FINAL REPORT

ETHNOGRAPHIC STUDY OF U.S. ARMY POHAKULOA TRAINING AREA AND CENTRAL HĀMĀKUA DISTRICT, ISLAND OF HAWAIʻI, HAWAIʻI

This version of the Ethnographic Study **does not** contain protected information under Controlled Unclassified Information (CUI) and may be publicly released without restriction.

The complete version of this Ethnographic Study, containing information protected by statue and exempt from public disclosure under the Freedom of Information Act, is on file at the USAG-P and USAG-HI Cultural Resources offices.

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FINAL REPORT
Ethnographic Study of Pohakuloa Training Area and Central Hāmākua District, Island of Hawai‘i, State of Hawai‘i.

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1.0 INTRODUCTION

This report was prepared by Pacific Consulting Services, Inc. (PCSI), under subcontract to Dawson Group, Inc. (Dawson), in accordance with U.S. Army Corps of Engineers Contract No. W9128A-06-T-0042, awarded to Dawson on 21 September 2006.

The work reported here involved three specific research tasks at the U.S. Army's Pohakuloa Training Area (PTA):

1. Conducting ethnographic research to evaluate the potential existence of Traditional Cultural Properties (TCPs) at PTA;
2. Identifying historic properties at PTA that are eligible for inclusion on the National Register of Historic Places (NRHP) and preparing nomination forms for selected historic properties; and
3. Developing historic context discussions for PTA to support the NRHP nomination process.

PTA is located on Hawai'i Island, between the volcanoes of Mauna Loa, Mauna Kea and Hualalāi (Figure 1). PTA is the largest U.S. military training area outside of the continental United States, covering an area of approximately 532 km^2 (131,538 acres). The northern portion of PTA is used for military support (cantonment) operations, with the remaining area used for artillery and bombardment training. The central portion of the facility is an ordnance impact area, and accounts for approximately 39 percent of PTA's total acreage.

PTA is situated in an area referred to as the Saddle Region or "the Saddle" of Hawai'i Island. The Saddle Region is a high plateau formed by aa and pahoehoe lava flows from the three surrounding volcanoes, with elevations ranging from 1,228 to 2,636 m (4,030 to 8,650 ft) above sea level. The region is arid, receiving an average of 102 to 406 mm (4 to 16 in) of rainfall annually. Vegetation cover ranges from virtually non-existent on newer lava flows to relatively abundant grass, scrub and tree cover on the older flows (Eblé 1997:2).

The U.S. Army built Kaumana Road (now called Saddle Road) in 1942, connecting the east and west sides of Hawai'i Island through the Saddle Region. Shortly after the road was completed, the cantonment areas and Bradshaw Army Airfield were constructed (Reinman et al. 1998). The facilities, formerly known as the Saddle Training Area, were formally designated as PTA in 1956.

2.0 DESCRIPTION OF WORK COMPLETED

This section provides an overview of the work conducted, including a discussion of problems encountered in performing the work.

2.1 EVALUATING POTENTIAL TRADITIONAL CULTURAL PROPERTIES (TCPS)

PCSI and Dawson reviewed existing ethnographic and archaeological studies for PTA and surrounding lands to determine if properties within PTA could be considered eligible for listing as TCPs on the NRHP. As part of the research of existing information, a literature search and review was conducted and meetings were held with PTA staff to evaluate potential sources of information.

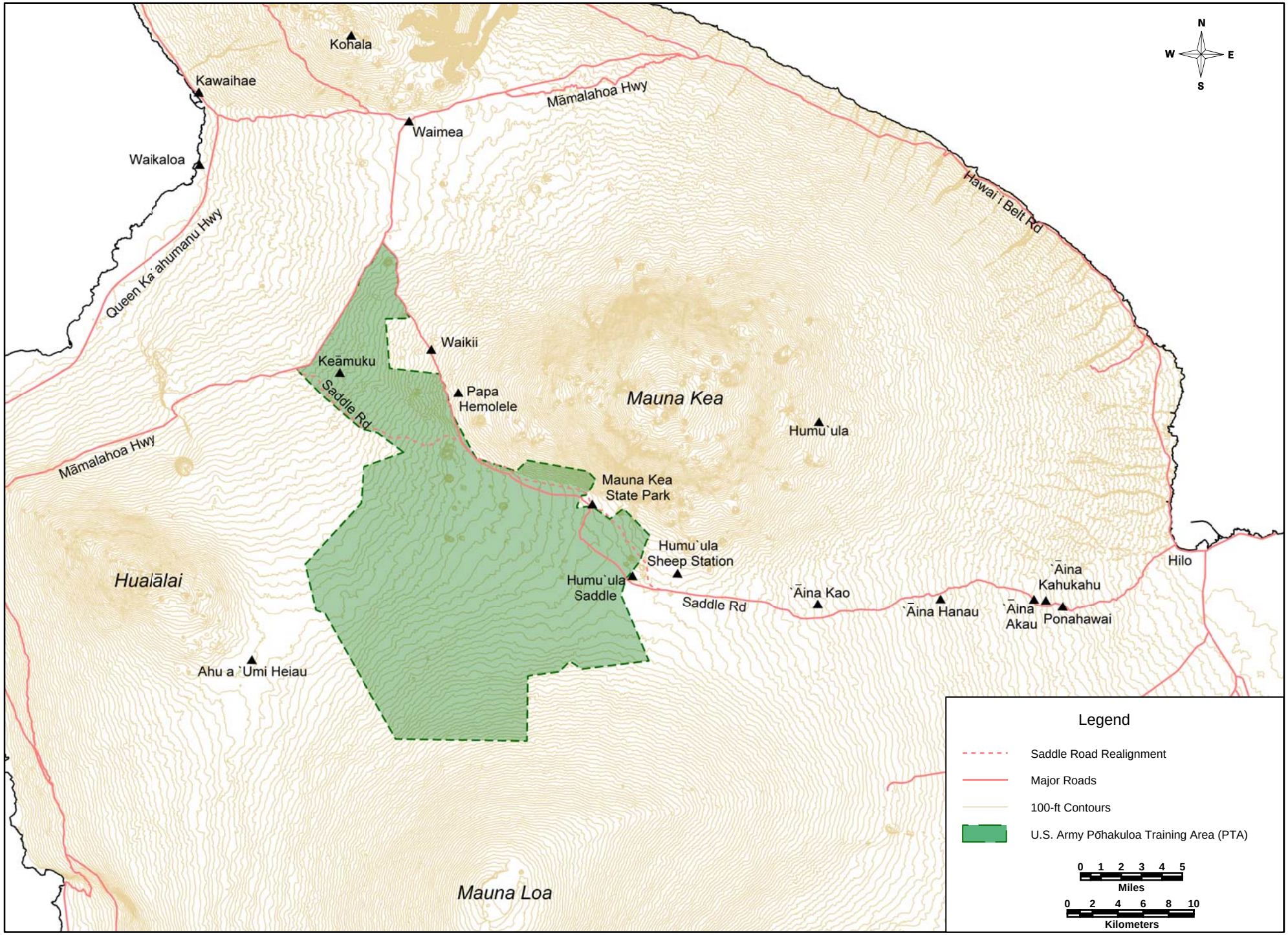

Figure 1. Project Area and Place Names

To supplement the available existing research, Maria Orr, an ethnographer employed by Dawson, conducted additional new ethnographic research, including interviews with seven individuals with ties to the project area. The consultants interviewed during this study were selected because they met one or more of the following criteria: (1) the consultant had spent considerable time as a youth and adult in the project area; (2) the consultant is familiar with the history and *mo'olelo* (stories) of the project area; (3) the consultant works or did work in the project area; or (4) the consultant is or was engaged in hunting or gathering activities in the project area.

The interview process included a brief verbal overview of the study. Then the consultant was provided with a consent or 'agreement to participate' form to review. An ethnographic research instrument was designed to facilitate the interview, a semi-structured and open-ended method of questioning based on the person's response ('talk-story' style). Each interview was conducted at the convenience (date, place and time) of each consultant. The interviews were recorded on cassette tape. Taped interviews were transcribed and provided to each of the consultants for review and correction.

The interview transcripts were arranged into research thematic indicators or categories (i.e., personal information; land and water resources and uses; site information-traditional and/or historical; and anecdotal stories). For the purpose of this study, it was not necessary to go beyond the first level of content and thematic analysis, as this was a more focused study. However, sub-themes or sub-categories were developed from the content or threads of each interview [e.g., ranch life, hunting, and gathering].

Based on the review of available information, cultural practices and beliefs were identified that are or had in the past been associated specifically with PTA or surrounding lands. A synthesis of that information was prepared for inclusion in the project report, focusing on the potential eligibility of locations within for consideration as TCPs.

A key difficulty in conducting this study is one that has been noted extensively in the literature. The central region of Hawai`i Island in which PTA is located is a relatively remote area with no archaeological evidence of permanent habitation in the pre-Contact era (pre-A.D. 1778). As a result, there is a general paucity of written information concerning human activities in the region when compared to more populated areas of the State. This situation is compounded for many areas within PTA's boundaries that have necessarily been closed to general civilian access for over 50 years. As a result, there has been a "loss of touch" with the land for most members of the community, making it difficult to locate willing informants necessary to pursue additional ethnographic research.

Other difficulties were encountered in conducting new ethnographic interviews for this project; two individuals who agreed to be interviewed did not show up for the interviews and another potential consultant could not be interviewed due to scheduling problems. In addition, only one interviewee completed and returned the transcript of their interview and release form.

2.2 PREPARING NATIONAL REGISTER OF HISTORIC PLACES (NRHP) NOMINATION FORMS

PCSI reviewed past archaeological studies conducted at PTA and surrounding areas and met with PTA and U.S. Army Garrison Hawaii (USAG-HI) staff on several occasions to discuss sites that could be considered for NRHP nomination. PCSI staff also visited PTA sites on three occasions: one visit to coordinate with PTA staff regarding NRHP nominations and two visits to ground-truth existing data and collect additional supporting information.

PCSI initially identified a number of historic contexts but we encountered various problems in the selection of associated historic properties and ended up choosing just one historic context, or theme for the preliminary draft report. PCSI then developed the historic context and prepared draft NRHP nomination forms for consideration by the Army for eight historic properties. Completed nomination forms have been submitted separately for the draft report.

At the suggestion of USAG-HI personnel, PCSI initially began collecting information and preparing NRHP nomination forms for properties that differed from those that were finally selected. After research and consideration of the sites originally suggested by the Army, PCSI concluded that those sites either did not meet the eligibility criteria established for listing on the NRHP or that the available information on those properties was insufficient to support their nomination.

The properties that were considered for nomination and later dismissed, together with the reasons for their removal from further consideration are as follows:

Volcanic Glass Site Preserves for Sites 21666, 21667, and 23544

The nomination of these sites, or portions thereof, was considered at the onset of this project. The issues identified with this nomination were:

- The four areas chosen by PTA archaeologists represent features within the three sites. This means that excluded portions of the sites would have to be considered as non-contributing properties under NHRP guidelines. PCSI determined that this was not a viable approach, as the excluded portions of the sites are significant under the same criteria used to nominate the portions of the sites that were chosen.

- The NRHP forms require site maps and, based on PCSI's review of the literature, we could not find any maps of the sites or the component features selected for nomination and preservation. Site mapping is outside the SOW for this project. Lacking sufficient information required for the nomination forms, we determined that the nominations would not be acceptable.

Redleg Trail Discontiguous District

This area includes numerous sites in the vicinity of Pu'u Koli and north of this *pu'u*, including basalt quarries, a cairn, a habitation cave, and an excavated pit complex. Issues encountered with preparing the nomination forms for this district were:

- This area contains sites that have not been fully documented (e.g., basalt quarry Site 21304). Absent proper documentation, we determined that the nominations would be unacceptable.

- The first site visit PCSI conducted on December 10 and 11, 2008, indicated that there are unrecorded sites within the boundaries of each of the survey areas. We believe this lack of complete documentation of the immediate area of the sites would render the nomination unacceptable.

- Each of the areas contains excavated pits which PTA's cultural resources staff recommended not be included in the nomination because their function is uncertain or unknown. It is not acceptable under NHRP guidelines to ignore these pits. Rather, they need to be mapped and identified as either contributing or non-

contributing properties. As the pits have not been mapped, PCSI lacked sufficient information to prepare an adequate nomination form for the district.

Sites 14638, 5003, and 19490

These sites were originally considered for nomination as a group because of the presence of lithic artifacts and similarities between the sites. Site 19490 is isolated from the other two sites. If Site 19490 was to be nominated along with the other sites, NHRP guidelines indicate that the nomination should include the trails that lead to and from the shelter. For Sites 14638 and 5003, PCSI was unable to locate a map showing all of the features of the sites. In addition, there are other lithic sites around Site 14638 that should be included, per NRHP guidelines, but they are small lithic scatters and available maps may not be sufficient for the NRHP forms.

2.3 REVIEW AND UPDATE OF HISTORIC CONTEXT DISCUSSIONS

PCSI reviewed existing narrative documentation provided by the Army concerning the historical background and historical context of PTA. PCSI prepared additional historical context narrative information to address identified data gaps in the existing documentation. Section 4 of this report presents new historic context discussions prepared for PTA. Information has been excerpted from the Section 4 discussions and included in the NRHP forms appended to this report.

The focus of this phase of the study was to ensure that the historic context discussions that are required to support the NRHP nomination process were adequate. This study did not attempt to update all aspects of the existing PTA historic context narrative. As the properties originally suggested for nomination in this study were all associated with Native Hawaiian ceremonial and ritual activities, the historic context of those types of properties was researched and additional information was drafted to provide a sound and robust basis for their nomination. For the draft report, six new sites located in the Pu‘u Koli area of PTA were included in the NRHP nomination as suggested by the USAG-HI. This entailed adding four additional historic contexts, including Pre-Contact Hawaiian Lithic Tool Production Practices, Pre-Contact Hawaiian Bird Hunting Practices, Pre-Contact Hawaiian Temporary Occupation, and Pre-Contact Hawaiian Rock Art (Petroglyphs).

During the initial phases of this project, the scope of this phase of work was perceived to be broader and involve updating the historic context narrative for all properties at PTA. After working towards the development of a more general historic context narrative for PTA, it became apparent that such an effort would exceed the resources allocated to this study. In meetings with USAGH, the scope of work for developing a historic context narrative was subsequently focused on developing a narrative that would be appropriate to supporting the NRHP nominated sites.

3.0 ETHNOGRAPHIC RESEARCH REVIEW AND SYNTHESIS

This section presents a review and synthesis of ethnographic research related to PTA. This analysis relied primarily on past ethnographic studies of the general area. It also incorporated the results of new informant interviews conducted as part of this study and presented in Appendix A to this report.

The focus of this ethnographic analysis was to evaluate whether any portions of PTA would qualify for nomination as TCPs under NRHP criteria. The results of the analysis indicate that,

traditional Native Hawaiian cultural practices as well as contemporary cultural practices did occur within the boundaries of PTA in the past. However, none of the areas within PTA appear to qualify for consideration as TCPs under established National Park Service (NPS) criteria used to determine eligibility for listing in the NRHP (see Section 3.3).

3.1 PAST ETHNOGRAPHIC RESEARCH

In evaluating PTA properties for consideration as TCPs, several past ethnographic studies were reviewed, including:

> Langlas et al. 1998
> Charles Langlas, Thomas R. Wolforth, and James Head
> *Archaeological, Historical, and Traditional Cultural Property Assessment for the Hawai'i Defense Access Road A-AD-6(1) and Saddle Road (SR 200) Project*, Paul H. Rosendahl, Ph.D, Inc., March 1998.
>
> Maly 1999
> Kepā Maly, *Mauna Kea Science Reserve and Hale Pōhaku Complex Development Plan Update: Oral History and Consultation Study, and Archival Literature Research*, Kumu Pono Associates LLC, February 1, 1999.
>
> Maly and Maly 2002
> Kepā Maly and Onaona Maly, *He Wahi Mo'olelo No Ka'Āina A Me Nā 'Ohana O Waiki'i Ma Waikōloa (Kalana O Waimea, Kohala), A Me Ka 'Āina Mauna: A Collection of Traditions and Historical Accounts of the Lands and Families of Waiki'i at Waikōloa (Waimea Region, South Kohala), and the Mountain Lands, Island of Hawai'i (TMK Overview Sheet 6-7-01)*, Kumu Pono Associates LLC, 2002.
>
> Maly 2005
> Kepā Maly, *A Collection of Native Traditions, Historical Accounts, and Oral History Interviews for: Mauna Kea, the Lands of Ka'ohe, Humu'ula and the 'Āina Mauna on the Island of Hawai'i*, Kumu Pono Associates LLC, March 30, 2005.

Additional unpublished, draft, ethnographic research conducted on behalf of the Army by Prashad and Nunnes (no date available) was reviewed and evaluated in performing this study.

3.2 CURRENT ETHNOGRAPHIC RESEARCH

Seven individuals (consultants) were interviewed as part of the work reported here. Details of their selection and qualifications together with detailed compilations of the information collected are presented in Appendix A to this report. Table 1 summarizes the demographic relationship of the consultants interviewed to the project area.

Six of the consultants were part-Hawaiian and one was of Japanese descent; four worked on lands that are now part of PTA; and one is a cultural practitioner who is knowledgeable of the project area lands.

Table 1. Consultant Demographics in Relation to Project Lands.

Consultant	Ethnicity	Born	Raised	Work	Relation to Project Area
Kanaina Case	Pt Hawn	1977 – Hilo	Waimea	Carpenter	Hunt/Gather
Kauka Case	Pt Hawn	1981 – Hilo	Waimea	Landscaper	Hunt/Gather
Lloyd Case	Pt Hawn	1950? – Waimea	Waimea	Construction	Hunt/Gather
Ku Ching	Pt Hawn	1936 – Honolulu	Oahu/Waimea	Cultural Practitioner	Huakaʻi/Gather
Lucky Puhi	Pt Hawn	1952 – Waimea	Waimea	Cowboy	Parker Ranch/Waikiʻi
Mark Yamaguchi	Japanese	1958 – Waimea	Waimea	Cowboy	Parker Ranch/ Keʻāmuku
Ku`ulei Keakealani	Pt Hawn	1977? – Waimea	Waimea	Teacher/ Waimea Cultural Practitioner	Parker Ranch/ Gatherer

The interview process was designed to elicit information from the consultants concerning practices and beliefs related to PTA that might indicate the presence of a TCP. The consultants were encouraged to discuss their personal experiences as well as stories and oral traditions relating to the lands occupied by PTA.

3.3 NATIONAL REGISTER OF HISTORIC PLACES (NRHP) CRITERIA FOR TRADITIONAL CULTURAL PROPERTIES (TCPS)

The NRHP is maintained by the U.S. Department of Interior, National Park Service (NPS). National Register Bulletin 38, issued by NPS, presents guidelines for evaluating and documenting TCPs for inclusion on the NRHP. The bulletin identifies two key general conditions that should be met for any property to be considered a TCP:

> "A traditional cultural property, then, can be defined generally as one that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community."

In addition, the National Register Bulletin identifies several specific criteria to be used in evaluating if a property is a TCP:

> **It must be a tangible place**. The National Register does not list cultural practices or beliefs. Tangible means that you must be able to physically locate the property. It does not mean that you have to have physical, man-made features or items at the place. A mountain, a street corner, and a pueblo are all tangible places.
>
> **It must be important to the community today** and play the same role in the community's traditions as it did in the past.
>
> **It must have been important for at least 50 years**. For example, locales where pow wows are held now, but were not held 25 years ago probably do not meet the 50-year rule. The use of the property, however, does not have to be continuous over the last 50 years, but there should be a pattern of use or continued value.
>
> **It must have Integrity**. By regulation, integrity means integrity of location, design,

setting, materials, workmanship, feeling and association. The importance of each of these elements varies depending on the nature of the property. For TCPs, integrity can often be evaluated in terms of the strength of the property's association with the traditions of the community and the property's condition. The association between the place and the community's traditions must be strong. The property's condition is just as important to consider.

It must have definable boundaries. Defensible boundaries should be based on the characteristics of the property, how it is used, and why it is important.

In addition to the preceding guidelines for evaluating potential TCP's, a property must meet one or more basic criteria set forth in the National Register Criteria (36 CFR Part 60) to be considered eligible for listing on the NRHP. Those criteria are:

Criterion A: *Association with events that have made a significant contribution to the broad patterns of our history*

Criterion B: *Association with the lives of persons significant in our past*

Criterion C: *Embodiment of the distinctive characteristics of a type, period, or method of construction*

Criterion D: *History of yielding, or potential to yield, information important in prehistory or history*

Despite the existence of these criteria, the identification of potential TCPs at PTA is not a simple or straightforward exercise. Due to its location and other environmental conditions, the Saddle Region has seen relatively limited human activity, when compared to other, more inhabited areas of the State, and there is a corresponding lack of information concerning cultural practices and beliefs related to the area. In the case of PTA, this is further complicated by the necessary restrictions on public access to much of the facility that have been in effect for over 50 years.

3.4 ANALYSIS OF RESEARCH RELATING TO CULTURAL PRACTICES AND BELIEFS

To determine the potential eligibility of properties for listing as TCPs on the NRHP, this study evaluated information related to historic properties as well as cultural practices and beliefs associated with the project area. A key requirement for considering a property to be eligible for consideration is its association with cultural practices and/or beliefs. Practices and beliefs were identified based on available ethnographic research and further evaluated to determine if they met the previously described NPS criteria.

The study identified the following traditional and contemporary cultural practices associated with the Saddle Region in general and PTA specifically:

- Quarrying and Stone Tool Manufacture
- Bird Hunting
- Human Burial
- Shrine Construction
- Journeying (*Huaka'i*)
- Hunting of Feral Ungulates
- Scattering of Cremation Remains
- Ranching

Available information regarding each of these practices is summarized in this section and the extent to which properties associated with the practices qualify for consideration as TCPs is assessed.

3.4.1 Historic Background

There is a general lack of information in the literature concerning cultural practices and beliefs related to the Saddle Region, when compared to other, more populated areas of Hawai'i. The patterns of pre-Contact settlement and use of the Saddle Region have been inferred primarily from archaeological surveys and research of identified historic properties. As described by Williams et al. (2002):

> Very few references to the Saddle Region have been found in traditional oral accounts or in written accounts from the early post-Contact period. The paucity of references to this region is probably due to its remoteness from the more settled regions of the coast and lower elevations, and to the specialized nature of traditional exploitation in the region. …traditional use of the Saddle Region was probably very specialized during the period before Western contact (prior to A.D. 1778). During the latter part of prehistory, such use probably consisted mostly of temporary or seasonal occupation related to activities such as bird hunting and forest resource collection, and overnight occupation while passing through the Saddle to other areas of the island (Williams et al. 2002:7).

In the post-Contact period, use patterns within the Saddle Region shifted dramatically. Sandalwood collecting, bullock (wild cattle) hunting, and cattle and sheep ranching were the principal activities associated with the area during the 19th and 20th centuries (Williams et al. 2002:9).

3.4.2 Quarrying and Stone Tool Manufacture

Some areas of PTA, as well as surrounding lands, were heavily quarried by pre-Contact Hawaiians to extract materials for stone tool manufacture. There is also evidence that some level of stone tool manufacturing may have occurred within PTA.

Two types of stone were quarried at PTA by Pre-Contact Hawaiians; volcanic glass (also called chill glass) and basalt. Chill glass was used to make cutting and scraping tools from unmodified flakes, while basalt was modified to make hammerstones, adzes, cooking stones and flake cutting tools. Archaeological surveys of PTA had identified 50 archaeological sites interpreted as lithic quarries and workshops through 2004 (Roberts, Brown, and Buffum 2004). The Pohakuloa Chill Glass Quarry Complex within PTA is described as the second largest quarry complex within the Hawaiian islands (Williams 2004:105).

In addition to the identified sites within PTA, the Mauna Kea Adze Quarry Complex, which is listed on the NRHP, is located to the northeast and upslope of PTA. The Mauna Kea Adze Quarry Complex is the largest known prehistoric quarry in the Pacific (McCoy 1976). Evidence from recent studies on Mauna Kea indicates that quarry workers were likely to have passed through the Saddle Region during their ascent to and decent from the quarries (McCoy and Nees 2010). Evidence also indicates the manufacture at PTA of adze preforms using basalt from the quarries on Mauna Kea (Sinton and Sinoto 1997; Sinton1998; Bayman et al 2001:55).

After A.D. 1500 or 1550, intensive quarrying activity declined dramatically (Williams 2002:18). Quarrying activities in the area continued through the early 1800s, but disappeared with the

introduction of western technologies (Maly 1999:22). Absent the any traditional stone quarrying or stone tool manufacturing practices for approximately 200 years in the area, this practice can no longer be considered to play the same role in the community's culture as it did in the past. As a result, properties associated with the practice are not considered eligible for consideration as TCPs.

3.4.3 Bird Hunting

The Saddle Region, including PTA, is known to have been home to numerous ground-nesting birds that were hunted by Hawaiians for their meat and feathers. The '*ua'u* (dark-rumped petrel, *Pterodroma phaeopygia sandvicensis*) was reported to nest extensively in the area (Lyons 1875:25). Juvenile *`ua`u*, considered a delicacy, were pulled from their burrows during the nesting season (March through October) and presented to the *ali'i* (Langlas et al. 1998:21; Henshaw 1902-1903:102). By 1900, the '*ua'u* were essentially eliminated from the Saddle Region by the introduced mongoose (Henshaw 1902-1903:131).

Several other birds are believed to have been hunted in the Saddle Region by Native Hawaiians as a food source or for their feathers, including the *nēnē* (Hawaiian goose, *Nesochen sandvicensis*), the '*alala* (Hawaiian crow, *Covus hawaiiensis*), the *moho* (a flightless rail, *Porzana sandwichensis*) the '*apanepane* (Hawaiian honeycreeper, *Hiatone sanguinea*), the '*elepaio* (Hawaiian flycatcher, *Chasiempis sandwichenis*), and the *i'iwi* (scarlet honeycreeper, *Vestiara coccinea*) (Williams et al. 2002:6).

Based on the extensive amounts of bird bone found in the temporary habitation sites in the Saddle Region, and the lack of other animal bones at those sites, it appears that birds were relied upon as a subsistence food source by the quarry workers, bird hunters and travelers in the area during the pre-Contact period.

There are several post-Contact descriptions of traditional bird hunting continuing in the area into the late 19th century, including Boundary Commission testimonies and other historical records (Langlas et al. 1998:22).

Consultant interviews conducted during this project describe bird hunting as having occurred in modern times in the Saddle Area as well as in areas of the Parker Ranch that were acquired by PTA in 2006:

> Those days mostly on the ranch we used to go [hunting] -- Parker Ranch…Ke'āmuku, Makahalau, all those ranches I used to go hunt [for] pig and sheep. They have the feral sheep. They have the mouflon - they are like furry but straight hair too…all kind colors. I used to go bird hunting too…pheasant, Chukar, Francolin, quail, and turkey [Mark Yamaguchi].
>
> Birds - there were pheasants, Franklins, quails. We used to hunt a lot…Parker Ranch would open different seasons like bird season. We were allowed to take guests. I was a guide for a couple of years - a friend of mine and I - we took people out. We used to take out Mr. Smart's two boys, Tony and Gill Smart, with their wives [Lucky Puhi].
>
> Bird [season] usually runs from November 1st through the third weekend in January. It's been like that for ever since I can remember. Different areas, sections of the ranch would open. If it's dry they would close one area, open up another. So that was part of the benefits that we received from Parker [Ranch] at the time [Lucky Puhi].

> The ranch would open the place - there's no season for animals on Parker Ranch. Usually you can hunt whatever game is on the ranch. So you take what you need at that particular time…. There was bird hunting too [Lloyd Case].

Although there is some continuity in the practice of bird hunting over time in the area of PTA, the cultural significance of the activity to the community has changed significantly over time. In the pre-Contact period, bird hunting was an integral element of the social structure that may have provided the ruling class with status in the form of prized feathers used as chiefly symbols of rank, as well as the meat of *ʻuaʻu* chicks. Those engaged in bird hunting and quarrying activities also were likely to have relied upon captured birds for essential sustenance during their trips to the area.

Although bird hunting has survived into the post-Contact period, it no longer bears similar cultural significance to the community. Rather, modern bird hunting is considered a sport or pastime serving only the needs of the hunter and not those of the community. As a result, this practice, as it relates to PTA, no longer bears the same cultural significance to the community as it did when it was widely practiced in the Saddle Region in the pre-Contact period. Further, bird hunting, as it occurs in modern times, is not focused in areas specific to PTA, but is widespread throughout large areas of the island. As a result, past associations with bird hunting do not appear to provide adequate justification for consideration of locations within PTA as TCPs.

3.4.4 Human Burial Practices

The manner of human burial in pre-Contact Hawaiʻi varied greatly, including (but not limited to) interment in lava tubes or crevices and burial beneath stone platforms. Archaeological surveys have identified two stone platforms and one site complex in the southeastern portion of PTA that may contain human remains. In addition, bone fragments have been found at other locations within PTA (Williams 2002:15; Roberts, Robins, and Buffum 2004). The scattering of cremation remains is considered a contemporary burial practice and is addressed later in this report. This section addresses traditional human burial practices.

During a 1998 interview, Mr. Henry Auwae, a lifetime resident of Kawaihae who was born in 1906, reported to Langlas that there had been many Hawaiian burials in the area of Bradshaw Field and to the southeast of Mauna Kea State Park, but that those areas had been heavily bulldozed by the Army after World War II. His belief was that those grave sites no longer existed (Langlas et al. 1998:140).

One of the consultants interviewed during the current ethnographic studies provided more definitive information regarding human burials within PTA boundaries:

> There's a burial cave. I did not go into. We knew it was - Mark was the one that showed me the cave when I was working there. When I left the ranch I figured that probably no one was going to know about it. And then when I met Bill on the first run, he asked me about the cave. And I looked at him and said, 'How do you know it's there?' He says, 'Well we heard about it, do you know where it is?' I said, 'Yeah.' 'Well, will you take us to show us?' I said, 'Well, I don't know. I don't know. I don't want it disturbed, whoever is in there shouldn't be disturbed. It should be covered up and left alone.' Then I thought of it and if they don't know where it is then they can run vehicle traffic over it, they can push a road over it… it will cave in. So, they found it. I don't know who took them there. In fact, I just spoke to Bill last week and I asked him about that. And he said they documented….they went into the cave…there were like three or four bodies wrapped.

> They don't know what, when, who, what type people they were. He said it looked like it was a family. I asked them if there were any artifacts in there. He said it looked like somebody had gone in before and taken stuff. So I asked him what were they going to do? He told me they were going to mark the site and put it on their map as an area that is off the grid - no traffic, no training goes through there. They're going to fence it off. That's good. He was thinking that they might put a cover on it and lock it. And that's probably the only the burial site that I know of. I'm sure maybe there's more that we don't know about [Lucky Puhi].

Although human burial practices apparently have occurred within the boundaries of PTA, there is no indication that is was a common practice in the area. Further, modern human burials have not occurred within PTA during present times, and no active community traditions relating to burials at PTA have been identified. For these reasons, the possibility of pre-Contact burial practices is examined for in any area of PTA being considered eligible for consideration as a TCP.

3.4.5 Ceremonial and Ritual Practices and Religious Beliefs

Archaeological surveys have identified 17 historic properties within PTA that are believed to have had a ceremonial or ritualistic function. In their evaluations of similar shrines found on Mauna Kea, McCoy and Nees provide evidence indicating that many were occupational shrines, constructed and used by the quarry workers as a part of their routine. Further, they discuss the shrines in the context of their significance within the quarrying process and changes in persona that accompanied the ascent, production and descent phases of quarrying (McCoy and Nees 2010). Williams attributes similar relationships to the shrines found at PTA, associating them with the Hawaiians who routinely visited and worked in the area, probably as bird hunters (Williams 2002 et al.:13).

