belonging to the Crown, viz.:

Waiakea in the District of Hilo bounded by Keaau, **Olaa, Kapapala, Humuula**, Piihonua... [page 238]
Humuula in the District of Hilo bounded by Kapapala, various lands in Kona and Kohala and Hamakua, and Hakalau, Makahanaloa, Papaikou, Paukaa, Piilhonua and Waiakea in the District of Hilo... [page 239]

...**Olaa** in the District of Puna, bounded by **Keaau**, Wm. C. Lunalilo, H. M. **Waiakea** & **Kapapala**...

Your Honor will therefore please appoint a day for hearing the evidence in the foregoing named lands and having decided upon the same to grant a certificate to that effect to the undersigned.

Hilo Hawaii, August 16th A.D. 1873

(Signed) Jno. O. Dominis
Crown Land Agent.
by F.H. Harris
atty. at law. [page 240]

The metes and bounds of **Waiakea** were decided by testimonies and surveys of adjoining lands—'Ola'a and Kea'au, Puna; Keauhou and Kapāpala, Ka'ū; and Humu'ula on the mountain lands of Hilo; thus, no further commission proceedings were conducted under the heading of Waiākea.

The "Kulani Triangulation Station"

In the 1890s, the Government Survey Division undertook a series of surveys to map out the interior lands on the island of Hawai'i. Through several communications between field surveyors and W.D. Alexander, Surveyor General, we learn that Pu'u Kulani was chosen as a triangulation station for the surveys, and of the great difficulty in reaching the location. Almost no *kama'āina* could be found in the early 1890s to lead the survey party to the *pu'u*.

Hilo, Hawaii

April 27, 1891

E.D. Baldwin; to Professor W.D. Alexander:

...I arrived in Hilo last Saturday night from Puakala. We have had fairly good success at Aahuwela, having measured the angle between Alala and Kulani also nearly finished the angle between Halai and Kulani also Alala and Halai. The 8 inch is a very slow instrument to work with, there being a great deal of lost motion in setting. But by a great deal of care in setting, I believe we have managed to do very fair work with it. The measurements of the Alala Halai angle so far close the triangle within 4".

We had a very rough trip up the mountain; it raining steady all of the three days on our way to Puakala. Thrum started the day before I did and reached Hale-Loulu just at dusk; and was unable to start a fire, everything was so wet. He had a great deal of trouble with the pack animals in the woods. Two of our animals were completely used up by the trip, and I am afraid will be unfit for use any more.

I will start back early tomorrow morning. I send down any April accounts; the laborers pay roll, I will send down next month... [HSA Interior Department, Survey]

Hilo, Hawaii

May 30, 1891

E.D. Baldwin; to Professor W.D. Alexander:

...We are sharing a very tedious time of it upon the mountain; the weather has been very fair below, but the fog and clouds hang just over Aahuwela, so that for the last three weeks we have done almost nothing.

I have given up the idea of trying to see Kapoho or the other Puna stations from Aahuwela as they are always covered with a cloud, and I am afraid we will have to wait until doomsday to see them. I am going to send a heliotrope to Kaloli point – a short ways beyond Keaau, and devote myself to the large quadrilateral Aahuwela, Alala, **Kulani** and Kaloli, and work on through Puna from the base, **Kulani** to Kaloli which will form good triangles with my other Puna stations.

We hope to finish with Aahuwela soon if the weather permits, at any rate I am going to finish the topographical work around the base of the mountain to Kalaieha and a little beyond, and leave Thrum to watch at Aahuwela. We have been on Aahuwela for the last four weeks, every morning at day light, and then gone up before noon, and remained until there was no hopes of its clearing, without accomplishing any thing on the Hilo station with the exception of **Kulani** and **Puu Ulaula** which are always clear in the morning.

Kulani is just below the almost perpetual cloud line, so that I think it will not take us long there.

I have no suitable map tin to send the Hilo map down in; and think rather than run any risk of damaging the map, I will bring it down with me, as I intend to go to Honolulu on June 22nd and attend the Punahou Jubilee.

I send part of my accounts for the month of May, that is all but the labor items. Can you please turn over to H. Chamberlain \$72.00 on my account.

We need all the animals we can get, but they must be strong and in fairly good condition to stand our hard trips. If the Molokai horses are in good condition, I think we had better have them up here... [HSA Interior Department, Survey]

Hilo, Hawaii

August 23, 1891

E.D. Baldwin; to Professor W.D. Alexander:

...I returned last Thursday, having stopped over a trip on Maui. Thrum saw Chamberlain's heliotrope at Kaloli, and has obtained a few angles between it and **Kulani**, as Alala was invisible; he then came to Hilo, and notified Horace that he was *pau* with Kaloli. Horace has gone up the mountain with Thrum to help him down with camp. Also I am having Thrum fix a few points along the 1855 flow as he comes down; which will not take long and can be easily done now as we have flags on all the prominent Mauna Kea cones which he can sight to.

I expect Thrum & Chamberlain down the latter part of this week; and have everything ready to move right away to **Kulani**. From **Kulani** we will move to Kaloli point, and by occupying these two points first – will fix many points along the Puna ridge. We hope before long to be well into Puna; at any rate I shall try and push the Puna work, so that we can have something to show, for the next Legislature.

The Molokai animals are doing well, so far. They have been some-what used-up by some of the trips, but seem to be tough animals and pick up readily.

The Humuula boundary case came up last Thursday, and as it will probably be referred to the Boundary Commissioner to settle upon where the line should go, I thought you would probably wish me to wait until we get his decision – before making out notes of survey from Pohaku o Hanalei to Kaupakuhale. I am now plotting up any mountain work to a scale of 2000 feet to the inch, which will take in all we have done around the base of Mauna Kea. I would like to get Lyon's location of Kaupakuhale, in Hinahina, Kaloaloa, and some of his boundary points this side of Kaloaloa station, so that I can put them on the map, and finish up the map.

I noticed that the few clear nights that we had at Aahuwela, it was also clear during the morning, but I think it will be a good idea to have the large lanterns you speak of ready, so that if necessary we can try them. Our instrument seems to have no lamp to light the cross hairs; also we will want some dark lanterns. [HSA Interior Department, Survey]

Hilo, Hawaii

September 2, 1891

E.D. Baldwin; to Professor W.D. Alexander:

...Thrum and Chamberlain arrived this evening from the mountain. I wrote to Thrum to give up locating any points below Lydgates **Mawae** on the 1855 flow, so that we might push on to **Kulani**. We will make a start for **Kulani** next Monday. In regard to the location of those five points – I understood that you wished the notes of survey from Kaupakuhale on to Pohaku o Hanalei, and as supposed that Lyon's had located Kaupakuhale & did not relocate it again; and after receiving your letter a month ago; wrote by return steamer for Lyon's location of Kaupakuhale, so that I could get the distance and bearing from Kaupakuhale to Kole from my map. Lyon's has not as yet sent me the location of Kaupakuhale; but wrote by last steamer that he would like the coordinates of four of the points referred to Aahuwela, which I have sent him by this steamer.

We have been making up a lot of oil-skin clothes and bags, also we made a fly and tarpoling for our small tent, which accounts for the large amount of canvas duck we have been buying.

Our large tent and fly are nearly all to pieces. Can you please send us up another large tent and fly. Also I would like a lot of blank vouchers and a large calculation book.

Can you please pass H. Chamberlains pay over to W. Frear \$79.85. And deposit \$300.00 in the Postal Savings Bank for me, and please send the balance to me...[HSA Interior Department, Survey]

Kulani Trig. Station

November 24, 1896

J.S. Emerson; to W.D. Alexander

...After 8 ½ days of severe labor, my party of 4 strong and experienced wood cutters, yesterday completed the road through the **Koa** forest and **Pulu** jungle to this point. We started a blazing fire at 4:30 this morning. At 8:30 our party, with 5 good pack mules, left the **Kipuka** and at 10:50 we had reached the base of this noble hill. About 40 minutes of this time was spent in cutting away some obstructions in the path, leaving 1 hour and forty minutes for travelling time. While the mules are resting in an **akala** thicket at the base of the hill. My men are climbing the ascent with loads that surprise me. I found it hard work to lug a gun and overcoat, and my handwriting shows the

eddects of the exertion on my nerves and muscles. The weather continues almost perfect. We have been most fortunate in having two weeks of such unusually clear weather. I have never known it better since I began my work last July. At the moment (12:25), Mauna Kea is clouding in, while M. Loa has only two small specks of clouds just forming. Last Sunday was the finest day of the season. A heavy frost covered the ground when we awoke in the morning. My men who had never seen anything of the kind before, the guide was not among them, tasted to see if it was salt, and asked me what it was. All that day the sun shone from a cloudless sky. We went to **Keawewai** to bathe, and the view of the mountain and coast was wonderfully fine. I can't expect such weather to last. **Kulani** signal is in distress. A few tattered rags here and there all over the tripod, a bare pole with a rag or two on it, the whole surrounded by a jungle of brush 6 feet high, with a few bare trunks of *lehua* trees near by, easily mistaken for the signal, that is all. No wonder I have had trouble to see anything to sight on.

Kamaki flagged the signal as he had been taught. The system or lack of system was all wrong. Of course heliotropes have to be used to supply the defects of such signals... [HSA –Survey DAGS 6]

Travel and Access in the ‘Ōla‘a-Waiākea Forest Lands

Because of the remote nature of the ‘Ōla‘a and Waiākea forest lands which comprise the present-day Pu‘u Maka‘ala NAR, no government communications pertaining to historic trails or government road projects exist for the region. The Boundary Commission testimonies cited above, describe trails through the forest lands, rising from the lowlands of Waiākea, ‘Ōla‘a, Keauhou and Humu‘ula. Based on the native traditions and *kama‘āina* testimonies, as those above, it is likely that “practitioner” trails existed throughout the forest region. Features such as “*kauhale manu*” (bird-catcher’s shelters), “*kahua kalaiwaa*” (canoe-makers clearings), “*oioina*” (trailside resting places and shelters), the “*a/a hele*” (trails), and other features associated with traditional and customary accesses, would leave little evidence in the present-day, as the traditional features and uses generally had minimal impact on the natural landscape. Those things left behind, not cared for or maintained, were simply reabsorbed into the landscape.

We do know that by 1847, the Kingdom undertook a program of developing the *Alanui Aupuni*, or Government Road system. The “roads” were generally laid out on, or near traditional alignments, though as the system matured, and greater need for roads which could support transportation of goods evolved, new and straightened alignments were developed. One of the earliest communications documenting this process on the island of Hawai‘i, is found in a letter from Governor Kapeau to Premier and Minister of the Interior, Keoni Ana on August 13, 1847:

Aloha oe e ka mea Hanohano –

...I have a few questions which I wish to ask you. Will the police officers be required to pay, when they do not attend the Tuesday (*Poalua*) labor days? How about parents who have several children? What about school teachers and school agents? Are they not required to work like all other people when there is Government work on the roads and highways? I believe that school agents, school teachers and parents who have several children, should only go and work on the weeks of the public, and not on the *konohiki* days...

...The roads from Kailua and down the *pali* of Kealakekua, and from Kailua to Honokohau, Kaloko, Ooma, the place where our King was cared for, and from thence to Kaelehuluhulu [at Kaulana], are now being surveyed. When I find a suitable day, I will go to Napoopoo immediately, to confer with the old timers of that place, in order to decide upon the proper place to build the highway from Napoopoo to Honaunau, and Kauhako, and thence continue on to meet the road from Kau. The road is close to the shore of Kapalilua. Also, the road that is to go *makai* of Kukalaula, below Keauhou [Ka‘ū], and then continue to the shore of Puna and Hilo, will probably begin at Keaiwa.

The width of the highways round Hawaii, is only one fathom, but, where it is suitable to widen where there is plenty of dirt, two fathoms and over would be all right. For the town of Hilo, I have appointed some road overseers, being B. Pitman, Frank W. Wood, maybe Koana [Titus Coan], Halai, Luhilea, Kaiana. Three natives and three foreigners. They get no pay for this work which has been placed upon them, they give their services free to this work because of their desire to improve the land.

If the roads are put into proper condition, there are a lot of places for the strangers to visit when they come here. The Kilauea volcano, and the mountains of Maunaloa, Maunakea, Hualalai. There is only one trouble to prevent the building of a highway all around, the steep gulches at Waipio and Pololu, but this place can be left to the very last. The palis at Hilopaliku are also very bad, but another and better place has been found, it is a little *mauka* of that, that is what the old timers living at Kulaimanu say. A foreign carpenter has proposed to me that he build the bridge over Wailuku completely, all the material to be his and also the labor, and to pay him two thousand dollars. I did not pay much attention to this, because, I do not believe that it can be built for that money, it will take three thousand dollars to finish it, and maybe it will go into four thousand... [HSA Interior Department, Roads; translation modified by Maly]

As described in the preceding letter, no roads across Keauhou, the ‘Ola‘a-Waiākea forest lands, into Humu‘ula were planned. By the late 1800s, and through the 1940s, the primary users of trails in the *mauka* lands were ranchers, traveling between Humu‘ula and Pu‘u ‘Ō‘ō to Keawewai and Keauhou, and those traveling on to Kapāpala and Kahuku.

In 1932, as a part of the Land Court Application of W.H. Shipman for the land of Kea‘au, testimonies of two elder *kama‘āina* were recorded, documenting primary routes of travel in Kea‘au, and the relationship of native residents with ‘Ola‘a and neighboring lands. The testimony, viewed in the collection of W.H. Shipman, Limited, shares the same concepts of traditional and customary access as described in traditional texts and historical testimonies cited above.

Affidavit of David Malo

DAVID MALO, of Keaukaha, S. Hilo, Hawaii, being first duly sworn and upon his oath, deposes and says as follows:

I was born in the year 1852, at Makuu, Puna, Hawaii.

I am 80 years old.

I was brought up in Makuu, Puna, and lived there for many years, up to the time when my father died. I was then about 18 years old.

The King Highway or Main Public Highway starts from Puumaile, Waiakea, and goes through Waiakea, Keaaau, Kapoho, Kalapana along the seacoast and on Panau to the Volcano...

The old Volcano Highway starts from Hilo and goes through Puuainako, Waiakea, and goes on to the present 4 mile bridge, thence it turns off to the right or *mauka* side of the 4 mile bridge and goes on till it crosses the present main public highway about 7 miles, thence it goes on till it meets again the present main public highway at 8 miles, thence it goes on to 9 miles Olaa, thence it goes on to Kuolo, and on the *pahoehoe* to Mahinaakaka, and on to Waiuli where Hawelu’s Hotel was located, thence it goes on to Kalehuapua, Kapae, Kapueuhi, and on to Kekee where Shipman’s cow pen is, where it meets with the present highway, thence it goes on to the Volcano. The old Volcano Highway separates Keaaau from Olaa.

The people that were living in Olaa were tenants at will (*Komo Kino*) while under Queen Emma. My father was the Queen's *Konohiki*. The people that were living in Keaau paid money for living on the land. Only tenants were allowed to go on the land. The people of Waiakea were not allowed to go on Keaau without permission...

There was a big village *mauka* of Keaau in Olaa.

The only main trail or main Public Highway that was used by everybody at that time is the trail that starts from about 12 miles Olaa, and goes down to Waipahoehoe, and on to Makuu till it meets the King Highway.

There were many other trails running down to the King Highway and the beach, some of them were made by cowboys for driving cattle, and some of them were made by cows...

Subscribed and sworn to before me this 15th day of December, A.D. 1932.

Affidavit of Mai Keoki [George Mai]

MAI KEOKI, of Keaau, Puna, Hawaii, being first duly sworn and upon his oath, deposes and says as follows:

I am 64 years old.

I was born May, 1868, at Paki, Keaau, Puna, Hawaii.

I have lived in Keaau, Puna all my life time.

Only one Keaau.

When Keaau came into Mr. Shipman's possession, the people that were living in Keaau became tenants at will (*Komo Kino*).

The people of Olaa lived in Olaa and the people of Keaau lived in Keaau...

Hawelu's Hotel was on Olaa. Mr. Hawelu was Mr. Shipman's foreman.

The trail or road from Olaa to Makuu is the main road upon which the *kamaaina* and strangers travelled from Makuu to the old Volcano Road, and from Olaa to Makuu. This main trail is the road which David Malo had described.

Another small trail starts at 12 miles Olaa and goes down to Keakuamakakii, where it passes Hilo of the Stone Crusher *makai* of the Pahoa Highway, thence it goes on to Lopaiki, and on to two cocoanut trees, thence it goes on to Kaikoo where it branches off. One branch goes down to Keauhou and another branch goes down to my place. On this trail the people of Olaa came down to my place.

During Obed Spencer's time there were no tenants at will. Since the fence was put up along the Pahoa Road, this trail has not been used by anybody. Nobody has used this trail since 1910 or 1911. When the people were made tenants at will, the people have not used this trail since...

Subscribed and sworn before me this 17th day of December, A.D. 1932.

It appears that it was not until the late 1940s, that a road was cut up through the Waiākea-‘Ōla‘a forest lands, and this in conjunction with the opening of the Kūlani Prison Farm. In the early 1950s an access road was cut from the Kūlani facility to the summit region of Mauna Loa for a weather observatory. At one point, the program manager, Tom Vance, proposed that the road be planted with the trees of the world, as a scenic drive to Mauna Loa (H. Ellis, pers comm. 2004; and HSA Series GOV 9-7).

While Mr. Vance’s idea was a grand one, looking to the economic benefit of Hawai‘i Island, we can be thankful that the plan never unfolded. The toll of an influx of alien species on the native ecosystems that are now a part of the Pu‘u Maka‘ala NAR would have been significant.

NA ULU LĀ'AU A ME NĀ KINI KINO LAU O LOKO (THE FORESTS AND MULTITUDES DWELLING THEREIN)

As discussed in earlier sections of this study, Hawaiian traditions and beliefs, shared spiritual and familial relationships with the natural resources around them. Each aspect of nature from the stars in the heavens, to the winds, clouds, rains, growth of the forests and life therein, and everything on the land and in the ocean, was believed to be alive. Indeed, every form of nature was a body-form of some god or lesser deity. As an example, in this context, and in association with lands which are part of, or adjoining the landscape of the Pu'u Maka'ala NAR, we find that the god Kū-ka-'ōhi'a-Laka, is represented as a deified 'ōhi'a; Kū-lili-ka-ua, formed the mists and protected the forests of this upland region; and Ua-kuahine is given as the name of another goddess whose body form is that of the mists that settle on the forest. Tradition also tells us that the gods and goddesses of the forests were very protective of them. In olden times, travel through them was accompanied by prayer, and care. Many a careless traveler, or collector of resources, found themselves lost in a maze of overgrowth and dense mists, for disrespectful and careless actions. In the Hawaiian mind, such nature body forms of plant, animal, and weather, were believed to be "kino lau," the myriad body-forms of the gods and creative forces of nature that gave Hawaiians life.

In this context, care for each aspect of nature, the *kino lau* of the elder forms of life, was a way of life. This concept is expressed by Hawaiian *kūpuna* (elders) through the present day, and is passed on in many native families. When discussing the relationship of native families with the lands and resources around them, it is not uncommon to hear *kūpuna* express the thought — "E mālama i ka 'āina, a e mālama ho'i ka 'āina iā 'oe! E mālama i ke kai, a e mālama ho'i ke kai iā 'oe!" (Care for the land, and the land will care for you! Care for the sea, and the sea will care for you!). This concept is one that is centuries old and is rooted in the spirituality of the Hawaiian people. Importantly, the converse is that when one fails to care for, or damages nature—the *kino lau*—around them, they are in-turn punished. This is expressed in many traditional sayings, one being, "Hana 'ino ka lima, 'ai 'ino ka waha!" (When the hands do dirty-defiling work, the mouth eats dirty-defiled food!). In this cultural context, anything which damages the native nature of the land, forests, ocean, and *kino lau* therein, damages the integrity of the whole.

Of course, since traditional times, many things that were a part of the native Hawaiian natural and cultural landscape have disappeared—being destroyed by changes in land tenure, changes in residency and subsistence practices, and by the introduction of tens-of-thousands of alien species which overrun the formerly balanced and fragile bio-systems that made Hawai'i unique.

Writing in the late 1860s and early 1870s, native historian, S.M. Kamakau, related to readers some aspects of the Hawaiian association and understanding of the mountain lands and forests. While describing traditional knowledge of the divisions of land, Kamakau wrote:

Here are some other divisions of the islands, together with their descriptive names.

Heights in the center or toward the side of a land, or island, are called *mauna*, mountains, or *kuahiwi*, "ridge backs." The highest places, which cover over with fog and have great "flanks" behind and in front (*kaha kua*, *kaha alo*)—like Mauna Kea—are called *mauna*; the place below the summit, above where the forests grow is the *kuahiwi*. The peak of the mountain is called *pane po'o* or *piko*; if there is a sharp point on the peak it is called *pu'u pane po'o*; if there is no hill, *pu'u*, and the peak of the mountain spreads out like the roof of a house, the mountain is described as a *kauhuhu mauna* (house ridgepole mountain); and if there is a precipitous descent, *kaolo* [from the peak] to the *kauhuhu mauna* below this is called a *kualo* ("block"). If there are deep ravines ('*alu ha'aha'a*) in the sides of the mountain it is called a *kihi po'ohiwi mauna* ("shoulder edge" mountain). A place that slopes down gradually (*hamo iho ana*) is called a *ho'oku'u* (a "letting down"); a sheer place is called a *pali lele koa'e* (cliff where

koa'e birds soar), or a *holo* ("slide"), or a *waihi* (a "flowing down"). Rounded ridges that extend from the mountains or "ridge backs" or hills are called *lapa* or *kualapa* or *mo'o*—and, if they are large, *'olapalapa* or *'omo'omo'o*. Depressions between *lapa* or *mo'o* are *awawa*, valleys.

Here are some names for [the zones of] the mountains—the *mauna* or *kuahiwi*. A mountain is called a *kuahiwi*, but *mauna* is the overall term for the whole mountain, and there are many names applied to one, according to its delineations ('ano). The part directly in back and in front of the summit [Kamakau 1976:8] proper is called the *kuamauna*, mountaintop; below the *kuamauna* is the *kuahea*, and *makai* of the *kuahea* is the *kuahiwi* proper. This is where small trees begin to grow; it is the *wao nahele*. *Makai* of this region the trees are tall, and this is the *wao lipo*. *Makai* of the *wao lipo* is the *wao 'eiwa*, and *makai* of that the *wao ma'ukele*. *Makai* of the *wao ma'ukele* is the *wao akua*, and *makai* of there the *wao kanaka*, the area that people cultivate. *Makai* of the *wao kanaka* is the *'ama'u*, fern belt, and *makai* of the *'ama'u* the *'apa'a*, grasslands.

A solitary group of trees is a *moku la'au* (a "stand" of trees) or an *ulu la'au*, grove. Thickets that extend to the *kuahiwi* are *ulunahele*, wild growth. An area where *koa* trees suitable for canoes (*koa wa'a*) grow is a *wao koa* and *mauka* of there is a *wao la'au*, timber land. These are dry forest growths from the *'apa'a* up to the *kuahiwi*. The places that are "spongy" (*naele*) are found in the *wao ma'ukele*, the wet forest.

Makai of the *'apa'a* are the *pahe'e* [*pili* grass] and *'ilima* growths and *makai* of them the *kula*, open country, and the *'apoho* hollows near to the habitations of men. Then comes the *kahakai*, coast, the *kahaone*, sandy beach, and the *kalawa*, the curve of the seashore—right down to the *'ae kai*, the water's edge.

That is the way *ka po'e kahiko* named the land from mountain peak to sea. [Kamakau 1976:9]

Among the native terms listed by Kamakau above, is one which stands out in reference to the Waiākea-'Ōla'a forest lands of the Pu'u Maka'ala NAR—this zone is the *wao akua* (zone or region of the gods and deities). The *wao akua* is so named because of the pattern of cloud cover and precipitation which settles upon the mountain slope—this covering was interpreted as concealing from view the activities of the gods and deities therein (cf. David Malo 1959:16-18; and M.K. Pukui, pers. comm. 1975).

In the traditional context above, we find that the mountain landscape, its' native species, and the intangible components therein, are a part of a sacred Hawaiian landscape. Thus, the landscape itself is a highly valued cultural property. It's protection, and the continued exercise of traditional and customary practices, in a traditional and customary manner, are mandated by native custom, and State and Federal Laws (as those establishing the 'Ōla'a and Waiākea Forest Reserves, the Pu'u Maka'ala Natural Area Reserve, and the Endangered Species Act).

In this discussion, protection does not mean the exclusion, or extinguishing of traditional and customary practices, it simply means that such practices are done in a manner consistent with cultural subsistence, where each form of native life is treasured and protected. *Kūpuna* express this thought in the words, "*Ho'ohana aku, a ho'ola aku!*" (Use it, and let it live!).

Transitions in the Health and Value of The Hawaiian Forests Following Western Contact

We find that shortly after western contact—the introduction of alien herbivores, and financial value being placed upon resources of the forests and mountain lands—the health and integrity of the resources began to decline. After western contact, the forests were primarily evaluated in the terms of

the western economic system. While in the centuries prior to the arrival of westerners in 1778, and subsequently into the reign of Kamehameha I, the system of land tenure and management mirrored the natural landscape of the islands, later management systems focused on what, and how much could be gotten from the land.

Immediately, upon western contact, foreigners looked at the land—first as a source of provisions for ships; and second as a means for earning money, through the trade of natural resources such as *'iliahi* (sandalwood). In 1778, European boars, goats, rams, and ewes were introduced by Captain Cook. While offered as a “gift,” one of the motivating factors was that leaving the animals behind would produce a breeding stock to supply other foreign ships (Beaglehole 1967:276, 578-579). Later, in 1793, cattle were brought to Hawai'i by Captain Vancouver. Given as gifts to Kamehameha I, the cattle were first let off at Kawaihae (then at Kealakekua), and were placed under a ten-year *kapu* to protect them and allow them to reproduce (Kamakau 1961:164). Between 1793 and ca. 1811, new stock was added, and the numbers of cattle had increased dramatically. The introduced cattle, goats and sheep rapidly became a problem to the native population and forests.

While the introduced animals were making their way into the higher elevations, other economic pursuits also led to the clearing of large tracts of land. In the early 1800s (ca. 1810-1829), tens-of-thousands of pounds of *'iliahi* (sandalwood) were cut from the forests above Waiākea and Keauhou, Ka'ū (cf. Kamakau 1961, and Ellis 1963).

Describing the collection of *'iliahi* in 1823, from the uplands of the Waiākea region, Ellis wrote:

In Hilo, the party was under the care of the chief Ma'alo (written Maaro), Ellis and companions offer the following narratives, describing the land there about and activities of the people, among which included hundreds of residents being required to go to the mountains above, and gather sandalwood for their chiefs:

...we overtook Maaro, the chief of Waiakea, and three or four hundred people, returning with sandal wood, which they had been cutting in the mountains. Each man carried two or three pieces, from four to six feet long, and about three inches in diameter. [Ellis 1963:214] The bark and sap had been chipped off with small adzes, and the wood appeared lighter in colour than what is usually sold at Oahu, probably from its having been but recently cut down.... Although a plant of slow growth, it is found in abundance in all the mountainous parts of the Sandwich Islands, and is cut in great quantities by the natives, as it constitutes their primary article of exportation.

It is brought down to the beach in pieces from a foot to eighteen inches in diameter, and six or eight feet long, to small sticks not more than an inch thick and a foot and a half long. It is sold by weight, and the merchants, who exchange for it articles of European or Chinese manufacture, take it to the Canton market, where it is bought by the Chinese for the purpose of preparing incense to burn in their idol temples. ...Dense fogs and heavy rains are more frequent at Waiakea, and over the whole division of Hiro, than in any other part of the island... [Ellis 1963:215].

By the 1830s, the forest had been stripped of sandalwood and many other plants of the forest were impacted by the clearings made for collection and transportation of the *'iliahi*. Another reason that large sections of the lower forests were cleared, was to develop lands on which western-introduced food crops could be cultivated and harvested for sale to visiting ships.

In this part of the discussion, it is appropriate to note that the European boar was significantly larger, and thus stronger, than the Polynesian introduced *pua'a*, or pig (Beaglehole 1967:579). Our review of more than 60,000 native Hawaiian land documents dating from 1846 to 1910 revealed many references to *pua'a* (pigs), but nearly every reference was in the context of them being near-home and as being cared for (raised), not hunted. In the same review of the native Hawaiian land

documents and a large collection of writings from native authors (e.g., D. Malo, 1951; J.P. Ii, 1959, S.M. Kamakau 1961, 1964 & 1976), every reference to traditional collection or “hunting” (a word seldom used in the historical records), was in the context of native birds—those used either for food or from which feathers were collected for royal ornaments and symbolic dress.

After ca. 1815, we find that when native Hawaiians went hunting in the uplands—as described in testimonies and historical texts of the time—they were hunting bullocks, goats and other introduced grazers, and this was generally done on the demand of their landlords, and later for the growing ranches being established in the islands. The first full-scale efforts of western-style hunting in the Humu‘ula-Waiākea and Keauhou (Ka‘ū) region does not appear in reference until around 1840 (cf. Kamakau, 1961; Government Communications in this study). Those early outings were focused on collection of hides and tallow; and controlling wild herds of animals that were a threat to travelers, agricultural fields, residences, and forest resources.

Immergence of Hawaiian Forestry Programs

So significant was the threat of these animals to the Hawaiian landscape, that on September 19, 1876, King David Kalākaua signed into law, an Act for the Protection and Preservation of Woods and Forests. By this Act, the Minister of the Interior was authorized to set apart and protect from “damage by trespass of animals or otherwise, such woods and forest lands, the property of government...best suited for the protection of water resources...” (Hawaii Laws Chapter XXX:39). The Minister of the Interior was authorized to appoint a superintendent of woods and forests:

...who shall, under the direction of said Minister, enforce such rules and regulations as may be established to protect and preserve such reserved woods and forest lands from trespass. Said superintendent shall have charge of the construction of fences and barriers required to protect the said woods and forest lands, and shall be responsible for their being kept in good condition... (*ibid.*).

The above Act was further defined by an Act of the Legislature of the Hawaiian Kingdom, approved by Queen Lili‘uokalani on January 4, 1893, which established the Bureau of Agriculture and Forestry. Among the Bureau’s goals was the “preservation of forests.” On June 14, 1900 (then organized under the newly formed Territorial Government), the members and functions of the Bureau were absorbed by the Board of Commissioners of Agriculture and Forestry (Hawaii State Archives – Com 2, Box 11). The Board then set about the task of establishing forest reserves on all the islands; among the first being development of the Hilo Forest Reserve, which was needed to “protect the headwaters of the streams, which play so important a part in the success of the various plantations” (Wm. Hall 1904:277). On August 9, 1904, the Commissioners approved the recommendation that “all government and other lands in the district of Hilo, Island of Hawaii, lying above a line approximately 1750 feet above the sea, be set apart as a forestry reservation” (Hall 1904:282). The lands extended from Laupāhoehoe to Pi‘ihonua, adjoining the land of Waiākea.

In 1905, the Board set in motion plans to set aside and protect portions of the ‘Ōla‘a and Waiākea forest lands, the result being establishment of a forest band around the northeastern portion of the island of Hawai‘i.

Regarding the forestry movement in the islands, C.S. Judd, Superintendent of Forestry, wrote the following account of forests and forestry in the Hawaiian Islands to Governor Farrington (October 10, 1924). Eighty years later, his words still present readers with an important frame work for the on-going efforts in protection of Hawai‘i’s native forests:

Forestry is practiced in the Territory of Hawaii primarily, not for timber production, but for the conservation of water. Probably in no other section of the world is the relation between a satisfactory forest cover on the mountains and the supply of water for domestic and agricultural uses better or more ably demonstrated...

The chief product, and, the most valuable, coming from the main forested and mountainous regions of the Territory, comprising about one-fourth of the total land area of the eight islands (4,099,860 acres) is water. Because of the comparatively limited terrain, short and steep water sheds, heavy rainfall in certain regions and the great need for irrigating the dry but fertile, sun-warmed lowlands, the value of this liquid product of the forest, on which domestic needs and prosperity of the community depend, is most highly appreciated and every effort is being made to conserve and maintain its sources in the forests.

Character of the Native Forest.

The forest of comparatively small trees found growing naturally on the mountain slopes is admirably suited to prevent erosion and to convert surface runoff into underground drainage, the desirederatum in water conservation. The happy combination of small trees, bushes, ferns, vines and other forms of ground cover keep the soil porous and allow the water to percolate more easily into the underground channels. The foliage of the trees breaks the force of the rain and prevents the impacting of the soil by rain drops. A considerable portion of the precipitation is let down to the ground slowly by this three-storied cover of trees, bushes, and floor plants and in this manner the rain, falling on a well-forested area, is held back and instead of rushing down to the sea rapidly in the form of destructive floods, is fed gradually to the springs and streams and to the underground artesian basins where it is held for use over a much longer interval.

Protection of the Forest.

Forest practice in the Territory of Hawaii, therefore, resolves itself into what is known as "forest protection" and the main efforts of the foresters are exerted in maintaining and build up the native forests on the mountains so that they will function to the highest degree in conserving the rainfall.

The native forest, however, is peculiarly constituted in that it is readily susceptible to damage. The shallow-rooted trees depend for proper moisture and soil conditions on the undergrowth of bushes and ferns and when the latter, the first to be attacked by stock, are injured or removed, the tree roots dry out, the trees are weakened and begin to decline, and an opening is made in the forest for the invasion of destructive insects and fungi and of the more vigorously-growing foreign grasses and other plants which choke out native growth and prevent tree reproduction. It is always dangerous for this reason to make any opening in the native forest and the only safe way to preserve it and keep it healthy and vigorous is to maintain it inviolable from all attacks and keep the ground well shaded and dark.

Damage to the Forest.

The chief damage to the native forest is done by cattle and other grazing stock which first attack the toothsome ferns and other plants which give the shallow-rooted trees the protection which is necessary to their existence.

The fencing of exposed forest boundaries to keep out stock and the extermination of wild stock where it exists in the forest constitutes an important item in forest work in the Territory...

Forest Reserves.

Forest lands devoted to the purpose of water conservation have been officially recognized under the law and set apart as forest reserves by proclamation of the Governor. In this manner during the past two decades 50 of such forest reserves have been set aside on the five largest islands of the group. These embrace a total area of 840,984 acres of which 579,905 acres or 68 per cent is land belonging to the Territory... (Hawaii State Archives – Com 2, Box 15)

Dedication of the ‘Ōla‘a and Waiākea Forest Reserves

As noted above by 1904, the Territory set in motion plans to protect Hawaiian forests by designating select tracts of land as forest reserves. While the primary perceived value of the forest reserves was economic—forests that produced water for agriculture, or forests from which wood and other natural resources could be harvested and sold—large tracts of land, upon which important Hawaiian ecosystems existed were set aside. Among these tracts were lands of the Hilo and Puna Districts, portions of which now make up the Pu‘u Maka‘ala NAR.

By 1905, the reports of the Board of Commissioners of Agriculture and Forestry begin describing the forests of ‘Ōla‘a, and in the following years, through the 1920s, we see the development of a system of forest reserves through ‘Ōla‘a, Waiākea, and Keauhou (the adjoining land in Ka‘ū). The following narratives and notes of survey describe the nature of the reserve lands, their resources, and the thoughts behind protection and management of these unique systems. The records focus on the founding history of the reserves, and come from the collections of the Division of Forestry and Wildlife, Survey Division, and Hawaii State Archives. The records are given by land and reserve area, and date of record.

The ‘Ōla‘a Forest Lands

The following documents focus on the development of the various facets of the ‘Ōla‘a Forest Reserve, and early descriptions of the resources therein.

**Honolulu, T.H., April 7, 1905.
OLAA REMNANT, PUNA, HAWAII.**

Committee on Forestry,
Board of Commissioners of Agriculture and Forestry.
Honolulu, T.H.

Gentlemen:—On March 22 you referred to me a letter from Mr. J.W. Pratt, Commissioner of Public Lands, under the date of February 10, requesting the suggestions of the Board in regard to certain lands on the Island of Hawaii.

Three of the four tracts mentioned are in Hamakua. These I expect to visit during my next trip to Hawaii, after which I shall be ready to report upon them.

The other land called for I have the honor to report upon herewith. It is “that tract of land constituting the remnant of Olaa, below the surveyed part of Olaa New Tract, and between Keaau and Waiakea, forming a long narrow triangle and marked on the map of Hawaii as “Government Tract.” [see *Figure 2*] The lower point of the tract comes practically to the Volcano Road, not far above the seven mile post. The upper end of the Remnant adjoins Lots 229 to 232 of the Olaa New Tract, at an elevation of about 1,600 feet.

While I have not made a personal examination of this tract I am familiar with the general character of the section from visits made to the adjoining lands.

This knowledge, with additional information concerning the tract obtained from Government officials and other trustworthy sources, is the basis on which I make the following report and recommendations.

The greater part, if not the whole, of the Olaa Remnant is covered by old a-a lava, known as the Kukulu Flow. It is this flow which the Volcano Road crosses between the four and eight mile marks.

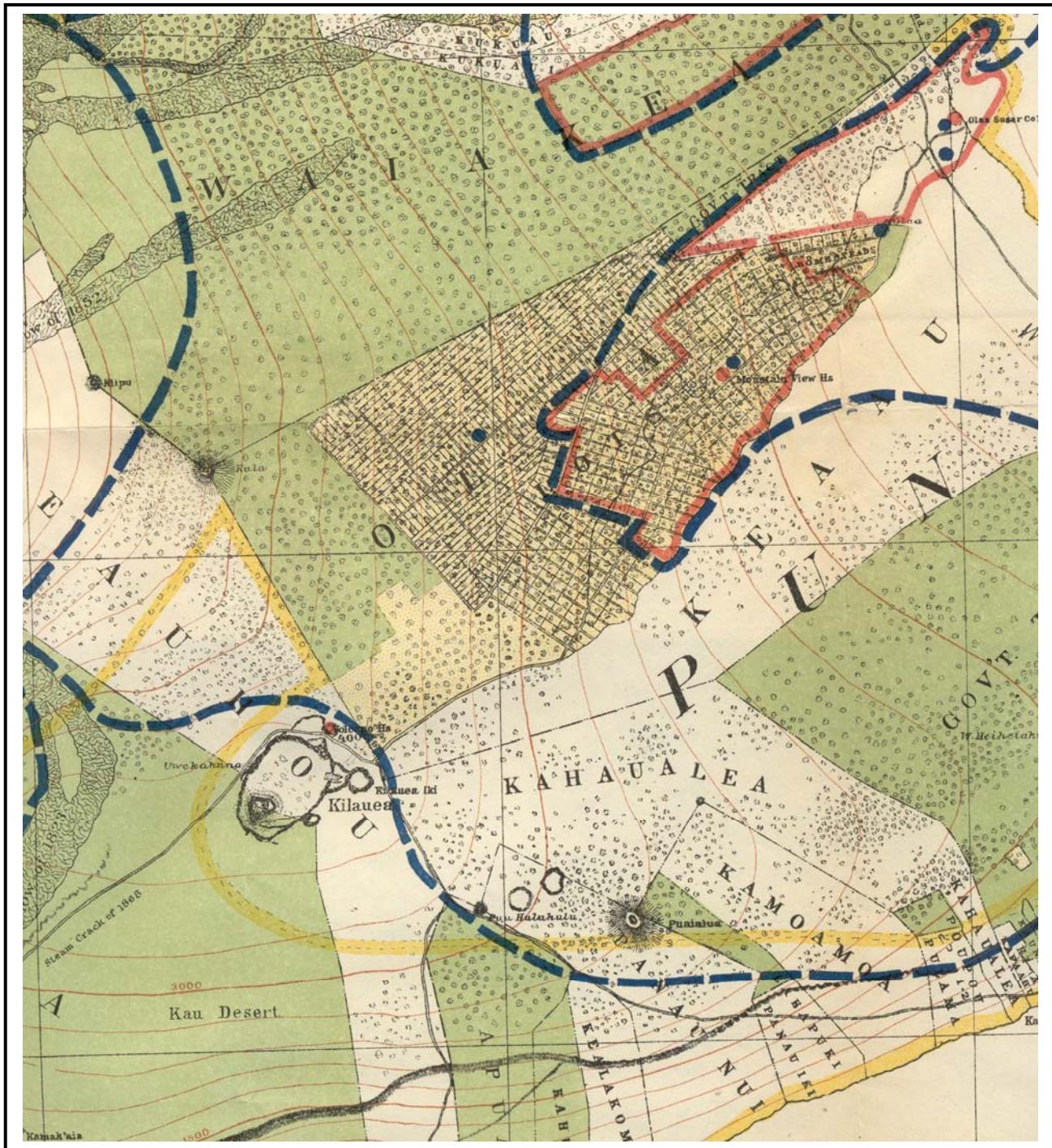


Figure 2. Detail of the 'Ola'a-Waiākea Forest Lands (Hawaii Territorial Survey, 1901)

The Kukulu Flow consists of large rocks, covered in part by good soil, but the surface is too rough to admit of plowing or cultivation. The upper part of the Remnant is shown on the map of the Olaa Lots, compiled by Mr. E.D. Baldwin in 1899.