The nearest known *heiau* to PTA is Ahu a ʻUmi (site 50-10-29-3810), located approximately 1.6 miles (7.0 km) west of the installation. The *heiau* consisted of large central enclosure surrounded by several cairns and was said to have been built around A.D. 1600 by chief ʻUmi a Liloa to commemorate his unification of the island of Hawai`i (Kirch 1985:179).

During an ethnographic study conducted for the realignment of the Saddle Road in 1998, Mr. Henry Auwae described five shrines and one *puʻu* that he remembered from his youth in areas within or near the Saddle Region (but not within PTA) that were associated with ceremonial and ritual practices as well as religious beliefs. Although none of the constructed sites could be located in that study, Auwae's descriptions of their significance are informative. Figure 1 shows the estimated locations of the sites.

Papa Hemolele contained three distinct structures described as altars where people would place their images and offer prayers of request (Langlas 1998:135).

ʻĀina Koa was a site with walls and ritual platforms that was covered during the 1935 lava flow. Warrior candidates were brought to the location for some type of testing or ordination. It was not considered appropriate or safe to visit the site for other reasons (Langlas 1998:137).

ʻĀina Hānau was a small stone-walled enclosure where women were ritually prepared for giving birth, gave birth and remained for seven days after a baby's birth. The site was still in use in the early 20th century (Langlas 1998:138).

ʻĀina ʻĀkua, which was closer to Hilo than PTA, was a tiered platform used for preparing bodies of high *aliʻi* for burial (Langlas 1998:138).

ʻĀina Kahukahu was a large complex of altars where travelers leaving the Hilo area for the Saddle would stop to perform rituals for a safe journey and to pray for the deceased (Langlas 1998:139).

Puʻu Kamokumoku (now called Puʻu Kalaʻiʻehā) is northeast of the Humuʻula Sheep Station. It was an area where powerful prophets (*kāula*) lived and an area of spiritual significance, as described by Henry Auwae:

> Ka-mokumoku they call that, that's why [because] they tear up, you know all the wishes of whoever make the rules and laws of the Saddle, between the two mountains. That's where they break all the rules and the laws, all in pieces. And mokumoku means break it all in pieces. So that they don't find the solid intention of the aliʻi (Langlas 1998:139).

Consultants interviewed during ethnographic research conducted as part of this study were aware of ritualistic or ceremonial structures present within PTA, but were not aware of their function or current status, nor did they indicate any current use. With regard to the Keʻāmuku area on the western portion of PTA, one consultant reported:

> You know, when I was younger, when I used to go with my brothers back in 1960s, a lot of the land was still pretty much intact - they never cleared the land real good. In some areas there were small little heiaus - I didn't pay much attention to them back then, you know, but you can tell that our ancestors went crossed that land before. I don't know if any of them are still out there because like I said, they cleared a lot of that land and made pasture land out of that place [Lloyd Case].
>
> There were some Hawaiian sites out there, like I said earlier. I don't know if they're still there because, like I said, they went clear plenty of the land. They were mostly like rocks - I would think was heiau. Same as up here Kawaihae uka on Queen Emma land - get plenty like that…. Not so much living quarters because that place no more rivers that run. They were just, you can tell people, who passed through [Lloyd Case].

Review of oral histories of the area have not identified any ritual or ceremonial practices or religious beliefs that are linked to specific properties located within PTA. While it appears evident that some rituals and ceremonies did occur within the current boundaries of PTA, as evidenced by the historic properties within PTA's boundaries that have been interpreted as shrines, there is no direct ethnographic evidence of their past significance to the community.

Ethnographic studies have not identified any information reflecting an association of PTA lands with any special or extraordinary beliefs. Absent any ethnographic data suggesting broader significance, the sites at PTA that are interpreted to have a ceremonial or ritualistic function appear to be associated with temporary occupation (bird catching, quarrying, and journeying). They were important to the Native Hawaiians engaged in those occupations, but probably held less significance to the broader Native Hawaiian community, few of whom would have been likely to have visited the area. With the decline in traditional bird catching and quarrying activities in the Saddle Region, the ritual and ceremonial sites at PTA appear to have fallen into disuse for the past century or more.

As described in the historic context discussions elsewhere in this report, the ceremonial and ritual sites identified at PTA are believed to be significant historic properties that merit enhanced

preservation measures and further research. However, they lack continuity in use that predates the establishment of PTA. As a result, they do not play the same role in the community's traditions as they did in the past and do not appear to qualify for consideration as TCPs.

3.4.6 Journeying (*Huakaʻi*)

Several trail segments have been identified in the Saddle Region and within PTA during past research efforts. There is a clear record of pre-Contact travelling through the region to exploit resources within the Saddle Region as well as to travel between the populated coastal areas. Langlas also believes that the Saddle Region may have been a place where prophets (*kāula*) sought communication with the gods (Langlas 1998:21).

Interviews conducted during this project identified an ongoing cultural practice of *huakaʻi,* or journeying, that is rooted in traditional Native Hawaiian traditions and is still practiced in the area. As reported by Ku Ching, a Hawaiian cultural practitioner:

> The trails up there is [sic] not just to go gather stuff and for hunting but also to traverse the countryside. I would even go as far to say that some of these walks were like pilgrimages. And in a lot of ways when we do our hikes [*huakaʻi*] we are doing a pilgrimage. There were certainly different areas where others or the ancients that used to do the same thing. At least we are doing what we think they did.
>
> We *haukaʻi* at Pohakuloa. In 2002 we started at the ocean at sea level at this place called Koholalele Landing in Hāmākua. We went up in Umikoa Trail which is somewhere up the mountain, it remains the same or changes to the Kaʻua Trail which goes to the summit up Mauna Kea. We then walked down the Kona side of Mauna Kea, past Laʻau cabin to Saddle Road and a short ways along Saddle Road and down Keʻekeʻe Road on Pōhakuloa near the west side of Pōhakuloa which was the boundary at that time to the so-called Kona Hwy then to you know that little village, Puʻu Anahulu and then down to the bay – Kiholo and actually ending our cross-island hike at what's the name of that place, that little pond that's part of that area of Luahine Wai. A coupla two-three years later we did a hike from where the Keʻekeʻe Road joins the old Kona Hwy, went down the new Bobcat Trail to the boundary of Pōhakuloa trail to Ahuaumi all the way to well since then we made all these connections, but all the way to the ocean at Keauhou.
>
> Interestingly enough on the second hike which was the one that went through Naohulielua, we started out at the boundary of Pōhakuloa and we did a little ceremony that we usually do, very Hawaiian all that kind stuff, in fact we raised the Hawaiian flag and our Hawaiian tradition heritage, well he's our *oli* guy Kahoʻola and he did his chants all that kind of stuff and so we were actually dedicating our trip across there too, you know Kingdom of Hawaii and all that including having this big flag up…we do these kinds of things although they're not "real" they are as far as I'm concerned very symbolic. And so when we do these hikes in these places, we're always on the lookout for things, for signs, for plants, all that kind stuff; we do our *pule* and we bless us we bless the place we bless the ancestors who do all these actually our hiking group is actually a hiking group and not just a role playing kind of hiking group. And so it's all part of this all integrated into my cultural practice and all the other personal cultural practices.
>
> Right here it's like Puʻu Keʻekeʻe, okay there's a road that goes right by Puʻu Keʻekeʻe, we went down that road down to here and the road is not too far from Puʻu Ka Pele and over here to the northwest corner of this we hooked to Kona Hwy to Puʻu Anahulu. And the second time we went to where those two roads come together and took the Bobcat Trail and this is the one that's all down here too. Naohulielua and like say about five miles past

> that. So I've been through most of Pōhakuloa including Puʻu Koli, but this other place that I was telling you about Kipukaʻalala which is down in this area so it would be on the southwest side.

Although *haukaʻi* does appear to be an ongoing cultural practice based on traditional Native Hawaiian practices and beliefs, no sites within PTA have been identified that are clearly associated with the practice. For consideration as a TCP, there must be a tangible place with definable boundaries that is associated with the practice or belief. In the case of *haukaʻi,* the practice is not specific to or focused on locations within PTA. Rather, it is method of journeying that observes Native Hawaiian traditions and beliefs but is independent of the location of the *haukaʻi*. For these reasons, there does not appear to be sufficient reason to consider areas within PTA that may have been used during *haukaʻi* as eligible for consideration as TCPs.

3.4.7 Hunting of Feral Ungulates

Hunting of feral ungulates (cattle, goats and pigs) has been documented throughout the Saddle Region since the early 1800s. Cattle, sheep and goats were first released on Hawai`i Island 1792 by Vancouver (Langlas 1998:23). Early western explorers to the area described bullock (wild cattle) hunting in the Saddle Region and along the slopes of Mauna Kea. In 1841, Governor Kuakini placed a five-year ban on killing wild cattle because of the decline in their numbers (Brundage 1971:9). Accounts of bullock hunting continued into the 1900s (Hobbs 1939:97-101). They indicate that the cattle were sometimes hunted for just their hides and tallow, while at other times their meat was taken, salted and carried to coastal towns (Langlas et al. 1998:24, Williams 2002:10). In 1870, William L. Green estimated that 100 "bush cattle" hides (or "mountain hides") could be taken annually from the Keʻāmuku area of western PTA (Maly and Maly 2002:143).

Interviews conducted as part of this study identified a continued pattern of hunting occurring on PTA lands in recent times.

> Those days mostly on the ranch we used to go [hunting] -- Parker Ranch…Keʻāmuku, Makahalau, all those ranches I used to go hunt [for] pig and sheep. They have the feral sheep. They have the mouflon - they are like furry but straight hair too…all kind colors [Mark Yamaguchi].
>
> We just mostly ran after pigs, occasionally if we felt like eating a goat we'd go look for goats. [Kanaina Case].
>
> I did a lot of my hunting in the forest, up here in the back. We did a lot of hunting on Parker Ranch, and Keʻāmuku was one of our favorite hunting spots because you had your sheep, and your goat, and your pig. So sustainability - that was the place to go. The right times of the years you had nice animals - they were nice and fat [Lloyd Case].
>
> We did most of our hunting in Kohala Mountain, whenever we had a chance to hunt on a ranch we'd go hunting on a ranch any chance we got. We were hunting from little - my dad used to take us out on a ranch [Keʻāmuku Case & Kanaina Case].
>
> I've been hunting up in PTA during the archery season. It depends on the military if it was open for four weekends - I think last weekend and then three weeks prior to that it was opened. And then once the military come up and train, then they close it up because they do live firing now up there [Lucky Puhi].

> Hunting - you can access here - Pukeke and the back area - this is all the roads, you can probably go as far out as here…. 23, 22, this one I believe is Lava Road - part of this could be the Pukeke Road and then what they called the 'Old Kona Road'. This was the road that people used to travel - the old-timers used to travel on before coming across [Lucky Puhi].

Although there is a continuity of feral ungulate hunting activities in the area dating back almost 200 years, the available evidence does not suggest that areas within PTA merit consideration as TCPs on the basis of those activities. Current hunting activities occur either for sport or for subsistence. Ethnographic data indicate that, historically, bullock hunting in the region was primarily a commercial enterprise. Further, bullock hunting occurred throughout the Saddle Region; it is not specifically associated with the lands now occupied by PTA. There is nothing in the record to indicate that PTA lands were unique or favored bullock hunting locations. Finally, it would appear tenuous to argue that feral ungulate hunting, which has shifted over time from wild cattle to its current focus on pigs and goats, has a strong association with events that have made a significant contribution to the broad patterns of Native Hawaiian or island history.

On the basis of these observations, it does not appear warranted to consider properties within PTA as potential TCPs based on their association with feral ungulate hunting practices.

3.4.8 Scattering of Cremation Remains

Human cremation and ash scattering was not a common practice in traditional Hawaiian culture, and when it was done it was a punishment meant to defile the dead person. Writing in the 1830s, native Hawaiian historian David Malo stated that "the punishment inflicted on those who violated the tabu of the chiefs was to be burned with fire until their bodies were reduced to ashes" and that cremation was practiced on "the body of anyone who had made himself an outlaw beyond the protection of the tabu" (Malo 1951:57, 20). Noted Native Hawaiian historian and ethnologist Mary Kawena Pukui explains why cremation was a defilement – "if the bones were destroyed, the spirit would never be able to join its '*aumakua*" (Pukui et al. 1972:109).

Archaeological surveys, as well as ethnographic interviews conducted as part of this study have identified an area in the recently acquired area of the Keʻāmuku Ranch that has been used for scattering of cremation remains (Site 50-10-21-23517):

> A lot of them [cowboys] just wanted their ashes spread out there because they loved the place. Just like Walter Stevens and Andy Fong. They worked there for many years; they loved the place so much that they wanted their ashes to be put back out there, which is how honorable the cowboys were - the people who worked the land [Lloyd Case].
>
> And that's where we have two friends their ashes are out there…actually they kept the bones there. So they gonna try and preserve that area too…we asked if Pōhakuloa could preserve like where we have Andy Fong … the ashes scattered [Mark Yamaguchi].
>
> I wasn't there for Uncle Walter's, but I did go out for the spreading of Uncle Andy's ashes so there are markers. I think there was a small broken down fence - a remnant of a small broken down fence…. Uncle Lucky [Puhi] was working at one point with some type of a 'Colonel' - I remember him telling Lehua that they were going to have it fenced. But I don't know if they actually did so Uncle Lucky would be able to tell you [Kuʻulei Case].
>
> I got Colonel Richardson to commit to protecting where Walter and Andy's ashes are in Keʻāmuku. I don't know if they have followed through with that. They were supposed to…. It was scattered. My thing is that once the military took over the land, my thing was that

> the family would have access whenever - you know maybe a birthday or something would come up. And they have agreed to do that. So they are in contact [Lucky Puhi].
>
> There's this old stone wall corral that we used to work cattle in, and there's a nice flat outcropping - it's not the highest point but the view is nice. And they scattered both ashes there. Walter died first, and then Andy died later and they took their ashes there. Now, Ke'āmuku wasn't purchased by the military yet so Parker Ranch authorized the scattering [Lucky Puhi].

Because the practice of scattering cremation remains on PTA lands is not known to have occurred prior to 50 years ago, areas used for scattering the remains are not eligible for listing on the NRHP or for consideration as a TCP. In addition, such practices have considerable value to families and acquaintances of those who are honored in that manner, but individually are not significant events in the broad pattern of history.

3.4.9 Ranching Activities

Cattle and sheep ranching occurred on the Ke'āmuku Ranch from the 1860s until its acquisition by PTA in 2006. The parcel where the Ke'āmuku Ranch is located is also referred to as the West PTA Acquisition Area (WPAA), and consists of 22,675 acres in the northwestern portion of PTA.

The Waimea Grazing and Agriculture Company operated a sheep ranch at Ke'āmuku, beginning in the 1860s, for approximately 10 years, until the company's collapse due to an area-wide drought in the 1870s. Francis Spencer obtained ownership of the ranch and built a home on the site, which he reportedly occupied through the 1880s while operating the Pu'uloa Sheep and Stock Company. At the time of its sale to the Parker Ranch in 1904 (along with a flock of 6,175 sheep) the property was also known as the Ke'āmuku Sheep Station. Operations included facilities for dipping and shearing the sheep and preparing the wool for shipment to market (Escott 2004).

Parker Ranch began grazing cattle at Ke'āmuku in 1907. Between 1914 and 1918, after the Parker Ranch acquired the Humu'ula Sheep Station (located east of PTA), it phased out sheep ranching at the Ke'āmuku Ranch, transferring the Ke'āmuku flock to Humu'ula. Cattle grazing continued at Ke'āmuku until its sale to the Army in 2006. However, changing economics led to diminishing operations at the ranch after 1957. In its later years, Ke'āmuku's herds were worked by ranch hands from Parker Ranch's facilities at nearby Waiki'i (Escott 2004).

Archaeological studies of the WPAA indicated that the ranching sites at Ke'āmuku are potentially eligible for listing in the NRHP under Criteria A, C and D (Roberts et al. 2004). Although some historic ranching sites still remain at Ke'āmuku, many of the original structures have been removed or destroyed. The house (bachelor's quarters) at the Ke'āmuku Ranch was moved to the grounds of the Japanese Church (*Hongwanji*) in Waimea, the shearing barn was demolished and the area around it was bulldozed (Maly and Maly 2002:209-210).

The ethnographic interviews conducted as part of this study included several individuals who had worked on the Ke'āmuku Ranch lands. Their information suggests that ranching in the area may have made a significant contribution to the broad patterns of Hawai'i's history and that some form of preservation for portions of the former ranch lands may be important in maintaining the continuing cultural identity of the community.

> I don't even know if it should become a State Park. You might have to have some kind of Hawaiian designation and some kind of Hawaiian control but I don't have very much faith in the State of Hawaii either as the government for instance. Of any place on Pōhakuloa that could use some special study or possible conversion to something else, more protection, more special consideration, I would recommend this place. In fact there are a couple of old buildings there that could be used like dormitories; it's a great place to take Hawaiian kids like on a weekend and take em out on hikes and show em the flora etc. and top of that the place is peaceful, oh, quiet, anyway, really nice place [Ku Ching].
>
> You know, I would have to go out there and really take a good look. But that place where the [Keʻāmuku] camp was, I would definitely want to put that in because there are so many memories. When I was working for Parker Ranch we used to go out there and work too and the camp was still there. They had all the Filipinos out there and they had the manager's - the boss's house up there [Lloyd Case].
>
> The [Keʻāmuku] camp, I think, would be the main one…. There's things just like that - there's old corrals - there's the Steven Holt corral; it's closer to the road on the bottom. That's in Keʻāmuku. That's how all the big corrals that the ranchers used to use. There's a lot of rock walls out there - there's small little areas that have like a small perimeter wall - there's a lot of rock wall fences that were made back when there was no other building material but rocks. As far as sites, they`re so degraded that it's hard to tell what they were actually [Kanaina Case].
>
> Those rock walls, some of them, I'm pretty sure was built by the ranch. I can't say all of them were built by the ranch, because I haven't been around that long to know. I'm sure some were built by the ranch. What else? Mainly that corral and where the [Keʻāmuku] camp were…I would think were the most important sites for the ranching part [Kanaina Case].
>
> So where the camp is and where the camp is like preserved [Kanaina Case].
>
> The corrals too - especially the two corrals. Especially the cowboys they deserve that, touch that, don't touch the corrals [Kauka Case].

Although properties associated with ranching operations at Keʻāmuku meet several of the criteria established for listing on the NRHP, they appear to lack sufficient integrity to be considered a TCP. Major structures formerly associated with sheep ranching at Keʻāmuku are no longer present. In addition, the importance of the Keʻāmuku Ranch (in particular) and ranching (in general) to the community has diminished steadily during the 50 years preceding the ranch's acquisition by PTA. Ranching no longer can be considered to play the same role in the community's traditions as it did in the past.

Available information indicate that some properties associated with ranching operations at Keʻāmuku may be eligible for enhanced preservation and protection. However, they do not appear to be eligible for consideration as TCPs.

4.0 HISTORIC CONTEXT

This section provides historic context narratives for PTA focused on sites recommended for nomination to the NRHP that are interpreted as ritual or ceremonial in function.

4.1 REVIEW, ASSESSMENT, AND UPDATE OF PREVIOUS HISTORIC CONTEXTS

Several of the more recent CRM reports for PTA include a section on "historic contexts," which are widely used by Federal agencies as foundations for making decisions about the identification, evaluation, registration, and treatment of historic properties. The current study has used the Secretary of the Interior's Standards and Guidelines (as amended) for Preservation Planning (www.cr.nps.gov./local-law/arch_stnds_1.html) to:

1. Review the number, variety and depth of historic contexts developed in previous archaeological and cultural studies at PTA

2. Evaluate the utility of previously developed historic contexts as frameworks for the identification, evaluation of significance, registration or nomination and treatment of historic properties

3. Develop new historic contexts, as warranted, based on the review and assessment of the major archaeological and cultural studies conducted at PTA and the review and evaluation of existing historic contexts

Table 2 presents a listing of primary archaeological and cultural resources studies reviewed for the purposes of (1) examining previously prepared historic context sections, (2) searching for archaeological sites for nomination to the NRHP, and (3) identifying potential TCPs. In addition to these studies, the Draft Integrated Cultural Resources Management Plan (ICRMP) provided by the U.S. Army was reviewed.

The 1998 HPP, which though out-of-date in some respects is nevertheless the only other preservation/management plan besides the draft ICRMP, lists two broad categories of historic contexts, Prehistoric Period and Historic Period, and their associated property types (Eidsness et al. 1998:25). The draft ICRMP section on historic contexts is organized a little differently. In addition to substantive themes, the draft ICRMP also included theoretical and methodological themes.

The draft ICRMP presents a limited overview of three historic contexts (temporal periods), and a different approach to the identification of themes (substantive, theoretical and methodological). The themes are general rather than installation specific and as noted by the authors, not exhaustive. The substantive, theoretical and methodological themes, moreover, are not mutually exclusive. For example, all of the theoretical themes that are listed could be equally well regarded as substantive themes. Theoretical and methodological issues are of paramount importance in establishing historic contexts, but they are factors that should be considered in identifying themes and revising historic contexts, rather than treated as themes in themselves.

Table 2. Archaeological Reports Reviewed for Historic Context and NRHP Nominations.

Author/Date	Type of Work
Robins and Peterson 2007	Intensive Phase II Survey of trail easement from Kawaihae Harbor to PTA
Robins et al. 2007	Intensive Phase II Survey for cultural resources significance determinations, Keʻāmuku Land Acquisition Area (WPAA) for the Stryker Brigade Combat Team (SBCT)
Robins et al. 2006	Phase II archaeological research of proposed Battle Area Complex (BAX) & Anti-Armor Live Fire and Training Range (AALFTR)

Table 2. Archaeological Reports Reviewed for Historic Context and NRHP Nominations.	
Author/Date	**Type of Work**
	Training Areas for the SBCT
Desilets et al. 2005	Phase I archaeological reconnaissance survey for SBCT Go/No Go Maneuver Areas at PTA
Roberts, Brown, & Buffum. 2004	Archaeological survey of Training Areas 5 and 21 and eligibility evaluations of volcanic glass quarry Sites in the vicinity of Redleg Trail (Range 10), PTA
Roberts, Robins, & Buffum 2004	Archaeological surveys of proposed training areas for the SBCT
Roberts, Roberts, & Desilets 2004	Archaeological reconnaissance of Training Areas 1, 3, and 4 at PTA
Escott 2004	Phase II archaeological investigations at Sites 50-10-21-23499, 23515, 23516, 23517, and 23539 on Keʻāmuku lands (sheep and cattle station) in Waikōloa Ahupuaʻa
Bayman et al. 2001	The University of Hawaiʻi Archaeology Field School, at PTA (1997 & 1998 field seasons) at Sites
Descantes and Welch 2003	Cultural Resources Study for U.S. Army Transformation of the Second Brigade of the 25th Infantry Division (Light) to the SBCT
Godby and Carson 2004	Overview of the archaeological context of PTA
Williams 2002	Cultural resources inventory survey of previously un-surveyed areas in the Redleg Trail vicinity
Williams et al. 2002	Archaeological inventory Survey in vicinity of Redleg Trail
Eidsness et al. 1998	Historic preservation plan for PTA

The discussion of property types for the Hawaiian Cultural Context includes a brief description of formal and functional classes. In the formal class five general groups are identified, including traditional places. Eight functional categories are listed. One of the eight categories is called Specialized Activity Areas. This is a catchall category that includes stone tool quarries, isolated tool production locales, and petroglyphs. The lumping of these examples into a single category reflects one approach to classification of archaeological sites, which is not necessarily the best approach, however. There are several problems with the approach used in the draft ICRMP:

1. Activity areas are not a property type in the same sense as archaeological sites; the result is the incorporation into the historic contexts framework of two different kinds of properties

2. To say that quarries, isolated tool manufacturing locales, and petroglyphs are "specialized" reflects a certain theoretical orientation that differs from the common practice in Hawaiian archaeology to recognize each of these three examples as sites or activity areas within a multi-component or multi-feature site;

3. "Specialized activity areas" connotes something out of the ordinary which at least for the examples given is not true; they may not be as common as habitation or agricultural sites, but this does not justify calling them "specialized" which in any case is a modern way of looking at them.

4. The list of functional property includes both features and sites, which is a major departure from common practice in Hawaiian archaeology where features are regarded as parts of sites, and where significance evaluations are made only at the site level.

A more general problem is that the historic contexts identified in the draft ICRMP are general and do not apply to all of the installations. The general historic contexts and themes are thus of limited utility in evaluating properties and making management decisions on, for example, which properties should be preserved. In its current form the section on historic contexts in the draft ICRMP is too general and thus, would have little value as a tool to evaluate the significance of historic properties and plan for the management of those properties.

It appears that the historic contexts section of the draft ICRMP had a different objective than what one might have anticipated and that it was essentially developed from scratch. At least, there is no evidence that previously developed historic contexts were reviewed and assessed in the development of the framework that appears in the draft plan.

4.2 UPDATE FOR PTA HISTORIC CONTEXT

For the preliminary draft of this report, "ritual and ceremonial sites at PTA" was selected as the theme of an historic context. This historic context was then used for a multiple property National Register nomination of eight archaeological sites in the Redleg Trail portion of the eastern section of PTA. For this (draft) report, six additional sites in the Pu‘u Koli area were added and a revised NRHP multiple property nomination form was prepared. The five historic contexts used for the revised form include the following:

I. Pre-Contact Hawaiian Ritual and Ceremonial Practices in the Interior Uplands of Hawai‘i Island,

II. Pre-Contact Hawaiian Lithic Tool Production Practices in the Interior Uplands of Hawai‘i Island,

III. Pre-Contact Hawaiian Bird Hunting Practices in the Interior Uplands of Hawai‘i Island, and

IV. Pre-Contact Hawaiian Temporary Occupation in the Interior Uplands of Hawai‘i Island.

V. Pre-Contact Hawaiian rock art (Petroglyphs) in the Interior Uplands of Hawai‘i Island

Because the sites being nominated are all in the same general vicinity of PTA, on and north of Pu‘u Koli but east of the road known as Redleg Trail, the information pertaining to geographic and environmental context, temporal context, cultural historic context of the PTA, history of previous investigations, and theoretical orientation for the five historic contexts is similar and will not be repeated for each theme.

4.3 PRE-CONTACT HAWAIIAN RITUAL AND CEREMONIAL PRACTICES IN THE INTERIOR UPLANDS OF HAWAI‘I ISLAND: STATEMENT OF HISTORIC CONTEXT: THEME, GEOGRAPHIC LIMITS AND TIME PERIOD

Prior to the 1970s, the dry interior uplands and mountainous regions of the island of Hawai‘i were archaeological *terra incognita*. With the exception of the Pohakuloa Training Area (PTA) and the higher elevation south slope and summit area of Mauna Kea, this still holds true today (Figure 2). Beginning in the mid- to late-1970s, archaeological surveys and excavations in the 131,538-acre PTA, long thought to be a barren wasteland of little importance to pre-contact Hawaiians (e.g., Lyons 1875:111), have recorded hundreds of archaeological sites (Godby and

Carson 2004; Roberts, Robins, and Buffum 2004: Appendix A). The findings, which point to a "land use" pattern of short-term, recurrent use for a variety of "special purpose" activities over a period of roughly 1100 years or so between approximately AD 700-800 up to the time of European contact in 1778 (Streck 1992; Willams 2002:111-112; Williams et al. 2002), include a number of sites and features whose function has been interpreted as ritual or ceremonial.

More than 200 shrines and 33 burial sites have been recorded in the summit region of Mauna Kea above PTA since 1975 (McCoy 1999a; McCoy and Nees 2010; McCoy and Nees, in prep.).

In addition to structural remains, such as platforms and cairns, a number of portable artifacts believed to be associated with seasonal bird hunting rituals at PTA and rites of passage at a temporary adze production camp on Mauna Kea have also been found (McCoy 1991, 1997).

The number and variety of ritual and ceremonial sites at PTA, and in the surrounding lands on Mauna Kea and Mauna Loa, are part of a broad "land use" pattern of far-reaching significance in the study of Hawaiian prehistory. In the summit region of Mauna Kea, parts of which can also be characterized as a ritual landscape, there are indications of rituals associated with adze manufacture, the worship of gods and goddesses, and rites of passage connected with birth and death (McCoy and Nees 2009, 2010). Similarly, at PTA there are indications of varied ritual and ceremonial practices associated with diverse historic property types including: (1) multi-stacked stone platforms that could be burial platforms and/or shrines; (2) shrines with upright stones called "god-stones *('eho*)"; (3) groups of cairns arranged in a roughly circular pattern around an open center, and (4) upright stones of the same kind as found on shrines in front of and inside of several lava tubes that had been utilized as temporary habitation shelters.

The shrines are stylistically similar to those found on adjacent Mauna Kea and Mauna Loa, as well as Necker and Nihoa Islands in the northern part of the Hawaiian Archipelago. The cairn complexes, which are believed to have had a ceremonial as opposed to a ritual function, are also found elsewhere on Hawai'i Island. Those found at PTA are small in comparison to examples known elsewhere on the island, including a site known as Ahu a 'Umi (Site 50-10-29-3810) located approximately 4.4 miles west of PTA. Ahu a 'Umi, which is on the National Register of Historic Places, is the only known site of its kind in the central part of the island and the epitome of monumentality (Kolb 1994a) and the display of political power in pre-contact Hawai'i. The site is likely to have been associated with some of the activities that took place in the area now encompassed by PTA, although this remains to be demonstrated with empirical data.

In addition to structural remains, like the shrines and cairns, a number of portable artifacts believed to have been used in rituals connected with seasonal bird hunting at PTA and rites of passage at a temporary camp occupied by adze makers on Mauna Kea have also been found (McCoy 1991, 1997).