Covering the entire Olaa Remnant is a dense forest of the same character as that on the remainder of the Olaa Tract. *Ohia Lehua* is the predominant tree with a heavy undergrowth of [page 132] tree and other ferns, climbing vines and the tangle of tropical vegetation that goes to make up the native Hawaiian forest.

Were it possible to develop the Olaa Remnant for agricultural purposes there would be no objection to clearing and opening up the land for settlement. But as the land is too rough to be cultivated, about the only profitable use to which this tract could now be put would be the cutting and marketing of the *Ohia* trees for timber, ties or fuel. Whatever value the Olaa Remnant at present possesses is largely because of the forest thereon, and unless there is a decided change in the economic conditions its greatest value in the future will be that it can produce timber trees.

Provided an assured market for *Ohia* wood existed, there would be no impropriety in logging the Olaa Remnant, provided always that the work were done in such a way that the Government would receive a fair return from the wood cut and that the forest were left in good producing condition.

But if a revenue is to be derived from the sale of forest products from Government land, the Government itself and not some individual should receive the chief benefit. To this end, when Government forest land is to be lumbered a special form of contract should be entered into, containing such directions and regulations as to how the work shall be done as may be deemed necessary.

In the case of the Olaa Remnant it is difficult to say for what the land could be profitably used at this time unless the idea is to cut wood.

I, therefore, recommend that the Board of Commissioners of Agriculture and Forestry advise the Commissioner of Public Lands not to lease the Olaa Remnant or to let it pass out of the control of the Government, until the forest on the tract can be put on the market at a fair profit or until the local economic conditions are such that the land can be used to better advantage for purposes other than that of producing timber trees.

Very respectfully yours,

RALPH S. HOSMER,
Superintendent of Forestry.
[Hawaiian Forester and Agriculturalist, 1905:133]

Eight years later, in 1913, based on a report by Territorial Forester, R.S. Hosmer, the Board set aside additional lands in the 'Ola'a Tract, "The Upper 'Ola'a Forest Reserve," described below:

Honolulu, June 18, 1913.

Gentlemen:—I have the honor to submit as follows, the recommendation that the remainder of the *mauka* portion of the government land of Olaa, to the north and west of the various subdivisions of homestead lots in the district of Puna, island and county of Hawaii, be set apart as a forest reserve [see *Figure 2*]. This land all belongs to the government. It is not now under lease. The area is 92.80 acres.

Object.

The reasons for the reservation of the Olaa forest remainder are largely the same that prompted me a short time since to recommend the reservation of the adjoining forest land of Waiakea, *mauka* (see report, dated June 6, 1913). Indeed, these two tracts, forming a continuous forest, are really to be considered together. They are only reported on separately because, for purposes of description, it was found desirable to treat them as two units rather than one.

No running water comes from the Upper Olaa forest. Its reservation as a forest reserve is justified, rather, because of the fact that the question may some time arise of exploiting its timber. It is none too soon to make provision against that time. One essential reason for setting the land apart now is that it may be brought under the care and control of the Territory's forest department. [page 304]

Like Waiakea, the upper portion of Olaa bears a heavy stand of forest. *Ohia-lehua* is the predominating tree, but with it in mixture are many other species. On its western edge the Upper Olaa forest joins the Bishop Estate land of Keauhou, on which is a heavy stand of the tallest and largest *koa* in the Territory. A section of Keauhou some seven miles long by one mile in width has for 10 or 12 years been held by that estate as a private forest reserve.

The heavy *koa* forest does not extend much, if any, on to Olaa, but near the Keauhou boundary, on the government land, is a fine stand of large tree-ferns (*Cibotium*) of perhaps as large size as any to be found in the Territory. These give at least a botanical interest to this region.

Some five years ago *ohia-lehua* railroad ties were, for a time, cut on the McKenzie lots, one of the homestead subdivisions of upper Olaa. Other than this, except as certain areas of forest have been cleared on other adjoining homestead lands and sold as firewood, there has been no commercial development of the upper Olaa forest.

Description.

The official description of the proposed Upper Olaa forest reserve, prepared by the Government Survey Office as C.S.F. No. 2476, accompanies this report.

Recommendation.

For the reasons given above I do now recommend that the Board approve the setting apart of this tract as the Upper Olaa forest reserve, and that the governor be called upon to hold the hearing and thereafter to issue the proclamation incident thereto.

Very respectfully,

RALPH S. HOSMER
Superintendent of Forestry.
[Hawaiian Forester and Agriculturalist, 1913:305]

1913

***Proclamation of Forest Reserves In the Districts of Hilo and Puna,
Island and County of Hawaii, Territory of Hawaii.***

UNDER and by virtue of the authority vested in me by the provisions of Chapter 28 of the Revised Laws of Hawaii, as amended by Act 65 of the Session Laws of 1905, and by Act 4 of the Session Laws of 1907, and of every other power me hereunto enabling, I, Ernest A. Mott-Smith, Acting Governor of Hawaii, with the approval of a majority of the Board of Commissioners of Agriculture and Forestry, having held the hearing of

which notice has been duly given as in said Acts provided, do hereby, subject to the existing leases, Set Apart as forest reserves, to be called respectively the Upper Waiakea Forest Reserve and the Upper Olaa Forest Reserve, those certain pieces of government land in the Districts of Hilo and Puna, Island and County of Hawaii, Territory of Hawaii, which may be described roughly as being the block of native forest on the lower slopes of Mauna Loa lying above the agricultural land back of Hilo and to the north and west on the various Olaa homestead subdivisions, and containing, respectively, areas of 51,800 acres and 9280 acres, more or less, more particularly described by and on a map made by the Government Survey Department of the Territory of Hawaii, which said map is now on file in the said Survey Department marked Government Survey Reg. Map No. 1808, and "Upper Waiakea" and "Upper Olaa Forest Reserves," and descriptions accompanying the same, numbered respectively C.S.F. Nos. 2430 and 2476, which said descriptions, now on file in the said Survey Department, are as follows...:

Upper Olaa Forest Reserve.

Portion of the Government Land of, Olaa, District of Puna,

Island of Hawaii.

C.S.F. No.2476.

Beginning at the Government Survey Trig. Station "Kulani" (marked by a copper bolt in a concrete post) at the intersection of the lands of Olaa, Keauhou, and Waiakea, as shown on Government Survey Reg. Map No. 1808, and running by true azimuths:

1. 243° 20' 12,694.0 feet along the land of Waiakea;
2. 318° 32' 30" 26,210.0 feet along the Southwest side of Cross Road No. 8 to a point on the Northwest boundary of Lot IV of the Otto Rose Settlement Association Lots;
3. 59° 31' 4492.0 feet along Lots IV and V of the Otto Rose Settlement Association Lots; 4. 149° 31' 3000.0 feet along Lot V of the 27 ½ Mile Tract;
5. 59° 31' 5858.0 feet along Lots V and VI of the 27 ½ Mile Tract;
6. 329° 31' 6000.0 feet along Lots VI and VII of the 27 ½ Mile Tract ;
7. 59° 31' 2950.0 feet along Lots VII, VI and V of the Kilauea Settlement Association Lots and across Wright Road;
8. 329° 31' 1000.0 feet along the Southwest side of Wright Road to the North corner. of Lot IV of the Kilauea Settlement Association Lots;
9. 59° 31' 4356.0 feet along Lots IV, III, II and I of the Kilauea Settlement Association Lots;
10. 149° 31' 30,575.0 feet along the land of Keauhou to the point of beginning.
Area, 9,280 acres.

In Witness Whereof, I have hereunto set my hand and caused the Great Seal of (the Territory of Hawaii to be affixed. (Seal)

DONE at the Capitol in Honolulu, this 13th day of October, A. D. 1913.

E. A. MOTT-SMITH,
Acting Governor of Hawaii.
[Hawaiian Forester and Agriculturalist, 1913:333]

1914

Olaa Forest Park.

REPORT OF THE SUPERINTENDENT OF FORESTRY.

Honolulu, Hawaii July 15, 1914.

Board of Commissioners of Agriculture and Forestry, Honolulu.

Gentlemen:—I have to recommend as follows the creation of a small forest reserve in the Olaa section, Puna district, Hawaii, to be known as the “Olaa Forest Park Reserve.”

The purpose of this project is to preserve for its beauty, its scenic interest and its scientific value the last remaining strip of the heavy native Hawaiian forest along the Volcano road, together with a grove of *koa* trees facing the road at 29 Miles. The former area consists of the untaken Olaa homestead lots bordering the Volcano road, *mauka* of Glenwood, between the twenty-three and the twenty-five mile posts. It is the one place in the Territory where without effort or exertion the visitor to the Islands can still see the dense native forest in its primitive condition.

The Glenwood Forest.

The area proposed to be set apart consists essentially of lots Nos. 363, 364, 277 to 380, and 389 to 391 of the original Olaa Tract homestead subdivision, a total of 374 acres. All of these lots still vest in the government. The majority of them were never taken up. Those that were have since reverted to the Territory. All are covered with heavy forest, consisting of a stand made up principally of large *ohia lehua* trees with a dense undergrowth of ferns, vines and shrubs. The lots named form a solid block across which runs the Volcano road. Adjoining this block are a number of privately-owned lots, on which the forest cover is of like character. It is the intention of the owners of these lots to continue to protect the forest on them. In effect this increases the size of the proposed reserve and insures the perpetuation of a block of forest large enough to maintain itself. [page 278]

The government lots, especially those to the south of the road, are said to be extremely rocky, so that their value for agriculture would at best be but small. On the other hand the forest on these lots makes them, because of their location, of unique value to the Territory.

Ever since the Volcano road was first built, the Hawaiian forest along its course has been one of the most exploited features of the Island of Hawaii. With increasing attention to building up the tourist trade in the Territory it is strictly a business proposition to preserve and develop all places of special scenic attraction. From the tourist point of view the drive from Glenwood to the Volcano is a distinct asset.

“But this forest is not alone of interest from the superficial standpoint of the passing tourist. With the opening up of the surrounding country, it will have increasing scientific interest from a botanical standpoint, while it may also well serve as a refuge for some of the remaining Hawaiian birds.”

These being the objects of the reservation, it is to be regarded as a forest park rather than as a regular forest reserve. But for purposes of administration it can best be handled if set apart under the Board of Agriculture and Forestry.

“The second area proposed to be included in the reserve is located further up the road at 29 Miles, a small block of forest, of seven and a half acres, that I believe should also

be reserved, say as Section B of the Olaa forest park. This is the stand of *koa* trees nearly opposite Mr. W.H. Shipman's mountain place, that was held out of the "Olaa Summer Lots" subdivision as a special "*koa* reserve." This *koa* grove is an interesting feature of the Volcano road. As the trees grow older it will be of interesting value as a part of the park.

Volcano Road Strips.

While this matter is under consideration by the board, I should like to bring forward one more suggestion which may result in increasing the area of the proposed forest park. I bring it up separately, as it involves a question of policy.

When the original Olaa tract was laid out, narrow strips of forest were reserved along the Volcano road between the twelve and the twenty-four mile posts, with the idea of preserving the forest, just as is now proposed on a smaller scale. Unfortunately the strips were not made wide enough. When the land behind them was opened up many of the trees on the strips died. The result was that below about the eighteen-mile post the former "forest reserve" strips are now merely remnants of open land, which are now and for years have been subject to trespass; sources of annoyance to all concerned.

Mauka of the "Peck Road" at eighteen miles there is still a fair [page 279] stand of forest on some of the strips, increasing in density toward and above Glenwood. But even where the native trees have pretty much gone there exists here, should the board deem it wise to take advantage of it, good opportunity for the planting in their stead of introduced trees of suitable species.

At present the government probably has no funds that it would care to use for such work, but in time conditions may so change as to make such planting possible. For this reason it seems to me desirable that these remnants be added to and set apart as portions of the Olaa forest park.

The Board of Agriculture and Forestry has, of course, no authority or control over these strips, nor voice as to their disposition, other than as a matter of general government policy. As concerns those below eighteen miles, my personal recommendation as superintendent of forestry is that they no longer be held for forest purposes, but disposed of under the law, as the Department of Public Lands may see fit, as agricultural land. Below eighteen miles the original forest is gone. The strips there can in my judgment be used to better advantage for agriculture than for tree planting.

I believe it would be good business for the government to clean up in this way what is now an unsatisfactory land muddle.

For the reason set forth I do therefore now recommend that the board approve the project of setting apart as the Olaa forest park reserve the three sections of government land above described, and that the board request the Governor to take the necessary steps to have the lands so set apart.

Very respectfully,

RALPH S. HOSMER,
Superintendent of Forestry.
[Hawaiian Forester and Agriculturalist, 1914:280]

1914

***Proclamation of Forest Reserve In the District of Puna,
Island and County of Hawaii, Territory of Hawaii.***

Under and by virtue of the authority vested in me by the provisions of Chapter 28 of the Revised Laws of Hawaii, as amended by Act 65 of the Session Laws of 1905, and by Act 4 of the Session Laws of 1907, and of every other power me hereunto enabling, I, Lucius E. Pinkham, Governor of Hawaii, with the approval of a majority of the Board of Commissioners of Agriculture and Forestry, having held the hearing of which notice has been duly given as in said Acts provided, do hereby set apart as a forest reserve to be called the Olaa Forest Park Reserve, those certain pieces of government land in the District of Puna, Island and County of Hawaii, Territory of Hawaii, which may be roughly described as the remaining area of government land along the Volcano Road under a stand of heavy Hawaiian forest, and containing an area of 531 acres, more or less, more particularly described by and on maps made by the government survey department of the Territory of Hawaii, which said maps are now on file in the said survey department marked Government Survey Reg. Maps Nos. 2250, 2411 and 2577 and "Olaa Forest Park Reserve," Sections A, B, and C respectively, and descriptions accompanying the same in two parts numbered C.S.F. 2538 and 2544 (the description of Section C, the road strips, appearing directly on Map No. [page 282] 2577), which said descriptions now on file in the said Survey Office are as follows:

OLAA FOREST PARK RESERVE.

Olaa, Puna, Hawaii.

Section A.

Including Lots 363, 364, 377, 378, 389, 390, 391, and portions of Lots 379 and 380, of the Olaa Reservation Lots.

C.S.F. No. 2538.

Beginning at the East corner of Lot 365 of the Olaa Reservation Lots (Grant 4345 to E.G. Hitchcock) at the junction of 30-foot side road with the Volcano Road, the coordinates of which point are 47,311.24 feet South and 37,490.65 feet West of Government Survey Trig. Station "Olaa," as shown on Government Survey Registered Map No. 2250, and running by true azimuths:

1. $304^{\circ} 12' 2975.0$ feet more or less across Volcano Road and along the Southwest side of a 30-foot road to a point in middle of old Volcano Road;
Thence along the land of Keaau along the middle of the old Volcano Road, the direct azimuths and distances being:
 2. $55^{\circ} 15' 2720.0$ feet more or less;
 3. $39^{\circ} 20' 1477.0$ feet more or less;
 4. $63^{\circ} 00' 930.0$ feet more or less;
5. $124^{\circ} 12' 4905.0$ feet more or less along the Northeast side of a 30-foot side road, across the Volcano Road to the West corner of Lot 389 of the Olaa Reservation Lots;
6. $214^{\circ} 12' 1200.0$ feet along Lot 1 of the Brughelli Settlement Association lots;
7. $304^{\circ} 12' 561.0$ feet along Right of Purchase Lease No. 155 to Mrs. B. Bergstrom (Olaa Reservation Lots);
8. $249^{\circ} 45' 976.0$ feet along Right of Purchase Lease No. 155 to Mrs. B. Bergstrom (Olaa Reservation Lots);

9. $304^{\circ} 12'$ 2689.0 feet along Right of Purchase Lease No. 155 to Mrs. B. Bergstrom (Olaa Reservation Lots) to the Volcano Road;
10. $211^{\circ} 49'$ 430.0 feet along the Northwest side of the Volcano Road to the North corner of the Volcano Road and a 30-foot side road;
11. $124^{\circ} 12'$ 150.0 feet along the Northeast side of a 30-foot side road to the South corner of Grant 4547;
12. $211^{\circ} 49'$ 601.0 feet along Grant 4547 to Mrs. J.C. McStay;
13. $304^{\circ} 12'$ 150.0 feet along Grant 4547 to Mrs. J.C. McStay;
14. $211^{\circ} 49'$ 400.0 feet along Grant 4547 to Mrs. J.C. McStay along the Northwest side of Volcano Road;
15. $124^{\circ} 12'$ 150.0 feet along Grant 4547 to Mrs. J.C. McStay;
16. $211^{\circ} 49'$ 200.0 feet along Grant 4547 to Mrs. J.C. McStay;
17. $124^{\circ} 12'$ 309.0 feet along Grant 4547 to Mrs. J.C. McStay to the South corner of Grant 4345 to E.G. Hitchcock;
18. $214^{\circ} 12'$ 801.0 feet along Grant 4345 to E.G. Hitchcock;
19. $204^{\circ} 12'$ 213.0 feet along Grant 4345 to E.G. Hitchcock;
20. $211^{\circ} 50'$ 400.0 feet along Grant 4345 to E.G. Hitchcock to the point of beginning; Area, 380 acres, more or less.

Excepting and reserving there from that portion of the Volcano Road passing through this tract (area, 6 acres), leaving a net area of 374 acres, more or less.

SECTION B.

Being the Koa Grove Reservation in the Olaa Summer Lots Subdivision.