4.3.1 Geographic and Environmental Context

The geographical area of concern here is been broadly defined as the dry interior uplands and mountainous regions of the island of Hawai`i. This includes all the lands above c. 4000 ft elevation on the interior slopes of Mauna Kea, Mauna Loa and Hualālai Volcanoes. The PTA area is arid and relatively warm, receiving 10.2 to 40.6 centimeters (cm) (4 to 6 inches) of rainfall per year, and averaging an annual mean temperature of 60˚F for lower elevations and 50˚F for higher elevations (Powers and Wentworth 1941; Armstrong 1983). The upper slopes of Mauna Kea and Mauna Loa encompass sub-alpine and alpine environments, which are even

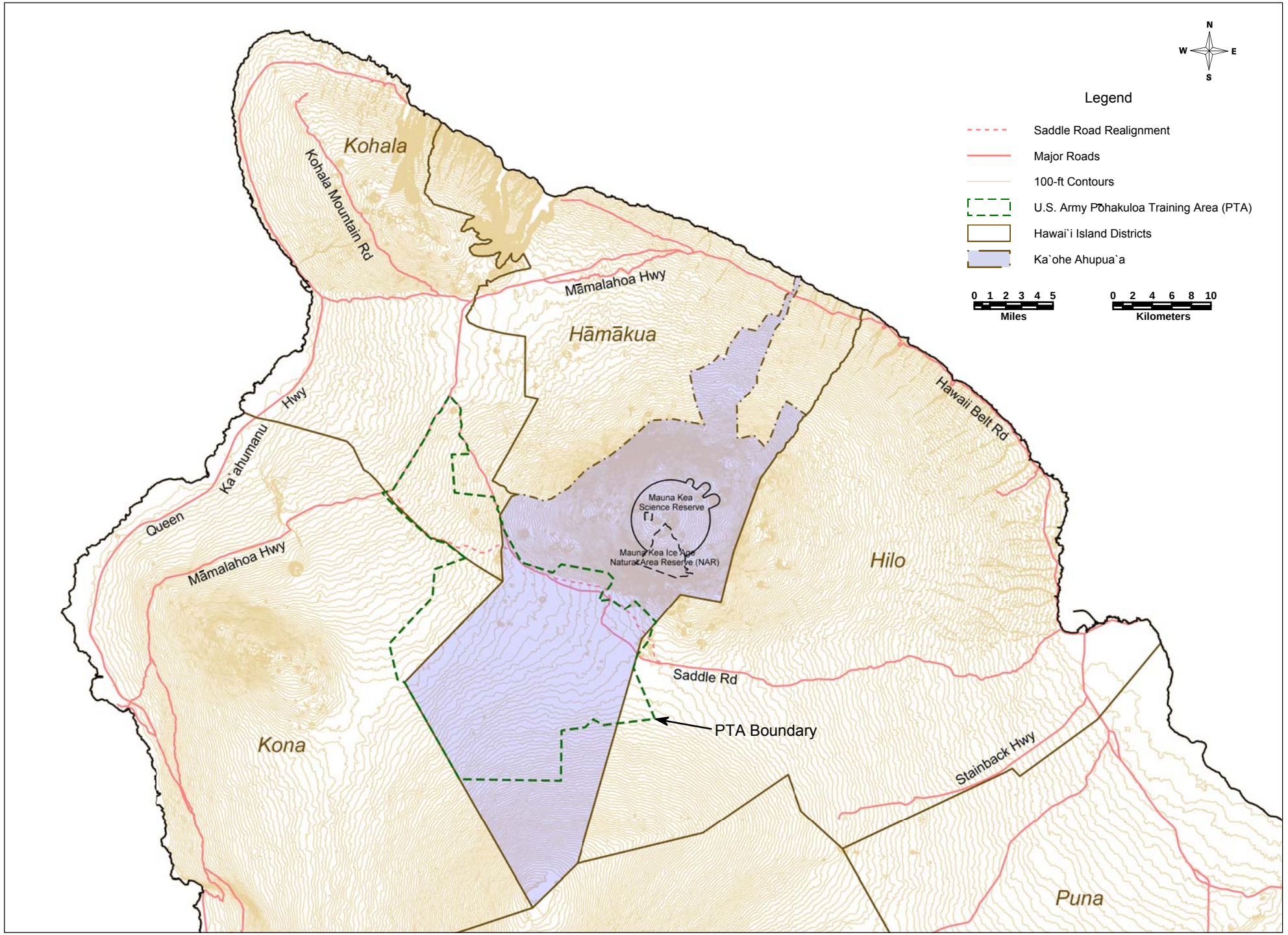

Figure 2. Pohakuloa Training Area and Surrounding Properties

drier and colder. Above the tree line, at 9000-9500 ft elevation, the landscape is an alpine desert. The climate of the Mauna Kea summit region is periglacial.

PTA is commonly described as located in the "Saddle" or, more precisely, the "Humu'ula Saddle." Streck (1992), for example, describes what he calls the Saddle Region as "an area between about 4,200 and 8,200 (c. 1,300-2,500 m) above sea level, bounded by the volcanoes Mauna Kea, Mauna Loa, and Hualālai" (Streck 1992:100). According to Wentworth, who divided the island of Hawai'i into thirty geomorphic divisions based on the erosion of the five volcanic domes that form the island (Wentworth 1936:Figure 1), PTA encompasses parts of several other geomorphic areas, in addition to what he called the Humu'ula Saddle (Wentworth 1936). Wentworth described the Humu'ula Saddle as encompassing 33 square miles of:

> Gently sloping saddle at lava-parting where Mauna Loa dome encroaches on Mauna Kea dome. A central, nearly level area is bounded on the south by an area of reduced north-facing Mauna Loa flow slopes and on the west and east by reduced slopes of Mauna Loa lava flows, all included in the Saddle division. Slopes are reduced as a result of the turning of Mauna Loa flows to west or east because of obstructions of the Mauna Kea dome. Area marked by a few Mauna Kea cinder cones now surrounded as inliers by Mauna Loa lava flows, including both aa and pahoehoe (Wentworth 1936:11-12).

According to Wentworth's map of geomorphic divisions, PTA also includes portions of what he called the Hilo Slopes and the Northwest Mauna Loa Slopes. These areas, as well as the Humu'ula Saddle, are all part of Mauna Loa (Wentworth 1936: Figure 1 and Table II).
Armstrong's Atlas of Hawaii (1983) shows PTA as encompassing parts of four physiographic provinces: (1) Humu'ula Saddle, (2) Mauna Loa Undissected Upland, (3) Mauna Loa Undissected Upper Slope, and (4) a small portion of the Mauna Kea Dissected Upland. In his regional synthesis of the Hāmākua District, Cordy (1994: Figure 50) divided the lands of Hāmākua into several subregions. One of the subregions, which he called the Interior Plateau, was described as encompassing the "relatively flat land between Mauna Kea and Mauna Loa and Hualālai from ca. 5,200 -7,000 feet. Today most of this land is within the U.S. Army's Pohakuloa Training Area" (Cordy 1994:105). Cordy's map of the Interior Plateau (Cordy 1994:Fig. 50) shows it extending all the way to the summit of Mauna Loa, however.

In short, whichever of the several land classifications that are used to describe the lands of PTA, it is clear that the landscape is more varied than what either of the two terms, "Saddle" and "Interior Plateau," imply. This indicates, in turn, heterogeneity in resource distribution and corresponding variability in land use patterns.

The geologic landscape of PTA consists of aa and pahoehoe lava flows from Mauna Kea, Mauna Loa, and Hualālai Volcanoes. Most of the lava flows within PTA are Mauna Loa flows that are referred to as Kau Basalts. They consist of pahoehoe or aa flows and commonly both. The PTA area contains many *kipuka*, or "islands" of relatively older lava flows surrounded by more recent flows (Wolfe and Morris 1996). Kau Basalt flows are designated by the prefix "k" and numbered from oldest to youngest (see Williams et al. 2002). More recent lava flows covering the Saddle Region contain no soil deposits, but older, weathered flows do exhibit various stages of soil development. As a result, vegetative cover is greater in older lava flows, while newer lava flows support little to no vegetative growth. *Kipuka* are generally more heavily vegetated than the younger lava flows (Williams et al. 2002).

Plant resources, which may have been procured as food sources, include: '*ohelo* (Vaccinium spp.)*, 'ulei (Osteomeles anthyllidifolia),* and *pōpolo (Solanum americanum)* (Williams et al. 2002; Williams 2002). The berries from the endemic '*ohelo* shrub were known to have been

"eaten for refreshment on journeys" (Krauss 1993:16). The berries from the indigenous shrubs '*ulei* and *pōpolo* also may have been eaten, but they have other uses – '*ulei* berries were used for dye and the hardwood of the shrub was used in tool-making; *pōpolo* berries were also used as a dye and the juice from *pōpolo* leaves was used for medicinal purposes (Krauss 1993; Abbott 1992). Other shrub and tree species available from the Saddle Region included '*ākia (Wikstroemia spp.)*, *pūkiawe (Styphelia tameiameiae)*, '*a'ali'i* (*Dodonaea viscosa*), *naio (Myoporum sandwicense)*, *kōlea (Myrsine spp.)*, '*ohia lehua* (*Metrosideros macropus*), *māmane (Sophora chrysophylla)*, and '*iliahi (Santalum spp.),* which were used traditionally in Native Hawaiian culture for the manufacture of wooden tools, dyes, and poisons (Krauss 1993; Abbott 1992). However, because these species also grow at lower elevations and closer to population centers, it is unlikely that these resources were harvested from the Saddle Region for the purposes listed above. It is more likely that these plants were collected for firewood or tool maintenance and repair (i.e. strong levers for quarrying stone, bird-catching poles, etc.) in the event of travel into the Saddle Region to harvest other resources, like birds and lithic materials (Williams et al. 2002; Williams 2002).

While there is no reason to expect an exact correspondence between geomorphically defined regions and regions defined by cultural geographers, the lands at PTA can be generally regarded as part of a "region," as defined by Edward Relph:

> A geographical region is defined as a part of the earth that is distinctive from other areas and which extends as far as that distinction extends. It is characterized by internal similarities of landforms, cultural history, settlement forms, climate, or a combination of all of these (Relph 1985:21).

4.3.2 Temporal Context

Test excavations at PTA sites in the 1980s and early 1990s established a cultural chronology for PTA possibly spanning 1100-1200 years (Streck 1992), although some of the earlier dates are questionable. On current evidence the peak period of use spanned approximately 200 years between AD 1400-1600 (Streck 1992; Reinman and Pantaleo 1998a:69-71). This time span appears to coincide with the peak period of work in the Mauna Kea Adze Quarry Complex, a National Historic Landmark, located northeast and upslope of the PTA installation (Streck 1992; McCoy1990; McCoy and Nees 2010).

None of the religious sites where ritual practices are believed to have taken place at PTA have been directly dated. Except for bullock hunting, sheep and cattle ranching, and sandalwood harvesting, there is little evidence of post-contact activity in the interior uplands. None of the sites have artifacts that would indicate a post-contact date. While the absence of historic artifacts does not necessarily indicate a pre-contact date, the architectural characteristics (see below) of the property types and the similarities to dated shrines on Mauna Kea strongly suggest a prehistoric age. Some of the sites at PTA have associated chill glass artifact assemblages. If the glass is from the Pōhakuloa Chill Glass Quarry Complex (Williams 2002, 2004), then it is possible that some of the historic properties included in this multiple property nomination date to the same time period. Williams noted that it was possible that the Pōhakuloa Chill Glass Quarry Complex, which he described as the second largest quarry complex in the Hawaiian Islands, "was only in use between AD 1700-1820, or perhaps for an even shorter period of time" (Williams et al. 2002:105).

The cultural sequence at PTA spans the putative transformation in the 15th and 16th centuries from what Hommon (1986:58) has termed the archaic *maka'ainana* society of multi-community,

non-egalitarian corporate kinship groups to the economically and socially self-sufficient communities comprised of ego-based, bilateral kindreds called *ahupua‘a* that displayed strong tendencies toward endogamy. According to Hommon, this transformation was accompanied by, or resulted in, the erosion of kinship ties between communities coeval with the growth of even more status levels amongst the chiefly class (i.e., the internal differentiation which would appear to be directly related to increased specialization and need for intermediate level managers/collectors, who came from the outside (beyond the local community). If this is true, then it is difficult to understand the relationship between the rise of supposed self-sufficient communities and death of kinship ties amongst the commoners. It seems more likely that the recruitment of lower level chiefs to organize and supervise production at the community level is a contradiction, that there is instead good evidence for the maintenance of inter-community ties through large scale enterprises involving labor recruitment and circulation of a surplus to support the so-called “public economy.”

4.3.3 Culture-Historical Context of the PTA

Pre-contact Hawaiian settlement was fundamentally permanent and sedentary, although there was some movement between coastal and upland areas (Kirch 1985; Cordy 2000). In addition, some remote areas and regions were utilized only seasonally. It has been suggested elsewhere (McCoy 1990; McCoy and Nees 2010) that the exploitation of lands beyond the limits of agriculture and, thus, permanent habitation, in pre-contact Hawai‘i constituted the functional equivalent of an annual range in mobile hunter-gatherer societies. The evidence relating to the Mauna Kea Adze Quarry Complex suggest that this annual range was to a large extent a polity catchment area or territorial range that was for the most part “economic”, but also frequently included "sacred" lands on the highest mountains above tree line (McCoy 1991). In this view there was both an annual economic range and a non-economic territory.

Most of the original PTA installation is located in an *ahupua‘a* (a territorial unit generally equated with the community) called Ka‘ohe in the Hāmākua District (see Figure 2). Small portions of the Hilo, Kona, and Kohala Districts are also included within the boundaries of PTA.

Ka‘ohe is perhaps the classic example of an unusually large *ahupua‘a* found in what Lyons referred to as the "almost worthless wastes of interior Hawaii" in the following account:

> Then there are the large ahupuaas [*sic*] which are wider in the open country than the others, and on entering the woods expand laterally so as to cut off the smaller ones, and extend toward the mountain till they emerge into the open interior country; not however to converge to a point at the tops of the respective mountains. Only a rare few reach those elevations, sweeping past the upper ends of all the others, and by virtue of some privilege in bird-catching, or some analogous right, taking the whole mountain to themselves...The whole main body of Mauna Kea belongs to one land from Hamakua, viz., Kaohe, to whose owners belonged the sole privilege of capturing the *ua`u*, a mountain-inhabiting but sea-fishing bird.
>
> These same lands generally had the more extended sea privileges. While the smaller ahupuaas [sic] had to content themselves with the immediate shore fishery extending out not further than a man could touch bottom with his toes, the larger ones swept around outside of these, taking to themselves the main fisheries much in the same way as that in which the forests were appropriated. Concerning the latter, it should here be remarked that it was by virtue of some valuable product of said forests that the extension of territory took place. For instance, out of a dozen lands, only one possessed the right to kalai waa, hew out canoes from the koa forest. Another land embraced the wauke and olona grounds, the former for kapa, the latter for fish-line (Lyons 1875:111).

The boundaries of Kaʻohe, as shown on modern maps, are open to scrutiny. A map of the adjoining *ahupua'a* of Humuʻula made by S.C. Wiltse in 1862 (Register Map No. 668) included the adze quarry and Lake Waiau, which was labeled on the map as "Pond Poliahu." Maly and Maly (2002) note that "By the time the Commissioners of Boundaries were authorized to certify the boundaries for lands brought before them in 1874, disputes over the boundary of Humuʻula and Kaʻohe had arisen," and "by the time of settlement in 1891, the boundary of Humuʻula was taken down to around the 9,000 foot elevation, with Kaʻohe taking in the entire summit region" (Maly and Maly 2002:280). The testimony of Kahue of Humuʻula, presented in Maly and Maly (2002:287), mentions the boundary running from a gulch called Kahawai Koikapue, where *mele* (songs) were sung, to Waiau, and then to the summit which was called Puʻuokukahauʻula. In parentheses there is a notation that "half of the water in the gulch belonging to Kaʻohe and half to Humuʻula."

Waiki, who gave testimony at the same time as Kahue (McEldowney 1982:1.7), claimed that Kaluakaʻakoʻi, "the cave where they used to get stone adzes out" was in Kaʻohe, as was Poliahu, which he described as a cave where Lilinoe used to live (Maly and Maly 2002:291).

> They told me Kaohe bounded Humuula from Pohakuhanalei down Mauna Loa, on the Kona side. I never heard my parents say that Kaalaala joined Humuula. The pond of water called Waiau is on Kaohe and not on Humuula. My parents told me Humuula went to Kaluakaakoi and Poliahu. We used to go there after adzes for the Humuula people (Maly and Maly 2002:292).

On present evidence the lands of PTA, indeed the whole of the interior of the Island of Hawaiʻi beyond the limits of traditional agriculture, were not inhabited on a permanent basis prior to European contact (McCoy 1991). Instead, there is a wealth of data pointing to temporary but repeated uses for different purposes. Of the several different activities that have been identified in the archaeological record, there is abundant evidence of bird hunting for food and possibly feathers (Athens and Kaschko 1989; Athens et al. 1991), and hints, moreover, that some of the birds provided food as well as offerings to the gods for the adze makers on Mauna Kea (Hommon and Ahlo 1983; McCoy 1986, 1990). There is evidence of basalt adze manufacture within PTA using material from Mauna Kea, as well as local sources, which are Mauna Loa volcanics. Another major activity, possibly related to bird hunting, was the manufacture and use of volcanic glass flake tools, possibly for the butchering of birds intended for the adze makers on Mauna Kea (Williams 2004).

The Pōhakuloa Chill Glass Quarry Complex, as defined by Williams (2004), is comprised of over 500 quarry features in a 170-hectare area on the k4 lava flow (Williams 2004:105). The k4 flow is dated to AD 1650-1750. The largest site, Site 21666, is about 146.5 ha and contains 388 features. Williams (2004:117) notes that only 810 ha of the 4050 ha of the k4 flow have been surveyed; thus, suggesting the possible existence of even more quarry features. Williams has noted that it is possible that the Pohakuloa Chill Glass Quarry Complex, which he described as the second largest quarry complex in the Hawaiian Islands,

> was only in use between AD 1700-1820, or perhaps for an even shorter period of time. That such a use, both extensive in area and intensive in scope, could have occurred in such a relatively short period of time has potentially profound implications for the scale and intensity of prehistoric use of the Saddle Region. It suggests that rather than a remote area exploited only seasonally by small groups of specialist bird hunters or the occasional traveler, it was instead an area that was heavily used, at least at times, and perhaps by larger groups than previously thought (Williams et al. 2002:105).

A functional relationship between some of the sites located at PTA and the Mauna Kea adze quarry has been debated for years (Rosendahl 1977a, 1977b; Hommon and Ahlo 1983; Athens and Kaschko 1989; Streck 1992; McCoy 1986, 1991; Bayman and Moniz 2000; Bayman et al. 2003). A research design developed by Hommon and Ahlo (1983) posited that the PTA region was a major corridor in the distribution of adze preforms from the Mauna Kea Adze Quarry Complex to other parts of the island, including the Kona, Kohala, and Hilo districts. Though not explicitly stated, their hypothesis, presented as a proposition, implies that the lands occupied by PTA were not the exclusive territory of the people of Ka‘ohe, as follows:

> Proposition 11: Adze blanks from the Mauna Kea adze quarries were distributed to Kona, Kohala and Hilo districts by means of routes through the PTA region.
> Most adze preforms carried out of the Mauna Kea quarries had probably been reduced in mass as much as possible by flaking to reduce the burden to be carried down the mountain (McCoy and Gould 1977:237; McCoy 1977:240). The final shaping by grinding and polishing probably took place down in the lower, more populated regions of the coastal, agricultural, and lower forest zones. While finished adzes may have been brought from anywhere in the more populated regions for use in the PTA, an adze preform in a PTA site was very probably left while in transit from the quarries to another part of the island. If the source of the perform can be identified, a portion of its route is indicated, though not necessarily its eventual destination (Hommon and Ahlo 1983:62).

Hommon and Ahlo (1983) recommended survey of the northeastern half of what was called Training Area 6 at the time, based on a consideration of the possible relationship between sites in that area and on the slopes and in the gulches above PTA on Mauna Kea:

> It is suggested that this area receive particular attention because it may contain evidence related to the use of the Mauna Kea adze quarries. Workshops in the Mauna Kea Adze Quarry Complex have been found along the west bank of Pōhakuloa Gulch down to an elevation of as low as 2,621 meters (8,600 feet) at Liloe Spring (McCoy 1977:223; Figure 1, p. 224) and in Waikahalulu Gulch as well (McCoy 1976:137). These two named gulches and the third nameless one that parallels them about 3 kilometers (1.9 miles) west of Pōhakuloa Gulch may have served as routes to the adze quarries from the south side of Mauna Kea. If so, small simple sites undetectable from the air or on aerial photographs may exist at the lower ends of these gulches. It is possible, for example, that boulders or outcrops in this area were tested for quality or actually used by adze quarriers searching for high quality basalt at relatively low altitudes. Archaeological evidence of such activity may be present. The bottom of the gulches, too, may have been resting places where quarriers rested before continuing to the east (e.g. to Hilo) or west (e.g. to Waimea or Kailua). If so, there may be small, open sites there with evidence of brief stops such as adze blanks tested and rejected to lighten the load (Hommon and Ahlo 1983:84).

Following work at Hopukani, Waihu, and Liloe Springs, in 1984-85, McCoy again put forth the idea of a relationship between the Mauna Kea Adze Quarry Complex and selected sites located at PTA, such as shelter caves and trails:

> Some of the PTA sites, primarily trails and shelter caves, may be related to the Mauna Kea Adze Quarry industry. The possibility of such a relationship is suggested by the presence of adze blanks in one shelter cave and flake debitage in this and several other caves, which, on other evidence, can be reliably inferred to have been temporary camp sites (Hommon and Ahlo 1983: 38-50). There is reason to suggest, moreover, that many of these are seasonal camps that were occupied by bird catchers engaged in the collection of the dark-rumped petrel, Hawaiian goose, and other species, some of which are inferred to have been distributed to the adze makers (McCoy 1986:6).

Welch's survey of a portion of the Saddle Road in 1990 was one of the first studies in the Saddle Region to systematically focus on collecting evidence for linking the adze quarry to sites at PTA. Welch, who formulated a research problem focused on this topic, noted that evidence of adze preforms or flakes in the project area might "indicate routes relating to the transport of Mauna Kea raw material or artifacts to the coastal lowlands" (Welch 1993:37). The source of the basalt at Site 50-10-23-5003, some of which was provisionally identified as coming from the Mauna Kea Adze Quarry Complex on the basis of textural and color characteristics (Welch 1993), was subsequently confirmed using XRF analysis (Sinton and Sinoto 1997; Sinton1998; Bayman et al 2001:55).

Though more research is needed to better understand the functional and chronological relationship between the work in the adze quarry and activity patterns at PTA, there is no longer a question of a direct link between the two areas based on sourcing analyses. Recent surveys in the Mauna Kea Adze Quarry Complex have established several different routes used by adze makers on their departure from the quarry (McCoy and Nees 2010), including probably two southerly routes along Pōhakuloa and Waikahalulu gulches. The ritual and ceremonial properties included in this multiple property nomination are just one part of a much broader context that is significant at the local, state, and national levels, especially since the Mauna Kea Adze Quarry Complex and Ahu a 'Umi are both listed on the State and National Registers of Historic Places.

4.3.4 History of Previous Investigations

With a few notable exceptions (e.g., Eidsness et al. 1998:17; Williams 2002), information regarding the relevance, relationships, and importance of ritual and ceremonial sites at PTA is meager compared to other site types. The primary emphasis in previous archaeological investigations at PTA has been what is sometimes called "time-space systematics" that would include, for example, establishing a baseline chronology and relating it to cultural sequences for the Hawaii Islands as a whole, interpreting sites in broad functional terms (e.g. habitation, quarry), and developing a general model of settlement and subsistence patterns.

The daily life of Hawaiians is known ethnographically to have involved ritual and ceremonial acts and gestures (Malo 1951; Handy 1927), and for this reason it is important to identify and explicate the ritual aspects of stone tool manufacture, bird hunting, or other activities that have been identified in the archaeological record at the PTA. In contrast to habitation sites, little is known about the relevance of religious and ceremonial structures at PTA to local and regional prehistory. Survey reports and preservation plans (e.g., Eidsness et al. 1998) occasionally contain descriptions of ceremonial sites, but most of the information that is presented pertains to Ahu a 'Umi.

While there has been some interest amongst Hawaiian archaeologists in temporal changes in religious architecture, religion itself has frequently been regarded as epiphenomenal (e.g., Graves and Ladefoged 1995). Few studies have attempted to go beyond classification and dating, to considering the relationships and meaning of Hawaiian religious structures and associated ritual practices. Much of the literature in Hawaiian archaeology, for example, shows that while there is a good deal of interest in the study of religious sites and the evolution of ceremonial architecture in particular (e.g., Kirch 1990a, 1990b; Kolb 1991; Graves and Ladefoged 1995), there is little or no interest in the study of religion and ritual per se. In all of the studies just cited, religion is regarded as epiphenomenal. Exceptions include 1) a study of a site at Hale Pōhaku on the south slope of Mauna Kea, where it has been suggested that a

special category of bird cooking stones (*pōhaku 'eho*) were used in rites of passage that involved a change in "status" from *kapu* (taboo) to *noa* (profane), Hawaiian terms that are commonly, but according to Shore (1989:164-5), not adequately glossed as sacred and profane, amongst a group of adze makers (McCoy 1991); 2) a study of a site located on the margins of the Mauna Kea Adze Quarry Complex, where apprentice adze makers are believed to have undergone initiation rites (McCoy 1999b); and 3) Kolb's (1994b) study of a shrine located in upland Maui.

4.3.5 Theoretical Orientation

National Register Bulletin 36, *Guidelines for Evaluating and Registering Archaeological Properties*, requires a description of "the research interests and theoretical orientation of the archaeologist" or others involved in the preparation of historic contexts (Little et. al.:2000:14). Bulletin 36 includes the following statement by Nicholas Honerkamp:

> We ignore theory at our peril…It is very easy to become scientifically and/or humanistically superfluous if we do not continually redefine what is important and why it is important. If as archaeologists we can identify questions that matter and explain why they matter, a number of things then begin to fall into place. For instance, field methodologies and analysis routines become driven by solid research designs instead of existing in a theoretical vacuum and being applied in a mechanistic fashion; in the cultural resource management context, the "significance" concept becomes better defined and less slippery in its application…(Honerkamp 1988:5).

In terms of general theoretical orientation, the preparer of this historic context favors the historical approach, in contrast to many Hawaiian archaeologists who, explicitly or implicitly, interpret the archaeological record in primarily evolutionary terms, as a series of unilinear transformations or stages of development from simple to complex. This approach is typically presented in terms of periods or phases, such as the Colonization Period, Expansion Period, etc. (Kirch 1985, 1990a; Hommon 1976,1986; Carson and Mintmier 2006). Even when stage sequence terminology is not used, there is the implicit assumption of a developmental sequence of increasing complexity that is, moreover, taken to be universal and, thus, true for Hawaiian prehistory in general. The senior author agrees with Barrett who has argued that archaeologists should view material culture as a medium of social practice rather than "an external trace or record of a type of society" (Barrett 1994:35), such as a tribe or chiefdom (see also Pauketat 2007). In the general failure to acknowledge that humans adapt to the world not as it really is, but rather in terms of how they perceive it to be based on ideas and beliefs, many Hawaiian archaeologists continue to interpret the archaeological record in narrow materialist terms that are both limited and limiting. There seems to be little appreciation of the well known fact that "activity that seems merely practical turns out to have deep cultural groundings" (Peacock 1986:17).

The preparer of this historic context holds to the view that archaeology is an interpretive social science and that the "archaeological record" must be understood in both materialist (ecosystem) and idealist terms (the conviction that ideas, beliefs, values, motives, intentions, etc. are of paramount importance in human life). As remarked on elsewhere (McCoy 1991:25), humans, unlike other animals, do not simply adapt to the constraints of the external world (see also Johnson 1999:100); they also make their world—physically, by changing or altering it, and symbolically, by imposing a structure based on beliefs and values. This point of view is today becoming better known as "practice theory" (e.g. Ortner 2001; Pauketat 2001, 2004). Pauketat, citing Bourdieu (1977) and Giddens (1979), has defined practice theory as "…a theory of the continuous and historically contingent enactments or embodiments of people's ethos, attitudes,

agendas, and dispositions" (Pauketat 2000:115). Johnson (2007) summarizes what is a core concept in views of agency and practice theory: "Practice, then insists that people's actions are bound up with a "real world" but that this world is created by them; its elements are constituted through their subjective experience, their view of the world, not an explicit or implicit economic model imposed by a modern writer" (Johnson 2007:145).

Practice theory, which recognizes the centrality of human intentionality in social life (Ortner 2001:272), has been used previously in arguing that the Mauna Kea Adze Quarry Complex represents something more important and meaningful than the adaptation to raw material scarcity (McCoy 1990:87). Rather, the quarry represents in the author's view a pre-eminent form of social action in the production of goods and reproduction of the social order, so that even though the primary activity was technological and economic, the underlying motives and intentions were in large part social and political, and encompassed societal as well as individual motives—the pursuit of personal careers (see Goldschmidt 1990) governed by the motivation to achieve a status, to seek prestige and honor (McCoy 1990:110; 1991:25).

For those who believe as the preparer of this historic context does, that "little sense can be made of even the secular 'pragmatic' world, unless this stems from an understanding of the systems of classification, explanation and belief that give meaning to social life," (Garwood et al 1991:v), the study of ritual must assume a prominent place in archaeology. Ritual, viewed as practice, provides "a "window" on the cultural dynamics by which people make and remake their worlds" (Bell 1992:3).

There are many reasons for the long-standing neglect of studies of religion and ritual in archaeology. The reasons are both methodological and theoretical:

> …the extraordinary neglect of ritual and religion in archaeological theory is a weakness which must be addressed...That ritual has usually been seen as an especially problematic and intractable subject, resistant to the modes of analysis that seemed (superficially perhaps) to be quite satisfactory for the interpretation of things secular--settlement patterns and subsistence strategies, for instance--must increasingly give way to the recognition that ritual, and religion (at least as 'world-view'), are of focal importance for the interpretation of past societies in general, and specific archaeological contexts in detail (Garwood et al 1991:v).
>
> It is certainly apparent that many of the problems archaeologists have found in the study of ritual stem from a basic confusion about the definition of the subject. The question of the nature of ritual as a kind of social practice, and the question of its material identification, have all too often been conflated, hence the abiding concern with the definition of particular material categories (e.g. 'ritual pits', ritual deposits', etc.). The material identification of ritual, for archaeological purposes, is really a methodological problem predicated upon the particular conceptions of ritual and the particular theoretical understanding of material culture that are adopted. Though material matters must dominate archaeological thinking, the starting point for such thinking clearly lies beyond the immediate material domain (Garwood et al 1991:vii).

4.3.6 Ritual and Ceremony

Hawaiian archaeologists, like many archaeologists and even anthropologists, tend to use ritual and ceremony interchangeably. Thus, some of the sites at PTA have been assigned a ceremonial function, while others have been inferred to have a religious or ritual function. While ceremony is sometimes linked to the secular, in common usage ceremony and ritual overlap. The distinction between the two is thus problematic (Alexander 1987:179).

For Victor Turner, ritual is different from ceremony because ritual transforms social structure (Turner 1982:80-84; Alexander 1987:179). Ceremony is defined by some as having a legitimating function. According to Grimes, "ceremony consists of power negotiations in ritual form" (Grimes 1982:224; Alexander 1987:180). Grimes further notes that "Ceremonial gestures are bids for authority, prestige, recognition, and control" (Grimes 1982:224; Alexander 1987:180). Rituals and ceremonies, however they are defined, share one thing in common. As Peacock has noted:

> Ceremonies and rituals, myths and legends—all are "thick" with meaning; they distill into form a plethora of values, ideas, and experiences. Encounters with such forms is [sic] inevitably confusing, but the confusing richness of meaning leads to deeper understanding, provided we sort out the patterns and principles behind the meaning. This effort is what we call interpretation (Peacock 1986:71).

The late Catherine Bell suggested that we abandon the concept of ritual as a natural category of human practice with a single set of defining features and think instead in terms of "ritualization," defined by her as follows:

> I will use the term 'ritualization' to draw attention to the way in which certain social actions strategically distinguish themselves in relation to other actions. In a very preliminary sense, ritualization is a way of acting that is designed and orchestrated to distinguish and privilege what is being done in comparison to other, usually more quotidian, activities. As such, ritualization is a matter of various culturally specific strategies for setting some activities off from others, for creating and privileging a qualitative distinction between the 'sacred' and the 'profane,' and for ascribing such distinctions to realities thought to transcend the powers of human actors (Bell 1992:74).
>
> Hence, ritual acts must be understood within a semantic framework whereby the significance of an action is dependent upon its place and relationship within a context of all other ways of acting: what it echoes, what it inverts, what it alludes to, what it denies (Bell 1992:220).

To illustrate the contrast between routine activity and ritualization, Bell describes how a Christian eucharistic meal is distinguished from a regular meal by the "type of larger family gathering around the table to the distinctive periodicity of the meal and the insufficiency of the food for physical nourishment" (Bell 1992:90). She goes on to note that the two forms of action play off one another and, thus, define each other. This leads to the important conclusion that the Christian mass is not a model for a normal meal, but rather a strategic version of one. It indicates, moreover, that "what is ritual is always contingent, provisional, and defined by difference" (Bell 1992:91). Bell's concept, which should appeal to archaeologists because it is set forth in a framework of practical activity, has been previously employed in the analysis and interpretation of a site (50-10-23-16204) situated on the eastern fringes of the Mauna Kea Adze Quarry (McCoy 1999b).

4.3.7 Ritual and Ceremonial Sites

Other than the basic descriptive information contained in survey reports, there is no additional information regarding the sites interpreted as having a ritual or ceremonial function at PTA. There has been little or no effort, for example, to analyze and compare the data from PTA with data from similar sites located in the lands surrounding PTA. More specific data have recently become available for the shrines on Mauna Kea and on Mauna Loa (McCoy and Nees 2010; McCoy 1990). The overview and synthesis presented below is derived from recently completed archaeological surveys of the Mauna Kea summit region.

In common usage a shrine is a place of worship; the distinction, if one existed in the Hawaiian past, between shrines and temples (*heiau*) is not altogether clear. In the research on Mauna Kea, "shrine" has been used as a generic label for all sites with at least one upright stone. The definition departs slightly from the one used by Sir Peter Buck, who defined a shrine as "a convenient term to designate a simple altar without a prepared court. They were made by individuals or small family groups who conducted a short ritual which required no priest" (Buck 1957:527-528). A small number of the Mauna Kea shrines have prepared courts, and some of these are sufficiently complex to infer that a priesthood was involved in their construction and use.

The quintessential characteristic of all of the sites on Mauna Kea that have been interpreted as shrines is the presence of one or more upright stones that the Hawaiians called '*eho* or *pōhaku 'eho*, which translates as "god-stone" (cf. Andrews 2003; Pukui and Elbert 1971; Buck 1957; Emory 1938). The conventional view of these and other kinds of Polynesian "god-stones" is that they were "places for the gods to inhabit," or "abodes of the gods," as opposed to icons or actual representations of the gods (Best 1976; Buck 1957; Handy 1927).

The uprights can be regarded as either a special kind of *sign* or *symbol* in the way these terms were defined by Langer:

> Symbols are not proxy for their objects, but are *vehicles for the conception of objects*. To conceive a thing or a situation is not the same thing as to "react toward it" overtly, or to be aware of its presence. In talking *about* things we have conceptions of them, not the things themselves; and *it is the conceptions, not the things, that symbols directly "mean."* Behavior toward conceptions is what words normally evoke; this is the typical process of thinking (Langer 1957:60-61).
>
> In short, images have all the characteristics of symbols. If they were weak sense-experiences, they would confuse the order of nature for us. Our salvation lies in that we do not normally take them for bona fide sensations, but attend to them only in their capacity of *meaning* things, being *images* of things--symbols whereby those things are conceived, remembered, considered, but not encountered (Langer 1957:144-145).

A number of the Mauna Kea shrines consist of just a single upright, while others are characterized by multiple uprights arranged in different patterns on a variety of different kinds of foundations. Kenneth Emory, who was the first one to describe the shrines on Mauna Kea and note their East Polynesian affinities, was of the opinion that the uprights represented or symbolized separate gods. Emory made the following comments about the shrines he saw in the adze quarry, during a brief reconnaissance of the main quarry area in 1937:

> The adze makers, clinging to the ancient form of shrine at which to approach their patron gods, have preserved a most important link with their ancestral home. Each upright stone at a shrine probably stood for a separate god. The Hawaiian dictionary describes '*eho* as "a collection of stone gods" and this is the term which the Tuamotuans, the neighbors of the Tahitians, used to designate the alignment of upright stones on the low and narrow platform at their maraes, or sacred places (Emory 1938:22).

On current evidence there are minimally two functional classes of shrines on Mauna Kea: (1) occupational specialist shrines related to adze manufacture, and (2) all the others, which on current evidence appear to be "non-occupational." Morphologically, there is nothing to distinguish these two classes, each of which exhibits considerable variability in ground plan, number of uprights, etc. The Mauna Kea shrines are in this regard no different from Hawaiian shrines in general. According to Buck, "Shrines varied considerably in construction, and similar

forms were distinguished merely by their function" (Buck 1957:528). For the so-called occupational shrines Buck added:

> Malo (1951, p. 81) writes that "each man worshipped the *akua* that presided over the occupation or profession he followed..." Thus what may be termed occupational shrines were built to the presiding gods in convenient places, and cultivators, woodsmen, fowlers, and others recited their rituals and laid their offerings upon their particular shrine before engaging in their work. There was nothing to distinguish this form of shrine from others, except, perhaps, the locations of the sites, which were away from the beaches and could not be readily confounded with the shrines of fishermen (Buck 1957:529).

The only thing that distinguishes the occupational shrines from all the others in the Science Reserve are lithic scatters found either on the shrine itself or in close enough proximity to be considered spatially associated. The artifacts found on shrines are interpreted as offerings, while those some distance may denote some other kind of ritual practice (McCoy 1999a).

The shrines in the Mauna Kea summit region have been previously described as including one or more of the following elements or "parts": (1) uprights, (2) pavements, and (3) courts. The idea of describing shrines as comprised of parts, instead of features, follows Emory (e.g. Emory 1947:10) who used this terminology in describing East Polynesian *marae* and the structures on Necker Island that he called marae (Emory 1928). Significant variability exists in the presence/absence of pavements, courts, and artifacts, and in attributes such as the number of uprights and manner in which they were set and arranged. Whether or not all of the observed variability can or should be subsumed by the term "shrine," as it is commonly understood, is a thorny issue that needs to be briefly addressed. If one accepts the distinction that Buck (1957) made between shrines and temples, then the sites with prepared courts should be called temples. The generic term "shrine" has been used in recent reports to describe all of the religious structures that exist in the summit region of Mauna Kea (McCoy 1999a; McCoy and Nees 2010).

Some may object and argue that they should instead be called *heiau*, but a review of the ethnographic literature indicates that there is no agreement on what that term included in the past and how it should be used today. According to Buck, "All shrines came under the general term of *kuahu*, except the fishermen's shrine which received the specific term of *ko'a"* (Buck 1957:528). The term *kuahu* appears to be a more obscure and presumably older term that in modern times has been shortened to *ahu*. The fact that there were names for different kinds of shrines suggests that shrines and *heiau* were different. Kamakau (1964:33) said that the *Pohaku o Kane* were family shrines and not a kind of *heiau*, whereas some archaeologists, such as Kirch (1985: 260), hold to the view that the *Pōhaku o Kane* was a *heiau*. Kolb presented an even broader definition of *heiau* based on the earlier definitions used by McAllister (1933:20) for sites on Oahu, and Bennett (1931:31) for sites on Kauai. They included natural rock outcrops, boulders and other unmodified places as examples of *heiau*. Kolb used this information to define sacred places: "Sacred places thus represent *heiau* possessing little, if any, structural modification" (Kolb 1991:109).

McEldowney (1982: A-13) noted that "Such propitiation or petition made to local deities or to those who were personified in natural phenomena (i.e., clouds, mist, rains, winds, falling rocks, stands of trees, etc.) could be made with offerings to "upright stones," "small platforms," simple stones and natural landscape features" (Buck 1957:259).

As noted elsewhere (McCoy 1984; 1999; McCoy and Nees 2010), there is good reason to believe on the basis of ethnographic analogy that each upright on a shrine stood for a separate

god. Ethnographic information indicates that god-stones or uprights were a place for the gods to inhabit when they were needed. The literature on Hawaiian god-stones indicates the use of both natural and modified stones:

> Gods could be invoked in the abstract or they could be called to natural or fabricated objects, which in turn acquired power and served as suitable places into which the gods might be lured when next needed. These objects retained residual mana and power, which might be passed on from generation to generation (Kaeppler 1982:83).
> Stone sculpture production was limited, the workmanship was less expert than in wood carving, and no significant tradition seems to have been established as it was in the Marquesas, Easter, Society, and Austral Islands. However, stone representations of the great gods, particularly Kane, were very common. Most of these seem to have been natural stones selected for their odd shapes and at most only slightly carved or retouched (Cox and Davenport 1988:25).

If the uprights were not representations of the gods (i.e., images or icons), but merely places for the gods to be called to and inhabit on a temporary basis, and if a piece of unworked stone would suffice, the question arises, why bother recording upright shape? Wouldn't any stone do if the purpose was to simply provide a temporary abode for a god? The answer appears to be no.

While most of the uprights are "unworked" (i.e., they are naturally occurring forms), observations made during the earlier surveys showed that the procurement of slabs to be used as "god stones" was not arbitrary or random, that not just any slab was expediently picked up off the surface (McCoy 1999a). If it had been, then the slabs used in shrine construction should be representative of the wide range of shapes and sizes found in the source areas. They are not, as a walk through the source areas demonstrates (McCoy and Nees 2010: Figure 6.5). More specifically, if there was no contemplation of the natural environment according to some conceptual scheme or belief system, then the uprights should exhibit no patterning in either size or shape, and should be undecipherable to everyone except for the agent that chose stones to be used as "an abode of the gods."

The data demonstrate that the procurement process was deliberative, and that the uprights have what can be called a "deliberative history":

> We can mark, as part of the "deliberative history" of an object, the range of objects from which it was chosen, the properties of those objects that were contemplated, and the role these observations played in the eventual decision to use, or not use, them for a purpose (Dipert 1993:29).

> It is one of the severe difficulties in attributing a deliberative history to an artifact that we often have as evidence for this history only the physical, now easily observable, properties of the object. Only some few of the properties represent artifactual features, and then only under a description. Thus, although the designer of the Parthenon undoubtedly had some fairly definite intentions concerning the dimensions and other properties of the building, it would be incorrect (anachronistic) to describe the content of these intentions in terms of feet, meters, comparison of its dimensions with a building that the builder did not know, using special features of our Arabic base-10 number system, and so on (Dipert 1993:55).

4.3.8 Classification and Comparison to Similar Sites

There is no existing, standard classification or typology of Hawaiian shrines used by

archaeologists. Though it makes inter-site and regional comparisons difficult, it must be remembered that site classification is a tool rather than an end it itself (Adams and Adams 1991). McAllister (1933:15), for example, divided shrines into three groups: fishing, family, and road shrines. Buck thought it useful, however, to divide McAllister's family shrines into household and occupational shrines. Buck described occupational shrines as follows:

> Malo (1951, p. 81) writes that "each man worshipped the *akua* that presided over the occupation or profession he followed..." Thus what may be termed occupational shrines were built to the presiding gods in convenient places, and cultivators, woodsmen, fowlers, and others recited their rituals and laid their offerings upon their particular shrine before engaging in their work. There was nothing to distinguish this form of shrine from others, except, perhaps, the locations of the sites, which were away from the beaches and could not be readily confounded with the shrines of fishermen (Buck 1957:529).

Buck's discussion illustrates the problem of relating form and function and, thus, the tendency to focus on the recognition of functional types. The shrines on Mauna Kea vary considerably in terms of the kind of foundation on which the uprights were placed, the presence/absence of pavements and areas called courts in the literature on East Polynesian religious structures (Emory 1933), and the number and different forms or shapes of uprights.

Kenneth Emory, the first archaeologist to describe the shrines on Mauna Kea and note their East Polynesian affinities, made the following comments about the shrines he saw during his brief visit to the Mauna Kea Adze Quarry in 1937:

> The adze makers, clinging to the ancient form of shrine at which to approach their patron gods, have preserved a most important link with their ancestral home. Each upright stone at a shrine probably stood for a separate god. The Hawaiian dictionary describes *`eho* as "a collection of stone gods" and this is the term which the Tuamotuans, the neighbors of the Tahitians, used to designate the alignment of upright stones on the low and narrow platform at their maraes, or sacred places (Emory 1938:22).

As Emory pointed out, the word '*eho* is *keho,* and possibly *aho,* in various parts of East Polynesia:

> The upright stone slabs on the ahu and out on the court are called *pohatu* at Vahitahi and Napuka and probably many other islands. At Anaa, Fagatau, Fakahina, Tatakoto, Reao, and undoubtedly at other islands they are called *keho*. *Keho* in the Marquesas is a term applied to a "basalt column planted in the ground to serve as a backrest" (32, p. 351). In the Society Islands an *aho* ('*aho?*) is a certain stone set up in a marae where the priest set up his *tapa`au* (coconut leaf twisted to represent a man). Henry (13, pp. 134, 399) records that these *aho* of Tahiti were only certain small uprights in the rear part of the court. It is probable, however, that the word *aho* is related to the Marquesan and Tuamotuan word *keho*, meaning a backrest in the Marquesas and a marae memorial stone or backrest in the Tuamotus. In Hawaii, '*eho* means a stone god representing Lonokaeho, a collection of stone gods, or a stone pillar set up as a monument (Emory 1934:10).

The word *keho* is also found in the language of Rapa Nui (Easter Island), where it may have also referred at one time to ancestral god-stones predating the famous statues called *moai* (McCoy 1993).

Emory saw similarities in the design of religious structures throughout East Polynesia, and presented evidence indicating that in several island groups they were probably called *ahu* in the

beginning, prior to the appearance of the word *marae*:

> In New Zealand the *tu-ahu* with a row of upright stones planted across one end of the open space is apparently the Tahitian inland marae reduced to its simplest in form and function (24). The name itself carries with it memory of the most conspicuous feature of a Society Island marae. Elsewhere (p. 41) I have given facts which indicate that in the Society Islands and in the Tuamotus the ancient maraes were once called "ahu" (Emory 1933:51).

The word '*eho* has various other meanings, some of which point to the need to exercise some caution in assuming that all upright stones were shrines. According to Mary Kawena Pukui and Samuel H. Elbert (1971:35), '*eho* is a term for a single stone image as well as a stone pile, particularly of the kind used to mark land boundaries. The latter information may have come from Samuel M. Kamakau, who noted that "Boundary markers (*kukulu 'eho'eho*) of tall stones (*oeoe pōhaku*) were set up to identify the boundaries" (Kamakau 1976:7). The use of a stone to represent a god and mark a land boundary are not necessarily incompatible however, since the construction of religious structures in Polynesia was a common way of making a claim to a piece of land (Handy 1927; Emory 1947:10). Handy described examples from the Society Islands and New Zealand:

> Another instance of the use of stones as mediums of mana is exhibited in the custom typical of the Society Islands and New Zealand, and doubtless of other islands also, of employing them as signs of ownership of land. In the Society Islands the limits of land belonging to families were marked by corner stones, small upright columns of rock some of which were dressed and some rough, set up at the corners of the property. These markers, which have been in the ground from ancestral times, are regarded as very sacred even today...In New Zealand the same practice is exhibited in the "boundary stones" (*pou-paenga*) which were set up to mark the limits of the plantations...Now, it is evident that this ceremonial use of stones to seal a land claim is closely related to the building of stone marae for the purpose, among others, of establishing land rights (Handy 1927:180).
>
> The maraes, as the property of kindred, were material symbols of them, and formed a visible connection with the past. Always standing on the land occupied by the kindred, observable by any who might pass, they came to be a seal of ownership. They bound the ancestral spirits and gods of the kindred to the land, putting it under their eternal guardianship (Emory 1947:10).

The large number of uprights that characterize the Necker *marae* is seen in some of the Mauna Kea shrines, but only rarely. Emory's observations on the uneven number of uprights on the Necker *marae* are of great interest in terms of uniformity, which would suggest strict adherence to a rule or code. This same pattern is not found on Mauna Kea, although there are a number of shrines with odd numbers of uprights.

One of the puzzling characteristics of the Mauna Kea and PTA shrines, with a couple of exceptions, is the absence of anything that could be readily interpreted as an offering. An account of a shrine dedicated to Pele at a place called Pu'u o 'Umi (on some USGS maps it is marked as 'Umi Caverns/Alika Cone) at the roughly 7,800 ft elevation on Mauna Loa (see Emory 1943, 1970) indicates that the uprights themselves should perhaps be considered offerings:

> An old road of Umi's from his heiau between the mountains in Kona to Kau, is mentioned in the article "Ahua a Umi" in the 1917 Annual. A most interesting discovery of another

> section of this road was made by Professor Jaggar on visiting the source of the 1919 lava low. Near the source of the flow were many small horse-shoe shaped stone shelters at different parts of the trail, and one large stone platform with long stones erected at the back, and further along a smaller stone platform. It has been learned from the Hawaiians that these platforms were for the priests, and the upright stones were offerings erected whenever there was a flow in this especially Pele-ridden section of Mauna Loa, to avert disaster. The shelters were against the prevailing wind, and would hold from one to several men, sheltering quite a company in all (Baker 1920:85).

It may never be possible to corroborate all of the details in this account, but the idea that a stone erected for the purpose of averting a disaster was regarded as an offering to the god Pele is reasonable, and is consistent with the accepted view that uprights and other material objects were places for the gods to inhabit when they were needed. The alleged function is also consistent with the wealth of ethnohistoric accounts of rituals aimed at avoiding danger. If a new upright was placed on the platform each time there was a crisis, this would indicate an accretional history, as opposed to a single event structure with many uprights placed all at once.

The Mauna Loa site, which consists of a shrine and temporary shelters occupied by priests, according to the information obtained by Baker (1920), has no known counterpart on Mauna Kea. It is possible that the priests had a retinue of followers or helpers who constructed the shelters. The absence of such shelters at some of the larger shrines on Mauna Kea is hard to explain if, based on our earlier assumption, that priests were involved in the construction and use of the larger, more complex shrines.

There are a number of places on the island of Hawai`i that are attached to `Umi, including one described by Beckwith:

> On the slope of the mountain just back of the hill Hale-pohaha were to be seen, before the lava flows of 1887 and 1907 covered them, the stone structures of "Umi's camp." Seventy-five huts were counted, all facing away from the wind and built of three slabs of pahoehoe lava rock, two set together at an angle and a third forming the back, each hut large enough to hold two men. Larger huts, perhaps designed for chiefs, were supported by slabs within and built up outside with stone walls shaped into a dome. The place on Kauiki is still pointed out where the image stood which was later commemorated by Kamehameha as the god Kawalaki'i (Beckwith1970:391-392).

Shrines with similar design characteristics to those on Mauna Kea have also been found at PTA, as well as some island groups in Eastern Polynesia, such as the Tuamotus (Emory 1934) and Tongareva (Buck 1932). Some are large platforms with one or more upright stones; others are low structures like Site 21289 (McCoy and Nees 2010: Figure 7.8). The uprights at this site consist of a single row of fairly evenly spaced stones of variable shapes. A profile drawing of the uprights shows what appear to be pointed, flat-topped, mesial notched, and corner-notched forms (McCoy and Nees 2010: Figure 7.8). The plan is similar in some respects to the Type 3 and Type 4 shrines on Mauna Kea.

Not long after they were first described in 1938, Emory compared the Mauna Kea shrines to the *marae* on Necker Island and to a platform with uprights on the slopes of Mauna Loa. Emory expressed a commonly held opinion of the time—that simple shrines with East Polynesian architectural and iconic characteristics were once common throughout the main Hawaiian Islands, but had been replaced by the *heiau* just about everywhere except for Necker and other isolated localities, such as the higher elevation slopes of Mauna Kea and Mauna Loa. This viewpoint, which is a classic example of the "archaic survival theory," was a prevalent theory in

anthropology at the time Emory and Buck were working. Another example of such thinking is found in Buck's description of the introduction of a new form of religious structure with Pa`ao. Buck wrote that "He [Pa'ao] introduced the form of temple then vogue in Tahiti, and it was adopted either peacefully or after hostilities. The new form based on the later Tahitian type was locally named heiau instead of marae. The early temples were destroyed or altered in all the inhabited islands, but a few escaped destruction in isolated localities such as the mountain slopes of Mauna Kea and Mauna Loa on Hawai'i " (Buck 1957:531). One important aspect of the diffusionist model was left out of account—the origin of the term *heiau,* which to our knowledge has never been adequately explained (conversation with Julie Taomia). If Pa'ao did in fact introduce a new form of *marae* to Hawai'i, why didn't the term *marae* follow?

The cultural survivals theory was untenable even at the time Emory and Buck were writing on the subject. The *ahu* of Easter Island, which Emory compared to Tuamotuan *marae*, and the *tuahu* in New Zealand clearly indicate an early widespread form of a "primitive" or "archaic" type. The validity of the assumptions underlying the "replacement and survivals theory" has been questioned before (McCoy 1999b). The view that the shrines on Mauna Kea and in other remote places in Hawai'i must necessarily be "early" because of their "archaic" form is an old idea and a classic example of the fallacy of reading antiquity into simple forms. (i.e., of wrongly inferring age based on formal and spatial attributes).

Until recently none of the shrines on Mauna Kea had been dated, and it appeared unlikely that the age of any would ever be determined, except by comparison to the shrines in the adze quarry where similar forms are found in association with workshops and dated rockshelters (McCoy 1990, 1999a). It was believed that some of the shrines might be potentially quite early, based on the assumption that pilgrimages to the snow-topped mountain may have occurred soon after colonization of the Hawaiian Islands. Two shrines in the Mauna Kea Natural Area Reserve were recently dated using the ^{230}Thorium method. A piece of branch coral at Site 50-10-23-16205) was dated to AD 1398 $\pm$ 13. At Site 50-10-23-16206 a piece of branch coral found beneath an upright of one of the most elaborate shrines in the adze quarry was dated to AD 1441 $\pm$ 3 (McCoy et al. 2009). The two dates fall within what appears to be the period of peak adze manufacture between c. AD 1400-1600, which is also the period of time when the lands of PTA were most heavily used (Streck 1992).

In summary, a comparison of the Mauna Kea shrines to similar structures elsewhere in Hawai'i and other parts of East Polynesia indicates "family resemblances." The function and meaning of the uprights (god-stones) that are the defining characteristic of shrines remains elusive, but there are clear indications that the uprights at least have what is called a "deliberative history" in their selection from the natural environment. Some shrines also exhibit signs of a larger, more encompassing "life history" in the respect and disrespect shown to the uprights (McCoy and Nees 2010).

4.3.9 Property Types

Four property types have been identified and interpreted as religious or ceremonial structures in previous archaeological investigations at PTA (Eidsness et al. 1998; Reinman et al. 1998a). These include (1) multiple stacked stone platforms of various sizes, with and without upright stones, (2) low stone platforms with uprights, (3) groups of cairns, and (4) single upright stones associated with lava tube habitation sites. Table 3 is a list of PTA sites that have been interpreted as either ritual or ceremonial. These four property types are described below.

Table 3. List of Historic Properties at PTA with Inferred Ritual or Ceremonial Function.

Site Number	Description	Possible Function	Site C14 Dates (BP)	References
10266 Feature M	Upright in lava tube	*Kapu* marker	Beta-53199 260+/-60 Beta-56182 580+/- 120 Beta-56177 70+/-90	Reinman and Schilz 1994:73
19490 Feature A	Single upright placed near a wood pole in lava tube	*Kapu* marker	Beta-73268 150 +/- 70	Reinman and Pantaleo 1998a
18676	Platform with upright(s) on Pu'u Koli	Burial or shrine		Reinman and Pantaleo 1998b
21750	Platform with three uprights	Shrine		Moniz-Nakamura 1999
5004	Feature 10 has 2 uprights	Shrine or *kapu* marker	Beta-100920 520 +/- 50 BP	Nees and Williams 2001
21284	Cairn site complex – 17 cairns	Ceremonial		Williams et al. 2002
21288	Cairn site complex – 5 cairns	Ceremonial		Williams et al. 2002
21289	Low platform with 8 uprights	Shrine		Williams et al. 2002
21290	Platform on Pu'u Koli	Burial or shrine		Williams et al. 2002
21296	Single upright placed near wooden spear in lava tube	*Kapu* marker	Beta-119014 160 +/- 50	Williams et al. 2002
21298	7 cairn site complex	Ceremonial		Williams et al. 2002
21495, Feature 4	Linear feature with one upright	Shrine		Williams 2002
21485	Upright at entrance to lava tube	*Kapu* marker		Williams 2002
21499	Cairn site complex – 5 cairns	Ceremonial		Williams et al. 2002
21500	Cairn site complex – 11 cairns	Ceremonial		Williams et al. 2002
21503	Small enclosure and cairn on *pu'u*; slabs on end and shaped basalt blocks used in construction of the enclosure			Williams et al. 2002
18673	Three (3) uprights inside lava tube	Ritual or ceremonial	Beta-62700 270+/60 Beta-62701 580+/- 80 Beta 62702 460+/- 60	Reinman and Pantaleo 1998a

**Sites in bold recommended for nomination to the National Register of Historic Places

4.3.10 Multi-stacked Stone Platforms With and Without Upright Stones (Possible Burial Platforms and/or Shrines)

Sites 18676 and 21290 (Williams et al. 2002:23-24) are multi-stacked platforms with uprights. They have been interpreted as either shrines or possible burials, even though no human remains were observed (Reinman and Pantaleo 1998b). If they are shrines, they are different from any known shrines elsewhere on the island, including those on Mauna Kea and Mauna Loa, where the platforms are all low (less than 50 cm in height). On the other hand, there is no evidence in the dry interior uplands and mountainous regions of burials with uprights, which as noted above are likely "god-stones." Assuming that the platforms were built as seats for god-stones, these platforms would represent a new kind of shrine. Other than burials or shrines, the only other possible function of the platforms with uprights is that they were boundary markers. It is hard to understand, though, why there would be a need for more than one marker.

Other than the associated uprights, the size and architectural characteristics of platforms favors a burial interpretation. Buck (1957:570), using as examples sites recorded by Emory on Lanai, described platform tombs as one class of traditional Hawaiian burial type. The descriptions, though limited in number, indicate that the Lanai sites are similar in terms of form and size to the several platforms proposed for nomination here. There are similarities, too, between these platforms and a platform on the top of Kanakaleonui, a massive cinder cone on the northeast slope of Mauna Kea at the roughly 9200 ft elevation. Historic records and maps indicate that Kanakaleonui was a major burial center (Maly and Maly 2002). Preliminary observations on the summit and base of this cinder cone indicate the presence of a large number of smaller mounds at the base, and larger platforms on the summit (McCoy 1999a).

Other examples of this property type include Sites 18677 and 18678 located just outside of the PTA boundary (Figure 3). Site 18677 consists of three features, one of which is a platform with six uprights. Site 18678 has a single upright. In the immediate vicinity of Site 18677 is a basalt lithic scatter where adze manufacture is believed to have taken place (Reinman and Pantaleo 1998a). The platforms and lithic scatter may be related, although there is nothing in the site descriptions to indicate a definite association.

Site 21290 is an unusual rectangular platform located on the top of a cinder cone in the same general area as several of the cairn complexes and the shrine at Site 21289. Upright slabs are incorporated into the two long sides of the platform. Though not as substantial as the platforms on Pu‘u Koli (in the PTA), the unusual form, inclusion of slabs on end in the facing, and location on top of a cinder cone, all suggest a possible ritual function, possibly burial.

4.3.11 Low Stone Platforms with Upright Stones (Shrines)

The second property type can be described a low platform with upright stones, and is exemplified by Site 21289. There are three known examples of this type (Sites 21289, 21750 and an unrecorded site for which only photos are available) which have all the characteristics of the shrines on Mauna Kea.

Site 21289, a platform with a row of dispersed uprights on the edge of the foundation and a single upright on the opposite side and middle of the parallel-sided platform, resembles the Type 3 shrine in the Mauna Kea Science Reserve (McCoy and Nees 2010:6-52). The forms or shapes of the uprights mirror those found on Mauna Kea, although the raw materials used are different. The uprights at Site 21289 are aa and ropy pahoehoe, whereas those on Mauna Kea are predominantly tabular slabs of basalt. The uprights at Site 21289 exhibit the same

This Figure has been removed as Controlled Unclassified Information (CUI).

The original contains sensitive information related to the nature and location of archaeological sites and historic properties which is protected under Section 304 of the National Historic Preservation Act and Section 9 of the Archaeological Resources Protection Act and is therefore excluded from this version for public disclosure. Justified requests submitted to Army Cultural Resources will be considered.

Figure 3. Location of Sites Being Nominated to the National Register.

"deliberative history" as those found on Mauna Kea, in terms of the selection of certain shapes out of a field of myriad forms.

4.3.12 Groups of Cairns (Ceremonial Function)

The third class of religious or ceremonial sites is a group of stone cairns arranged in a roughly circular or oval pattern. "Cairn" is a widely but variously used term in Hawaiian archaeology. It is often used interchangeably with the Hawaiian word *ahu*, one meaning of which is a pile of stones. In a general survey of how the word cairn is used, Hogan has noted that "In its usual, restricted sense, cairn refers only to the (most often) conical pile of stones used to mark boundaries; turning points along routes of travel; caches of food, water, and equipment; areas of danger; sacred sites; and places of private or personal importance" (Hogan 2006:58). The distinction between cairn and mound is not always easily made, however, especially in the case of a tumbled cairn, which can look like a mound or a simple rock pile.

The term cairn/*ahu* was used by Eidsness et al. (1998) who briefly summarized this site type at PTA, including possible functional interpretations. According to them, cairn sites made up approximately 10 to 15 percent of the sites that had been documented at the time at PTA (Eidsness et al. 1998:32).

While single cairns marking a trail or a boundary are fairly common at PTA and elsewhere in the Hawaiian Islands (e.g., Thrum 1921), clustered groups of cairns are unusual, especially ones arranged in a circle or oval, or in the case of several exceptionally large *ahu*, such as Ahu a ʻUmi, a roughly rectangular pattern. The arrangement likely signals a different function or purpose than single cairns. There are five and possibly six known examples of this property type at PTA (Sites 21284, 21288, 21298, 21499 and 21500, and possibly Site 17119). The antiquity of Site 17119, located in the old MPRC, is open to question and might be of military origin (Reinman and Schilz 1999:222). The number of cairns at these sites varies from 5 at 21288 to 17 at Site 21284. It may be significant that all of the known cairn sites are characterized by an uneven number of individual heaps (*ahu*): 5, 7, 11, and 17.

Comparatively few artifacts have been found at any of the cairn complexes. Site 21284 is an exception. This site, located in the vicinity of Puʻu Aiea, is in a *kipuka* surrounded by the k1o lava flow, which is dated at 5,000 to 10,000 years old (Williams 2002: Figure 9). In the open center of the site is a concentration of volcanic glass. If the glass is from the Pōhakuloa Chill Glass Quarry Complex (Williams 2002, 2004), then, as has been discussed above in the section on temporal context, the site could possibly date to AD 1700-1820 (Williams et al. 2002:105). Alternatively, the cairns may have been constructed at an earlier time and the glass introduced at a later time.

All of the individual cairns are comparatively small, with a diameter and height of less than 2 m. On the whole little effort appears to have gone into the construction of virtually every individual cairn. The exception is Feature 1 of Site 21284, which is not only the largest at the site, but contains within it what are variously called "dressed" or "cut-stone" blocks, and on top, a stone with pecked depressions sometimes called "cupules" by archaeologists and rock art specialists. The area around the base of this cairn is stained. It is the only one of the 17 with a stained surface. Site 21284 is one of only three or so known sites on the island with dressed stones. The others are all *heiau*, including one called Kukiʻi in Puna that according to oral traditions is associated with ʻUmi.

Cairn complexes are found elsewhere on the island. Probably the best known example is Ahu a

‘Umi which according to most accounts was constructed by ‘Umi a Liloa to commemorate his unification of the island in the early 17th century AD (Wilkes 1845:99-100; Fornander 1880:101; Kirch 1985:179; Cordy 2000:205-215), The site consists of three parts: (1) a central rectilinear enclosure; (2) eight cairns or *ahu*, and (3) a smaller stone enclosure. It was visited by Bingham in 1830 (1847:396-397) and Wilkes in 1840 (1845:99-100). The information obtained by the Wilkes party indicated that ‘Umi built the *heiau* and then required that the people of each of the eight districts that existed at the time build an *ahu*. It is said that each person in each district was required to contribute one stone. According to the Wilkes account the main structure was a “Temple of Kaili, Kukailimoku” and formerly had a number of idols” (Cordy 2000:209). The Wilkes party recorded that three of the cairns in the “front” [these are probably three on the north side, which is on the Hāmākua side where ‘Umi resided] represented ‘Umi’s own districts-those controlled by him, in contrast to the other five which were built by each of the districts ‘Umi conquered in the process of unifying the island chiefdoms (Cordy 2000:209) There are other accounts that the site was the residence of ‘Umi and that he lived off of the tribute owed him by his people.

While a number of different ideas exist about the origins and meaning of Ahu a ‘Umi, it seems clear above all else that it is a monument that was built as a symbol of power to be venerated by the general populace for generations to come. It is a memorial to ‘Umi. In this view, the construction of Ahu a ‘Umi was an act of political legitimization. The display of power is central to ceremony as opposed to ritual, which most often affects a change of some sort (Grimes 1982: 41). According to Grimes, ceremony has “imperative force;” it invites participants to surrender personal preferences for the sake of some “larger cause” that commands allegiance, loyalty, and homage” (Anonymous 1993:2). As noted, “because of its symbolic connection to power, *ceremoniousness may be thought of as a ritual strategy aimed at social control”* (Anonymous 1993:2).