C.S.F. No. 2544

Beginning at the West corner of the Volcano Road and Kalanikoa Road, [page 283] the coordinates of which point referred to Government Survey Trig. Station "Kulani" are 34,351.6 feet South and 20,278.6 feet East, as shown on Government Survey Registered Map No. 2411, and running by true azimuths:

1. $50^{\circ} 98'$ 310.0 feet along new line of the Volcano Road;
2. $33^{\circ} 04'$ 245.8 feet along new line of the Volcano Road;
3. $149^{\circ} 31'$ 707.7 feet along the land of Keauhou to an *ohia* post;
4. $239^{\circ} 31'$ 525.9 feet along Lot 2, Block C, of the Olaa Summer Lots (Grant 5645 to Thos. E. Cook), to an *ohia* post;
5. $329^{\circ} 31'$ 547.6 feet along Kalanikoa Road to the point of beginning.
Area, 7 32/100 acres.

AREAS.

Section A-	374	acres
Section B-	7.32	acres
Section C-	<u>150</u>	acres
	531.32	acres

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the Territory of Hawaii to be affixed. Done at the Capitol in Honolulu this 20th day of August, A.D. 1914.

Lucius E. Pinkham
Governor of Hawaii... [Hawaiian Forester and Agriculturalist, 1913:284]

1918
Olaa Forest Reserve.

Honolulu, Hawaii, Nov. 26, 1918.
Board of Commissioners of Agriculture and Forestry, Honolulu.

GENTLEMEN :

I have the honor to recommend the setting apart as a forest reserve of a portion of the government land of Olaa, Puna, Hawaii, consisting of 20,030 acres, more or less, as shown on the attached blueprint map.

The whole area is covered with a heavy forest of native trees such as the *ohia*, *olapa*, *koa*, *loulu* palm and tree ferns with their accompaniment of a heavy undergrowth of ferns and vines and is situated between the Upper Waiakea Forest Reserve on the north, the Upper Olaa Forest Reserve on the west, and Section A of the Olaa Forest Park Reserve and homestead lots on the south. It includes a vast wilderness of heavy forest, situated between the elevations of 1700 and 3800 feet, which is impenetrable except for the roads and trails which have been cut through it.

Over fifteen years ago the tract was surveyed into homestead lots with the idea that they would be settled upon by coffee planters. Coffee cultivation was a failure here owing to the [page 492] shallowness of the soil and other unfavorable factors, and although homesteads have repeatedly been taken up in this region and a lot of money spent in improving them, no one has' been successful in raising any crops.

With this demonstration in view, and with the idea of making some use of the land, four leases have been made during the past two years by the Land Office of a part of the land at the lower or *makai* end, consisting of a total of 8,886 acres, at nominal rentals, with the idea that cattle could be raised on the land. All of these leases are held by Japanese, who are about the only people who will live in this wet region. In connection with one of these leases, the largest, consisting of 8589 acres, portions of the land have been subleased to four other Japanese. These men are making an unsuccessful attempt at raising a few head of scrubby cattle in the forest. At the time the first lease was assigned to a second party in April, 1918. 175 head of cattle were supposed to have been turned over with the lease, but on account of the heavy growth of forest the assignees have been able to find only 100 head.

Recently an application was made for a lease of the balance of this forest land for grazing purposes, but at my request the application has been held up. If further extended grazing is permitted on the land it will, in time, become similar to adjacent lands *makai*—a useless waste of dead trees, fallen logs and Hilo grass. Such a large stretch of forest cannot help but exert a favorable influence on the surrounding climate, and this is of importance to the Olaa Sugar Plantation just below, which suffered from the effects of drought two summers ago.

As stated above, the soil throughout the region for the most part is shallow and is best suited to forest growth. Continued grazing in the region on any scale will in time reduce the forest to a useless waste.

Sufficient land has been left out of the area recommended to be set aside to provide for the need of additional homesteads at the *makai* or lower end where soil conditions are more favorable, and a sufficient area at the high elevation near the upper end, not far from the Volcano House, has been reserved for additional summer lots.

For the reasons above set forth, I recommend that the Board approve the project of creating the Olaa Forest Reserve, as described above, and that the Governor be requested to take the necessary steps toward this end.

Respectfully submitted,
C. S. JUDD,
Superintendent of Forestry. [Hawaiian Forester and Agriculturalist, 1918:493]

Withdrawal of Land From Olaa Forest Park Reserve.

Honolulu, Hawaii, Nov. 27, 1918.
Board of Commissioners of Agriculture and Forestry, Honolulu.

GENTLEMEN:

I have the honor to submit, as follows, a report recommending the withdrawal of 30,000 square feet or 0.69 acres of land from a part of Section C of the Olaa Forest Park Reserve on the Volcano Road above Glenwood, in Olaa, Puna, Hawaii, for the purpose of exchange with Mr. F. G. Snow for an equal area of privately owned forest land in the immediate vicinity which it is desired to include in the above reserve. The two areas, each 200 feet by 150 feet in size, are shown on the attached maps.

This section of the Olaa Forest Park Reserve, which was set aside on August 20, 1914, consists of narrow strips of land, only 150 feet deep, fronting on both sides of the Volcano Road. On some of the homestead lots these reserve strips occupy most of the frontage and in some cases have caused great inconvenience.

In this case, the piece desired by Mr. Snow is opposite his frontage area across the road, and he desires to use it as a driveway between his two opposite lots. There is only a scant covering of dying tree ferns and dead *ohia* trees on this piece, whereas on the piece of equal size which he desires to give the government in exchange, and which is already protected by a fence, there is a heavy forest of *ohia* and tree ferns in good condition.

The government will thus benefit by the exchange and, for this reason, I recommend that the Board approve the withdrawal of the 30,000 square feet and that the Governor be requested to take the necessary further action to perfect the exchange.

Respectfully submitted,
C. S. JUDD, Superintendent of Forestry. [Hawaiian Forester and Agriculturalist, 1918:494]

***Proclamations of Forest Reserve in the District of Puna,
Island and County of Hawaii, Territory of Hawaii.***

Under and by virtue of the authority vested in me by the provisions of Chapter 37 of the Revised Laws of Hawaii of 1915, and of every other power me hereunto enabling, I C.J. McCarthy, Governor of Hawaii, with the approval of a majority of the Board of Commissioners of Agriculture and Forestry, having held the hearing of which notice has been duly given as in said laws provided, do hereby set apart as a forest reserve to be called the Olaa Forest Reserve, subject to existing rights, a portion of that certain piece of government land called Olaa, in the District of Puna, Island and County

of Hawaii, Territory of Hawaii, containing an area of 20,030 acres, more or less, more particularly described by and on maps made by the Government Survey Department of the Territory of Hawaii, which said maps are now on file in the said Survey Department marked Government Survey Reg. Map No. 2250 and "Olaa Forest Reserve" and description accompanying the same number C.S.F. 3026, which said description now on file in said Survey Department, is as follows:

Olaa Forest Reserve.

Portion of the Government Land of Olaa, Olaa, Puna, Hawaii.

C.S.F. 3026

Beginning at the West corner of this reserve, and the North corner of UPPER OLAA FOREST RESERVE, the true azimuth and distance from Government Survey Trig. Station "Kulani" being 243° 20' 12,694 feet, as shown on Government Survey Registered Map No. 2250, and running by true azimuths:

1. 243° 20' 50.151.7 feet along WAIAKEA FOREST RESERVE;
2. 318° 39' 30" 1848.9 feet along government land;
3. 48° 39' 30" 12,070.0 feet along Lots 229 to 214 inclusive, Olaa New Tract, to the West corner of Lot 214;
4. 38° 41' 50.5 feet across Road No. 2, to the North corner of Lot 213, Olaa New Tract;
5. 48° 32' 30" 3010.9 feet along Lots 213 to 210 inclusive, Olaa New Tract, to the West corner of Lot 210;
6. 138° 32' 30" 724.9 feet along Lot 264, Olaa New Tract;
7. 48° 32' 30" 3055.0 feet along Lot 264, Olaa New Tract, and across Road No. 3, to the North corner of Lot 265, Olaa New Tract;
8. 318° 32' 30" 6583.2 feet along West side of Road No. 3 to the North corner of Lot 119A, Olaa New Tract;
9. 48° 32' 33" 18,130.0 feet along Lots 119A, 118, 117, 116, 115, 120, 121, 129 and 130, Olaa New Tract, and across Road No. 6, to the East corner of Lot 53, Olaa New Tract;
10. 318° 32' 30" 3.6 feet along Southwest side of Road No. 6;
11. 302° 21' 5759.2 feet along Southwest side of Road No. 6, to the North corner of Lot 99, Olaa New Tract;
12. 34° 08' 30" 11,016.5 feet along Lots 99 to 85 inclusive, Olaa New Tract;
13. 318° 32' 30" 2998.0 feet along Lot 85, Olaa New Tract;
14. 34° 08' 30" 384.0 feet, more or less, along Northwest side of a road;
15. 304° 12' 5539.0 feet, more or less, across road, and along the Southwest side of a 30-foot road;
16. 214° 12' 1230.0 feet across a 30-foot road, and along Lot 387, Olaa Reservation Lots; [page 505]
17. 304° 12' 2069.0 feet along Lots 380 and 381, Olaa Reservation Lots;
18. 34° 12' 1230.0 feet along OLAA FOREST PARK RESERVE and across a 30-foot road;
19. 304° 12' 3930.0 feet, more or less, along Southwest side of a 30-foot road, to the West corner of said 30-foot road and Volcano Road;

20. Thence along the Northwest side of Volcano Road, the direct azimuth and distance being: $45^{\circ} 10' 1644.0$ feet, more or less;
 21. $149^{\circ} 16'$ 602.7 feet along government land;
 22. $88^{\circ} 00'$ 573.7 feet along same;
 23. $117^{\circ} 47'$ 1244.6 feet along same;
 24. $134^{\circ} 18'$ 507.3 feet along same;
 25. $69^{\circ} 01'$ 860.7 feet along same;
 26. $87^{\circ} 39'$ 911.9 feet along same;
 27. $87^{\circ} 35'$ 421.9 feet along same;
 28. $87^{\circ} 55'$ 400.2 feet along same;
 29. $57^{\circ} 22'$ 424.1 feet along same;
 30. $160^{\circ} 31' 30"$ 213.3 feet along same, and across Kilauea Road to the South corner of Lot 2B, Brughelli Settlement Association;
 31. $59^{\circ} 31' 13,218.0$ feet along the Northwest side of Kilauea Road, to the North corner of said Kilauea and Hinano Roads;
 32. $149^{\circ} 31'$ 15,000.0 feet along the Northeast side of Hinano Road, and along the Kilauea Settlement Association Lots and UPPER OLAA FOREST RESERVE;
 33. $239^{\circ} 31'$ 5858.0 feet along UPPER OLAA FOREST RESERVE;
 34. $329^{\circ} 31'$ 3000.0 feet along same;
 35. $239^{\circ} 31'$ 4492.0 feet along same;
 36. $138^{\circ} 32' 30"$ 26,210.0 feet along UPPER OLAA FOREST RESERVE, to the point of beginning.
- Area, 20,030.0 acres, more or less.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the Territory of Hawaii to be affixed.

Done at the Capitol in Honolulu, this 31st day of December, A.D. 1918.

C.J. McCarthy
Governor of Hawaii.
By the Governor:

Curtis P. Iaukea,
Secretary of Hawaii. [Hawaiian Forester and Agriculturalist, 1918:506]

***Proclamation of Withdrawal of Certain Land From
the Olaa Forest Park Reserve, District of Puna,
Island and County Of Hawaii, Territory Of Hawaii.***

UNDER and by virtue of the authority vested in me by the provisions of Chapter 37 of the Revised Laws of Hawaii of 1915, and of every other power me hereunto enabling I, C.J. McCarthy, Governor of Hawaii, with the approval of a majority of the Board of Commissioners of Agriculture and Forestry, having held the hearing of which notice has been duly given all as in said laws provided, do hereby withdraw and eliminate from Section C of the Olaa Forest Park Reserve, in the District of Puna, Island and County of Hawaii, Territory of Hawaii, created and set apart by the Proclamation of the Governor of Hawaii on August 20, 1914, that certain portion of the government land called Olaa, containing 30,000 square feet, in the District of Puna, Island and County of

Hawaii, [page 506] Territory of Hawaii, more particularly described by and on maps made by the Government Survey Department of the Territory of Hawaii, which said maps are now on file in the said Survey Department marked Government Survey Reg. Map No. 2577 and "Territory of Hawaii to F.G. Snow, Portion of the Forest Reserve Between the Volcano Road and Lot 328 of the Olala Reservation Lots," and a description accompanying the same numbered C.S.F. 3027, which said description now on file in the said Survey Department is as follows:

TERRITORY OF HAWAII TO F.G. SNOW,

Portion of the Forest Reserve between the Volcano Road and Lot 328, of the Olala Reservation Lots, Olala, Puna, Hawaii.

C.S.F. 3027.

Beginning at the South corner of this piece, on the Northwest side of Volcano Road, said point being 214° 12' 660.8 feet from the North corner of Volcano Road and a 30-foot side road, the coordinates of said point of beginning referred to Government Survey Trig. Station "Olala" being 42,654.0 feet South and 34,468.3 feet West, as shown on Government Survey Registered Map No. 2577, and running by true azimuths:

1. 124° 12' 150.0 feet along Forest Reserve (government land);
2. 214° 12' 200.0 feet along Lot 328, Olala Reservation Lots;
3. 304° 12' 150.0 feet along Forest Reserve (government land);
4. 34° 12' 200.0 feet along Volcano Road to the point of beginning.
Area, 30,000 square feet.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the Territory of Hawaii to be affixed.

Done at the Capitol in Honolulu, this 31st day of December, A.D. 1918.

C.J. McCarthy
Governor of Hawaii.

By the Governor:
Curtis P. Iaukea,
Secretary of Hawaii. [Hawaiian Forester and Agriculturalist, 1918:507]

Pu'u Kūlani and Vicinity Described in 1919

Botanist, Joseph Rock described the make up of the forest around Pu'u Kūlani, as it existed in 1919. Interestingly, at that time, he called for fencing as a means of protecting the unique biological system from depredation of wild cattle and pigs:

***One Government Forest
Reserve Lands at Kulani, Hawaii, Described.***
By Joseph F. Rock, Consulting Botanist.

The whole forest reserve area at Kulani, Hawaii, is covered with a decidedly uniform and, geologically speaking, rather young forest. The border below 29 Miles contains more of a mixture of trees than the area further up toward Kulani proper. Near 29 Miles we find that trees are more numerous, especially *ohia* lehuas with occasional *manoa* [*maua*] trees, *Xylosma Hillebrandii*, of which the writer encountered large individuals.

Dispersed throughout that region is a very beautiful native fan palm with large orbicular fruits described by the writer as a new species under the name of *Pritchardia Beccariana*. *Olapa*, *Cheirodendron*, *Gaudichaudii*; an occasional *aiea*, *Nothocestrum*; *kopiko*, *Straussia*; *olomea*, *Perrottetia*; *pilo*, *Coprosma*; and *manono*, *Gouldia*, form the rest of the arborescent growth.

The forest is, however, mainly a tree-fern forest interspersed with an occasional tree of the species mentioned. An acre of this forest land may contain perhaps five or six mature trees, of which four may belong to the genus *Metrosideros* (*ohia lehua*). The remainder is all tree ferns composed of the two common types—*Cibotium Chamissoi* and *Cibotium Menziesii*. Undergrowth is mainly composed of *Cyrtandrae*, *Broussaisia*, [page 39] *Cyanea tritomantha*, *Cyanea pilosa*, *Rubus*, *Phyllostegia*, etc. Ferns are of course very numerous. The whole forest is in splendid condition, but the undergrowth is much disturbed by the ravages of wild pigs. The uniformity of the forest makes exploring rather uninteresting for a botanist.

Kulani proper is a densely wooded volcanic cone, the forest being exceedingly uniform and of the rain forest type. Palms are entirely absent. A gap was cut at the summit to permit a view of the surrounding region. The land toward Keauhou lies considerably lower than that over which Kulani was approached, or, in other words, the slopes of Kulani towards Keauhou are rather steep, giving the cone quite a formidable appearance both in height and size. The summit appears as two cones, but in fact the central valley or ridge, densely wooded, is nothing but an ancient volcanic fissure dividing the cone in two. The ground is covered with fallen trunks of both trees and tree-ferns which are covered with numerous epiphytes such as ferns *Stenogyne*, *Clermontia parviflora*, *Astelia veratroides*, *Selagruella*, *Lycopodium*, etc. The soil is mostly black loam, and the ground quite hummocky, which, besides fallen trunks and the absence of a trail, made progress quite slow. If properly fenced and protected from cattle and wild hogs, this forest reserve is certainly one of the finest on Hawaii, and deserves protection from cattle and hogs. [Hawaiian Forester and Agriculturalist, 1919:40]

The Waiākea Forest Lands

Following the development of the Hilo Forest Reserve in 1904, and the addition of portions of the 'Ola'a Tract to the reserve system in 1905 and 1913, the board also set aside the upland portions of Waiākea as a reserve. Thus, making a contiguous line of forest across the Hilo District, and adjoining the Puna District. The following documents are among those recorded as a part of the dedication of the Waiākea forest lands to the reserve system.

***Honolulu, June 6, 1913.
The Upper Waiakea Forest Reserve.
Reports of the Superintendent of Forestry.***

Gentlemen:—

I have the honor to submit as follows the recommendation that a forest reserve be created to cover the central forested portion of the government land of Waiakea, district of Hilo, island and county of Hawaii:

Location, Object and Area.

Waiakea is a large government land stretching from the sea at Hilo bay well up on the slopes of Mauna Loa. Much of the lower portion is in cane; the extreme upper part is more or less open grazing land, crossed by lava flows. Between is a section of heavy forest. The present recommendation is that the forested portion be set apart as a forest reserve, with the objects (1) of bringing the land under the management of the department of the Territory especially equipped to care for it, so that (2) it may be

wisely administered in any way not inconsistent with its maintenance as a forest that may in the future be deemed best. [page 302]

Owing to the geological formation of the island of Hawaii there are no running streams south of the 1855 and 1881 lava flows that come down the side of Mauna Loa back of Hilo town on lands lying immediately to the north of Waiakea. It is quite possible that springs and water holes may later be discovered in the Waiakea forest; for at present almost nothing is known accurately about the interior of this tract; but there are no running streams coming from it.

The question of stream protection does not, therefore, figure on Waiakea, but there are other reasons why it is important that existing areas of forest should receive the care and protection of the government. Until many more scientific data than are now available have been collected, it is impossible to tell how far-reaching may be the influence exerted on the country immediately surrounding large bodies of continuous forest, but it is evident that such influence does exist and that it is beneficial. Particularly is this true in the tropics and sub-tropics.

Further, on Waiakea it may happen that in time the question may arise of devoting portions of this forest to commercial utilization. To safeguard the interests of the government in all these ways and to be ready for any sort of development that may come about, it is desirable that the Waiakea forest become the Waiakea forest reserve.

The area proposed to be set apart is 51,800 acres. Of this 600 acres is a part of the land of Piihonua, a remnant mainly covered with lava, between the boundaries of the Hilo forest reserve and Waiakea. Piihonua is now under lease No. 103 to Hon. John T. Baker, expiring on March 21, 1921.

At the present time all of the land of Waiakea is under an expiring 30-year lease to the Waiakea Mill Co. (No. 124) that runs out on June 1, 1918. No use is at present made of the forest. Beyond the general clause against waste, common to the leases of that time, the lessees are not obligated to protect the forest.

The forest on Waiakea is practically unexplored region. It is a dense stand of the rain-forest type. *Ohia-lehua* is the predominating tree. Along its lower side, where the forest is crossed by the Olaa flume, are numerous groups of *loulu* palms, growing in company with great tree ferns. And throughout, so far as the interior is known, there is a dense stand of the undergrowth characteristic of this type of Hawaiian forest.

Boundaries.