A cairn complex that resembles Ahu a ‘Umi in terms of the “monumentality” of the structures is a group of large cairns located in Kaloko Ahupua‘a in North Kona (Kelly 1971: Appendix C). (Emory and Soehren 1961/1971 Plate 12). The site (Bishop Museum number D13-1; State of Hawaii Inventory of Historic Places (SIHP) Site 50-10-27-2272) as shown in Emory and Soehren is located on the Kaloko-Honokohau border (Emory and Soehren 1971:Figure 1). Site 2272 was described by Emory and Soehren (1971:28) as a group of 12 mounds “arranged in a rectangle around a brackish pool.” They noted that seven mounds which form the southwest corner of the group are “remarkable for their size and construction.” They are graduated in size from the largest, which is 10 feet high and 14 by 16 feet in diameter at its base, to the smallest, which is only 5 feet high and about 6 feet in diameter at its base. The remainder are smaller and quite irregular in shape and construction. Each of the seven large cairns is carefully faced with rough lava. They are essentially rectangular, but the sides are slightly curved, not flat, and slope inward to the top. The second largest cairn has what may be a post hole in the top. All seven are more or less broken down on one side, probably as a result of people climbing onto them. Varying quantities of coral are scattered about each cairn (Emory and Soehren 1971:28). The presence of coral, presumably branch coral, would indicate a religious function (Handy 1927; Malo 1951). It is possible that coral was introduced at a later date as offerings.

A site more similar to the cairn complexes at PTA in terms of size or scale is located in the coastal area of Kaupulehu in North Kona. The complex, which is comprised of 11 features (designated A-K), was recorded in a survey conducted in 1986 by Paul H. Rosendahl, Ph.D., Inc. (PHRI) as Site 10992. Nine and possibly ten of the features are cairns. Six are situated on a flat pahoehoe surface. Of these five are arranged in a rough circle. A sixth cairn is located in the middle. Two and possibly three cairns are located along the margin of an aa flow east of the

group of group of six. One of the three, described in the survey report as a modified outcrop, consists of piled boulders on the edge of an outcrop. On top of this feature (A) are 17 fragments of branch coral, a waterworn basalt boulder or cobble and two upright stones. The Feature B cairn had 12 fragments of branch coral on and around it. Feature I is a cairn with an upright boulder and two fragments of branch coral. The other feature included in the Site 10992 complex is a trail segment (Walker and Rosendahl 1998:Figure 32). If Feature A is considered a cairn then there are 10 cairns at this site.

This brief comparison of cairn complexes from the dry interior uplands and mountainous regions of Hawaii Island and selected examples of the same property type from the coastal region of North Kona demonstrates similarities in design (the layout or plan) but widely differing scales. Since power operated at different levels in a stratified society like Hawaii, there is good reason to expect variability in the size and architectural characteristics of structures built for essentially political purposes. Thus, the existence of large, visually and architecturally impressive monuments like Ahu a ‘Umi, the cairns at Kaloko, and many *heiau*, and small shrines like those found on Mauna Kea and PTA, and small cairn complexes, is to be expected.

4.3.13 Upright Stones Associated with Lava Tubes

The third property type consists of single, and in some cases possibly two, uprights located either inside of lava tubes and blisters used as temporary habitations or at the entrance to these sites. Like the individual cairns that comprise a cairn complex, the uprights are most always described as features. An example is Site 10266 Feature M (Reinman and Schilz 1994) which consists of a single upright at the back of a lava tube. Another example is Site 18673 (Reinman and Pantaleo 1998a:30 and Figure 6) where three pahoehoe uprights were found inside the northern end of a lava tube on ledges. Two of the uprights were standing and the third had fallen. The authors cite Buck (1957:465, 529) and Kamakau (1976:130) in support of the idea that the uprights indicate ceremonial or ritual activity at Site 18673.

A pair of uprights was found on the rim of the sink at Bobcat Trail Habitation Cave (Site 50-10-30-5004), which was placed on the National Register of Historic Places in 1986 (Cleghorn and Clark 1999:41-45). The location of these uprights, like an upright on the edge of a crater at Pu‘u o ‘Umi on Mauna Loa, suggests their placement was intended to not only mark the location of the site, but perhaps to keep persons away from entering the lava tube.

At Site 21485 an upright was found at the entrance to a lava tube (Williams 2002:27). It is possible that the uprights found at the entrances to lava tubes at PTA and possibly even those located inside (e.g. Site 21296 where a single upright was found next to a wooden spear) were *kapu* markers of a kind called *rahui* [Hawaiian *lahui*] by the Maori of New Zealand. The different kinds of Maori *rahui* were described in detail by Firth:

> The object of the magic surrounding the establishment of a material *mauri* or talisman was to ensure the protection of the fertility of natural resources against unforeseen contingencies or the act of an enemy. Magic of an essentially defensive type was employed. But measures of a more active kind were sometimes taken in order to prevent interference with economic resources by unauthorised [sic] persons, and in this case the spells used were intended to be definitely offensive in their action. The procedure followed was to set up a *rahui*. This term applies to two types of prohibition, one being comparatively mild in its effects, while the other was believed to be destructive to the welfare of persons who interfered with it. We shall deal with the latter kind first.
> The essential process was this: a post was set up in the ground on the edge of the forest or the bank of the stream which it was desired to guard, and to it was attached a *maro*, a

> lock of hair or bunch of grass. This was termed the *rahui* post. The priest then proceeded by means of an incantation to "sharpen the teeth of the *rahui*, that it might destroy man". A kind of "conditional curse", as Westermarck calls it, was set upon the post, so that any person meddling with it, the forest, or the productivity thereof, either by practical or magical means, would be slain by the force of the spells associated with the *rahui*.
>
> On purely economic grounds, also, a *rahui* might be instituted. To save the resources of a shellbank or a patch of forest from becoming unduly depleted, the chief of the *hapu* might proclaim over it a *rahui*, in consequence of which no one would be allowed to take supplies therefrom for a time. He set up a post and perhaps hung an old garment thereon as a sign of the prohibition, but attached no magical spells. Sometimes these *rahui* were merely proclaimed by word of mouth. The institution of a *rahui* of this type was the privilege of a chief, and its observance was a tribute to his rank and status. As the Maori puts it, a person of *mana*, of influence, is needed to set up the *pou rahui*, the *rahui* post. At times the *rahui* seems to have signified simply the act of reservation of the food supply to the owners and not the entire prohibition of all use thereof.
>
> Many kinds of economic resources were temporarily preserved in this way. Thus streams were often protected by *rahui* to prevent the fish being taken out of season, while forest products, cultivated food plants, fern-root, flax, and the places where red ochre was obtained were all similarly guarded. (Firth 1957:258-260)

The reference to the protection of red ochre suggests that other kinds of lithic resources were also protected or guarded. An upright fronting a rockshelter in the Mauna Kea Adze Quarry has been interpreted as an example of *rahui* posts or “stone guards” (McCoy 1990:102; cf. also Best 1982:185-191 on the Maori *rahui*). It has been suggested that upright stones in the Pu`u Moiwi Adze Quarry on Kahoʻolawe may have had a similar function (McCoy 1993).

4.3.14 Locational Patterns

Of the three property types, the shrines and cairn complexes are found in the same general area of PTA. The two have not been found together or in any obvious association, however. The shrines and possible burial platforms are located on high points in the landscape, though not at the highest elevations, which would be the summits of the larger, more massive cinder cones. The cairn complexes are located in flat areas, usually on pahoehoe surfaces. The single uprights that have been recorded to date are all located inside of lava tubes, but there is at least one known lava tube site (18673) with three uprights. Multiple uprights have also been found in an exterior location at Bobcat Trail Habitation Cave.

With regard to the possible burial platforms and shrines, the preference for prominent locations with commanding views of the landscape mirrors the pattern described by McAllister (1933) and Buck (1957) for *heiau*:

> Heiaus were usually built on some commanding site, such as a hill top, the seaward end of a range, or a promontory of higher land which overlooked valleys, villages, or the sea. According to McAllister (1933a, p. 9) the orientation depended only upon the slope of the land. Heiaus face in all directions of the compass, the only generalization being that most of them face the sea (Buck 1957:516).

While *heiau* may be found on hilltops elsewhere, there are no positively identified shrines located on top of a cinder cone in either the Mauna Kea Science Reserve or the PTA. Some could be found in the future, but on current evidence the tops of cinder cones appear to have

been reserved for burial (McCoy 1999a; McCoy and Nees 2010).

McAllister and Buck were not the first to recognize the relationship between topographic location and site orientation in Hawaiian *heiau*. John Stokes came to similar conclusions even earlier. His observation about sites that seem to be oriented to cardinal points fits the Mauna Kea shrines perfectly:

> Orientation of the *heiau* platform was controlled by the situation. If situated on the shore, the temple lay parallel or at right angles to the immediate shoreline (not the overall lay of the coast). If slightly inland, the orientation would seem to depend primarily on the contour of the ground and secondarily on the lay of the coast; however, on the account of the form of the volcanic islands, either factor would seem to produce the same result. Farther inland, it would be only the contour of the ground which would be considered. I could find no evidence in the foundations of the orientation to cardinal points. It is true that some of them did lie almost true north-south or east-west, but this was because the situation required it (Stokes and Dye 1991:35-36).

The spatial distribution of inferred religious or ceremonial sites and places where rituals were conducted at PTA remains to be determined. On current evidence the major structural features, such as platforms and complexes of multiple cairns, are found primarily in the eastern and southeastern portion of the installation. This pattern, which was recognized some years ago, appears to still hold true:

> The abundance of multiple-stacked platforms at Sites 18676, 18677 and 18678, compared to the paucity of this site type in the northern project area and western PTA, suggests that the southeastern PTA was important for ritualistic and/or burial purposes. The sites here are located on the lower slopes of Mauna Loa. This high-elevation placement provides a commanding view of Mauna Kea, an important quarry as well as spiritual locale as indicated by numerous shrines recorded there (cf. Cleghorn 1982; Lass 1994; McCoy 1984). Perhaps the project-area platforms were situated on the lower slopes of Mauna Loa to afford a desired distance and extensive view of Mauna Kea. Alternatively, they may be related to Mauna Loa, or the prominent Pu`u Koli geologic formation, or others scenarios as discussed below (Reinman and Pantaleo 1998b:66)

The possible burial platforms are located in close proximity to the boundary between the Hilo and Hāmākua districts. All of the cairn complexes included in this nomination appear to be spatially isolated from other sites. The degree of separation varies, but it is marked, and also characterizes the locations of Ahu a ‘Umi and the two examples of cairn complexes from North Kona.

The cairn complexes, which have been interpreted as ceremonial based on the general design similarities to sites such as Ahu a ‘Umi, have no known functional association, but the artifacts found at Site 21284 suggest a link to volcanic glass manufacture. The dressed stones and cupules at this same site point to a possible association with craft specialists and/or priests based on the evidence from the few sites where dressed stone work has been found.

4.3.15 Information Needs

A review of the existing data for sites interpreted as either ritual or ceremonial indicates the need for detailed descriptions of the form, materials, and methods used in the construction of the platforms and cairns, including the probable sources of raw material and whether a structure possesses dressed or cut stones. In the case of the cairn complexes, there is a need for more information on the contents and age of sub-surface cultural deposits, if they exist. More

attention should be given to the characterization of associated artifacts, such as the chill glass found nearly everywhere at PTA. Further, additional sourcing studies should be conducted to determine if the glass is from the Pohakuloa Chill Glass Quarry Complex.

There is also a need to consider theory more deeply, since there is a dialectical relationship between theory and data. Thus, whether a researcher starts with a theory or collection of raw data, to make any significant contribution to archaeological knowledge requires going back and forth between the two (Jones 2002:37). Shanks and Tilley (1987) and Hodder (1999) describe the tacking between data and theory:

> Archaeological interpretations of the past are not secondary to the physical reality of the past, the objects in the archaeological record. Understanding the past is a dialectical process occasioned by continual adjustments of ideas, concepts and representations and is not something that could be fixed by a single method such as the hypothetico-deductive method (Shanks and Tilley 1987:108).

Above all else there is a need to develop new analytical frameworks, such as the use of region, place, and landscape in future archaeological investigations at PTA. The site-oriented approach that has thus far characterized archaeology at PTA, and Hawaiian archaeology in general, is both limited and limiting. This is especially true for large and isolated areas, such as PTA and the nearby Mauna Kea Science Reserve and Mauna Kea Ice Age Natural Area Reserve (see discussion in McCoy and Nees 2010). As previously mentioned, areas such as these require a regional perspective.

Beyond the simple definition of what makes up a geographical region, there are numerous other definitions of region, as well as place and landscape. Some of the definitions that have been most useful are those presented in Edward S. Casey's book, *Getting Back into Place: Toward a Renewed Understanding of the Place-World* (Casey 1993). Casey, a philosopher, goes beyond simple definitions to consider the relationships between the different terms:

> A region, let it be noted, exceeds a given discrete place…But in what does the excess consist? If we consider the term *region* to designate a collection or gathering of places, *place* retains the particularity essential to its description…For places are the particular parts or portions of regions. But this is not to say that regions are abstract totalizations of places. Regions possess their own concreteness, as we realize when we consider the specificity of a regional landscape with which we are thoroughly familiar. (A landscape can be considered the phenomenal or sensuous manifestation of a region.) On the other hand, if regions do act to collect or gather places, this is not because they serve as mere containers, as "the first unchangeable limit of that which contains." Regions are no more container-like *things* than places are bare *positions*. Regions are forms of gathering, and in this capacity they have powers and virtues of their own, which are not foreign to the dynamism of lived bodies that make possible the configuration of places (Casey 1993:73).

Casey's view that "Regions are no more container-like *things* than places are bare *positions*" (Casey 1993:73) is one that is also now held by a number of anthropologists and archaeologists. Rodman, for example, argues that "Places are not inert containers. They are politicized, culturally relative, historically specific, local and multiple constructions" (Rodman 1992:641). Knapp and Ashmore note a change in the way many archeologists now view landscape:

> In minimalist terms, a landscape is the backdrop against which archaeological remains are plotted. From economic and political perspectives, landscapes provide resources,

> refuge, and risks that both impel and impact on human actions and situations. Today, however, the most prominent notions of landscape emphasize its socio-symbolic dimensions: landscape is an entity that exists by virtue of its being perceived, experienced, and contextualized by people (Knapp and Ashmore 1999:1).

The new emphasis on perception, experience, and context in archaeological studies of landscape and place echoes what Casey has been arguing for some time:

> Place as we experience it is not altogether natural. If it were, it could not play the animating, decisive role it plays in our lives. Place, already cultural as experienced, insinuates itself into a collectivity, altering as well as constituting that collectivity. Place becomes social because it is already cultural. It is also, for the same reason, historical. It is by the mediation of culture that places gain historical depth (Casey 1993:31-32).

There is also a need to develop and test more models similar to those used at the Pōhakuloa Chill Glass Quarry Complex (Williams 2002). Williams' model, built on a synthesis of existing data, presents a number of ideas that clearly warrant further investigation:

> Use of the Saddle Region and the surrounding mountains began shortly after A.D. 700 on an exploratory basis, and continued as such until A.D. 1400. By 1400 the population of the coastal areas had increased enough to support some level of political complexity. During this period (A.D. 700-1400), both Mauna Kea and the Saddle Region were only lightly exploited, and sites of this period are rare and contain limited archeological remains. Around A.D. 1400 the production of large adzes for social and ritual purposes was undertaken. Intensive use of the summit area of Mauna Kea for adze production was begun, resulting in the development of many of the core features of the Mauna Kea Adze Quarry Complex (MKAQC) and an increase in use of sites in the Saddle. This period lasted for 100-200 years, and during this time bird resources were extensively exploited to support the quarry industry and efforts were made to enhance the bird nesting areas. Both bird collecting and habitat enhancement resulted in the formation of the numerous pit sites in the eastern portion of PTA. After A.D. 1550-1600, intensive use of the quarry declined somewhat, but the development of chiefly power accelerated and the separation of Hawaiian society into commoners and *ali'i* developed rapidly. During this time there was more extensive use of the summit area, including the construction of shrines to mountain gods, the burial of dead, and the expansion of quarrying to outlier areas, as more groups from both the leeward and windward sides of the island exploited the mountain resources. Bird hunting shifted in focus to providing birds for the chiefly elite as a further symbol of their separateness from the commoners. Differences developed between bird exploitation in the western and eastern portions of the Saddle. Bobcat Cave served the leeward bird hunters as a central base from which to hunt birds, while the east lacked such a base because the shorter distances to inhabited windward lands made access to the region easier. In both regions, there was an increase in the collections of feathers for chiefly symbols of rank and *'ua'u* chicks as status food. By A.D. 1700, the *ahupua'a* system and power of the chiefs over and separate from the commoners was in place, and access to the resources of the Saddle and Mauna Kea was controlled by the chiefs and generally restricted to the occupants of the *ahupua`a* that had rights in the area. During this period the Pōhakuloa Chill Glass Quarry Complex was intensively exploited, although why (e.g., trade or local use) is still not clear. The pattern that was known at contact, including adze manufacture, strictly controlled bird hunting and feather collection, and the majority of the region controlled by one *ahupua`a,* was in place and would continue until the cultural upheaval caused by Western contact (Williams et al. 2002:111-112).

4.3.16 Research Values and Potential

The study of isolated, so-called "special purpose" sites and site complexes located outside of the permanently occupied coastal-inland zone, such as the ritual and ceremonial sites nominated here, hold great potential to contribute to an understanding of cultural process at the regional level (Streck 1992:99; McCoy 1991). Such site complexes and landscapes also require a regional perspective if they are to be properly understood in terms of their various relationships, which are fundamentally political, socio-economic and religious.

The ritual and ceremonial sites located at PTA and in surrounding areas, when viewed collectively, have the potential to redress some major imbalances in the archaeological data base for Hawai'i, which has tended to focus on the agriculturally-based permanent settlements located in the coastal regions. With a few notable exceptions (e.g., Cordy 1994), there is a common tendency in Hawaiian archaeology to take the boundaries of the community, the *ahupua'a*, as the main focus of study, but in so-called "complex" societies, such as Hawai'i, it is readily apparent that many important cultural processes transcend a specific locale or community. One result of the narrow focus on the *ahupua'a* has been that important questions regarding socio-economic and political processes are yet to be addressed with empirical data. This is fundamentally a problem of research perspectives, scale of enquiry, and theoretical orientation. Currently, Hawaiian archaeological data are largely conceptualized as relevant to the boundaries of sites and communities, rather than larger territories. A second result of the narrow focus on the community is the proclivity to accept it as a self-sufficient socio-economic unit, which is simply not supported by the available data. This normative view reduces the community to a redundant unit wherein variability within and between communities is minimized.

Hawaiian archaeology, like Polynesian archaeology more generally, evinces an understandable preoccupation with food production, particularly agricultural systems. In contrast to the long history of research on food production, relatively little attention has been given to the study of non-agricultural production systems, such as stone tool manufacture, which tend to be viewed in purely technological terms rather than production systems in their own right (Kirch 1984, 1985, 1990). One consequence of this bias is a partial understanding of life as fully constituted and lived in time and space. In the case of so-called "complex" societies, such as Hawai`i, there is a general lack of knowledge regarding the "other economy"—the "political" or "public" economy—that supported social institutions larger than the family (Sahlins 1972:101) and that involved the management and mobilization of resources, such as food surpluses and labor, for economic and political purposes (e.g., honor, prestige, legitimation, domination). Just how little is known of this other economy, and more particularly of the interaction between chiefs and commoners prior to European contact, is clear in some of the overviews of Hawaiian prehistory (e.g. Cordy 1981; Hommon 1976, 1986; Kirch 1984, 1985, 1990b).

In terms of the existing and future potential to identify and interpret ritual and ceremonial sites at PTA, it must be remembered that there are limitations, and that everything we would like to know about the practices that occurred at these sites is a probably unachievable. This applies to what is commonly called the "meaning" of a site or an object:

> In this light, it does seem that the hope of identifying single unconditional 'meanings' in material symbolism in prehistoric contexts must at best be doubtful. Far more important, perhaps, is the need to understand the structure and referents of ritual symbolism in particular cultural contexts that may, indeed, point to the expectations, the value systems, and world view that gave meaning to individual action and to social life. (Garwood et al 1991:ix)

The recovery of cultural material in the test excavation of Site 21284, Feature 1, indicates that at least some of the cairn complexes might contain artifactual and faunal materials, in addition to organic materials for radiocarbon dating. Further archaeological excavations at cairn complex features would probably increase our understanding of activities that took place at these sites.

There is a clear need to adopt a broader, more holistic approach, and to go beyond identifying individual historic contexts to examining the relationships between these contexts (see Peacock 1986:17 for a discussion of the value of thinking holistically). The study of ritual and ceremony, for example, should not be focused on sites alone, but should also include studies of portable artifacts believed to have been used in ritual practices. One example are artifacts that have been interpreted by some as a specialized type of bird cooking stone called *pōhaku ʻeho* or *pōhaku ʻeho manu* (Summers 1999; McCoy 1991; 1997). These phallic-shaped artifacts, some of which are ground and polished, are made of both fine-grain and vesicular basalt. All of the examples that have been sourced up to this time have been identified as Mauna Kea volcanics (Taomia 2007; McCoy and Nees 2010).

Curiously absent are occupational shrines that can be unequivocally associated with bird hunting/catching. While it may be that the few known shrines lack any obvious material evidence of use by bird hunters, it does raise the question of whether the bird hunters were specialists in the same sense as the adze makers, who constructed numerous shrines and left offerings of various kinds (McCoy and Nees 2010; McCoy et al. 2009). It may be that instead of building shrines they used the embellished ground and polished forms of bird cooking stones as part of a ritual practice that would predictably have begun with first fruits rites at the beginning of each season of work:

> As we have seen, first fruits sacrifices are consecrated to deities who are believed to produce the species appropriated by man. Indeed, the whole of nature is produced by the gods and therefore consists of their bodies. For this reason one cannot freely appropriate it but must ask forgiveness or return a part of what is appropriated. This divinization of nature is of course the consequence of the circumstance that every natural species of phenomenon has a symbolic content, that it evokes human properties and activities that are collectively sanctioned and therefore made sacred. The species that have this evocative power to the highest degree cannot in fact be desacralized at all but are employed only semiotically, that is, in a ritual context; the other species are made available for material use after they have been freed of their symbolic content by first fruits rites (Valeri 1985:75).
>
> By offering the god who personifies his activity the first fruits thereof, then, the sacrificer recognizes his dependence on the collectively sanctioned type of what he does. The sacrificial homage is therefore an homage to the real source of the productivity of his work, of what makes fish or taro exist for him. Hence the idea that the god who personifies fishing is also the producer of fish, the personification of fish as species (Valeri 1985:75-76).
>
> The critical point, however, is that the sacrifice of the first fruits frees the rest of the harvest or of the catch from the divine content that is initially recognized in it and therefore makes this rest *noa*, available for material consumption (Valeri 1985:76).

4.3.17 Property Type Significance

Site significance in American archaeology tends to be viewed as fixed and unchanging, but in reality it is "both dynamic and relative" (Moratto and Kelly 1978:2). Bowdler (1977:2) and others have noted how archaeological significance is anything but static. Charles McGimsey and

Hester Davis emphasize the importance of having a frame of reference in making significance evaluations and why they are always at the minimum relative:

> The fact that archaeological sites and the information they contain are our only clues to much of human life in the past makes every site potentially significant. It is generally recognized, however, that defining significance implies some frame of reference, problem orientation, geographic, temporal or other context, against which an archaeological phenomenon is to be evaluated. A site is therefore more or less significant relative to some criterion or criteria (McGimsey and Davis 1977:31).

Site significance in American archaeology is normally evaluated using standard criteria, such as those set out in the National Park Service's National Register regulations at 36CFR 60.4. Significant historic properties, using the National Register criteria, are those:

A) That are associated with events that have made a significant contribution to the broad patterns of our history; or

B) That are associated with the lives of persons significant in our past; or

C) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or possess high artistic values, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D) That have yielded, or may be likely to yield, information important in prehistory or history.

One other criteria (E) has been added to the list in Hawai'i. Historic properties evaluated as significant under Chapter 6E-8 and its implementing regulation (Chapter §13-275-6):

> Have an important value to the native Hawaiian people or other another ethnic group with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity (Chapter §13-275-6).

All of the associated property types are significant under Criterion D. Sites inferred to have been burials, temples (*heiau*) and smaller shrines are commonly evaluated as significant under the State of Hawaii Criterion E. This criterion corresponds in a general way to National Register Criterion A. Eidsness et al. (1998:38) note that all historic properties must be "managed as if they are eligible for listing in the National Register" except for those where a determination has been made that they did not meet any of the significance criteria.

4.4 PRE-CONTACT HAWAIIAN LITHIC TOOL PRODUCTION PRACTICES IN THE INTERIOR UPLANDS OF HAWAI'I ISLAND

4.4.1 Lithic Studies in Hawai'i

Not all types of stone possess the required characteristics for good tool making. And, because of Hawai'i's geology, Hawaiians did not have a diverse selection of tool-quality stone available to them; their options were limited to basalt and volcanic glass, an inferior variety of obsidian. Even these two types of stone differ in quality, so appropriate stone sources are unevenly disbursed throughout the islands. Lithic tool production in Hawai`i was, therefore, at least partially regionalized, meaning that multiple communities would use stone tools sourced from

one quarry. (This was not always the case, of course, because small veins of good-quality stone are also peppered throughout the Islands.) Major lithic quarries are important because they are so often regional and they reflect many aspects of Hawaiian society, like economy and social organization.

Archaeologists, however, have often used the term "quarry" to cover different types of sites. Here, we start with Leach's (1993:36) two-category model of "large quarry complex" and "local quarry" as our base:

> The Hawaiian, Samoan and New Zealand quarries fall readily into two categories: a few major complexes, producing large adzes of characteristic or standardized types for exchange or export; and more numerous, but much smaller quarries supplying local demand for everyday use.

Mintmier (2007) has proposed that some quarry complexes may be moderate, falling in between these two types in size, dominant adze forms, and "market" (local community or export). Mintmier (in prep.) further observes that these categories might co-exist at the same quarry location, either simultaneously or over the course of the quarry's use-life. For example, at the Haleakalā Adze Quarry Complex on Maui, data indicate that perhaps the quarry functioned only as a "local quarry" for its first two to three hundred years, then Hawaiians either a) switched their use to "large quarry complex" mode or b) amended their use to include a "large quarry complex" mode at the already operating "local quarry." She believes that some quarries—especially those we call major quarry complexes—are almost certainly palimpsests harboring both "local quarry" and "large quarry complex" attributes (not dissimilar to the general idea put forth in Bayman and Moniz-Nakamura 2001; Bayman et al. 2004).

4.4.2 Lithic Tool Production Sites

Lithic production sites are relatively common in the Saddle Region of Hawai'i Island; however, they do not constitute a "large quarry complex" because they do not possess the necessary production scale and are not all spatially associated. Most archaeological surveys of the area were motivated by Federal legislative requirements for government agencies, in this case the U.S. Army. Additionally, a University of Hawai`i field school was held at a site in this region (inside the Pohakuloa Training Area, or PTA) (see Bayman and Moniz-Nakamura 2001).

What such surveys and text excavations show is that these lithic production sites generally have a small stone source (such as an exposed basalt or volcanic glass vein) and one or more lithic debitage scatters. Archaeologists have recorded both basalt and volcanic glass tool production sites, and a variety of tool types are represented, such as adzes and volcanic glass cutting and scraping tools used for a variety of purposes (including processing food plants and animals). We consider these sites to be closer to the "local quarry" end of the spectrum (with the exception of the Pohakuloa Chill Glass Quarry Complex, see Williams 2002, 2004 below).

Specifically under consideration here, there are three sites associated with this historic context: Sites 18675, 21304, and 26730. Each of these sites consists of one to two small basalt quarry locales and associated lithic debitage scatter. The scatters include lithic cores and debitage flakes and shatter. These sites are all interpreted as lithic production areas, and reflect adze-manufacturing activities.

Lithic production was an important economic activity in the Saddle Region, and Hawaiians made two kinds of tools from two kinds of rock: basalt adzes and volcanic glass flake tools. Often, sites reflect both stone tool manufacture and bird hunting. For example, Bayman and Moniz-Nakamura (2001; see also Bayman et al. 2004) recorded two such adze-manufacturing sites within the PTA, which were probably used from A.D. 1400 to around 1700 – 1800 (around European contact). Unlike the Mauna Kea quarry up slope, these sites reflect a small-scale, local-oriented mode of production. They also recovered two polished adze flakes, which, unexpectedly and inexplicably, suggest that Hawaiians were maintaining the edge of at least one finished (ground and polished) adze.

Also in the PTA, Williams (2002, 2004) documented the second largest lithic quarry in the Hawaiian Islands, the Pohakuloa Chill Glass Quarry Complex. The complex is not associated with adzes but with volcanic glass flake tools. Williams (2004) reported over 500 quarry features grouped into twelve sites, spread out over approximately 170 hectares (420 acres). The largest site, Site 50-10-30-21666, is 146.5 ha (362 acres) and consists of 388 features. The lava flow (k4) from which the raw material was extracted has been dated to A.D. 1650-1750, meaning that Hawaiians made volcanic glass tools here rather late in the pre-contact period. Williams (ibid.:117) noted that only 810 ha of the 4,050 ha of the k4 lava flow (2001 acres out of 10,007 acres) have been surveyed, so many more quarry features are likely to be present. He further notes that the Pohakuloa Chill Glass Quarry Complex

> was only in use between A.D. 1700-1820, or perhaps for an even shorter period of time. That such a use, both extensive in area and intensive in scope, could have occurred in such a relatively short period of time has potentially profound implications for the scale and intensity of prehistoric use of the Saddle Region. It suggests that rather than a remote area exploited only seasonally by small groups of specialist bird hunters or the occasional traveler, it was instead an area that was heavily used, at least at times, and perhaps by larger groups than previously thought (Williams 2002:105).

4.4.3 Classification and Comparison to Similar Sites

At the Mauna Kea adze quarry, just up slope from the Saddle region, McCoy (1977, 1990; McCoy and Nees 2010; McCoy and Nees in prep) supervised a series of research projects. By far, Mauna Kea is the largest and most complex basalt adze quarry in not just the Hawaiian Islands, but all of Oceania. What makes Mauna Kea basalt rare, if not unique, is that glaciers were present during the Pleistocene, when the mountain was still being formed. Because of the rapid cooling of the molten lava upon reaching the cold glacier, the resultant stone has a smooth and homogeneous grain structure. Such qualities are much better for making stone tools than the usual, more coarse-grained basalt found everywhere else in the Islands. McCoy (1990) notes that not all lava flows within the quarry complex area have the same desirable qualities. For instance, basalt on the higher-elevation escarpment is much better than that in the lower-elevations.

The use-life of Mauna Kea ranged from approximately A.D. 1100 to 1750, and was seemingly abandoned just prior to European contact in 1778. The quarry consists of many different extraction locations and knapping workshops containing piles of basalt debitage, exhausted cores, and rejected adzes.

Several conclusions came of these research projects: First, Mauna Kea reflects an adze industry, or factory, and is *the* example of what Leach (1993) would certainly call a "large quarry complex." Second, that quadrangular adzes without tangs were the most commonly produced types of adze. Third, that high-altitude adze quarries often, if not always, include more than just functional elements, but that other cultural practices took place, such as rituals. Last, Mauna Kea was almost certainly associated with a political economy, which supplied the demands of elites.