The upper and lower boundaries of the proposed Upper Waiakea forest reserve have been somewhat arbitrarily fixed by drawing lines across the land from known points on the outside boundaries, but it is believed that they serve the purpose at this time as well as if they had been run out on the ground. The *makai* line very nearly parallels the flume constructed to carry water [page 303] from upper Kaumana to the Olaa plantation. The upper line leaves out of the reserve the area suitable for grazing above the native forest.

The elevation of the *makai* boundary is approximately 1800 feet; that of the *mauka* line varies from 5000 feet at Puu Kulani to 4500 feet at the 1855 lava flow, where the proposed reserve joins and forms a continuation of the existing Hilo forest reserve.

Description.

A technical description of the boundary, prepared by the Government Survey Office as C.S.F. 2430, accompanies this report.

Recommendations.

For the reasons above set forth I do now recommend that the Board approve this project and call upon the governor of the Territory to set apart this government land as a forest reserve to be known as the Upper Waiakea forest reserve.

Very respectfully,

RALPH S. HOSMER

Superintendent of Forestry. [Hawaiian Forester and Agriculturalist, 1913:304]

1913

***Proclamation of Forest Reserves in the Districts of
Hilo and Puna, Island and County of Hawaii, Territory Of Hawaii.***

UNDER and by virtue of the authority vested in me by the provisions of Chapter 28 of the Revised Laws of Hawaii, as amended by Act 65 of the Session Laws of 1905, and by Act 4 of the Session Laws of 1907, and of every other power me hereunto enabling, I, Ernest A. Mott-Smith, Acting Governor of Hawaii, with the approval of a majority of the Board of Commissioners of Agriculture and Forestry, having held the hearing of which notice has been duly given as in said Acts provided, do hereby, subject to the existing leases, SET APART as forest reserves, to be called respectively the Upper Waiakea Forest Reserve and the Upper Olaa Forest Reserve, those certain pieces of government land in the Districts of Hilo and Puna, Island and County of Hawaii, Territory of Hawaii, which may be described roughly as being the block of native forest on the lower slopes of Mauna Loa lying above the agricultural land back of Hilo and to the north and west on the various Olaa homestead subdivisions, and containing, respectively, areas of 51,800 acres and 9280 acres, more or less, more particularly described by and on a map made by the Government Survey Department of the Territory of Hawaii, which said map is now on file in the said Survey Department marked Government Survey Reg. Map No. 1808, and "Upper Waiakea" and "Upper Olaa Forest Reserves," and descriptions accompanying the same, numbered respectively C.S.F. Nos. 2430 and 2476, which said descriptions, now on file in the said Survey Department, are as follows:

UPPER WAIAKEA FOREST RESERVE

Portions of the Government lands of Piihonua and Waiakea,
District of Hilo, Island of Hawaii.
C.S.F. No. 2430.

Beginning at the Government Survey Trig. Station "Kulani" at the intersection of the lands of Olaa, Keauhou, and Waiakea, as shown on Government Survey Reg. Map No.1808, and running by true azimuths:

1. 162° 58' 56,790 feet, more or less, along the land of Waiakea to a point at lower Mawae, near a small island in lava flow; [page 332]
2. Thence along the HILO FOREST RESERVE along edge of lava flow of 1855 to the Northwest corner of the Land of Punahoa 2nd, the direct azimuth and distance being: 256° 27' 33,580.0 feet, more or less;
3. 341° 00' 7000 feet, more or less, along the land of Punahoa 2nd;
4. 93° 20' 5230.0 feet, more or less, along the land of Kaumana;
5. 1° 00' 640.0 feet, more or less, along the land of Kaumana;
6. 29° 30' 2750 feet, more or less, along the land of Kukuau 2nd;

7. $350^{\circ} 00'$ 1150 feet, more or less, along the land of Kukuau 1st to a point a little South of the lower end of a small branch of the lava flow of 1855 at a place called Kapualei;
8. $285^{\circ} 30'$ 24,500 feet, more or less, along the land of Kukuau 1st;
9. $309^{\circ} 21'$ 26,710.0 feet, more or less, across the land of Waiakea to the North corner of Lot 232 of the Olaa New Tract Lots ;
10. $63^{\circ} 20'$ 62,845.7 feet, more or less, along the Olaa New Tract Lots, and the Land of Olaa to the point of beginning.

Area, Waiakea, 51,200 acres; Piihonua, 600 acres. Total area, 51,800 acres...
[Hawaiian Forester and Agriculturalist, 1913:333]

In 1923, the boundaries of the Upper Waiakea Forest Reserve were modified, by survey of 1922, and recorded in C.S.F. 3876:

C.S.F. 3876
Upper Waiakea Forest Reserve,
South Hilo, Hawaii.
(revised)

June 13, 1922

Including the upper portion of the land of Waiakea [see *Figure 3*].

Beginning at "Kulani", a Government Survey Triangulation Station, at the South corner of the land of Waiakea and the Northwest corner of the land of Olaa, and on the East boundary of the land of Keauhou, and running by true azimuths:-

1. $133^{\circ} 18' 05"$ 19346.9 feet along the land of Keauhou to a spike in large upright stone near Kipu Hill;
 2. $159^{\circ} 33' 17"$ 49478.2 feet along the lands of Keauhou and Humuula to "Kahiliku Boundary" Point;
 3. $288^{\circ} 24' 33"$ 15744.0 feet along the land of Piihonua to "Mawae" Trig. Station;
 4. $271^{\circ} 41'$ 28484.0 feet along same;
 5. $4^{\circ} 33' 30"$ 535.0 feet along the land of Kaumana;
 6. $52^{\circ} 30'$ 2750.0 feet along the land of Kukuau 2nd;
 7. $340^{\circ} 25'$ 1150.0 feet along the land of Kukuau 1st;
 8. $284^{\circ} 51'$ 27258.0 feet along same;
 9. $308^{\circ} 23'$ 24802.0 feet along Waiakea Forest Reserve;
 10. $63^{\circ} 20'$ 62845.7 feet along Olaa and Upper Olaa Forest Reserves to the point of beginning.
- Area 63,150 Acres.

Excepting and Reserving there from the following Tracts or parcels of land, to-wit:-

Part 1, Portion of Waiakea. Beginning at a point called "Kahiliku Boundary", on the boundary of Humuula, Waiakea and Piihonua, the direct azimuth and distance of said point of beginning from Government Survey Trig. Station "Puu Oo" being $355^{\circ} 40' 55"$ 16092.7 feet, and running by true azimuths:-

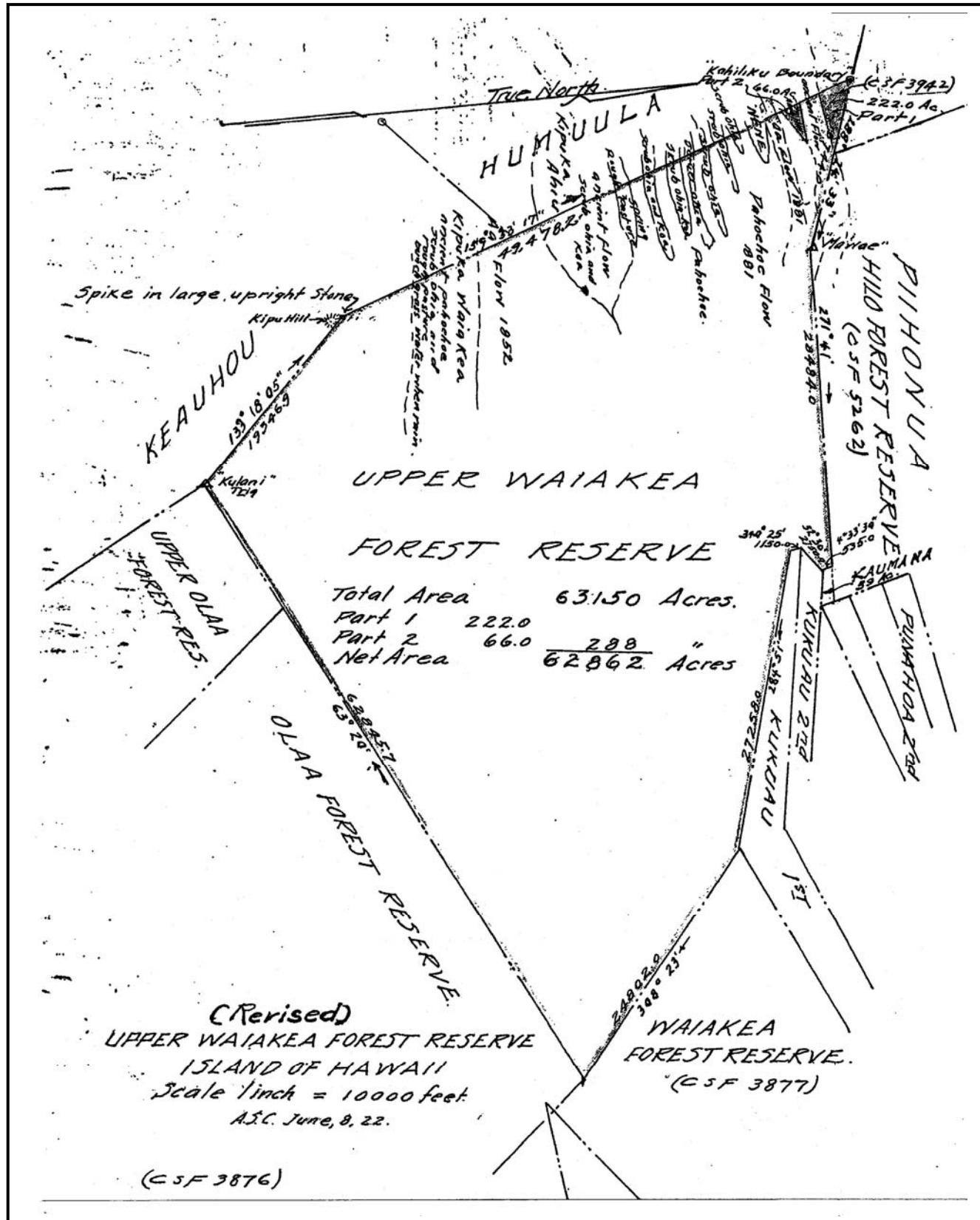


Figure 3. Plan of the Upper Waiakea Forest Reserve; C.S.F. 3876 Hawaii Territorial Survey, 1922

1. $288^{\circ} 24' 33''$ 7500.0 feet along Piihonua;
2. $83^{\circ} 00'$ 6005.0 feet;
3. $159^{\circ} 33' 17''$ 3309.0 feet along Humuula-Waiakea boundary to the point of beginning.

Area 222-00/100 Acres.

Part 2. Portion of Aina Hou Kipuka in Waiakea. Beginning at a point on the Humuula-Waiakea boundary, the coordinates of said point of beginning referred to Government Survey Trig. Station "Puu Oo" being 21021.4 feet South and 3081.3 feet East, and running by true azimuths:-

1. $268^{\circ} 00'$ 3500.0 feet;
2. $59^{\circ} 00'$ 3370.0 feet;
3. $159^{\circ} 17' 33''$ 1725.0 feet to the point of beginning.

Area 66-00/100 Acres.

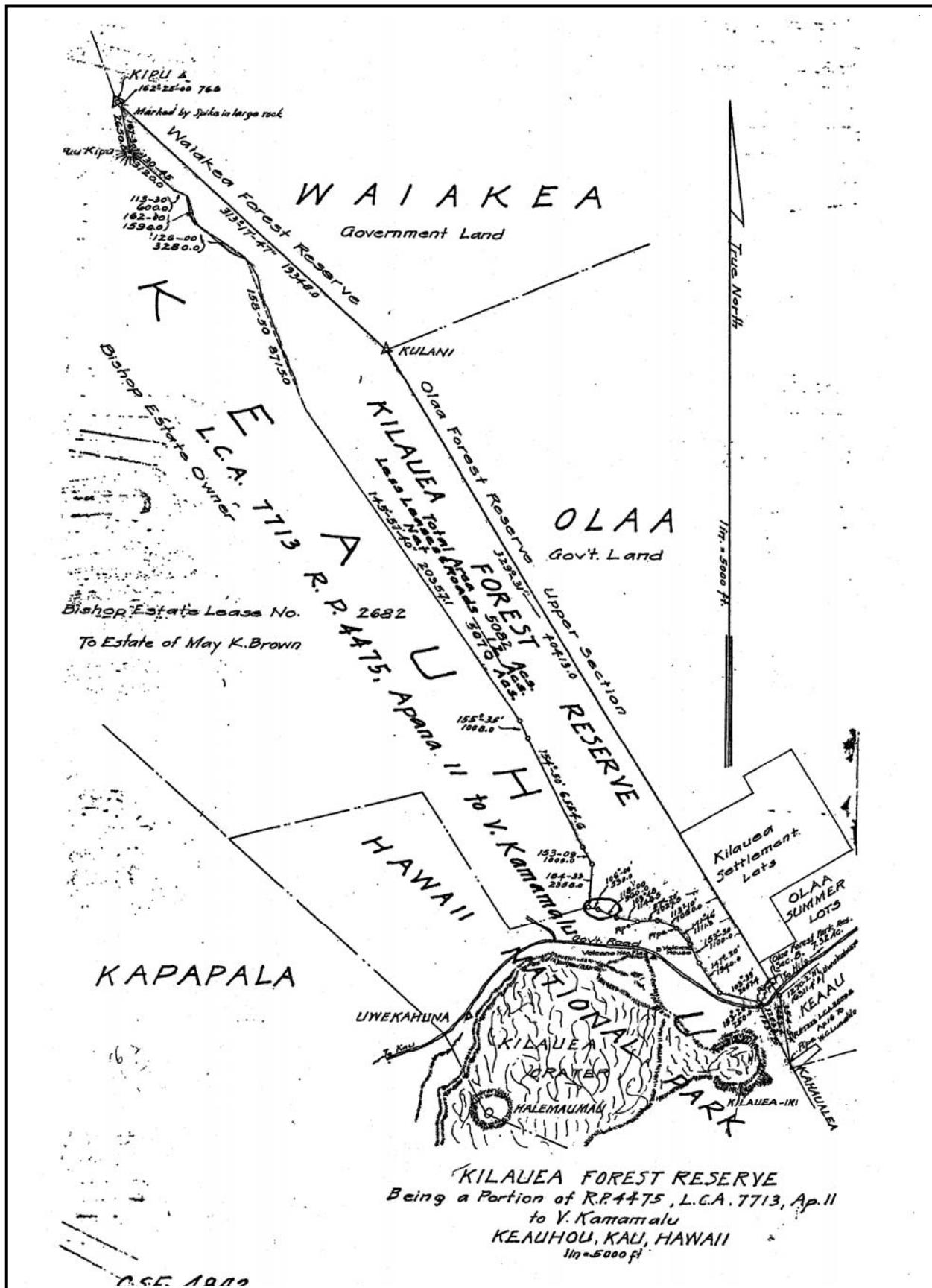
LEAVING A NET AREA OF 62,862 ACRES.

Compiled from Gov't. Survey Records & Survey of E.W. Hockley, by A.S. Chaney, Assistant Government Surveyor. [State Survey Division]

[See also Plat 788; R.M. 2682, Dated Jan. 3, 1923; and C.S.F. 2430, 3942, 9193, 16633, 21210-21213.]

The Hawaii National Park, taking in portions of Keauhou and neighboring lands in Puna, was established on August 1st, 1916. In 1926, an addition to the park, connected the Kīlauea and Mauna Loa Sections of the park (C.S.F. 4625, State Survey Division). In 1928, the Kīlauea Forest Reserve, comprised of a portion of Keauhou, adjoining the 'Ōla'a and Waiākea Forest Reserve lands was established, thus extending the forest reserve tracts from Hilo, through Puna, and into Ka'ū (C.S.F. 4842) (*Figure 4*). While the land of Keauhou had been leased out to ranching interests since 1860, some control over the cattle had been maintained. The leases specifically stipulated that care would be taken of the forest resources (Bureau of Conveyances Liber 13:56-57). Apparently, based on the early records of the reserve, only minimal intrusion by wild stock into the denser 'Ōla'a-Waiākea forests occurred.

Following establishment of the 'Ōla'a, Waiākea and Kīlauea Forest Reserves, management of the lands and forest resources fell under the jurisdiction of the Territory, and then the State of Hawai'i. During the years from establishment of the reserves to the 1950s, little work occurred within the deep reserves. Some fencing along leasehold boundaries occurred, and cattle continued to be moved on the upper Humu'ula and Keauhou sections of the adjoining lands. Hunting wild cattle and pigs in the reserve lands and neighboring ranch lands was almost entirely limited to ranch hands, territorial game wardens and personnel, and the occasional poacher. It was not until after World War II ended that the Territorial Fish and Game Division began a program of conducting guided hunting trips, and developing camps from which hunters could access the public lands for hunting pigs in the region—this being a way to control damage done to the forest reserve resources.



The “Kulani Prison Farm”

One additional activity began in the forest lands in the 1940s, in the vicinity of what is now the Pu‘u Maka‘ala NAR. This was the relocation of the Waiakea Prison Camp from the Hilo Airport to the remote, Kūlani site. Howard Ellis, former employee and manager of the Mauna Loa Weather Station, began working on Mauna Loa in 1961. During the early years on Mauna Loa, Mr. Ellis was close friends with Tom Vance, who opened the Kūlani Prison Farm (later, the Kulani Honor Camp); the access roadway (Stainback Highway); and the Mauna Loa Observatory.

Government survey records document that on January 8, 1948, the lands for the Kulani Prison Site were confirmed by the survey below (*Figure 5*):

C.S.F. 10,543

Jaunary 8, 1948

Kulani Prison Site

South Hilo and Puna Island of Hawaii

Being portions of Upper Waiakea Forest Reserve and Upper Olaa Forest Reserve to be withdrawn by Governor’s Executive Order and set aside under the control of the Board of Institutions as a prison site.

Being portions of the Government (Crown) lands of Waiakea and Olaa.

Beginning at the Government Triangulation Station “Kulani” and on the common boundary of the lands of Keauhou, Waiakea and Olaa as shown on Government Survey Registered Map 2765, and running by azimuths measured clockwise from True South:-

1. 133° 18' 05" 5000.00 feet along the land of Keauhou;
2. 180° 00' 7500.00 feet along portion of the Upper waiakea Forest Reserve;
3. 90° 00' 3400.00 feet along the Upper Waiakea Forest Reserve;
4. 159° 33' 30" 9600.00 feet along Upper Waiakea Forest Reserve;
5. 105° 40' 4500.00 feet along Upper Waiakea Forest Reserve;
6. 156° 10' 6410.70 feet along Upper Waiakea Forest Reserve;
7. 249° 33' 3247.00 feet along Upper Waiakea Forest Reserve;
8. 336° 10' 3849.20 feet along Upper Waiakea Forest Reserve;
9. 285° 40' 7500.00 feet along Upper Waiakea Forest Reserve;
10. 339° 33' 30' 5500.00 feet along Upper Waiakea Forest Reserve;
11. 285° 52' 11493.30 feet along Upper Waiakea Forest Reserve;
12. 360° 00' 800.00 feet along Upper Waiakea Forest Reserve;
13. 56° 11' 30" feet along Upper Waiakea Forest Reserve;
14. 360°00' 19300.00 feet along portions of the Upper Waiakea and Upper Olaa Forest Reserves;
15. 149° 31' 9000.00 feet along the land of Keauhou to the point of beginnig.

Area 5,600 Acres. [State Survey Division]

Governor Ingram M. Stainback, issued Executive Order No. 1224 on March 4th, 1948, formally removing the Kulani Prison site lands from the Upper Waiakea and Olaa Forest Reserves, and setting aside the land for use by the Department of Institutions for the Kulani Prison Farm (Governor’s Executive Order No. 1224).