Also at Mauna Kea, Cleghorn 1986 (1982; see also Williams 1989) completed research on adze technology, reduction sequence, and organizational structure. He also conducted experiments in adze manufacturing and recorded baseline data about manufacturing process, physical constraints, and patterns in debitage characteristics. He also noted that production estimates and flake detachment skill might be used as proxy measures for general skill level of adze makers, which he suggests were of two sorts at Mauna Kea, novice and expert. These different skill levels—these different adze makers—are reflected at different lithic debitage locations throughout the quarry complex.

But how do Mauna Kea and its separate but related sites in the Saddle Region, compare to other quarries, particularly Haleakalā, the only other major, high-altitude adze quarry complex in the Hawaiian Islands? Recent documentation and research done by Carson and Mintmier (2006, 2007) and Mintmier (2007, in prep.) are helpful in answering this question. The difficulty posed by the location of the quarry site itself (Site 50-50-10-2510) resulted in only limited documentation until very recently (see Somers 1988). At the request of the National Park Service, which manages the land where the Haleakalā adze quarry is located, Carson and Mintmier (2007) recorded ten lithic production sites, all part of the Haleakalā Adze Quarry Complex. This quarry was used between approximately A.D. 1300 and 1800, ending sometime around European contact. They also record evidence of bird hunting at many sites in or adjacent to the quarry complex, indicating mixed economies similar to that found in the interior uplands region of Hawai`i Island (see Bayman and Moniz-Nakamura 2001; Bayman et al. 2004). Finally, they recorded at least two platforms, used in ritual activity, in the vicinity of the quarry complex.

Incorporating three of the complex's sites, Mintmier (2007) conducted standard lithic analysis on debitage and rejected adzes. She reported that the quarry complex was a moderate-scale quarry that saw a significant jump in use starting sometime around A.D. 1400 – 1500. Continuing this research as part of her doctorate, Mintmier (in prep.) posits, albeit tentatively, that two modes of adze production likely occurred at this quarry: one more akin to Leach's (1993) "local quarry" and one to her "large quarry complex." As noted above, these modes of production may have operated simultaneously or one after the other. She also showed the majority of adzes made at the quarry were transported almost exclusively down the western slope of Haleakalā, within Kula District. This implies that the quarry was not used by other groups around the island, at least not for the majority of adzes produced.

Archaeologists working at Mauna Kea provided early framework for subsequent adze quarry investigations, including those not found in high-altitude settings. For instance, McCoy and colleagues conducted research at the Puʻu Moiwi adze quarry complex on Kahoʻolawe (McCoy et al. 1993). And, working at Pololu, on Hawaiʻi Island, Lass (1994) used a craft production

approach (see Costin 2004) to describe its adze production system, explain its changes over time, and analyze its broader economic role. She originally used this approach to assess an adaptation model of Hawaiian social evolution, which she ultimately found wanting in favor of a political model (see Earle 1987, 1991, 2002). Several years later, Lass (1998) broadened her study of Hawaiian craft production by describing and examining additional craft goods, such as feather cloaks, canoes, and wooden deity figures; many of these other crafts would have required adzes for their manufacture, so changes in them would have had concomitant changes in adze production. She focused, admittedly, on crafting that was ethno-historically known to have been associated with Hawaiian elites. Nevertheless, she illuminated the political economy of the late pre-contact/early contact period Hawai'i at both the household and regional scales. Interestingly, other activities occurring in the Hawaiian economy, such as agricultural activities or *heiau* construction, influenced some of these craft production systems. For instance, labor channeled toward agriculture during harvest time likely restricted or modified the production of canoes or feather cloaks. With this study, Lass illuminated the web-like connections between different crafts, and between crafting and the wider economy and culture.

The primary aspect of lithic production is, naturally, economic; however, it is not the only aspect. McCoy (1990:87) has previously used practice theory, which recognizes the centrality of human intentionality in social life (Ortner 2001:272), to argue that the Mauna Kea Adze Quarry Complex represents more than just the adaptation to raw material scarcity. Instead, it was a locus of production of both material goods and social lives; although the primary activity was economic, Hawaiians had social and political motives. For instance, they were craftspeople pursuing personal careers (see Goldschmidt 1990), from which they perhaps hoped to achieve honor, status, and prestige in the wider social order (McCoy 1990:110; 1991:25).

Archaeologists have recorded lithic production sites in numerous places throughout the Hawaiian Islands, many of which are quarry sites. These quarry sites range from small local-use quarries to large, multi-site quarry complexes, with Mauna Kea being the largest by far. The lithic production sites in the Saddle Region all include quarry sources, usually small veins of either basalt or volcanic glass. With the exception of the Pohakuloa Chill Glass Quarry Complex, these quarry sites fall closer to the small local quarry categorization.

These lithic production sites reflect the economy and, in at least some cases, the socio-political organization of traditional Hawaiians. Along with lithic sites in nearby regions, sites in the Saddle Region are important at the local, state, and national levels because they are regional (multi-community) in their association with traditional Hawaiian economy and society.

4.5 Pre-Contact Hawaiian Bird Hunting Practices in the Interior Uplands of Hawai'i Island

4.5.1 Studies of Bird Hunting Sites in Hawai'i

Native Hawaiians were the first to trigger the rapid and widespread decline—and in many cases extinction or extirpation—of native bird populations in the Hawaiian Islands. Europeans then sealed their fate. Like many remote island birds, Hawaiian birds were not well equipped to survive radical and rapid changes in their environment, such as new and ecologically invasive species like humans, rats, pigs, etcetera. Evolving with few natural predators, most Hawaiian

birds lacked many of the more common defense mechanisms, such as flight or camouflage. This made them much easier to capture and hunt for humans and their transported entourage of rats, pigs, mongooses, and other mammals. Also, they were more susceptible to diseases (for instance, avian flu) and habitat destruction, especially because many Hawaiian birds were highly specialized feeders (see Kirch 1982).

Researchers have gathered a wealth of data that show how humans, directly or indirectly, caused bird extinctions, extirpations, and dramatic population declines. Bird species throughout the Pacific Islands—Hawai‘i is no exception—"experienced an extraordinary period of extinction within relatively recent time" (Olson and James 1982:42; Moniz-Nakamura 1999a; Moniz-Nakamura et al. 1998). This extinction event was not associated with Pleistocene climate and vegetation change because the overwhelming majority of extinct species found as fossils were present into the period of Polynesian occupation (Olson and James 1982:43):

> Although it has been generally assumed that the era of human-caused extinctions in the Hawaiian biota began after 1778, when Captain Cook first visited the archipelago, a growing body of evidence indicates that the period of Polynesian settlement was one of equal or greater environmental perturbation.

And the arrival and settlement of Europeans continued this environmental degradation and its effects on endemic species, notably birds.

The destruction of dry lowland forests was particularly devastating because they tend to be richer in both species diversity and numbers of individuals (as compared to montane rain forests, for example). As Olson and James (*ibid*.:48) point out, this might be the reason for Hawai‘i's "high number of extinctions, even though rain forests persisted." Often species that *did* survive until more recently, or survive today in extremely low numbers, did so by moving into higher altitudes or other marginal environments, such as the interior uplands region of Hawai‘i Island. And Hawaiians followed them, or more likely, they were compelled to shift their focus from low to high elevation bird populations. In the historic literature, one of the few references to Ka‘ohe, the *ahupua‘a* that encompasses Pōhakuloa, Lyons stated: "Kaohe, whose owners belonged the sole privilege of capturing the *‘U‘au*, a mountain-inhabiting but sea-fishing bird" (Lyons 1875:111).

In such areas, including Pōhakuloa, there is also evidence that Hawaiians encouraged the continued nesting of petrels, during the pre-Contact period, around A.D. 1200 to 1750, based on dated pahoehoe lava flows in which excavated pits are found (Moniz-Nakamura et al. 1998; Moniz-Nakamura 1999a:231). Moniz-Nakamura (1999a) suggests that "…a change in technology occurred in the uplands on Hawai'i Island with the creation of nesting "pits," aimed in particular, at enhancing seabird habitat" (Moniz-Nakamura 1999a:212). She believes that this is one possible way Hawaiian bird catchers responded to the decline in bird populations in the lowlands (Moniz-Nakamura 1999a:212, 229). This decline was in large part due to habitat loss from forest clearing for agricultural (Moniz-Nakamura 1999a:213). By enhancing suitable and attractive nesting sites, Hawaiians were able to draw increasing numbers of petrels to the area (Moniz-Nakamura 1999a:231); thus, in effect, they were "tending" a wild bird flock (for more details regarding indigenous "tending" of wildlife, see Anderson 2005).

4.5.2 Bird Hunting Sites

Bird hunting was an important economic activity in the Saddle Region. Several archaeologists report the discovery of sites reflecting bird-hunting activities. Working in the Pohakuloa Training Area (PTA), Athens et al. (1991) recovered an abundance of bird remains from sixteen lava tube and lava bubble sites, which were used as temporary campsites. They recorded few other cultural material classes at these sites. They demonstrated an intensification of use starting around A.D. 1400 and tapering off around A.D. 1500 to 1540. The reasons for this could be bird population decline, reduced demand, or something else currently unknown. They concluded that birds were being exploited in this high-altitude region, most likely for chiefly adornments and/or luxury foods.

Bayman and Moniz-Nakamura (2001; see also Bayman et al. 2004) documented two additional sites in the region with evidence of multiple economies, namely adze production, bird hunting, and volcanic glass tool production. Unlike the nearby Mauna Kea adze quarry, which is *the* model for large-scale specialized adze production, Bayman and colleagues posit that these two PTA sites are examples of non-specialized modes of production. Such sites are probably more the rule than the exception because archaeologists have reported similar mixed-economy sites elsewhere in Hawai‘i, such as on the neighboring island of Maui.

Moniz-Nakamura (1999a) conducted research on excavated pits she called “bird catching pits” such as those identified at Site 21313, an area south of Pu‘u Koli containing over 470 excavated pits. These features consist of excavated pits, or holes, where humans broke into the flat pahoehoe lava flow using rock hammerstones or large sticks, and removed the boulders and cobbles (Moniz-Nakamura 1999a:222-223). The excavators either tossed the rocks out of the pit in a haphazard fashion, or stacked them along one or more of the edges of the pit. The rocks removed from the pit are much less weathered than the surrounding untouched lava, and often have tool marks on them.

There is a long history of investigating and attempting to interpret the function of these pit features (Barrera 1971; Carter 1986; Hu, et al. 2001; Ladefoged, et al. 1987; Moniz-Nakamura, et al. 1998; Moore and Bevacqua 1972). Various interpretations have been made, including agricultural (sweet potato cultivation), abrader manufacture, construction material for shelters and trail curbs, as well as bird-catching pits. Moniz-Nakumura (1999a:224; see also Hu et al. 2001; Moniz-Nakamura et al. 1998) suggests that these pit features aided bird-catching efforts in two ways: (1) they created larger nest openings, which facilitated easier removal of the nesting bird(s) and (2) they “…served to enhance the nesting sites as a kind of artificial habitat” (Moniz-Nakumura 1999a:224).

In sum, archival research suggested that the excavated pits in the lowlands of Hawai‘i Island were used for agriculture. Excavated pits in the arid uplands of the Saddle Region (including PTA) and on Mauna Loa were associated with the procurement of birds (Moniz-Nakamura (1999a). At PTA, this is supported by archaeological evidence including several cave sites found to contain abundant bird bone remains identified as dark-rumped petrels (*Pterodroma phaeopygia sandvicensis*, or *‘u‘au*), and the presence of nearly a thousand excavated pits located between 4,200 and 8,880 feet above sea level (Moniz-Nakamura (1999a:219). These pits are also found on Mauna Loa.

4.5.3 Classification and Comparison to Similar Sites

In Kula, on the lower upland slopes of Haleakalā, Kolb (1994b) excavated inside an ancient temple, or *heiau*, and discovered evidence of bird hunting, specifically early in its use-life. Because of the association between bird hunting and this ritual structure, Kolb surmised that this economy was most likely motivated by elite demand. Birds were possibly used in ritual activities, as well as for feathers and luxury foods; it is difficult to assess their exact uses.

Further up slope, in the subalpine and alpine zones of Haleakalā, near the 10,000-foot summit, Carson and Mintmier (2006, 2007; see also Mintmier 2007, in prep.) documented bird bone remains at six sites. All but one of these was associated with adze manufacturing, reflecting a mixed economy in this region as well. Further, one specimen of *nēnē* bone was modified into some kind of tool, though its intended function is unknown. This also suggests that, along with immediate food needs and supplies for elites, bird bones were also used for making tools, if only occasionally.

But why did Native Hawaiians hunt these birds, particularly the dark-rumped petrel and the *nēnē*, the most predominant birds in most assemblages? Other archaeologists (for instance, Kolb 1994b, 1997; Streck 1992; Williams 2002) have offered two suggestions: First, at sites closely associated with adze quarries, adze makers hunted birds for their food while visiting the quarry. Second, bird hunters collected birds to meet the demands of the elites, who used certain species for chiefly regalia and as luxury food. These explanations can, of course, coexist or occur independently.

Given that some of the recovered bones at many sites were burned and charred, and sometimes found in fire pits, Native Hawaiians were clearly eating them on-site. This is not surprising in high-altitude regions like the interior uplands, and is consistent with information from similar environments, for instance the arid summit region of Haleakalā, Maui (Carson and Mintmier 2006, 2007; Mintmier 2007, in prep.). Bird hunting was, thus, a part of the adze makers' diet.

In addition to bird hunting, enhancing upland seabird habitats by excavating pits in pahoehoe lava flows to create nesting sites in arid uplands of Hawaii Island appears to have been an intensive endeavor based on nearly a thousand excavated pits identified in eastern portions of PTA (Williams 2002; Williams et al. 2002). Site 21313 contains over 470 excavated pits, which are believed to have been used to encourage birds like the Hawaiian petrel to nest in the pits.

And, based on ethnohistoric accounts (Malo 1951:37-39), Williams (2002) and Williams et al. (2002) think that bird hunting also supplied the Hawaiian elite class with feathers, which they used for chiefly regalia and luxury food-stuffs, specifically juvenile *ʻuʻau,* or Hawaiian petrels. It is certainly possible that Hawaiians were also catching birds for elites, but at this location—the site of extraction—evidence would be scant or nonexistent. Consequently, it is difficult to provide evidence for bird hunting as part of a political economy; however, it is highly likely. Brightly colored birds were common in the dry-land forests not far from this region. And as land was cleared for agriculture in lower elevations, many of these birds would have moved their ranges into higher altitudes.

Native Hawaiians were certainly hunting birds to eat while they made adzes and other lithic tools, and they probably also engaged in hunting birds to supply elite demand for bright feathers and luxury bird meat. What remains a mystery is whether the adze makers and bird hunters were the same people. Did adze makers hunt their own birds, or were they accompanied by camp-tenders who looked after provisioning? Or, were bird hunters independent from the adze makers, particularly those who were engaged in meeting elite demands?

Archaeologists have recorded bird-hunting sites in several places in the Hawaiian Islands, mainly in higher elevations regions. They are relatively uncommon sites, and, like many lithic quarry sites, are found near unevenly distributed material sources (such as nesting sites). In this case, it is likely that the favored birds suffered a decline in their roosting ranges, eventually narrowing to just the higher altitude places.

These bird-hunting sites reflect characteristics of the economy and probably the socio-political organization of traditional Hawaiians. Such sites in the Saddle Region are important at the local, state, and national levels because they are regional (multi-community) in their association with traditional Hawaiian economy and society.

4.6 Pre-Contact Hawaiian Temporary Occupation in the Interior Uplands of Hawai'i Island

4.6.1 Studies of Temporary Occupation Sites on Hawai'i Island

In the harsh, barren, high-altitude regions of the Hawai'i, pre-contact Hawaiians had to find temporary shelter. They often chose, for obvious reasons, accessible lava tubes and overhangs, which are sporadically disbursed throughout these volcanic landscapes. Such natural features protected people from the worst of the wind and cold temperatures, and Hawaiians frequently augmented these properties by building stone entrance walls to serve as wind-breaks and increase heat retention. Permanent water sources were scarce to non-existent, and evidence of gourd water containers is found in many of these shelters. Occasionally, Hawaiians captured condensation in lava tube caves where it was possible. Food was also difficult to come by, with the exception of nesting birds, so Hawaiians had to bring much of their provisions with them. This is also evident in many of the caves, which contain lowland and coastal food remains like chicken, pig, fish, and shellfish. No doubt they also brought the common carbohydrate staples of taro and/or sweet potatoes.

Temporary occupation sites were just that: temporary, meaning that they were used only for a short time but regularly. Most likely they were occupied seasonally, in the spring and summer months, when the weather is milder and when, particularly relevant for bird hunters, the petrels and *nēnē* were roosting. Bird hunting was a significant activity for Hawaiians camping in these regions, along with ritual activity and adze production, especially near major quarries like Mauna Kea. Travelers crossing the island, for example through the Saddle Region of Hawai'i Island, would also have used temporary campsites. But adze making, bird hunting, and, to a lesser extent, ritual activity appear to have been the main activities associated with temporary occupation sites.

4.6.2 Temporary Occupation Sites

Athens et al. (1991) recorded 15 temporary occupation sites during a 730-hectare (1,804-acre) survey of the Saddle Region. All of these sites were lava tube cave shelters that sometimes included stone-ringed hearths, stone terraces or terrace platforms, stone walls or alignments, and stone niches. The predominant cultural materials were charcoal and bird bone, attesting to probable use of these shelters by bird hunters. Other artifacts included gourd and *kukui* (*Aleurites moluccana*) nut shell fragments, coconut shells and *hala* (screw pine or *Pandanas* spp.) leaves, along with a few historic items like sugar cane and leather. Radiocarbon dates suggest that Hawaiians used some of these temporary shelters as early as A.D. 1000 to 1200. But starting around A.D. 1400, activity of this area increased dramatically, probably corresponding to the increased demand in brightly colored feathers and luxury bird foodstuffs by an elite political economy. Around A.D. 1500 to 1540, Hawaiians decreased their activities in the area slightly. Unlike other temporary shelters in high-altitude regions, these were not associated with lithic production, neither basalt adze nor volcanic glass flake tools. This suggests that this portion of the Saddle Region was primarily a single economy focused on bird hunting.

Nearby, however, Bayman and Moniz-Nakamura (2001; see also Bayman et al. 2004) documented one temporary lava tube cave shelter that shows evidence of a dual economy, focused on both bird hunting and lithic production. Hawaiians seem to have used this temporary occupation site between A.D. 1400 and late 1700 or early 1800. Such a continuous, but likely seasonal, occupation produced over 1.5 meters of cultural deposits inside the cave, as shown from a one by one meter test excavation unit. The artifacts that were recovered included basalt adze debitage (cores, flakes, and rejects), volcanic glass debitage (cores and flakes), bird bones (burned and one piece that was a cut and polished tool of unknown function), marine shell fragments, and burned *kukui* nut shells, presumably for lighting the cave's interior. Although basalt adze debitage is present, this site contains considerably more volcanic glass debitage and bird bone materials, suggesting that Hawaiians were mainly engaged in bird hunting/processing activities while visiting this area. This was not the case in the nearby high-altitude region of Mauna Kea, where temporary occupation sites were mainly associated with basalt adze production.

One site (21286) under consideration for nomination here is associated with this historic context. The site is a large, natural lava tube cave, in which archaeologists recorded several features, including five stacked-stone terraces, two stacked boulder piles, and one stacked stone cupboard. Various artifacts were also observed, such as a whole gourd and gourd fragments, two bird cooking stone fragments, a pointed stick fragment, *kukui* nuts, charcoal and burned wood, and bird bones. Several historic artifacts were present, suggesting that this site was used during both the pre-contact and historic periods.

4.6.3 Classification and Comparison to Similar Sites

McCoy (1977, 1990) and Cleghorn (1982, 1986) report on the 44 temporary campsites found in the Mauna Kea Adze Quarry Complex. These include both overhang shelters and deeper lava tube cave shelters, which contain various features like fire hearths, stone entrance walls, and in one case a group of upright stones. Artifacts found within and around these shelters included a

significant abundance of basalt adze debitage (flakes, cores, rejects), along with volcanic glass debitage (flakes and cores), tapa cloth fragments, a wooden stopper for a bottle gourd (water container), cordage, a wooden fire-starting device, *Pandanas* matting, charcoal, marine shell, fish and bird bones, coconuts, gourds, *kukui* nut shells, one perforated dog tooth, one Silversword (*Argyroxiphium sandwicense*) wrapped in leaves (a possible "god image"), and a "curios idol" of unknown description, which was discovered and then lost many years ago (attempts to relocate it have been unsuccessful, see McCoy 1990). Researchers also note that, given the depth of accumulated debitage and midden, Hawaiians seemingly did not clean out these shelters very often. Also, McCoy (1990) and Williams (1989) posit that Hawaiians were making regular offerings of food, debitage, and other materials inside these campsites, and that certain areas inside some of these shelters are "ritual middens" rather than in situ manufacturing piles or subsistence middens. Like other sites at Mauna Kea, these campsites were used between approximately AD 1100 and 1800.

Are similar temporary occupation sites associated with similar economic and ritual activity elsewhere in the Hawaiian Islands? In the likewise high-altitude setting of Haleakalā, Maui, researchers have reported nearly identical sites. Carson and Mintmier (2007; see also Mintmier in prep.; Tomonari-Tuggle and Tuggle 2007) documented 11 shelter temporary campsites and 17 open-air campsites during a survey of the Front Country region of Haleakalā, near the summit on the mountain's western slopes. The main features were stone fire pits and stone walls at the entrance, presumably used as wind-breaks and/or for heat-retention. The artifacts recovered were similar to those found at campsites on Hawai'i Island, predominantly basalt debitage (flakes, cores, adze rejects), as well as volcanic glass debitage, basalt sling stones, charcoal, bird bone, marine shell, *kukui* nut shells, and a bird bone tool (unknown function). Additionally, various historic artifacts, such as metal, glass, and ceramic pieces, were found at some of the campsites, attesting to their continuous but irregular use. Similar to many of the Hawai`i Island campsites, these temporary occupation sites were used between A.D. 1200 and 1800 (around the time of European contact in 1778), with a noticeable increase in use between A.D. 1400 and 1600. Further, these sites are clearly associated with adze production, bird hunting, and to a much lesser extent ritual activity.

Hawaiians required temporary occupation sites when they were visiting the high-altitude regions in the Hawaiian Islands, found on both Maui and Hawai'i Island. Although only used for a short time, campsites were critical to bird hunting and adze making, both important economic activities in pre-contact times. Archaeologists have, so far, documented almost 20 such sites in the Saddle Region, all of which illuminate aspects of pre-contact Hawaiian life and are important at the local, state, and national levels because of their relation with traditional Hawaiian economy and society.

4.7 Pre-Contact Hawaiian Rock Art (Petroglyphs) in the Interior Uplands of Hawai'i Island

4.7.1 Rock Art (Petroglyphs) in Hawai'i

Petroglyphs have been recorded on all of the major Hawaiian Islands. Hawaiians were the most prolific in making petroglyphs (compared to other Polynesian groups), particularly on Hawai'i Island where sites such as Pu'uloa are densely covered with petroglyphs (Cox and Stasack 1970:2). Pictographs, often painted in red-earth pigment, have been found on the islands of

Kauai, Maui, and Hawai`i (Lee 2001:590; McCoy 1990). One of the earliest direct radiocarbon-dated specimens, from a petroglyph on Kahoʻolawe, dates to AD 983 – 1167 (Lee 2001:592); however, the dating method used is controversial enough to raise suspicion (see Appendix A in Lee and Stasack 1999). Additionally, the context of this petroglyph and the lack of similarly early dates from Kahoʻolawe also call this date into question.

There are four general techniques for making petroglyphs: pecking, incising, bruising, and abrading. The choice of which one(s) to use will be influenced by both the surface of the raw material (the texture of the "canvas") and the shape of the carving tool (the fineness of the "brush," ranging from blunt to sharp) (Cox and Stasack 1970:38). Because rock art materials and techniques are fairly similar everywhere, the stylistic range of the petroglyph maker is limited to simple and basic forms, capturing the symbolic essence of that which the petroglyph represents (Cox and Stasack 1970:2).

Hawaiians made the following types of rock art: pecked, grooved, and bas-relief petroglyphs, and painted pictographs. Pecking, however, was the predominant technique employed (Lee 2001:589). Common motifs include anthropomorphic figures and geometric elements, such as cupules (referred to as *piko*, or umbilical cord holes). The human figures tended to change in form over time from stick figures (similar to those found in the Marquesas Islands) to triangular-torso figures, and then to more muscled forms. Other less common motifs are footprints, canoe sails (not attached to canoes), and ceremonial regalia. Images of animals like fish, turtles, and sea mammals, are very rare (Lee 2001:590). Cox and Stasack (1970:63) noted a surprising lack of interest in nature or natural forms generally (e.g., so few animals and vegetation) on the part of Hawaiians. They further noticed that houses, clothed figures, water, fire, volcanic activity, and geographical features were also conspicuously absent.

For the most part, archaeologists have largely ignored Hawaiian rock art (Lee 2002:79). In 1924, Kenneth Emory (1924) conducted one of the first attempts to study Hawaiian rock art. Unfortunately, he came to feel that petroglyphs were not very important, setting the tone for subsequent "dismissive" attitudes towards rock art in the decades to follow (Lee 2001:590). It was not until the 1970s, with Cox and Stasack's (1970) *Hawaiian Petroglyphs*, did anyone undertake serious investigations into Hawaiian petroglyphs (following this, see Lee and Stasack 1999).

Hawaiʻi Island has an abundance of petroglyph sites compared to the other major Hawaiian Islands (Lee 2002:79). In fact, Hawai`i Island has the largest numbers, densest concentrations, and greatest variety of forms and styles in the Islands; consequently, most petroglyph research has been focused on Hawaiʻi Island sites (Cox and Stasack 1970:51). Petroglyphs on Hawaiʻi Island are most commonly found on pahoehoe flows and inside lava tube caves (Lee 2001:589). For example, the Kaʻu region is where most lava tube petroglyphs are found (Cox and Stasack 1970:13).

Two of the largest petroglyph sites in the Hawaiian Islands (Puʻuloa and ʻAnaehoʻomalu, both on Hawaiʻi Island) are associated with trails, which "tend to have a different universe of design types," including geometric specimens and cupules. Sites not related to trails tend to have a higher frequency of human figures and other motifs like sails (Lee 2001:593; see also Cox and Stasack 1970:20).

Some petroglyph sites on Hawai'i Island have, by far, the most abundant individual petroglyphs. For instance, Pu'uloa (south coast) has over 21,000 individual petroglyphs (Lee 2001:590). At sites like Pu'uloa, two petroglyph-related activities appear to have taken place: 1) *piko* ceremonies and 2) *makahiki* and/or tax collecting recordation (Cox and Stasack 1970:34). Other significant petroglyph sites on Hawai'i Island are 'Anaeho'omalu (Kona coast), Kalaoa 'O'oma (west coast), and Hilina Pali (northwest coast). These sites differ in the number of petroglyphs and design types present (e.g., human figures with and without paddles, bird-headed figures, fishhooks, animals, footprints, *piko* cupules, circles, rings, lines, chiefly regalia, and a few historic-period petroglyphs like European sailing ships).

4.7.2 Rock Art (Petroglyph) Sites in the Interior Uplands

At Site 21302, archaeologists have recorded a slab with three petroglyphs pecked into its surface: two human stick figures and one footprint shape. The footprint motif is unusual, and adds to the significance of this site considerably. Based on the style of both human figures (stick, rather than triangular torso or muscled form), it is likely that they were made relatively early in Hawaiian occupation.

4.7.3 Petroglyphs and Significant Places

There is scant ethnographic information about the making or meaning of petroglyphs (however, see Beckwith, n.d.; Ellis 1979). However, it seems that petroglyphs sites were associated various themes, including religious and ritual activity, chiefly and prestige concerns, land boundaries and *kapu* (taboo), and trials and traveling.

Throughout Polynesian, and Oceania in general, many petroglyphs are "related to places of ritual significance," such as shrines, locations to place umbilical cords, burial caves, and so on (Lee 2001:597). Rock art reflects not only people's cultural practices, "but contributed to their social (re)production." As "place markers," petroglyphs are "intimately linked to worldviews" (Lee 2002:79), and are often associated with ritual and/or ceremonial sites (Cox and Stasack 1970:13; Lee 2001, 2002:80).

Petroglyph sites are almost always only concentrated at certain places. For instance, not every pahoehoe flow has petroglyphs on it, but some have hundreds or even thousands. The same is true for lava tube caves; not all caves have petroglyphs adorning their walls (Lee 2002:80). Two likely reasons for creating petroglyphs were to gain *mana* (spiritual power) or to confer a blessing; petroglyphs are frequently found near locales (e.g., caves, cracks, or collapsed lava tubes) that were considered access points to the underworld and its spirits. Further, this activity may have reinforced legends and myths in a concrete way (Lee 2002:81). In other words, "It is place and place making, more so than the petroglyphs themselves, that are of significance" (Lee 2002:92). Indeed, the overlapping of petroglyphs at some sites suggest that certain places were so important that they "demanded that the images be placed there" regardless of any previously inscribed petroglyphs (Cox and Stasack 1970:43). Petroglyphs were important because of their relation to the place, and the places, in so being marked, were elevated even more so in their power, sacredness, and/or importance (Lee 2002:92).

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APPENDIX A

Results of an Ethnographic Survey
Conducted by Maria Orr, M.A.
Relating to the Identification of
Traditional Cultural Properties
Within the U.S. Army Pohakuloa Training Area

Final Report
November 2012

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1.0 Ethnographic Methods

The U.S. Army Pohakuloa Training Area (PTA) Ethnographic Survey was conducted between the months of April 2009 to August 2010. The study consisted of field visits with PTA staff; selected ethnographic survey (oral history interviews), transcribing taped interviews, analysis of ethnographic data (oral histories) and report writing.

1.1 Personnel. The personnel consisted of the author and Principal Investigator, Maria Orr, who has a Masters degree in Anthropology, with a graduate curriculum background in the archaeology track as well as anthropology theory, cultural resource management, ethnographic research methods, and public archaeology; an undergraduate curriculum background that included Hawaiian History, Hawaiian Language, Hawaiian Archaeology, Pacific Islands Religion, Pacific Islands Archaeology, Cultural Anthropology, as well as a core archaeology track, Geology, and Tropical Plant Botany; and ethnographic field experience that includes over 370 interviews to date.

1.2 Theoretical approach. This study is loosely based on *Grounded Theory,* a qualitative research approach in which "raw data" [transcripts and literature] are analyzed for concepts, categories and propositions. Since this was a semi-focused study, categories were pre-selected as part of the overall research design. However, it is not always the case that these research categories are supported in the data. Categories were generated by forming general groupings such as "Land Resources & Use," "Water Resources & Use," "Cultural Resources & Use" "Project Concerns/Thoughts" and "Anecdotal Stories." Conceptual labels or codes are generated by topic indicators [i.e., ranching, burials, caves]. In the *Grounded Theory* approach, theories about the social process are developed from the data analysis and interpretation process (Haig 1995; Pandit 1996). This step was not part of this ethnographic survey as the research sample was too small.

1.3 Archival Research. The archival cultural and historical literature was primarily provided by PCSI or the U.S. Army and included several weeks of intermittent archival research review. The majority material came from previous reports.

1.4 Ethnographic Survey (interviews), Data Analysis and Final Report.

1.5 Consultant Selection. The selection of the consultants was based on the following criteria:

- Had/has Ties to Project Location(s)
- Known Hawaiian Cultural Resource Person
- Known Hawaiian Traditional Practitioner
- Referred By Other Cultural Resource People

The consultants for this TCP Study were selected because they met the following criteria: (1) consultant spent considerable time as a youth and adult in the project area (2) consultant is familiar with the history and *mo`olelo* of the project area; (3) the consultant works/worked in the project area; and/or (4) the consultant hunted/hunts/gathers in the project area.

1.6 Interview Process. The interview process included a brief verbal overview of the study. Then the consultant was provided with a consent or 'agreement to participate' form to review. An ethnographic research instrument was designed to facilitate the interview, a semi-structured and open-ended method of questioning based on the person's response ('talk-story' style).

Each interview was conducted at the convenience (date, place and time) of each consultant. The interviews were conducted using a Radio Shack cassette tape recorder. A *makana* or gift was given to each consultant in keeping with traditional reciprocal protocol.

1.7 Transcribing-Editing Process. The taped interviews were transcribed by sub-contractors and edited by the author. Each consultant was sent a *mahalo* letter that explained the transcript review process, along with two hard copies of the interview transcripts, two 'release of information' forms, and a self-addressed, stamped envelope for return of one signed release form and one copy of the edited transcript. This process allows for corrections (i.e., spelling of names, places), as well as a chance to delete any part of the information if so desired or to make any stipulations if desired. Each consultant was also informed of the two-week time limit for their review after which it will be assumed that the raw data can be selectively used.

1.8 Ethnographic Analysis Process. The analysis process followed a more traditional method, as a qualitative analysis software program was not necessary. The interview was manually coded for research thematic indicators or categories (i.e., personal information; land and water resources and uses; site information-traditional and/or historical; and anecdotal stories). For the purpose of this study, it was also not necessary to go beyond the first level of content and thematic analysis, as this was a more focused study. However, sub-themes or sub-categories were developed from the content or threads of each interview (e.g., ranch life, hunting, and gathering).

1.9 Research Problems. A typical constraint for most studies is not enough time, however, this study was presented with a unique set of circumstances:

- The project was halted for a period of time due to stop work orders;
- There was confusion with the final scope of work that included the number of interviews;
- One interview of a PTA archaeologist was not included due to U.S. Army request;
- Two people agreed to be interviewed then did not show up;
- One potential interviewee was not available [conflicting schedule] during the interview period;
- Only one interviewee returned their revised transcript and release form;
- Another major problem was restrictive nature of the military bases and people losing touch with the lands there.

2.1 Ethnographic Survey

The Ethnographic Survey (oral history interviews) is a critical component of a Traditional Cultural Property (TCP) Study as ethnographic data can support other evidence (e.g. physical features, archival data) in the process of determining whether a property is "eligible for inclusion in the National Register (NR) because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community."

To be eligible for listing in the National Register, a traditional cultural property must [based on NPS Bulletin 38]:

***Be a Tangible Place**. The NR does not list cultural practices or beliefs. Tangible means that you must be able to physically locate the property. It does not mean that you have to have physical, man-made features or items at the place. A mountain, a street corner, and a pueblo are all tangible places.

***Be important to the community today** and play the same role in the community's traditions as it did in the past.

***Have been important for at least 50 years**. For example locales where pow wows are held now, but were not held 25 years ago probably do not meet the 50-year rule. The use of the property, however, does not have to be continuous over the last 50 years, but there should be a pattern of use or continued value.

***Have Integrity**. By regulation integrity means integrity of **location, design, setting, materials, workmanship, feeling, and association**. The importance of each of these elements varies depending on the nature of the property. [For TCPs, integrity can often be evaluated in terms of the strength of the **property's association with the traditions** of the community and the **property's condition**. The **association** between the place and the community's traditions must be strong. The **property's condition** is just as important to consider.]

***Have definable boundaries.** Definable boundaries should be based on the **characteristics of the property, how it is used, and why it is important.**

***Meet NR Criteria**. Like any other property, to be listed in or eligible for listing in the NR, a TCP must meet one or more of the NR Criteria**. TCPs do not have a criteria all their own**. TCP are almost always listed under **Criterion A** (and sometimes B) for their association with historical events or broad patterns of events.

2.2 Research Themes or Categories

In order to comply with the scope of work for this Traditional Cultural Property (TCP) Study, the ethnographic survey was designed so that information from ethnographic consultants interviewed would facilitate in determining if any property within Pohakuloa Training Area (PTA) would be eligible for nomination to the National Register (NR). To this end the following basic research categories or themes were incorporated into the ethnographic instrument: Consultant Background, Land, Water and Cultural Resources & Use; Anecdotal Stories and Project Concerns. Except for the 'Consultant Background' category, all the other research categories have sub-categories or sub-themes that were developed based on the ethnographic raw data [oral histories] or responses of the consultant. These responses or clusters of information then become supporting evidence for any determinations in the eligibility to NR process.

2.3 Consultant Background and Demographics

Each consultant was asked to talk about their background; where they were born and raised, where they went to school and worked, and a little about their parents and grandparents. This category helps to establish the consultant's connection to the project area, their area and extent of expertise, and how they acquired their proficiency. In other words, how the consultant met the consultant criteria. Thirteen individuals were identified as potential consultants; seven people were interviewed; one interview was later withdrawn by the U.S. Army. An eighth person, daughter of Uncle Sonny Keakealani sat in the Case Ohana interviews. Most of the interviewees were part-Hawaiian; three were hunters on PTA/ranch lands; two were ranch cowboys; one is cultural practitioners, who is knowledgeable of the project lands; and the "addition" is also a cultural practitioner.

Table 1. Consultant Demographics in Relation to Project Lands.

Consultant	Ethnicity	Born	Raised	Work	Proj Area
Kanaina Case	Pt Hawn	1977 - Hilo	Waimea	Carpenter	Hunt/Gather
Kauka Case	Pt Hawn	1981 - Hilo	Waimea	Landscaper	Hunt/Gather
Lloyd Case	Pt Hawn	1950? - Waimea	Waimea	Construction	Hunt/Gather
Ku Ching	Pt Hawn	1936 - Honolulu	Oahu/Waimea	Cult Practitioner	Huaka`i/Gather
Lucky Puhi	Pt Hawn	1952 - Waimea	Waimea	Cowboy	PR/Waiki`i
Mark Yamaguchi	Japanese	1958 - Waimea	Waimea	Cowboy	PR/Keamuku
Ku`ulei Keakealani*	Pt Hawn	1977? - Waimea	Waimea	Teacher/Waimea Cult Practitioner	PR/Gather

*Addition to Case Group Interview; PR = Parker Ranch

There is always a danger of not allowing the consultant's "voice" to be heard; of making interpretations that are not theirs; and of asking leading questions. To remedy this, the "talk story" method is used and allows for a dialogue to take place, thereby allowing the consultant to talk about a general topic in their own specific way, with their own specific words. All of the excerpts used are in the exact words of each consultant or paraphrased to insert words that are "understood" or to link sentences that were brought up as connected afterthoughts or related additions spoken elsewhere in the interview. The following excerpts in "Consultant Background" provide a summary of each consultant, as well as information about their parents and grandparents. They are presented below alphabetically according to their first names as some people have the same last names. First names will also be used for citations in other sections below.

2.3.1 Kanaina Case. I was born in Hilo Hospital (1977), but pretty much raised all my life in Waimea. I went to Waimea Elementary School, from there I graduated from Honokaa High….and I graduated in 2000 from HCC in Hilo. I took up carpentry. My father is Lloyd who you interviewed earlier, and my mom is Keomailani. Her maiden name was Strauss, she's from Kane`ohe, `Oahu. I can't remember when my dad actually started taking us hunting. We were little…we mostly sat in the truck or just followed him around…most of the time he would have to carry us 'cause we were really small. I'm thirty-one now, from what I can remember I was at least four or five. So I've been going out with him from when we were little. We most just packed animals or helped carry stuff when we were little. We really started going on our own…I think we were in high school. That's pretty much where I started…hunting with my dad. And I spent almost every summer I had out there when I was young. He worked out there…so we explored…we'd leave where he was working at and we'd sometimes come back at 2:00 in the afternoon. We could cover some ground…. We did a lot of exploring out there. We've pretty much walked every acre of that place. If we wasn't exploring, it was hunting.

2.3.2 Kauka Case. My name is Kauka Case. I was born in Hilo Hospital (1981), raised all my life in Waimea. My father is Lloyd and my mother is Keomailani. I went to Waimea School all the way up to eighth grade and then from there went to Honoka`a and I graduated from Honoka`a High in '99 and from there got a job landscaping and been doing that ever since. I know I was real young; I can't give you the exact age - real small when my dad started taking me - three years old I guess - been hunting ever since - got some pictures of me hunting pretty young.

2.3.3 Lloyd Case. My name is Lloyd Case. I was born and raised here in Kamuela. I'm a hunter, and I represent the hunters and gatherers. I went to Waimea School here, in Waimea, and Honokaa High School, and then two years Hilo Technical School as a welder. My dad was Dr. Leonard Case, he was a veterinarian. He came from Norwich, Connecticut. He moved to the islands in 1903. My Mom was Mabel Hussey, she came from Kohala - Nuli`i. She is the Hawaiian. **[**After technical school] I worked for a company called Volcanite up at Puu Wawa, towards Kona on the side of Hualalai for about nine years. Then I worked for another construction company called, Allied Aggregates - I worked for them for 23 years. Then I worked for Ishimoto Construction for five years. Before that, while I was still going to school, I worked for Parker Ranch during the summer months – 1964, '65, '66 and '67. And, also, I worked for the Plantation while I was going to trade school as a welder during the mill shut down - when they shut down for repairs. I started hunting when I was ten years old. Hunted with my brothers and by thirteen years old I was on my own, hunting… I did a lot of bird hunting when I was young. Kind of gave that up - I'd rather see them walking around. When you hunt lot when you're young you get to appreciate things a little bit more in life, sometimes some things is just better to be left alone alive instead of killing. Taxidermist - I used to be one. I don't have time now for that anymore. I did a lot of mounting of birds and stuff like that. A lot of people don't know that. I mounted all different types of birds. Quails, Pheasants, Chukar, Francolins, stuff like that…. I have one more son, too who

hunts. And I have one girl [out of three] that hunts too. But I take them with me from time to time.

2.3.4 Ku Ching. I was born on Oahu in Honolulu (1936). I spent most of my early Hawaii life in Pauoa. I went to Pauoa School through the sixth grade and from seventh grade on until graduation I went to Kamehameha; and then I went away to the continent and came back permanently in 1976. So from 1976 on I've been back in Hawaii and since 1992 I've been living on Hawaii Island. My name is Clarence Ching as you can tell very American style and I identify with Hawaii and being Hawaiian, so I've adopted the name Kukauakahi that happens to be the name of one of my great, great, great grandfathers who came from Kauai, which person I don't know much about, but I like him whoever or whatever he is or was. I lived in the Waimea area for since 1992. However, in the last 10 years I was living at Pa`auilo mauka until last March 2008 when I moved back to Waimea.

Father's name was the same, Clarence Ching. Mother's maiden name – Julia Apao. Both were born on Kauai. Father pure Pake, mother Pake/Hawaiian. Hawaiian genealogy – lots on Kauai, some on Oahu, and Hawaii Island. Apao is a Hawaiianized Chinese name. Okay that was my grandfather's surname that became my mother's. My great grandfather's name was Nawai - my mother's grandfather. So my ancestors on Kauai come from all over the island. Grandfather born in Koloa; grandmother born in Waimea, and then their parents go back to Wainiha to Waimea Canyon, eventually to Kalalau Valley back to Wainiha. I have lines that go to some pretty famous people like Manokalanipo, Peleiholani; yah Kualii, Kakuhihewa all those guys. So that's my Kauai and Oahu lines. And then on Hawaii Island going back to Umi through Luahikamakahiki. And then with Kalalau I get some kinda connection with Niihau, all kinds of connections. So Hawaiian on that side of the island chain vs this side so the island culture plus other cultures that Kamehameha tried to erase.

Kukauakahi supposedly was the first cousin of the king of Kauai, what was his name - Kaumualii. So they had the same grandparents - his mother's side. I had one year of university type education and almost four years in the Air Force; then after that I got a bachelors degree from BYU – Provo, Utah, then I worked in Idaho, working and going to school all that kind stuff. And finally in '76 after getting a law degree (University of Idaho) I came back to Hawaii about 14 years. However, let me add, I quit practicing law because I did not feel I wanted to practice in the State of Hawaii – the fictitious State of Hawaii of the United State of America. Been doing lot of everything, from a part-time farmer, part-time bum, part-time activist. Maybe more part-time activist – I've been spending a lot of time activating ___. I've been doing a lot of Mauna Kea stuff lately. I just feel that Mauna Kea is my temple, it's where I you might say it is the center of my cultural practice. I consider myself one of the stewards of the mountain along with a few other people. I find that Mauna Kea is a very special place and we don't want it overrun with observatories. We think they have enough, for instance. One of the aspects of my cultural practice is to get to know the land intimately, and so walking the land is important to me. I like to think I am walking in the footsteps of my ancestors. I am very attracted to places where the ancient people lived, and work, and carried on their lives. And of course, this connects me with my aumakua and akua.

I'm also on the PTA advisory council, and so we've taken a few field trips all over the place and all that which has provided the bulk of my cultural knowledge about the place. Because up to that point, I didn't know anything about Pohakuloa. I'm really a newbie up there…but all my activities up at Pohakuloa have all been recent. The last 10 years, so I don't have anything handed down from the families etc. other than what I read.

2.3.5 Lucky Puhi. My name is Walter L. Puhi, Jr., born and raised in Kamuela (1952). Graduated from Honoka`a High School, and went directly to work as a cowboy for Parker Ranch. Got married in 1973, and still married to a wonderful woman and I have four children. Three girls and one boy, and four grandchildren, so it keeps me busy. I also have 263 acres of homestead land that the family runs cattle on**.** My father was Walter L. Puhi, Sr. He passed away in ’67. He was from Kohala, pure Hawaiian. My mom Janet is from Waimea. Her maiden name was Akau from Kamuela - born and raised in Kamuela. I have a brother, so we had a small family. I have a hanai sister. Puhi originated from Kohala - Mahukona. My grandfather worked for the sugar company then. He used to run the trains that hauled sugar to Mahukona port. Below Mo`okini there’s a heiau there. That was part of our kuleana before. And every once in a while the family will go down….a couple of years ago we’ve planted trees on the inside four corners. It was given by my grand-uncle to one of my cousins. He ended up getting a stroke, couldn’t take care of the property and what he did was he turned it over to the State. So the State takes care of it right now.

It was different for us because we were brought up in the old school where we believed in some of the Hawaiian traditions that have followed us through - it was awesome just going on to the property inside. There was a protocol that we had. Auntie Pua Kanakaole [Kanahele], she came out and it was an awesome feeling because you could just feel that their presence was there. We were allowed to step on the area and do what we had to do and leave. I know that they were more fishermen. I guess that’s where I get some of my skills from. We were all taught at a young age how to fish, how to hunt. It was unfortunate that I was fifteen when my dad died. I was kind of self-taught in the growing up years.

My wife’s name is Lela Auhea Puhi - she was a Strauss. On the Kinney line, her grandfathers were a Kinney and they’re all relatives of the Holts. And she graduated in 1970 from Kamehameha Schools. It was funny how we met. We kind of knew each other when we were young because of the families, you know. We had to check on this - when we got married we had to check if we were related! The families - my uncle married her auntie and that’s how when we were growing up we used to go to Honolulu and we used to play - so I knew all of them. She came up here one summer, we were both out of school - she stayed and I just asked her out and she said ‘yeah’. And that started a long relationship; I think this year, this June, is 35 years. The other family we have in Kohala is Poliahu. My grandmother was a Poliahu.

[I worked for Parker Ranch for] fifteen years. Then while being foreman here at the Keʻāmuku Division, I was checking water and I met the developer, Jarred, and to me he was like a crazy haole trying to fulfill a dream that he had of building this place. We had long talk sessions; I tried to fill him out. At that time, this is ’85 or ’86, I left the ranch. But the ranch trustees started to take over. I could see the change on management side, what they were doing, and I decided, you know what I’m probably going to find something else. I joined the Labors Union; I was paying my Union dues. I was hoping, at that time I think Mauna Kea, or one of the hotels was coming up and I had some connections with Hawaiian Dredging. And they called me up and I went down, and it just so happened when I gave my two week’s notice through the ranch, Jarred Kranko found out that I left, he called me up one afternoon and asked me what my plans were and I told him that I was going to work construction. And he said, ‘You know what, I might have something for you. Can we meet?’ We had dinner that night and we went through the whole thing. I ended up managing his cattle and came on as a ranch manager for Waikiʻi before the subdivision was built. During construction I learned all - everything that you need to know about Waikiʻi - where everything is, the wells, everything. In 1992 we were transferred over from the developer to Waikiʻi Ranch Home Owners Association. And I’ve been there

ever since…. Every day in the morning when I get up, I still love to come to work…. "Lucky" - that was given to me from my grand-aunt and it's followed me throughout the years. Not always lucky, but most of the time.

2.3.6 Mark Yamaguchi. Born in Honokaa, Hawaii in 1958. I went from Honokaa Elementary to High School. I worked for the Kawaihae Terminal for about six months. From there I started on the ranch after that, Parker Ranch on March 8, 1978, to March 31, 2002. My parents are Jiro and Masako Yamaguchi. My mom was from Kukuihaile in Honokaa, and my dad was from Waimea, born and raised on Parker Ranch. Their parents came from Japan. Actually my dad's dad was working for Parker Ranch too, so actually I'm fourth generation on Parker Ranch. His [dad's] name was Matsu – Matsuichi. There's a story about him that he died on one section of the ranch called Keamole 2 chasing wild sheep **-** he fell with the horse. He was young, in his 20s or 30s I think. He was a cowboy for Parker Ranch. Actually when he came I think he was a yard boy or something so he worked his way up to be a cowboy. He worked his way up to be a cowboy foreman for the ranch and he was one of the first Japanese cowboys on the ranch. After my grandpa died my dad quit school at age 9 and he started to work for the ranch. My grandpa and grandma had eight kids and my youngest aunty, his youngest sister was only couple months old. In order for my dad to help out with the family, that's why he quit school and started work for the ranch. He worked 53 1/2 years for Parker Ranch. We lived in Waimea. There's a place -- it's hard to explain where he was born, the place names all change too now - in fact, right in Waimea he was born. My mom used to work for Keala Grocery Store.

[At Keʻāmuku I liked] taking care of the animals - chasing pigs. If I didn't have to take early retirement I would still be working. It was some kinda deal the trustees wanted to make and actually what they wanted to do was they wanted to get ___ if we go up the ranch, they can run it so like us the old timers of the ranch they gave us one package where you can take the package they gonna take care of us for two years or we can stay on the ranch and get terminated…so a lot of us took the package - 21 of us. Now I help out the other ranches and I do a little carpenter work with my friends. Still looking for a job. Actually when I left the ranch I was in construction for a little while. See when I started was just six of us then within two years altogether we had 39 workers then now it's back down to two. And that's another thing too, my dad never wanted my brother and me to be cowboys on the ranch…because the way of life, hard work, and the pay. I found that out when I started in construction. Because from $600 a month, in construction I was bringing home $1200 a month! So the first paycheck I brought home from construction, I showed my dad the pay he told me eh, gotta be a mistake. So I called my boss up that night, and I told him I think you made one mistake on my paycheck. He said why, no nuff? No, too much! He said, no when you come work tomorrow I explain to you. I started off in labor, then from there I started to run first the backhoe, then from backhoe I went up to the excavator, then after that I was running the bulldozer. That's when your pay go up a little higher.

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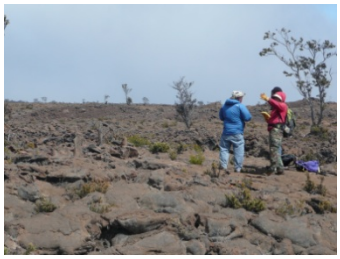
2.4 Land Resources and Use

Land resources and use change over time. Often evidence of these changes is documented in archival records. Occasionally cultural remains are evident on the landscape and/or beneath the surface. However oral histories can give personal glimpses of how the land was utilized over time and where the resources are or may be. Oral histories also provide confirmation of cultural practices. Based on archival documents and subsurface studies the pre-contact uses of the project lands were ceremonial, burial, habitation, and agriculture. Based on archival and ethnographic data the cultural and/or historic use of the land in the project area was agriculture, recreation, and hula activity.

2.4.1 PTA Lands.

I did PTA land. I hunted up there back in the '60s and the '70s. Every now and then they'd open the land and we'd go in. Use to open for rifle back in the old days and we used to go in there and shoot the sheep and goats and stuff like that. They had Bobcat Trail. That was where we used to hunt a lot from there. One of our favorite places was Pu`u Ke`eke`e - that was one of our favorite places for hunting [Lloyd]. Photo 7. One of many PTA pu'u.

A lot of military ordinance throughout that area. We used to hunt up there. A lot of times we were in the impact area, but we didn't know any better back then. I used to walk all through there all the time when we were young. But we never pick up…plenty bombs and stuff get…but we don't touch nothing…only pick up brass…empty shells to make money. We sell empty shell cases. We sell brass. I think it was something like fifty cents a pound back then. You know, we had to do what we had to do. But we never got caught going in and out of there [Lloyd].



Photos 8-10. PTA lands - very cold almost barren to sparse trees, shrubs and grasses.

I know during the winter months I don't think anybody would stay around there - it's extremely cold - perhaps down in the 30's. But you know, probably when our ancestors were there I'm sure the land was much different - I'm sure they had more trees [Lloyd].

You know, you can walk that land for all your life and still never find what is really in that place. I find that out…I've hunted certain areas for forty years and all of a sudden I find one place, hey, I find something different! [Lloyd].

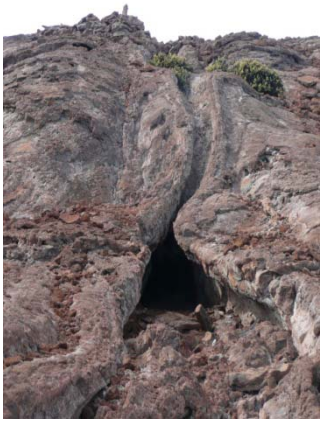
I've hardly ever went into PTA. There were a few times we went with my dad to help take animals out of the fenced areas. You catch them and you just throw them over the fence.

But other than that, I've never really hunted PTA - maybe once or twice I hunted for bird. I didn't do too much hunting in PTA [Kanaina].

I've never been on any excursion with these guys when they went out to look at trails or caves…so I don't know these areas [Lucky].

I think mostly the stepping stone trails (can't make out the rest) [Kanaina].





Photos 11-13. Stepping-stone trail, worn rocky trail and one of many PTA caves.

2.4.2 Keʻāmuku Ranch/Village

[Keʻāmuku Ranch] it goes all the way back - the first people who had Keʻāmuku was the Spencer family, they the ones who started the sheep out there. After that the ranch [Parker] bought the place. In fact, Keʻāmuku way back during those days, it was all sheep I think it was in the early 1900s and then they started running cattle out there [Mark].

Keʻāmuku is all below Waikiʻi Ranch towards Kona [Mark].






Photos 14-19. Keʻāmuku Ranch lands from Saddle Rd./Mamalahoa Hwy. intersection.

I was transferred to Keʻāmuku in 1978 and I left the ranch in ’86…it’s been some years. It’s 23,000 acres – Keʻāmuku was one of the four divisions of Parker Ranch. Basically it’s in the drier section. At that time, the years that I was there, we had a cow herd of 3,500 sometimes; averaged 2,500 - drier times would be 2,500 other than that we’ll move up to 3,500. We had four cowboys. Mark was one that worked with me up there. Godfrey was another one. And then Walter Stevens was our supervisor, he’s already passed. And so has Andy Fong, he’s passed too. Both of their ashes are scattered down in Keʻāmuku. There’s a site that we used to call Keʻāmuku House - there were homes there, way back - probably in the forties, fifties - where they used to house Filipinos that used to work. And I believe there was a sheep station there too. By that time I came in everything was broken down over there. But there are stories about the sheep station [Lucky].

And in some of his [Kepa Maly] stories, or reports, it mentions Keʻāmuku [Lucky].

I believe there was five houses there…that’s really picking my brain on that one! [Lloyd].

The Filipinos worked there. Their job was to stay there and take care of the place because Parker Ranch raised sheep down there. They had a lot of problems with the sheep in dry weather so what they did…they went to Humuʻula…that’s when they started the sheep station up there. But the first station was down this side [Lloyd].

Yeah, they [Filipinos] worked for the ranch. One of their jobs was to dig out all the …what we call ‘fountain grass’ …their job was to make sure that no more fountain grass over there. We used to do the same thing - go out there and help them dig during the summer months [Lloyd].

I know they had the shearing shed there where they used to shear all the sheep. And they had the trench where they used to dip the sheep after the shear…to take off all the insects and stuff like that. The shearing house was still there when I was going down there [Lloyd].

Half is good but half is rough, kinda rough land - north Kona, more *makai* up Keʻāmuku. The *mauka* side of Keʻāmuku if you go through the center half of the ranch, the division up there anyway, has tall grass…cactus grass and *aʻalii*. There’s another name for that grass too, but we call it cactus grass…and the other half is all stone [Mark].

We did have like eucalyptus trees out there for shade for the cattle. And like to catch rain, because at Keamuku House had all eucalyptus and gum trees [Mark].

Photo 20. Cattle under Eucalyptus trees.

I worked all over Keʻāmuku - that was part of my division, but we worked all over the whole ranch. But mainly I was in Keʻāmuku …doing fence work, giving minerals for the cattle, checking cattle, rotating cattle [Mark].

You gonna have to ask the military now, but there's a road where you can go up to the village. When you come to - let's see there's gonna be a place they kinda repairing the bridge, there's gonna be I don't know what the mile marker is, but anyway you gonna see the fence, it's gonna go out, then it's gonna come by one actually when you going back to Kona you make a turn like this there's gonna be a straightaway, then you going down that hill. So when you go almost the end of that when you go down the hill you gonna see a telephone post where the archery range is, there's gonna be a cable gate. From that cable gate you take maybe about 50 feet back towards Waimea you can see the boundary fence. You can see actually the boundary fence from the road. Then from there you go straight up to the impact area. There used to have one [road] that come out on the boundary but they used to get a lotta trouble with the hunters [Mark].

You can come from the main highway the stable side I mean where they call this place Steven Ho, there's a corral there then from there there's a road go all the way up to Keʻāmuku House then you can come from this paddock to Kalaumana you gonna see that gate too where you going back to Kona then that road take you straight up to Keamuku House. In fact the house they gave to the Waimea Buddhist Church, so the house behind of the church is the Keʻāmuku House [Mark].

Wayne went work for the ranch he was working up at the breaking pens first. Wayne was the horse trainer. He would ride the horses, and then from there he came to Keʻāmuku. Maybe 8-9 years I think. In fact, more I think. So when I left the ranch in 2002 I just made 25 years [Mark].

There are some remnants of old cars, not much. Since I left Parker [Ranch] all those years when I took Colonel Richardson down with Bill Godby and a couple of other guys, that was the first time I've been in the property in maybe 15 or 16 years. I still remember the roads. You know these guys who come in with GPS they say "according to this, this is faster" - I'm like, "No! You follow me; I'll take you the faster way." So we got to sites quicker than following the old long roads and stuff. I guess these guys didn't have it marked out on their GPS. But Keʻāmuku to me, was one of the roughest places to work for the ranch because of the conditions - the land is rocky - a lot of brush. Four people driving - you know working 23,000 acres was quite a bit. So my supervisor at the time, Walter Stevens, what he used to do was he would go out at night, every night, maybe for a week, and he would shut the water and train those cows to come home. Waikiʻi Ranch was a part, the 3000 acres now of Waikiʻi, was a part of the section that we used to bring cattle out from the place. Slowly we would move them up, once we got them on Waikiʻi, we would work them easier [Lucky].

2.4.3 Waiki`i Ranch/Village

We have three employees. I have an administrative assistant, who is on vacation now and I have another guy who has been with me for twenty years. So there are just two of us and we take care of 1700 acres, roads, water, maintenance, whatever needs to get done [Lucky].

Photo 21. Waikiʻi Ranch sign.

Actually it was originally a cattle operation. Due to the zoning requirements that the County put on Jerry for final approval, sheep was not part of it - we never thought of sheep. So I ran the cattle operation for him. At that time we had like 400 cows. Waikiʻi

came dry around ’87 or ’88 - there was a drought and we had to move at least three-quarters of the herd off the ranch and lease property in Kona for a couple of years [Lucky].

Just lately, maybe five or six years, sheep were brought in to control fire weed, which is a - you probably can look that up - it’s all yellow; it’s toxic to animals… Actually if that’s all there is to eat, the sheep will probably eat it and die. But I haven’t had any instance where I’ve lost sheep because of the fire weed. My main purpose is to control the fire weed and the perimeter of the ranch for fire. So I use the sheep as a tool to graze the perimeters of all our boundaries for fire control. It’s worked out pretty good. It’s established itself already, and the only way we can do it is to try and control it. The State’s Ag department was to have been doing some tests…and with public input they couldn’t release them. So we have a mixture…I run my herd of cows up here and I’ve got about 300 sheep that are my own. There’s an arrangement that I do with the ranch where I don’t pay anything. I’m doing them a service by grazing the property [Lucky].

Photos 22-24. Waikiʻi Ranch lands – well maintained areas to fireweed haven.

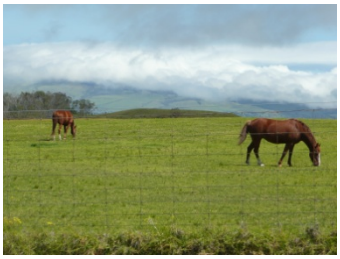
Photos 25-33. From PTA to Keʻāmuku Ranch with views of North Kona coast.

The house that … before you hit the road to go down to the postal there's another old house on the *makai* side right…from that house all the way down there used to be all homes before. Cool up there. I don't know if you heard of that Waikiʻi Village. That was the name of that, Waikiʻi Village. You go down to the club house [see Photo 17 above] all that was they had homes all in that area. And my grandpa lived there, then they moved down to Waimea. The homes are all still the like the houses that came like your house, your neighbor's house, so [now] they have another place down here called Small Waikiʻi Village. And the homes was all in there. Its right across I don't know if you know this restaurant, Hawaiian Style, you know where Parker's Place - right there in Parker Square. They were all original homes that was up Waikiʻ Village, because that's where Lucky live at the end [Mark].

Actually this side [north] is they had hills but about half of the ranch this way [south] all flat land, all open area. This side is where you see all the *hauliuli* - cactus grass [Mark].




Photos 34-37. Various grazing areas for sheep on Waikiʻi Ranch.



Photos 38-40. Horses, cattle, goats also part of Waikiʻi Ranch.

Kepa Maly did a study for us up here in Waikiʻi. And while doing that he encompassed PTA - the mountain sections, ocean, all the ahupuaʻa that Waikiʻi is in [Lucky].

You see like behind here, all these homes toward Pukalani stables all those homes, the way Richard had was a 20/20 plan for the community one year, wasn't supposed to be a subdivision, he wanted to restore this place make it into a -- actually what he wanted was to build a retirement home for the old people in Waimea and bring back and make a forest behind here, not supposed to be homes behind here. But the trustees that's what they did change his 20/20 plan. And Warren was kinda sick when he heard that, that's what we heard that Warren came in and he made Richard sign couple papers that's how he sold the 20/20 plan out [Mark].

Jerry Carmichael, he still owns Waikiʻi Ranch, he may not wanna sell. He sold what he wanted already. That's why there's all those homes in there - in fact he found another place to invest in Kohala [Mark].

[Japanese name ranch, with really old buildings] right on the side of the main highway - that was Waikiʻi Ranch before [Mark].




Photos 41-45. Buildings of Eddie Suzuki Ranch (not sure if this is what Mark is referring to).

2.4.4 Parker Ranch

All I know is there's 23,000 acres was definitely Parker Ranch. Parker Ranch also had stuff on the other side on the east side of the mountain and up to fairly recently too - like the last ten years. In fact some of that gorse problem was a Parker Ranch problem [Ku].

That road that you went down … the buildings on the *mauka* side, that was Parker Ranch stables before, then they sold it to this guy Jerry Carmichael [Mark].