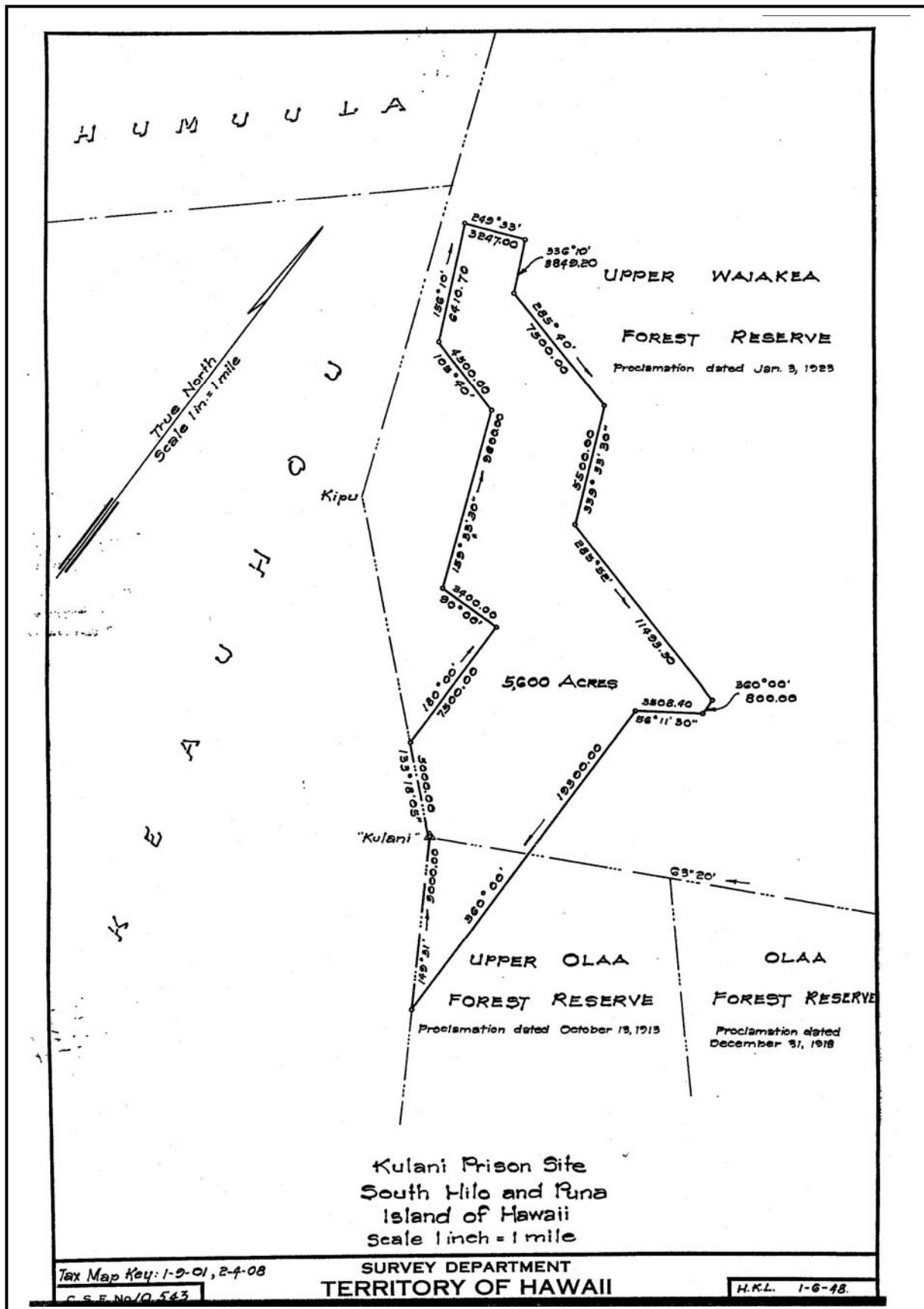


Figure 5. C.S.F. Map No. 10,543; The Kulani Prison Site (January 8, 1948)

In 1952, the Kulani Prison Farm site was modified, taking in an additional 4,461.99 acres of forest land from the Upper Waiakea and Olao Forest Reserves. C.S.F. No. 11,550 lays out the mete and bounds and map of the addition (see *Figure 6*). Governor, S.W. King. Signed Executive Order No. 1588, on October 16th, 1953, setting aside the additional land for the facility and support programs.

From Tom Vance, Howard Ellis learned first-hand accounts about the Kūlani facility and access across the forest lands in the 1940s to 1950s (pers comm. H. Ellis, 2004). *Figure 7*, HTS Plat No. 788-A (A.S. Chaney, surveyor, dated 1922); with additions to 1956, provides the locations of sites and facilities described by Mr. Ellis, who wrote of his recollections in 1988:

In 1951, a weather station was set up by the Weather Bureau (WB) near the summit of Mauna Loa... An instrumented building was dedicated there as the Mauna Loa Observatory on December 12. [page 1] On June 28, 1956, a larger building at 11,150 feet was dedicated as the Mauna Loa Slope Observatory, which in time became known as the Mauna Loa Observatory...

Mr. Tom Vance came... to Hawaii to teach school in the 1930s... On an early hike over the trail from Puu O'o across the lower slopes of Mauna Loa on the Hilo side to the Volcano area, he dreamed that some day he would be in a position to cause the great resources he found along the trail to be utilized. He found "great ash [page 2] deposits of deep fertile soil and beautiful stands of koa trees, many of which were falling to the ground and slowly rotting away."

Mr. Ingram M. Stainback, a prominent attorney in the islands...helped Mr. Vance establish the Waiakea Prison Camp near Hilo for the purpose of forming an airstrip by hand labor using only picks, shovels and wheelbarrows.

When the war started, the military took over this airstrip, expanding it, making it a Navy Air Station only to realize that virtually in its center there was a prison camp... [page 3] With concern for their safety and with his philosophy that if any person is to be retrained to function in society he must be given constructive work and a chance to learn a trade, he set his sights up the slope in the direction of the summit of Mauna Loa to that area where he had seen that rich soil and huge koa trees. It was a long way off and partly through a rainforest. They started out packing in with each cutting the trail with a cane knife.

[Mr. Vance] ...said that people thought him crazy to do this... They finally made it to the base of the Kulani Cone where the Territorial Board of Agriculture had come in from the other side, up the Puu O'o trail from the Volcano area, and built a pig hunter's cabin to encourage the reduction of damage to the forest by pigs.

Mr. Vance had found that the territorial government's half million acres in the area they had cut through were ideal not only for forests, which could foster a lumber and furniture industry, but the mile high area provided a climate ideal for temperate zone agriculture.

He felt that as soon as the prison industry was thought to be competitive with private industry, there would be a legislation that would be passed to stop the activity. However, they [page 4] might be safe in their isolation up there, he thought. There were 17 miles of road to be built through dense jungle with little likelihood of special appropriations since it was during war time.

He began by sledding in supplies a short distance, establishing camp, working the road back down, and repeating these steps over again. Mr. Stainback had now been appointed Governor of the Territory and when the commander of the U.S. Navy

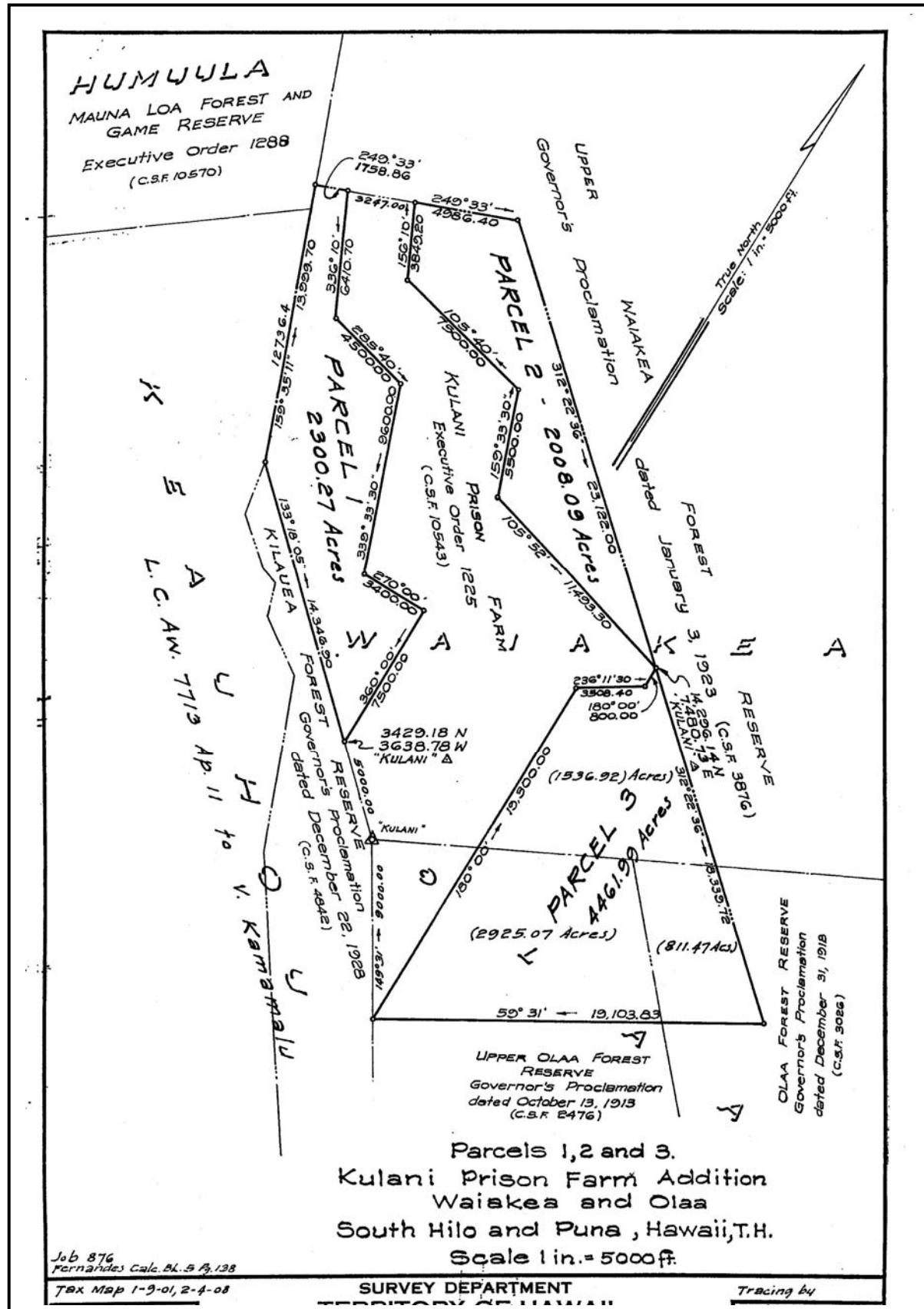


Figure 6. C.S.F. Map No. 11,550; Addition to the Kulani Prison Site (October 16th, 1953)

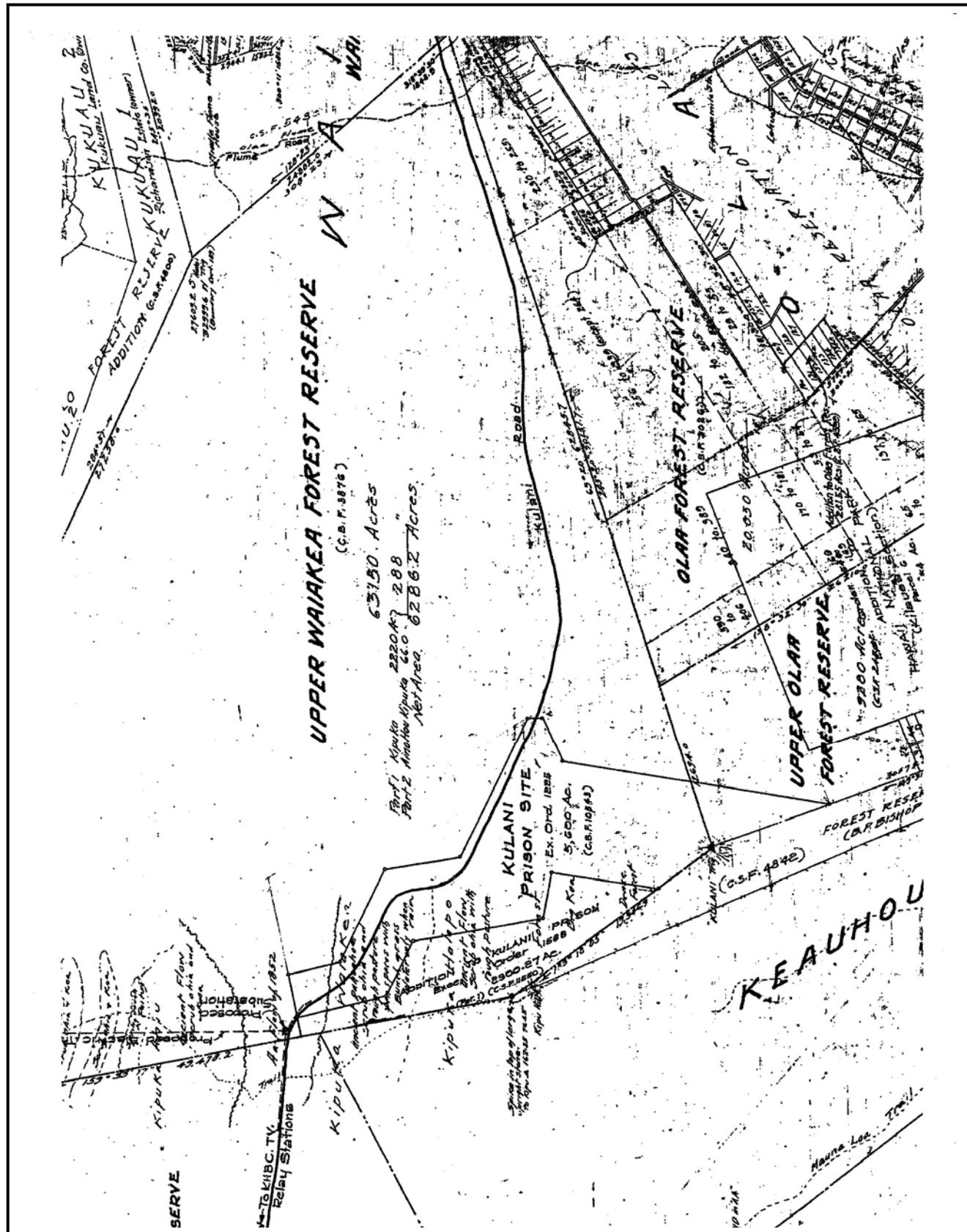


Figure 7. Portion of HTS Plat No. 788-A, Depicting Features and Boundaries of the Kulani Prison Site (A.S Chaney, 1922; additions to 1956)

Seabees requested the use of land for practice in road building to be soon used in the war on Pacific islands and in jungles, he knew just where to send them.

Things were going great for about three miles when a big *ohia* tree fell on a bulldozer operator. He might have died but the prisoners quickly wrested the big trunk away. The Seabees gave up, but Mr. Vance didn't.

When the immediate threat of enemy landings on the island subsided, some portable barracks that had been used by guard units at various places around the island were left surplus. Mr. Vance obtained and used some of these for his camps as he continued to push up further toward Kūlani.

He had many plans and tried to tie them all together. He planned a road all the way to the summit of Mauna Loa with a median strip where he thought all the plants of the world could [page 5] find a supporting climate³. It was to be called the "Gardens of the World." The road was named "Stainback Highway," leaving it open for later jokes about "Strainback Highway."

The reason Mr. Vance gave for choosing Mauna Loa was the resources of the Kūlani area. Since Mauna Kea, at any given elevation above 6,000 feet is about five times smaller in area than Mauna Loa, and being of almost equal height, it is easier to see. With great pride, he pointed out how he had laid out the road in several places above Kūlani so as to frame Mauna Kea with his great *koa* trees on both sides of the road. His pride was indeed justified because such an effect accentuated the majesty [page 6] of Mauna Kea and with a snow-covered top the view was truly breathtaking.

Mauna Loa, with its almost constant and gentle slope all the way from Hilo to the summit, made road building alluring. Drainage ditches along the roadside were not required in the lava fields since there was good natural drainage.

The fact that Mauna Loa had erupted about every ten years since records had begun and that there was no record, legend, or evidence obvious to the average person that Mauna Kea had ever erupted did not disfavor the selection of Mauna Loa. Indeed, providing public access for viewing future eruptions was an added attraction... [H. Ellis, 1988:7]

Ellis' narrative also describes the further development of the road from Kūlani to Mauna Loa. By 1949, the road extended nine miles above Kūlani. Mr. Vance's lead man on the project was the late Henry Auwea (a noted Hawaiian healer), who at the time, was employed at Kūlani as an instructor (Ellis 1988: 11). The Kūlani-Mauna Loa was completed by late 1949, and was used as the route of access to the Mauna Loa summit region until 1963 (Ellis, 1988:15).

Another important part of the program at the Kūlani facility has been its' wood workshop and sales venture. For years, inmates have collected native hardwoods from lands around the facility, and turned it into art and utilitarian items for sale. A part of the income goes to the benefit of the inmates themselves, and provides them with a trade skill.

The 1942 Lava Flow Natural Area Reserve

In 1972, Governor Ariyoshi signed Executive Order No. 2720, establishing one of the early Natural Area Reserves in the islands, it being the 1942 Lava Flow Natural Area Reserve. Land for the 640 acre reserve was withdrawn from the older Waiakea Forest Reserve (by Executive Order No. 2719), and described as:

**C.S.F. 16,634
May 26, 1972**

1942 LAVA FLOW NATURAL AREA RESERVE

Waiakea, South Hilo, Island of Hawaii, Hawaii

Being a portion of the Government (Crown) Land of Waiakea.

Beginning at the west corner of this parcel of land, the direct azimuth and distance from Government Survey Triangulation Station "E 1942 FLOW" being 149° 15' 2035.00 feet, and the coordinates of said point of beginning referred to Government Survey Triangulation Station "KULANI" being 41,481.42 feet North and 18,229.29 feet East, thence running by azimuths measured clockwise from True South:—

1. 228° 46' 5,280.00 feet along Upper Waiakea Forest Reserve, Governor's Proclamation dated January 3, 1923;
2. 318° 46' 5,280.00 feet along Upper Waiakea Forest Reserve, Governor's Proclamation dated January 3, 1923;
3. 48° 46' 5,280.00 feet along Upper Waiakea Forest Reserve, Governor's Proclamation dated January 3, 1923;
4. 138° 46' 5,280.00 feet along Upper Waiakea Forest Reserve, Governor's Proclamation dated January 3, 1923 to the point of beginning and containing an AREA OF 640 ACRES...

The formal designation of the 640 acre reserve was authorized by Governor's Executive Order No. 2720, dated December 2nd, 1974.

The Pu'u Maka'ala Natural Area Reserve

The Pu'u Maka'ala Natural Area Reserve is made up of lands that were originally set aside in the early 1900s as a part of the territorial government's resource conservation program. In 1970, Hawai'i became one of the first states in the country to designate unique natural resources as a part of a system of Natural Area Reserves. In accordance with State Law, the NARS are mandated to "preserve in perpetuity specific land and water areas which support communities, as relatively unmodified as possible, of the natural flora and fauna, as well as geological sites, of Hawaii" (HRS 195-1).

In 1981, as a part of the ongoing program to designate unique natural systems as Natural Area Reserves, selected lands of the 'Ōla'a Forest Reserve were withdrawn from reserve. Those lands are described in the following notes of survey:

C.S.F. 18,636

WITHDRAWAL

PORTION OF OLAA FOREST RESERVE [Figure 8]

(Governor's Proclamation dated December 31, 1918)

Olaa, Puna, Island of Hawaii, Hawaii

Withdrawn by E.O. 3095 dated Nov. 2, 1981

(E.O. Folder 67-A)

STATE OF HAWAII

SURVEY DIVISION

DEPT. OF ACCOUNTING AND GENERAL SERVICES

HONOLULU

May 4, 1979

WITHDRAWAL

PORTION OF OLAA FOREST RESERVE

(Governor's Proclamation dated December 31, 1918)

Olaa, Puna, Island of Hawaii, Hawaii

Being portion of the Government (Crown) Land of Olaa.

Beginning at the west corner of this parcel of land, on the boundary between the lands of Waiakea and Olaa, the coordinates of said point of beginning referred to Government Survey Triangulation Station "KULANI" being 5,697.06 feet North and 11,343.77 feet East, thence running by azimuths measured clockwise from True South:-

1. 243° 20' 24,906.00 feet along Upper Waiakea Forest Reserve (Governor's Proclamation dated January 3, 1923), along the boundary between the lands of Waiakea and Olaa.
2. Thence along the contour line 3000 feet above mean sea level, along the remainder of Olaa Forest Reserve (Governor's Proclamation dated December 31, 1918), the direct azimuth and distance being: 353° 48' 52" 15,913.31 feet;
3. 302° 21' 10" 1100.00 feet along the remainder of Olaa Forest Reserve (Governor's Proclamation dated December 31, 1918);
4. 302° 21' 10" 4257.80 feet along Lots 129, 128, 127, 126 and 125, Olaa New Tract Lots;
5. 48° 32' 30" 3057.06 feet along Lot 135-B, Olaa New Tract Lots and along the northwest end of Roadway (50.00 feet wide);
6. 302° 21' 10" 1506.52 feet along the southwest side of Roadway (50.00 feet wide);
7. 34° 08' 30" 7462.10 feet along Lots 99, 98, 97, 96, 95, 94, 93, 92, 91, 90-B and 90-A, Olaa New Tract Lots;
8. 149° 31' 17,853.54 feet along Hawaii Volcanoes National Park, Parcel 6 (Governor's Executive Order 1540);
9. 59° 31' 10,104.01 feet along Hawaii Volcanoes National Park, Parcel 6 (Governor's Executive Order 1540);
10. 138° 32' 30" 8347.71 feet along upper Olaa Forest Reserve (Governor's Proclamation dated October 13, 1913) to the point of beginning and containing an AREA OF 6871 ACRES, MORE OR LESS...

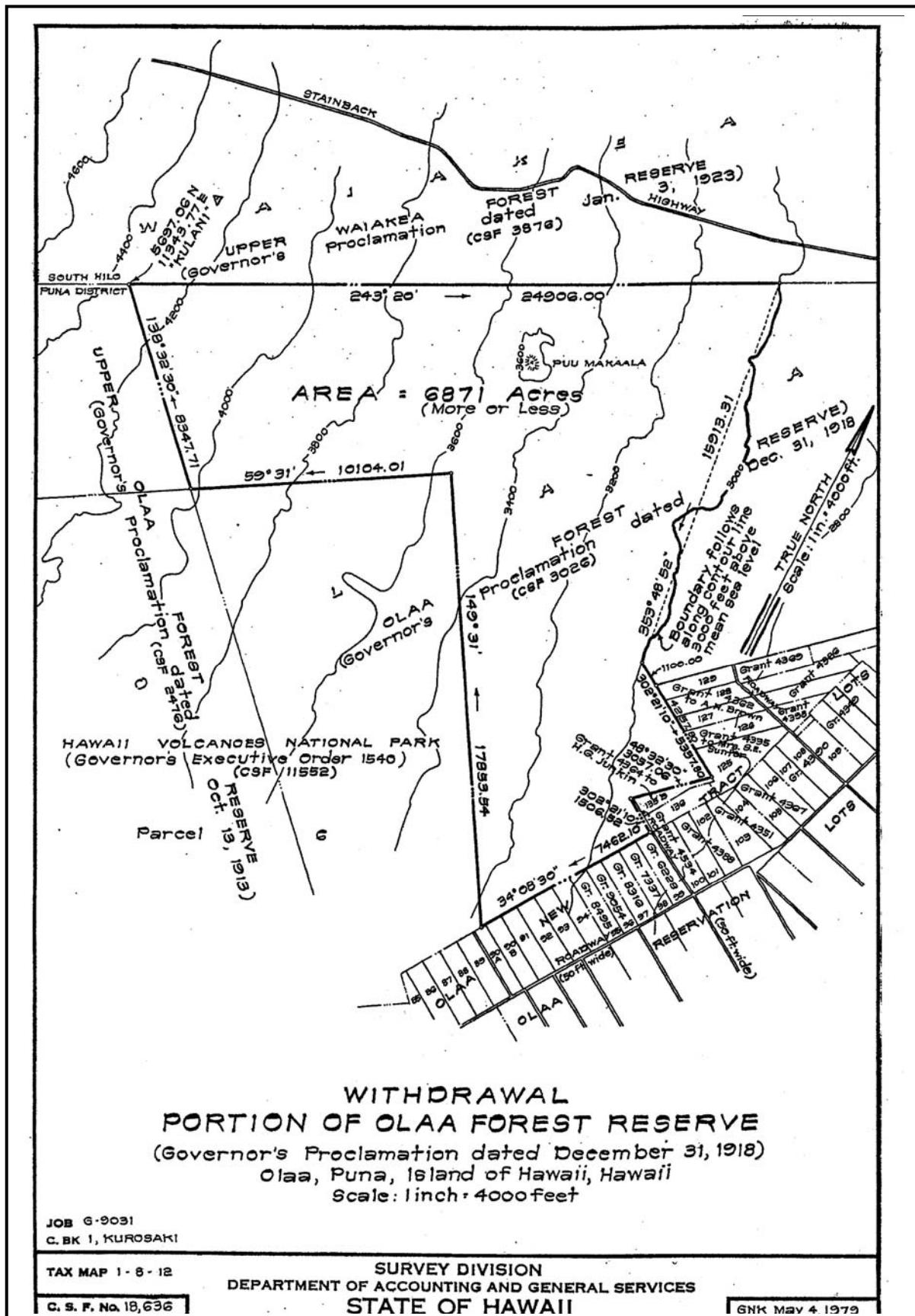


Figure 8. Location of Land Withdrawn From 'Ola'a Forest Reserve;
Pu'u Maka'ala NAR Section (Hawaii State Survey, 1979)

Compiled from data furnished
by N.A.R.S., U.S.G.S. Map,
& Govt. Survey Records. [State Survey Division]

Executive Order No. 3094

November 2nd, 1981

Withdrawal of Land from the Operation of

Governor's Proclamation of Forest Reserves Dated October 13, 1913.

Whereas, by Governor's Proclamation of Forest Reserves in the Districts of Hilo and Puna, Island of Hawaii, Hawaii, dated October 13, 1913, Certain lands situate in the District of Puna, Island of Hawaii, Hawaii, were set aside for Upper Olaa Forest Reserve, to be under the control and management of the Board of Commissioners of Agriculture and Forestry; and

Whereas, portions of said lands were recommended by the Natural Area Reserves System Commission as Natural Area Reserves; and

Whereas, the Board of Land and natural Resources, at its meeting of November 9, 1978, approved the withdrawal.

Now, Therefore, I, George R. Ariyoshi, Governor of the State of Hawaii, by virtue of the authority vested in me under Section 171-11, Hawaii Revised Statutes, do hereby order that the following described land, more particularly described in Exhibit "A" and delineated on Exhibit "B..." be and the same is hereby withdrawn from the operation of Governor's Proclamation of Forest Reserves dated October 13, 1913... [In Collection of State Survey Division]

C.S.F. 18,635

WITHDRAWAL

PORTION OF UPPER OLAA FOREST RESERVE

(Governor's Proclamation dated October 13, 1913)

Olaa, Puna, Island of Hawaii, Hawaii

Withdrawn by E.O. 3094 dated Nov. 2, 1981

(E.O. Folder 67-A)

STATE OF HAWAII

SURVEY DIVISION

DEPT. OF ACCOUNTING AND GENERAL SERVICES

HONOLULU

May 4, 1979

WITHDRAWAL

PORTION OF UPPER OLAA FOREST RESERVE

(Governor's Proclamation dated October 13, 1913)

Olaa, Puna, Island of Hawaii, Hawaii

Being portion of the Government (Crown Land of Olaa).

Beginning at the west corner of this parcel of land, on the boundary between the lands of Waiakea and Olaa, the coordinates of said point of beginning referred to Government Survey Triangulation Station "KULANI" being 2292.92 feet North and 4565.59 feet East, thence running by azimuths measured clockwise from True South:-

1. 243° 20' 7584.98 feet along Upper Waiakea Forest Reserve (Governor's Proclamation dated January 3, 1923), along the boundary between the lands of Waiakea and Olaa;
2. 318° 32' 30" 8347.71 feet along Olaa Forest Reserve (Governor's Proclamation dated December 31, 1918);
3. 59° 31' 9895.99 feet along Hawaii Volcanoes National Park, Parcel 6 (Governor's Executive Order 1540);
4. 329° 31' 7976.25 feet along Hawaii Volcanoes National Park, Parcel 6 (Governor's Executive Order 1540);
5. 59° 31' 4359.10 feet along Lots 16 and 17, Volcano Farm Lots and along the northwest end of Roadway (50.00 ft. wide);
6. 149° 31' 8016.25 feet along Kilauea Forest Reserve (Governor's Proclamation dated December 22, 1928), along boundary between the lands of Keauhou and Olaa;
7. 180° 00' 10,048.92 feet along Kulani Prison Site (Governor's Executive Order 1225) to the point of beginning and containing an AREA OF 2926.76 ACRES.

Compiled from data furnished
by N.A.R.S & Govt. Survey Records. [State Survey Division]

In 1981, portions of the Waiākea and ‘Ōla‘a Forest Reserve lands were dedicated to the Pu‘u Maka‘ala Natural Area Reserve by Governor Waihe‘e, in Executive Order No. 3102. The Executive Order provides the following description and purpose of the lands in the NARS:

Executive Order No. 3102
Setting Aside Land for Public Purposes
November 16, 1981

FOR NATURAL AREA RESERVE, to be under the control and management of the Department of Land and Natural Resources, State of Hawaii, being the lands situate at Waiakea, South Hilo and Olaa, Puna, Island of Hawaii, Hawaii, and designated as PUU MAKALA NATURAL AREA RESERVE, containing an area of 12,106 acres, more or less, all more particularly described in Exhibit "A" and delineated on Exhibit "B", both of which are attached hereto and made a part hereof, said exhibits being a survey description designated as C.S.F. No. 18,646 dated May 4, 1979, and a survey map designated as H.S.S. Plat 933, both prepared by the Survey Division, Department of Accounting and General Services, State of Hawaii...

Exhibit A
C.S.F. 18,646
May 4, 1979

PUU MAKALA NATURAL AREA RESERVE
Waiakea, South Hilo and Olaa, Puna
Island of Hawaii, Hawaii

Being portions of the Government (Crown) Lands of Waiakea and Olaa.

Beginning at the Government Survey Triangulation Station "KULANI" on the common corner of the lands of Keauhou, Waiakea and Olaa, as shown on Government Survey Registered H.S.S. Plat 933 [Figure 9], thence running by azimuths measured clockwise from True South:-

1. $133^{\circ} 18' 05''$ 1000.00 feet along Kilauea Forest Reserve (Governor's Proclamation dated December 22, 1928), along the boundary between the lands of Keauhou and Waiakea;

Thence along the south side of Roadway, along the remainder of Kulani Prison Site (Governor's Executive Order 1225) for the next five (5) courses, the direct azimuths and distances between points along said south side of roadway being:

2. $180^{\circ} 30'$ 1260.00 feet;
3. $244^{\circ} 45'$ 1310.00 feet;
4. $275^{\circ} 00'$ 880.00 feet;
5. $293^{\circ} 40'$ 1088.17 feet;
6. $318^{\circ} 25'$ 753.90 feet to the boundary between the lands of Olaa and Waiakea;
7. $243^{\circ} 20'$ 16,520.00 feet along the remainder of Upper Waiakea Forest Reserve (Governor's Proclamation dated January 3, 1923), along the boundary between the lands of Olaa and Waiakea;
8. Thence along the contour line 4000 feet above mean sea level, along the remainder of Upper Waiakea Forest Reserve (Governor's Proclamation dated January 3, 1923), the direct azimuth and distance being:
 $167^{\circ} 09' 12''$ 6808.36 feet to the south side of Stainback Highway;
9. Thence along the south side of Stainback Highway, along the remainder of Upper Waiakea Forest Reserve (Governor's Proclamation dated January 3, 1923), the direct azimuth and distance being:
 $259^{\circ} 50' 03''$ 17,874.62 feet;
10. Thence along the contour line 3000 feet above mean sea level, along the remainder of Upper Waiakea Forest Reserve (Governor's Proclamation dated January 3, 1923), the direct azimuth and distance being:
 $2^{\circ} 44' 24''$ 1761.32 feet to the boundary between the lands of Olaa and Waiakea;
11. Thence along the contour line 3000 feet above mean sea level, along the remainder of Olaa Forest Reserve (Governor's Proclamation dated December 31, 1918), the direct azimuth and distance being:
 $353^{\circ} 48' 52''$ 15,913.31 feet;
12. $302^{\circ} 21' 10''$ 1100.00 feet along the remainder of Olaa Forest Reserve (Governor's Proclamation dated December 31, 1918);
13. $302^{\circ} 21' 10''$ 4257.80 feet along Lots 129, 128, 127, 126 and 125, Olaa New Tract Lots;
14. $48^{\circ} 32' 30''$ 3057.06 feet along Lot 135-B, Olaa New Tract Lots and along the northwest end of Roadway (50.00 ft. wide);
15. $302^{\circ} 21' 10''$ 1506.52 feet along the southwest side of Roadway (50.00 ft. wide);
16. $34^{\circ} 08' 30''$ 7462.10 feet along Lots 99, 98, 97, 96, 95, 94, 93, 92, 91, 90-B and 90-A, Olaa New Tract Lots;
17. $149^{\circ} 31' 17,853.54$ feet along Hawaii Volcanoes National Park, Parcel 6 (Governor's Executive Order 1540);
18. $59^{\circ} 31'$ 20,000.00 feet along Hawaii Volcanoes National Park, Parcel 6 (Governor's Executive Order 1540);
19. $329^{\circ} 31'$ 7976.25 feet along Hawaii Volcanoes National Park, Parcel 6 (Governor's Executive Order 1540);

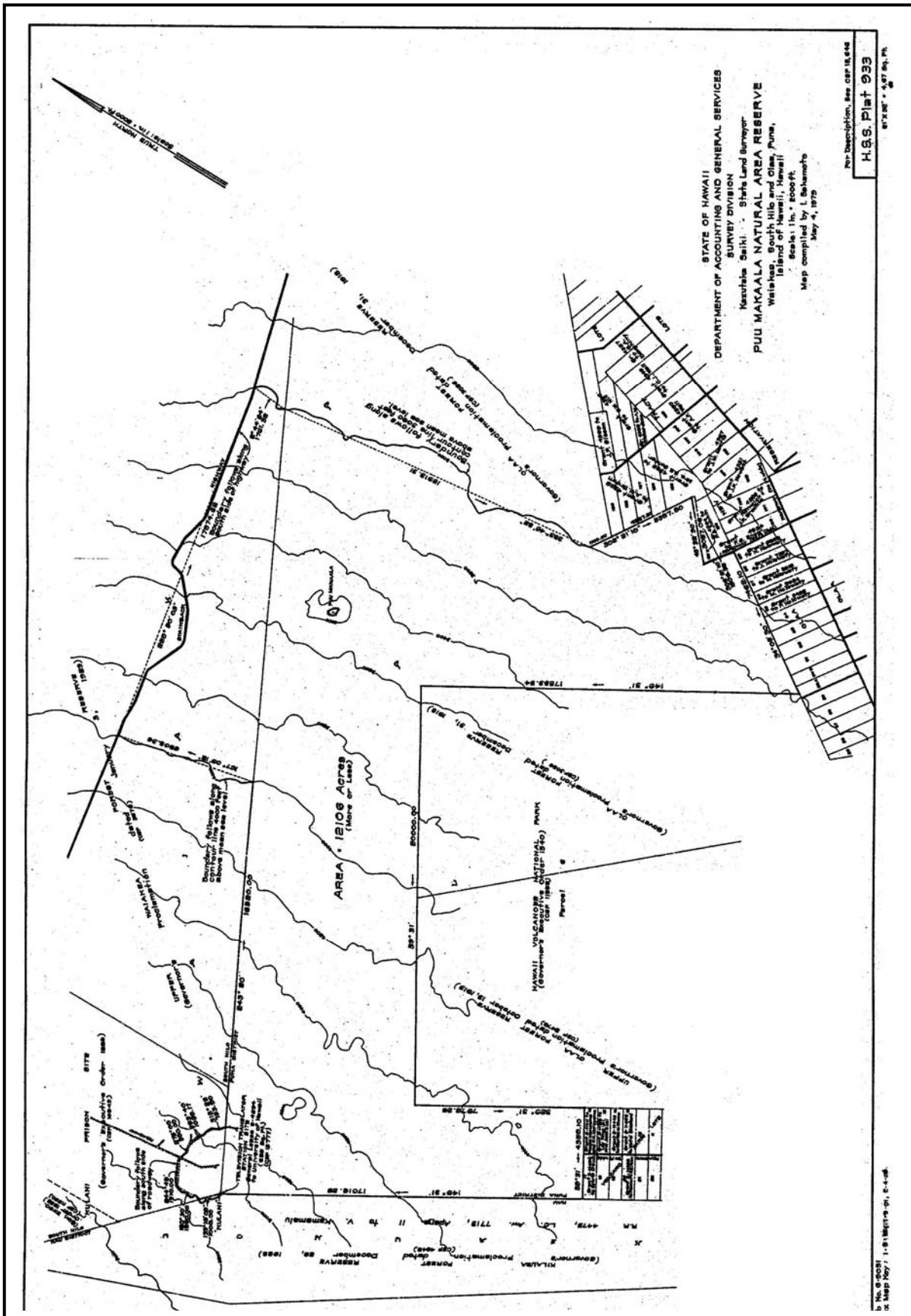


Figure 9. Reduction of Plan of the Pu'u Maka'ala Natural Area Reserve; Plat Map No. 933 (Hawaii State Survey, 1979)

20. $59^{\circ} 31' 4359.10$ feet along Lots 16 and 17, Volcano Farm Lots and along the northwest end of Roadway (50.00 ft. wide);
21. $149^{\circ} 31' 17,016.25$ feet along Kilauea Forest Reserve (Governor's Proclamation dated December 22, 1928), along the boundary between the lands of Keauhou and Olaa to the point of beginning and containing an AREA OF 12106 ACRES, MORE OR LESS.

The above-described PUU MAKALA NATURAL AREA RESERVE is subject, however, to the following as shown on plan attached hereto and made a part hereof.

1. Television Translator Station Site covered by General Lease S-4234 to University of Hawaii.

Overview of Resources and Management Objectives for the Pu'u Maka'ala NAR

In 1989, the Department of Land and Natural Resources, Natural Area Reserves System office prepared a management plan for the Pu'u Maka'ala NAR. The following narratives describe resources of the Pu'u Maka'ala NAR and program objectives:

A. General Setting

Puu Makaala Natural Area Reserve occupies 12,106 acres in the Puna and South Hilo districts on the island of Hawaii. Elevations range from 2,800-5,500 feet and the average annual rainfall is 100-175 inches (DLNR 1986). Landmarks include Kulani Cone and Puu Makaala. The reserve is bordered by the Upper Waiakea Forest Reserve on the north, the Kilauea Forest on the west, Olaa Forest Reserve on the east, and the Olaa Tract of Hawaii Volcanoes Park (HAVO) on the south. Kulani Correctional Facility lies just outside the reserve's northwest corner. Access to portions of the reserve is generally good via Wright Road and jeep trails, although public access to the reserve's northern boundary via Stainback Highway is restricted by regulations of the correctional facility.

Regionally, the Puu Makaala reserve represents an important conservation parcel. It provides a link between the lower elevation HAVO Olaa Tract and the higher elevation 'ohia (*Metrosideros polymorpha*)/koa (*Acacia koa*) forests of Kilauea, Kulani and Upper Waiakea, protecting the transition between the 'ohi'a and koa forest types. These forest areas contain a full mosaic of different-aged 'ohi'a stands... [DLNR 1989]

B. Flora

Puu Makaala reserve encompasses some of the Big Island's best wet native forest. Four natural communities occur in the reserve; three are dominated by native species.

'Ohia/Hapu'u (*Cibotium spp.*) Montane Wet Forest occupied the majority (11,200 acres or 92%) of the Puu Makaala reserve, meeting with the koa/'ohi'a forest near the western reserve's boundary, and extending east of the reserve. A variety of substrate types, including cinder, 'a'a and pahoehoe flows of variable age, result in a mosaic of different-age stands of 'ohi'a/hapu'u forest. The closed 'ohi'a canopies can exceed 75 feet in height. Other sections of the 'ohi'a/hapu'u forest were in various stages of dieback, ranging from a few senescent trees to sections where all trees are dead and fallen, with only a few snags standing over a 15 to 30 foot canopy dominated by *hapu'u* and an association of native trees.

The *hapu'u*, or tree fern layer in this 'ohi'a/hapu'u wet forest is dominated by *Cibotium glaucum*, but *C. chamissoi* and *C. hawaiiensis* can be locally abundant. The native

tree association below the 'ohi'a canopy commonly included 'olapa (*Cheirodendron trigynum*); kawa'u (*Ilex anomala*); pilo (*Coprosma* spp.); kolea (*Myrsine lessertiana*); smaller stature 'ohi'a; and occasionally included naio (*Myoporum sandwicense*); manono (*Hedyotis affinis*); loulu (*Pritchardia beccariana*); and 'ohe (*Tetraplasandra* spp.). The vegetation under the hapu'u layer consisted of a mix of native ferns such as *Thelypteris sandwicensis*, ho'i'o (*Athyrium sandwichianum*), 'ama'u (*Sadleria* spp.) and *Dryopteris* spp.; native shrubs such as pu'ahanui (*Broussaisia arguta*), 'ohawai (*Clermontia* spp.), ha'iwale or kanawao ke'oke'o (*Cyrtandra* spp.), *Cyanea* spp., maile (*Alyxia oliviformis*), alani (*Pelea* spp.), and 'ohelo (*Vaccinium* spp.); seedlings of 'olapa, 'ohi'a, kawa'u, kolea and pilo; and herbs such as pa'inu (*Astelia menziesiana*) and 'ala'alawainui (*Peperomia* spp.). Sedges such as *Carex alligata* and *Uncinia uncinata* were infrequent components of the ground cover. Epiphytic mosses, ferns, herbs and shrubs were present, and occasionally abundant.

Koa/'Ohia Montane Wet Forest occupied the northwestern edge of the Puu Makaala reserve on cinder and ash substrate. This community encompasses just 460 acres or 3.8 percent of the reserve. The forest type stretched into the reserve's Kulani Cone area from the adjacent Kilauea Forest. Scattered individual koa trees, from 60 to 120 feet in height, emerge from a layer of 'ohi'a 30 to 90 feet in height. Under the koa and 'ohi'a canopy is an association of native trees that commonly included kolea, kawa'u, 'olapa, pilo and young 'ohi'a, but may also include naio and 'ohe.

The 'ohi'a/hapu'u and koa/'ohi'a wet forests share many of the same component species. The former, however, had an overall higher diversity by virtue of the greater area and elevational range it occupies. Some genera in Puu Makaala, such as *Pritchardia*, *Trematolobelia*, and *Claoxylon*, as well as species such as *anini* (*Eurya sandwicensis*) and *Cyanea tritomantha*, seem restricted to the 'ohi'a/hapu'u forest.

Carex Alligata Montane Wet Grasslands are scattered throughout the reserve as small but distinct patches occupying low lying water-saturated areas such as cinder cone pits or depressions in the forest. Only a few of the Carex grasslands were encountered on the ground survey but many examples were seen during helicopter reconnaissance. This grassland may consist entirely of Carex but may also include scattered shrubs of 'ohi'a and patches of wawae'iole (*Lycopodium* spp.), especially in ecotones with surrounding forest. Often associated with standing water, this sedge forms a wide margin around a pond. As the pond ages, the basin may become dominated by Carex. The largest examples occupy cinder cone craters on **Kulani** and **Na Lua Mahoe**.

Along the eastern boundary, 360 acres of tropical ash (*Fraxinus uhdei*) plantations constitute the reserve's only non-native dominated community. Amidst the scattered ash trees are elements of the surrounding 'ohi'a/hapu'u forest, as well as a variety of non-native plants. At this time, the ash is not invading adjacent native forest in the reserve. There were many non-native plants found within these four natural communities... [DLNR 1989]

C. Fauna.

Systematic circular plots were used to sample birds along transects 4 and 6; and incidental bird observations were made on all other transects. Only two native birds were commonly seen in the reserve during this survey. The Apapane (*Himatione sanguinea*) was abundant throughout, except in areas of extensive 'ohi'a dieback. The Hawaiian Thrush, or 'Oma'o (*Myadestes obscurus*) was less abundant, but ubiquitous, being recorded on nearly all stations.

Two other native forest birds, 'iiwi (*Vestiaria coccinea*) and 'elepaio (*Chasiempis sandwichensis ridgewayi*) were uncommon. The non-native Japanese White-eye

(*Zosterops japonicus*) occurred in low numbers at most stations, whereas Redbilled Leiothrix (*Leiothrix lutea*) were heard at only a few stations. These findings are similar to those of previous surveys except that densities of 'I'iwi, 'Elepaio, White-eye, and Leiothrix were lower (Pratt 1988).

Four endangered bird species have been reported from the Puu Makaala reserve, but only one, the 'Io (*Buteo solitarius*, Hawaiian Hawk), was seen during the survey. An 'Io was seen carrying nesting materials near **Na Lua Mahoe**, and another was seen during transect 6.

The 'O'u (*Psittirostra psittacea*) is extremely rare and localized on the Big Island and Kauai. **Olaa Tract** and kipukas of **Upper Waiakea Forest Reserve**, above Stainback Highway are thought to be primary habitat for 'O'u on the Big Island. 'O'u were last seen in the southwestern portion of the reserve in 1986.

'Akiapola'au (*Hemignathus munroi*) exist only on the Big Island, with the largest population on the windward side (Scott et al. 1986). Generally observed in koa/'ohi'a forests in this area, 'Akiapola'au sightings are reported from west of the reserve in the Kilauea Forest, and north of **Kulani Cone**. Observed periodically in the reserve's Disappointment Road area, one record also exists from the western edge of the reserve below Kulani Cone.

Hawaii Creeper (*Oreomystis mana*), known from the Big Island's Kona, Kau and windward areas, is one of Hawaii's more abundant endangered forest birds. Creepers have been reported from the reserve's Disappointment Road complex, and the western area near **Kulani Cone** and **Na Lua Mahoe**, as well as south in **Olaa Tract**, and west of the reserve near **Puu Lalaau**.

Hawaii 'Akepa (*Loxops coccineus*) is an uncommon bird on the Big Island. On the windward side, populations are known from the upper slopes of Mauna Kea and Mauna Loa, preferring closed canopy koa/'ohi'a forests (USFWS 1982). Though 'Akepa have not been reported within the reserve, sightings of this rare bird are recorded from outside the reserve's western boundary in the Kilauea Forest as recently as 1987.

Although native invertebrates were only incidentally noted, a high diversity of representative native insects, spiders and snails (particularly *Succinea* spp.) was observed in all of the natural communities sampled and on all transects. The general richness of native invertebrates suggests that the native communities of the reserve are generally intact, and that major disruptive factors, such as competition with non-native species, have not greatly affected the native invertebrate biota. A lava tube was found and further study may reveal native cave invertebrates of interest.

Non-native fauna such as pigs (*Sus scrofa*) were seen throughout the Reserve and are specifically discussed in the Ungulate Control program. Other non-native mammals, such as rats (*Rattus rattus*) and mongoose (*Herpestes auropunctatus*) have been reported in the Reserve... [DLNR 1989]

Key Management Concerns

The overall management goal is to protect and maintain the reserve's native character.

Some of the key considerations behind the management programs proposed to achieve this are as follows:

(1) **Puu Makaala** is a very large reserve. At this time it is not economically realistic to intensively manage the entire reserve. Intensive management of key areas are proposed and prioritized based on the biological resources they contain, the extent of current disturbance, the nature of the other biological threats within and near the area, and the feasibility of management (e.g. topography and access).

(2) Pigs constitute the most severe threat currently affecting the reserve. Their rooting and wallowing destroy native plants and the ground cover on the forest floor. Such damage limits effective regeneration of native plants, and creates conditions favorable for mosquitoes and certain non-native weeds throughout the reserve. This in turn degrades the quality and integrity of native plant communities, threatening the existence of species that rely on the forest for survival.

Control of the feral pig population is the essential first step in the restoration and maintenance of native plant communities in the reserve. Strategic fencing to create smaller pig control units and an aggressive ungulate control program are critical for effective long term reduction of the pig population.

Portions of the reserve are utilized for recreational hunting, which should continue to be encouraged year round. This helps reduce pig densities in certain areas. However, as the number of pigs decrease in priority management areas, public hunting becomes less effective as hunters move to areas with more chance of success, and pig control by staff will be necessary. If incentives can be developed for public hunters to continue to hunt in areas where pig numbers are low, then expensive fence construction and staff hunting may not be necessary.

(3) 'Ohi'a dieback continues to have an impact in the reserve, especially in the lower elevations. Dieback is a natural successional phenomenon in which older stands die synchronously, leaving gaps in the forest canopy. Dieback itself is not a "threat" as these gaps provide openings for subsequent 'ohi'a regeneration. The management concern in the dieback areas is the invasion of aggressive non-native weeds, accelerated by feral pigs, which hampers native plant regeneration. Aerial photographs indicate over one-third of the 'ohi'a forests in the reserve have undergone relatively recent dieback.

(4) Many non-native plants observed in the reserve are shade intolerant and pose no major problem as long as the native canopy and ground cover remain intact. There are non-native weed species in the reserve which form monotypic stands and displace native vegetation over large areas, making them priority weeds for management. Weed control activities will focus on these invasive weeds within key management areas, and in localized populations of priority weed species. Biological control efforts for widespread weed species should be supported.

(5) Signs of marijuana cultivation were seen in the reserve. This illegal activity creates a hazard for people in the reserve. Growers destroy native plants clearing patches for cultivation, introducing new weeds to the forest and spreading others.

Management Programs

The following four management programs outline the long-term goals for the reserve. The management activities within each program lay essential foundations for effective protection of the reserve's natural resources. A six-year implementation schedule is recommended. Although the programs are listed by priority, they fit together to form an integrated management package.

Ungulate Control Program (PUM-RM-01) - Priority #1

GOAL: Reduce impact of pigs to a level that prevents further degradation of the reserve's native species and allows the greatest possible recovery of the reserve's native character.

Statement of the Problem: Techniques available for pig control in the reserve include hunting with or without dogs, snaring, baiting and trapping. Current pig control research recommends use of passive control (e.g. snares and traps) before actively controlling with dogs when possible,' unless hunting is already established. There is less investment initially, less upkeep, less chance of the program being overly oriented to hunting, and it is more cost effective in remote areas. Hunting can be alternated with snaring, but snares must be removed from areas prior to hunting to avoid catching dogs. Radio transmitters on lead hunting dogs has improved hunting efficiency and trapping can be useful for the first vulnerable animals in an area.

Reduction is the necessary first phase of a control effort. Long-term funding for fence construction, pig control and fence maintenance are needed. Attempts to reduce pig populations to remnant levels in similar terrain without the use of any fences have not been effective due to unimpeded ingress of animals into areas where population densities were reduced. Funds spent on feral pig control will be ineffective unless pig numbers are reduced to remnant populations and not allowed to build back up to damaging levels.

Alternative Actions and Probable Impacts:

- 1) No action. Accept the continuing deterioration of Puu Makaala's native resources. Pigs destroy native plants, alter the structure of native vegetation, and contribute to the spread of non-native plants. Without control, pigs can be expected to degrade native communities, converting most of the reserve to less diverse assemblages of native plants with non-native weeds.
- 2) Attempt control of feral animals without installation of any fences. Damaging impacts of feral pigs under this alternative will probably be roughly the same as alternative #1, except for portions of the reserve where increased hunting activity may protect small areas of forest. Management resources used for control will be less effective without any fences to keep new pig populations from moving into the reserve.
- 3) Control feral pigs with the aid of fences. This method has proven successful in both HAVO and Haleakala National Park. Initial cost is high, but benefits in preservation of native ecosystems are great. Recovery of native vegetation can occur if feral animals are controlled. The advance of non-native weed species can be slowed and at times reversed. Native plant species surviving only as epiphytes because of feral pig disturbance can become reestablished on the forest floor.

Recommended Action: Alternative #3 is recommended. The two large management zones proposed for intensive pig control and fencing in this plan comprise only one-third of the reserve. Public hunting access is essential and encouraged to control pig populations in the rest of the reserve. However, the goal for the Disappointment Road and Kulani Cone Zones is clearly reduction of the pig population to remnant levels, not sustained yield hunting. Three projects are proposed to carry out this alternative:

Project (1) - Construction of a strategic network of 20.3 miles of barrier fences to create five management zones. Goals of the fencing project are to cut off pig access routes

into priority areas and to direct predictable pig movements within intensive control areas. An aggressive snaring and hunting project is essential in conjunction with the fencing project to take advantage of induced pig movements and to avoid creation of "pig pens."

Although there are eight smaller management units within the Disappointment Road and Kulani Cone Zones, they will not be fenced immediately. A progressive fencing strategy will be used. The outside of the management zones will be fenced before individual management units are closed off. This will allow pig control efforts to begin over a larger area. In addition, success of pig control efforts and monitoring of subsequent vegetation recovery may determine that fences to close off the smaller management units may be unnecessary. The fence system will share 2.3 miles of HAVO fence along the Olaa Tract boundary. Cooperative agreements to share maintenance costs of this fence section will be pursued.

Pig control fences will consist of 39 inch high galvanized woven-wire supplemented along the ground surface by one strand of barbwire stretched tightly across the ground. Woven wire and barbwire will be secured to steel posts placed no more than 10 feet apart. Concreted galvanized pipes may be required to secure the fence line at certain corners. Helicopter transport of fencing materials will be required for remote units...

Strict procedures for clearing fence line will be established to minimize disturbance. Does not include personnel costs for fence line layout and assessment, contract preparation and monitoring. A botanist will walk the flagged fence route to search for rare plants to be avoided by the brushing crew.^[9]

Project (2) - Monthly inspection and maintenance of all fence lines (and after major storms). Inspections will be done in conjunction with other resource management activities such as monitoring and non-native plant control along fence corridors...

Project (3) - Initiate an active pig control program using hunting, trapping, snaring, and other methods as required in the Disappointment Road and Kulani Cone Zones. The goal is to reduce feral pig populations to remnant levels in 4,560 acres of the reserve. Pig control should begin before fence closure in order to chase out populations within the area.

Snares are recommended for the Kulani Cone Zone, where public access is restricted. Snare numbers will increase over time to continue to catch pigs as their densities decrease. The greatest effort is initially setting up the snare groups. These snare groups are left in place, as pigs habitually return to previously used areas. When new areas are found with fresh sign, additional snare groups are set out. Snares in rain forests last six months to a year. Accumulating data on health, sex, and age of captured pigs provides important data in the effectiveness of the snaring program.

Staff hunting is recommended rather than snaring in the Disappointment Road Zone. This will allow time to incorporate interested public hunters into the program. The major limitation with using public hunters is the lack of incentive for hunting an area when the chances of a successful hunt is low. An effective pig control program demands constant hunting pressure, even when pig populations decrease. Incentives such as

⁹ While it is recognized that the natural landscape is a Hawaiian cultural resource, it is recommended as a part of this study, that DLNR-NARS staff and contractors meet with State Historic Preservation staff as a part of the program to plan for the fencing of the Pu'u Maka'ala NAR. The focus of such a meeting should be to discuss types of traditional cultural sites that may be encountered in the field; and to review the laws and protocols for notification and treatment of inadvertent finds of cultural resources.

improved access, contests, and logistical support for volunteer hunters will be offered to maintain public hunter pressure in the Disappointment Road Zone. Contracting out public hunters is also a possibility. If monitoring indicates vegetative recovery from these pig control efforts, snaring will not be used. The use of snares would necessitate closing the area to the public... [DLNR-NARS, 1989]

This study has been undertaken to provide resource managers and the public with important background information, documenting the wide range of cultural values, practices, and knowledge of resources of the Waiākea and ‘Ōla‘a forest lands. An understanding of the cultural environment will help resource managers and the public ensure that the unique qualities of the Pu‘u Maka‘ala NAR, remain a healthy and resilient part of the cultural landscape through future generations.

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June 9, 2004

Telephone interview with:

Ralph Daehler

The name “Pu‘u Maka‘ala” was given to the *pu‘u* and forest area in 1961 or 1962, when Ralph Daehler was working on the Board of Agriculture and Forestry’s Reforestation Program. Mr. Daehler recalled that at the time, he was working with old quad maps and aerial photos, identifying areas in which reforestation projects could be developed, and through the photos—the *pu‘u* did not appear on old quad maps—he noticed this *pu‘u*, which looked very interesting to him. From the photo, it appeared to him that the hill would offer anyone who traveled to it, a great view of all the surrounding lands, and out to the coast of Hilo and Puna.

Mr. Daehler looked around for *kama‘aina* to see if anyone knew the name of the *pu‘u*, but could find no one familiar with it. During this time, L.W. Bryan had been the Forester, and was just retiring, and Max Landgraf took over. Max’s nick name was *Maka* (eye), because he could see things all over. Mr. Daehler found that the word *ala* with *maka*, could mean wide open or imply a lookout point, so he settled on naming the site Pu‘u Maka‘ala (interpreted as Lookout Hill).

Shortly thereafter, USGS was updating its’ quads and contacted him about the region in which the *pu‘u* is situated. He explained that he had found no name for the *pu‘u*, but that he had called it Pu‘u Maka‘ala for the forestry program. He recalled being surprised later, to find that on the next quadrangle, the name Pu‘u Maka‘ala appeared in print.

Mr. Daehler never had the opportunity to actual travel to the *pu‘u*, as he was transferred to Kaua‘i a short while later. It had been his goal to establish a trail to the *pu‘u*, which he believed would be of interest, and provide travelers with a great view of the region. In his review of the maps and photos, he had determined a couple of possible approaches to the *pu‘u*. One of the approaches being from the old Olaa Back Road—which was all overgrown—and which ran out of the old Olaa Homesteads. He recalled also, that while researching the area, he had been surprised to learn that so much of ‘Ola‘a had been subdivided into homestead lots, and that many of the homesteaders had been of Galician origin.

Mr. Daehler also recalled that in those early years, the Board of Agriculture and Forestry had a strong component of land development for agricultural purposes. At the time the Board’s Reforestation Program began, a number of people had been calling for the Pana‘ewa-‘Ola‘a forest lands to be cleared for agricultural purposes. The early reforestation program, through planting a number of fast growing introduced species, helped to save much of the area for present-day and future conservation programs and public interest.