The trustees [run the ranch, but they] selling the land, everything. That way they had full control, I guess they didn't want the old people to stay on and the old people you know would kind of buck them. [Trustees are] was Warren Gunderson, Mel Hughes, Tom Whittermore, and Carl Carlson…from here. They all were trustees, like Carl Carlson he was trustee for Huehue Ranch in Kona. Mel Hughes was for Hana Ranch and Tom Whittermore was some banker or something. Warren was for trustee for a school or something like that. I think couple other schools. But you see, Carl Carlson was trustee for Huehue Ranch and they sold Huehue Ranch under him. Now there's a golf course, subdivision, same like Mel Hughes, sold Hana Ranch now Hana Ranch all subdivision and stuff like that now. So they figure they come to Parker Ranch, actually Warren picked all these guys, so when they came that's what happened. Took out all the land. The trustees, they was taking a big percentage out of this [Mark]

The ranch had only two sons, and in fact the two sons were trustees. But Warren kick them out because they was making accusations that one of the sons wanted to assassinate him and stuff like that. That's why the two sons had to leave. Then Warren brought in all these other guys. [Warren got in] through Richard Smart [Mark].

The sons [of Richard Smart] got small pieces of land like Parker Square, the Carter Professional Building, Paniolo Country Inn, the motel behind there, that's about it [Mark].

For working on the big ranch like for me, we don't know how many more years Parker Ranch is gonna be a ranch. The ranch turned more to be in real estate now [Mark].

And they have some [cattle] like going to North Kohala, some I don't know if you been up towards the Makahalau area…going up towards Waikiʻi – Waikiʻi Ranch on the side partly all in there too. And right after the airport they have cattle in there too [Mark].

2.4.5 Humu`ula Sheep Station

Something interesting that I learned. Before the sheep were sent to Humuʻula - the reason why they took the sheep there was originally the sheep - they used the wool and with all the *aʻaliʻi* trees and bushes all the sheep's wool was being taken off by them going through those bushes, so they ended up moving them up to Humuʻula. It's interesting in some of Kepa's reports of the different people who managed these large herds - you know, couple 30,000 or 40,000 sheep and the way they moved them. There are also pictures of them shearing sheep, dipping. Up at Humuʻula, I believe some of the concrete forms are still there…the dipping stations are still there. I think one of the shearing stations is still up in the back. In one of Dr. Bergin's books, 'Loyal to the Land' he has a lot of pictures of old-timers shearing sheep, dipping sheep, moving sheep and horses [Lucky].

I believe that's [Humuʻula] part of the ceded lands controlled by the State. Another interesting thing is when you look at the old map you see like they always talk about that one sheep station near the access road, but there were 1, 2-, sheep stations all around the mountain. Gotta be a lot of people raised sheep up there, of course this was like in the 1800s early 1900s [Ku].

2.4.6 Ranch-Cowboy Activity

It was lot of fun, but hard work because every day you see something different. Not like the jobs today. Like the cowboy you see different part of the ranch, there's lotta different things going on. You learn a lot about taking care of animals…. I just work the land, that's it. The old timers like my dad them, ho they had a lot of stories. How they used to wake up 2 o'clock in the morning driving cattle to go down to catch the boat, take em out in the ocean, and because those days didn't have truck and trailer right? So they used to ride…. And they used to drive [cattle] -- say I don't know if you know Kahuku site, Kahuku Ranch. My dad them used to drive cattle from Kahuku come up across the mountain you know…Hualalai, right back to Humuʻula sheep station… PTA area. But actually used to get Kahuku, like if Kahuku would give cattle to Parker Ranch because Parker Ranch was owner of Kahuku Ranch, so what they used to do the Kahuku boys would drive the cattle halfway, and the ranch boys used to go half way. And they just switch over. I think way above [PTA] you know. Actually we drove cattle a little over 2000 from Keanakolu to I forgot the corral name, Sonny [Keakealani] knows, that's part of Sonny's section, but anyway we used to drive about 2000 head from Keanakolu I think was to Punahou corral…up at Makahalau…. See like Keanakolu was in the back of Mauna Kea, so we drive we used to come back on Hāmākua Coast way then come all the way down. [Keanakolu] it's all *koa* trees! [Mark]

When we had the bigger roundups, brandings, weaning, then we had cowboys from some of the other sections that came up to help us. But moving cattle was just us. We also had workers too - dogs. Those dogs would be with us every day. They took the place of five men [Lucky].

This is a ranching community, a farming community - not much money. When I worked for the ranch I worked for eighty dollars a month. So we brought home game and that's what the family ate. That's how I grew up in Waimea - everybody was always sharing. You know, we still practice that over here. Not everybody. But we still hang on to that tradition of sharing [Lloyd].

Pigs, sheep - that was part of the cowboy tradition - to catch a nice fat *lau`ole*, which means that he was caught and his genitals were removed. And we used to rope him, catch him with the dogs, sometimes we used to shoot from the horse with a rifle. That was fun [Lucky].

2.4.7 Hunting: Pigs, Sheep, Birds (PTA/Keamuku/Parker Ranch)

And there is I believe, at one of the areas- not sure where that is (looking at map) 22 - that's where we hunt, but 23 is the impact area. They don't allow you to hunt in there. This is the impact area right here. 22 - you can hunt; I think 22 is the last area you can hunt. And then all of this from 1, 2, 5 and 6 - it is closed because that's right across the PTA. On the left-hand side of the road is closed as you are coming in [Lucky].

Those days mostly on the ranch we used to go [hunting] -- Parker Ranch… Ke'āmuku, Makahalau, all those ranches I used to go hunt [for] pig and sheep. They have the feral sheep. They have the mouflon - they are like furry but straight hair too…all kind colors [Mark].

I used to go bird hunting too…pheasant, Chukar, Francolin, quail, and turkey [Mark].


Common Pheasant


Chukar/Partridge


Erkel's Francolin


Gambel's Quail

Photos 46-49. Various birds hunted by interviewees (cited in photo index).

We just mostly ran after pigs, occasionally if we felt like eating a goat we'd go look for goats. Bird season, me and my younger brother, Kauka, would almost always be up there shooting birds on Mauna Kea. We mostly went after Chukars and Erkels [Kanaina].

Birds - there were pheasants, Franklins, quails. We used to hunt a lot…Parker Ranch would open different seasons like bird season. We were allowed to take guests. I was a guide for a couple of years - a friend of mine and I - we took people out. We used to take out Mr. Smart's two boys, Tony and Gill Smart, with their wives [Lucky].

I did a lot of my hunting in the forest, up here in the back. We did a lot of hunting on Parker Ranch, and Keamuku was one of our favorite hunting spots because you had your sheep, and your goat, and your pig. So sustainability - that was the place to go. The right times of the years you had nice animals - they were nice and fat [Lloyd].

Bird [season] usually runs from November 1st through the third weekend in January. It's been like that for ever since I can remember. Different areas, sections of the ranch would open. If it's dry they would close one area, open up another. So that was part of the benefits that we received from Parker [Ranch] at the time [Lucky].

The ranch would open the place - there's no season for animals on Parker Ranch. Usually you can hunt whatever game is on the ranch. So you take what you need at that particular time…. There was bird hunting too [Lloyd].

We did most of our hunting in Kohala Mountain, whenever we had a chance to hunt on a ranch we'd go hunting on a ranch any chance we got. We were hunting from little - my dad used to take us out on the ranch [Keʻāmuku] [Kanaina].

I've been hunting up in PTA during the archery season. It depends on the military if it was open for four weekends - I think last weekend and then three weeks prior to that it was opened. And then once the military come up and train, then they close it up because they do live firing now up there [Lucky].

Hunting - you can access here - Pukeke and the back area - this is all the roads, you can probably go as far out as here…. 23, 22, this one I believe is Lava Road - part of this could be the Pukeke Road and then what they called the 'Old Kona Road'. This was the road that people used to travel - the old-timers used to travel on before coming across [Lucky].

2.4.8 Gathering

Photo 50. Koʻokoʻolau (*Bidens hillebrandiana*) (Starr 2010).

We used to go out a lot because my dad had his two quarries out there…so summertime we're out there all the time. So as he would work he'd send us to go pick *koʻokoʻolau* tea on those two big hills that he worked next to - was loaded with *koʻokoʻolau* tea…so if anybody would ask for tea he would send us up the hills to go pick [Kanaina].

[Gathering] mostly just the tea and hunting. Every now and then we'd pick up a bunch of flowers just to give to my mom, other than that just the *aʻaliʻi* for people who asked for lei [Kanaina].

Keʻāmuku - when we were small kids we was out there. My dad was working out there in the quarries and he used to take us out there and we'd be out there all day with him until he done work. I remember from when we were small he used to make us go gather *koʻokoʻolau* tea for him…his friends…every time we was out there he was like, 'Oh, go get *koʻokoʻolau* tea!' He'd send us up the hill, go get. Bring 'em back down…dry 'em out there [Kauka].

One of the reasons was because one of the old timers did not walk anymore, they ask [Lloyd].

I remember the big hills where he had his quarries have plenty - when was young had a lot of *koʻokoʻolau* tea and the *aʻaliʻi* for my sister guys when they need it, but basically just hunting - a lot of pigs out there - sometimes goats [Kauka].

You know, only now I recognize what was in front of me before that we knew nothing about. So all of the indigenous type of plants that's out there, I'm just finding about now. And it was probably right in front of us and as a cowboy, you don't care. But now it makes

a lot of sense what I see people protecting. The military is doing that. They'll probably find areas on the Keʻāmuku parcel that they will fence and protect from cattle, sheep, goats [Lucky].

2.4.9 Native Plants: General

In that area actually - to the east of that area the boundary along Pōhakuloa there is a beautiful, beautiful very pure native forest in Kipukaʻalala, and it's really a shame that the military has control up in that area because it's - so as far as I'm concerned pristine. There are very few exotic plants growing there. However, in the past the Army began a project there - they were gonna make a target range and there's huge concrete structures here and there, which sort of mars the place but this forest is really, really out of sight like a sore thumb sticking out in Pōhakuloa after all the uses they have put Pōhakuloa through. That place is there just waiting for somebody to rescue it. Of course there's a whole bunch of paperwork and red tape and all that to do that it's almost impossible. This isn't the kind of resource that should be part of a site where shooting, bombing, military maneuvers, fires, DU, etc., take place. [There's] lots of *aʻalii, ohia*, *ohelo*, pretty low stuff but like I said some trees *ohia*. I don't remember seeing any *akoko,* but I wouldn't be surprised if there's a few there, just those kinds of things. I guess there's probably some other rare plants [Ku].

Photos 51-59. General examples of Native Hawaiian plants on PTA lands.

The only native plant I knew that was out there was *koʻokoʻolau* tea. There was a lot before but I forget what year when we had the drought everything died…during the drought I was still working for the ranch yet and been 5 or 6 years and no *koʻokoʻolau* coming back. Mamalahoa Highway by the intersection…up there had *koʻokoʻolau* tea before…fire coupla years back burned that whole mountain…in fact that fire came from down Waikoloa side [Mark].

They did a lot of development out there [PTA] when they were making those targets… which the environmental people shut that down so they never got to use them…. They found some rare, rare plants out there…so the Endangered Species Act is what shut them down. You know when we used to hunt out there - rare plants - some of the rarest of mints and stuff that I see in the books now, used to grow out there - all out there [Lloyd].

Parker Ranch had a lot of cattle, but because a lot of the areas were pretty thick, the thing [native plants] used to grow - amazing the stuff that had out there…amazing. And now after we've had many years of bad droughts and stuff like that, that place went changed dramatically. You don't see all that plants and stuff that you see [Lloyd].

I know the *mamane* forest came all the way down. Had a lot of *mamane* trees out there when I used to hunt out there - a lot of *mamane* [NOTE: *mamane Sophoro chrysophllla* (endemic)] - From Pu'u Keke down this way [Waiki'i],,, even from the Saddle Road area down to a certain elevation…more *mamane* [Lloyd].

It [*mamane*] was along Saddle Road and all this top section, but it came down pretty far [Kanaina].

If you went up on the Saddle Road, *mauka* side, you will see some of the trees yet …and you see a lot of the dead ones sticking out. What happened too was when they brought in the kukui grass, the kukui grass went kill off a lot of the native plants because they can't get through the grass to come back up. You know all where your pigs would be you would have more *mamane* come up….when *koa* and stuff like that the cows would eat them right down [Lloyd].

2.4.10 General Flora

They had olive trees [Kanaina].

Yeah, olive trees they planted out there [Ke'āmuku] [Lloyd].

2.4.11 General Landscape: Caves, Lava Tubes/Bubbles/Rock Shelters, Rock Walls, Paddocks, and Pu`u

Caves

We did come across caves. I never did go inside; my brother did a couple of times; he had to go get the dogs out. But I never did see anything - there are a lot of caves out there though. Definitely, seems like every time we went out there we would find one other cave. A lot of them the opening is small - I've seen my brother going run where he had to get down and crawl inside and then he just stood up as soon as he got inside - it opens up into a big cave. Just the opening was small…just a small opening - hard to see because a lot of that fountain grass growing around it. We only found it because the dog went inside and found one pig…. We didn't have a flashlight that day either. I did have a video camera and actually videotaped him going into the cave…. I think it's Heiwai-2 …the ranchers name the paddocks - I know that cave he went into is in that section [Kauka].

[The other cave] it's up in Big Heiwai *makai*…this would be up here someplace, right next to Pu'ukeke, the beginning of Pu'ukeke…just a regular cave, we really didn't go in, the hole was small only like this big, but we didn't want to destroy it [Mark].

There's a lot of caves out there [Kanaina].

Photos 60-65. Various PTA caves.

Photos 66-71. One of the bigger caves with side chambers and a “loft” section.

The opening was 16” or 18” by 20” but it opens up to where I could stand up. I walked in maybe about 16 or 18 feet in to get my dog and the pig and then I came out. So I don’t actually know how big that cave was. Pretty much with the light coming through the hole is all you could see [Kanaina]

The problem is we no more flashlight so we don’t go look inside and explore. I think some of them - some of those caves were big [Lloyd].

Photo 72. A particularly huge cave on PTA lands…possibly for habitation.

There's a lot of in fact there's two caves out there. We don't know [if big], we didn't go in, there's Pukapa 1 and 2, but it had the mouth open and when we used to go and repair fence we throw all the wire and stuff in there…if you look pretty good you can find it [Mark].

Lava Tubes/Bubbles/Rock Shelters

Lava tubes get plenty! We know because the pig go inside…*moe moe* inside there. Some of them we went to get pigs…pretty scary …but we look all rock, the tops …we know it's solid. Actually we never did take the time to go *niele*…go look around now…we just going…we take our pig and we're out [Lloyd].

We come across a lot of dirt caves or we'd come across lava tubes…we were probably a little too chicken to walk inside most of the time - we had no light and we were young - we were ten years old, nine years old - we walked a lot of miles out there. My dad had to work so he didn't really have a chance to watch us so we went wherever we wanted to go [Kanaina].

I didn't come across no lava tube [on Ke`āmuku] [Mark].






Photos 73-78. Variety of modified lava bubbles and "rock shelter" type features in PTA.

[**Paddocks**] they have names. Ke`āmuku is all above here. This is the paddock where they call Kalaumana. The next paddock above that is where they call Hewai 2 *makai*, then you come to Pu'ukeke. You know where the military bunks is, it's called Pu'ukeke. Heiwai 2 is just about the center. The one who knows all that is my dad [Mark].

Pu`u

We went out one time with, I don't know if you know this person, Kepa Maly. My dad … in fact me, Wayne, Ku'ulei, and my dad took Kepa out there and my dad named all the pu'u for him [Mark].

Photos 79-84. General examples of *pu'u* at PTA

You know, there were two quarries out there - the big cinder pu'us - one just as you're going up and one further up. I worked at two quarries. I was out there – beautiful…. Pu'u Kapapa and Nonohai, the biggest pu`u right there as you're going up [Lloyd].

Photos 85-87. Pu'u Ka Papa (L) and Pu'u Nonohonohonohai (C&R).

It's pronounced very differently; people here - the cowboys call it Nonohai. I think when you look at the old maps it is Nohonohonohai. Nohonohonohai, but they just said 'Nonohai' [Ku'ulei].

Quarrying - that stopped - the one on the bottom I stopped that in - I believe in 1990-something I believe. Then the other one I stopped the other one back in '98 – Pu'u Kapapa. If you take notice, what I did was I went landscape everything so you no can tell. I never cut into the hill and destroy the beauty of the hill. All the sides - we took all the lava rock cinders out, and then I put all the overburden in the dirt and then lay down and landscape it - covered so everything go back. The cinders were used for all the golf courses. All the development along the Kona coast of Kohala; most of your golf courses that are made came from there, all your condominiums, all your homes. Along that side is

all lava rock so that's what I did - make soil in cinder for all the development that came up [Lloyd].

Rock Walls

A lot of the rock walls - just thinking back, a lot of places we did see that kind of stuff - rock walls like that, but at the time we was hunting just never paid any attention. Just, you know, only now you think about it like that, there is a lot of rock walls out there. I don't know if it was the ranchers or who would put them up but there is a lot out there [Kauka].

2.4.12 Fire: General Area (PTA/Keamuku Ranch/Waiki`i Ranch)

There were so many fires that went thought that area…development for one thing [caused them]. The more cars you get on the road, the more people smoking their cigarettes and throwing their cigarettes out the window. Out there it's extremely windy. And then some of them were from the military. They caused quite a bit of fires too - training out there; when they have their training exercises they cause a lot of fires [Lloyd].

They have lightening strikes too [Kanaina].

Yeah, lightening has played a part in some of the fires. But basically, most of them were caused by human [Lloyd].

They're still using cinders. They have a couple of quarries out here on Parker Ranch - place called Holoholoku [Lloyd].

2.4.13 Kilohana Ranch/Station/Pu`u

Kilohana, that's the check-in station by the ___ camp…that's where anybody going hunting, they check-in…in fact Kilohana is right above here. You know that road go up, there's a cabin too over there right by the puu that's Kilohana…that is all state land [Mark]. Photo 88. Pu`u Kilohana.

2.4.14 Military Activity: Roadwork, Training Areas

Unless they going come down the same way they used to come down but kind of detoured, actually well we don't know too actually that was supposed to be our main highway going through Ke`āmuku, because Lucky and I took those guys - the people that was figuring out where the road was gonna come and I think Lucky went on a chopper too with them, but now the military have it, so I don't know. But Pōhakuloa is planning to build a road like on the boundary on the Kona side of the boundary. They planning to make a road out there from Pōhakuloa come straight down [Mark].

That's the reason why they [military] bought the place, for training. You know that what you call that the green machines they have [Stryker]? The brigade…because when I was working the military used to impact the whole Ke`āmuku [Mark].

They [military] used to use the whole place even when we had cattle in there - they still ran on it but I hate to say it, they did a lot of damage, cutting our fences, and leaving our gates closed. But like I said the trustees didn't care because PTA was paying them for that you know. The people like us, the workers, we had to suffer [Mark].

What I was thinking too if they would build the road right through Ke`āmuku the main highway the bypass road, eventually the ranch would turn around and start selling that property too. Because the road going come through the fences and they would start selling parcels like Waikiʻi Ranch to make a subdivision [Mark].

I don't think its [Waiki'i Sub-division] going now because the military has it [Waiki'i Ranch] now you know. What we heard they wanted to use the whole place for the Stryker Brigade [Mark].

The military is gonna build their own road like the boundary so instead of I think they coming on the tight road that they have now, they gonna use their road alongside the boundary and cross to go down Waikoloa and go back to the tank road on the makai side and then go to Kawaihae from there I think [Mark].

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2.5 Water Resources and Use.

The Hawaiian word for fresh water is *wai;* the Hawaiian word for wealth is *wai wai.* This is because of the value the ancient Hawaiians placed on fresh water. For taro farmers water was a crucial resource and a lot of effort was employed and strategies used in order to get it to the *lo'i*. Fresh water was also crucial in the lifecycle of stream inhabitants such as the '*o'opu* and '*opae*, as well as some of the marine life that depended on the benefits of *muliwai* or brackish water areas. There was one stream known in the general area [source of stream unknown] that ran down and across [underground] the Waikoloa/Mamalahoa intersection. However, according to the interviewees there are isolated springs on PTA lands and vicinity. Also ancient Hawaiians were known to collect water drips and condensation drips in gourds set up in caves and/or lava tubes.

Mauna Kea

They had only one water source on the side of Mauna Kea…on this side. When they made the waterline right across Mauna Kea for Parker Ranch, there was one spring that came out of the mountain, but when they dug it with the bulldozer when they made that road, it stopped. But that water used to run continually just where all the wild cattle, from my understanding, used to drink water - when they had wild cattle during Kamehameha's time…Waimea side of Mauna Kea. But, I'm sure, there is a place, if you go and walk and really look there is a place, I'm sure, that get springs [Lloyd].

Mauna Kea is like a big sponge…the water all go down [Lloyd].

Lake Waiau

They could have considered the waters of Lake Waiau to be sacred, as well as the snow. The water, the snow fall there and never touches the ground. Like the water that falls on the taro leaf and all that kind stuff…some people use it for medicine, for what I don't know. Maybe it's a tonic, a general medicinal health supplement thing [Ku]

Auwai Akea Kua

One primary water source was called the Auwai Akea Kua. When you pass the Waikoloa intersection that you're going to drive over it - that's that one stream that again crosses under the road. We drive over it right past the Waikoloa intersection. That was the primary water source for that area. It was a running stream where the Germans, and the different people, obtained water from that stream - Auwai Akea Kua. So it should be shown on any one of your maps - it was a dominant water source [Ku`ulei].

Springs

They did a study where there were a lot of areas where they had underground places you can get water and stuff like that out there. There's springs and stuff like that [Lloyd].

Water comes from Kohala Mountain. What it does, gravity flows from Kohala Mountain, and then there are three pumping systems. Then from there gravity backs to Ke`āmuku. So that water source is - I don't know of any springs that are above of us or at PTA. There's a spring above PTA camp. And, if I'm not mistaken, they are taking water from that spring too - the military is - they pipe it down [Lucky].

Like Hopouokane - on the map it says Hopukane Springs, it is misspelled Hopukane - it should be Hopouokane I believe. It's described as the breast of Kane or the heart of Kane. Well, I don't know about heart but at least the breast of Kane. And if you wanna think about a little picturesque kind of way, it's like a breast with milk flowing down the mountain like a spring. There's a stream, a little ribbon of green that comes down the mountain that's about 12 inches wide goes down the mountain about 50 yards and then the rest is all brown, brown mountain; it's like milk coming out of a tube and many people I've discussed this with had gotten this idea, like Kepa Maly. Well that was sort of an illustration of the name and a tie in with the place because it is a spring, but it's off of Pohakuloa. Of course at one time the military I guess they had the rights to take the water out of that spring but they tell me they're not doing it anymore. So I'm not sure what's happening; there are pipes all over the place but I think the water just comes out, goes on the surface and sinks back into the mountain [Ku].

That's all water under that mountain but it's not on the surface. But a lot of it for instance comes out on Hilo side above Pepe'ekeo and it's also the water that forms Wailua River. And so I guess the way they put it is that Mauna Kea is one of the major aquifers for Hawaii Island and some of us are very sensitive to people who go up there with their *kukae* and enter the mountain up there at those levels. And sooner or later they [the water] come to us [Ku].

PTA Gourd Water

No question it would be seasonal, of course, the big problem about out there is water and yet - how well you know that one place they found calabash in the cave, probably collected water drips etc. It looks like it doesn't have water, but there is if you know how to get it. And so there might have been a lot more use of the place than we expect from modern day experiences. We just don't know [Ku].

Ke`āmuku Cistern

[At Ke`āmuku] they had the cistern where they collected water [Lloyd].

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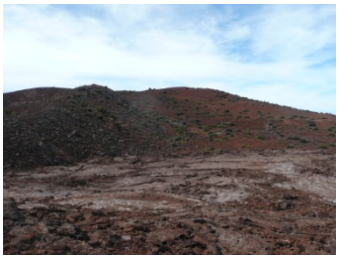
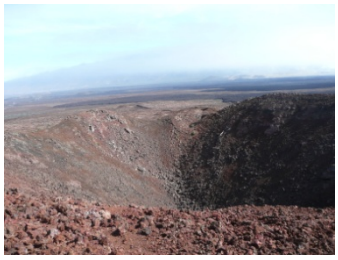
2.6 Cultural & Historic Resources and Use.

This category includes traditional Hawaiian cultural resources and practices, other ethnic resources and practices and historic resources and practices. The traditional Hawaiian cultural resources and practices, includes the Pre-Contact Era, as well as cultural practices after Contact (post-1778). Cultural resources can be the tangible remains of the ancient past or the traditional *wahi pana* or sacred places, or any cultural gathering place. One of the most significant traditional Hawaiian cultural resources is the *heiau* or places of worship. Other places of great significance for all cultures are the burial places of loved ones. Unfortunately with the massive transformation of the landscape as a result of the many western industries [i.e., provisioning, sandalwood, cattle, sugar, tourism, urban development] coupled with the secretive nature of ancient burial practices, most of the ancient burial places are unknown or forgotten and are easily disrupted and disturbed by modern subsurface activity.

PTA Traditional Resources: Ahu, Cairns, Puka, Quarries, Burial Caves and Battlegrounds.

Pu‘u Koli‘i. A coupla months ago we went to Pu‘ukoli‘i the one where he [Bill Godby] took you down there. We tromped around all those places, I saw that one area where sort of like an *ahu* line like you seen. I don’t know if he probably showed you that but what’s interesting is when we went there that was the first time Bill had seen the site and actually took some pictures because he never had been there before. That’s the first time he went there. it was interesting…. There our ancestors did whatever they did. Course one of the mysteries about that place is all those areas where all the stones like there are all these *puka* in the ground, and people did something with those, I don’t know what anybody did there but somebody took those stones out…they were doing something there but I don’t know what. I believe however that there are places on the mountain where in such places they the old Hawaiians used to deposit leaves and vegetation and all that kind stuff and they would grow *uala*, but I don’t know if that’s what they were doing in all these places. There surely isn’t anything leftover -- debris, planting material whatever from those times if indeed that’s what they were doing, I don’t know. Some people are talking about oh they were out there and were doing those kinds of things because they were trying to catch *‘ua‘u* - maybe, maybe not. I don’t know. I mean, these are all possibilities. Of course I don’t think the *‘ua‘u* [petrel] nest there anymore. I don’t think there’s any indication that they are. But maybe they’ll come back [Ku]

Photos 89-91. Pu‘u Koli‘i and Crater

I’ve seen sites that have taken me through places like Pu‘ukoli‘i like that one cave, that large cave complex. I haven’t seen the whole group but the one part that comes out near the Bobcat Trail; we’ve been on the west side which has a really nice trail, I don’t know what that area is called but it’s quite a bit of work done there, fencing and firebreak and stuff within the last few years. One of my most favorite place at Pōhakuloa is at the south end not too far from is it Naohulielua - the story goes the two bald-headed prophets or *kahuna* or hula masters or all kinds of different descriptions of these two guys. That’s another story that probably should be gotten into; I’m not sure what they were doing there [Ku].

Battle Grounds. I gotta say that there have probably been battles fought in or near Pōhakuloa between different factions of this island. That goes back in history, that we know nothing about or if we do know something about it we know very little. I don’t know that we can go out and find the places where these kinds of things took place [Ku].

Quarries/Lithics. The adze quarries up on Pōhakuloa…the quarries are still there. I haven’t been over there in thirty-something years! There’s a lot of - when we used to hunt sheep on that side of the mountain you come across adze and stuff like that…I never did pick up on unless I felt like [it wanted to go]…if not I’d leave them all there [Lloyd].

Photo 92-94. Lithic debitage sites at PTA.

Traditional Sites/Features.

I haven't seen anything indicating that any type of [sites] - there's caves that the goats used but I don't know if there is anything in it. You know, just one thing to think about and consider, I don't think our ancestors lived up in this elevation, it's too cold. They probably traveled through to the adze quarry that's up at Mauna Kea, maybe some of the adze quarries that are on PTA. I'm not aware of anything up there, but I think there is. Even when Kepa did that study for us up here, there was no indication that our ancestors lived in this area. I wouldn't want to live in this cold when I could live on the beach, cruise, catch fish! [Lucky].

Photos 95-104. Shrines, Cairns, Ahu or Burial Mound, misc sites on PTA.

Burial sites.

At one point I was not going to mention it to the military. There's a burial cave. I did not go into. We knew it was - Mark was the one that showed me the cave when I was working there. When I left the ranch I figured that probably no one was going to know about it. And then when I met Bill on the first run, he asked me about the cave. And I looked at him and said, 'How do you know it's there?' He says, 'Well we heard about it, do you know where it is?' I said, 'Yeah.' 'Well, will you take us to show us?' I said, 'Well, I don't know. I don't know. I don't want it disturbed, whoever is in there shouldn't be disturbed. It should be covered up and left alone.' Then I thought of it and if they don't know where it is then they can run vehicle traffic over it, they can push a road over it… it will cave in. So, they found it. I don't know who took them there. In fact, I just spoke to Bill last week and I asked him about that. And he said they documented….they went into the cave…there were like three or four bodies wrapped. They don't know what, when, who, what type people they were. He said it looked like it was a family. I asked them if there were any artifacts in there. He said it looked like somebody had gone in before and taken stuff. So I asked him what were they going to do? He told me they were going to mark the site and put it on their map as an area that is off the grid - no traffic, no training goes through there. They're going to fence it off. That's good. He was thinking that they might put a cover on it and lock it. And that's probably the only the burial site that I know of. I'm sure maybe there's more that we don't know about [Lucky].

And up here, not too far from Pu'u Ka Pele there's another place another *pu'u* sort of a cave like thing but there's a place that the old cowboys would put their names and things like that so it's all historical stuff. But I haven't been to that side. And actually on the two hikes across those portions of Pōhakuloa, the first one well on both of them we had the commander of the site of Pōhakuloa hiking with us so we had a great time [Ku].

Huaka'i (Cultural Pilgrimage) PTA/Vicinity

The trails up there is not just to go gather stuff and for hunting but also to traverse the countryside. I would even go as far to say that some of these walks were like pilgrimages. And in a lot of ways when we do our hikes (*huaka'i*) we are doing a pilgrimage. There were certainly different areas where others or the ancients that used to do the same thing. At least we are doing what we think they did [Ku].

We *hauka'i* at Pohakuloa. In 2002 we started at the ocean at sea level at this place called Koholalele Landing in Hāmākua. We went up in Umikoa Trail which is somewhere up the mountain, it remains the same or changes to the Ka'ua Trail which goes to the summit up Mauna Kea. We then walked down the Kona side of Mauna Kea, past La`au cabin to Saddle Road and a short ways along Saddle Road and down Ke'eke'e Road on Pōhakuloa near the west side of Pōhakuloa which was the boundary at that time to the so-called Kona Hwy then to you know that little village, Pu'u Anahulu and then down to the bay – Kiholo and actually ending our cross-island hike at what's the name of that place, that little pond that's part of that area of Luahine Wai. A coupla two-three years later we did a hike from where the Ke'eke'e Road joins the old Kona Hwy, went down the new Bobcat Trail to the boundary of Pōhakuloa trail to Ahu a 'Umi all the way to well since then we made all these connections, but all the way to the ocean at Keauhou [Ku].

Interestingly enough on the second hike which was the one that went through Naohulielua, we started out at the boundary of Pōhakuloa and we did a little ceremony that we usually do, very Hawaiian all that kind stuff, in fact we raised the Hawaiian flag and our Hawaiian tradition heritage, well he's our *oli* guy Kaho'ola and he did his chants all that kind of stuff and so we were actually dedicating our trip across there too, you know Kingdom of Hawaii and all that including having this big flag up…we do these kinds of things although they're not "real" they are as far as I'm concerned very symbolic. And so when we do these hikes in these places, we're always on the lookout for things, for

signs, for plants, all that kind stuff; we do our *pule* and we bless us we bless the place we bless the ancestors who do all these actually our hiking group is actually a hiking group and not just a role playing kind of hiking group. And so it's all part of this all integrated into my cultural practice and all the other personal cultural practices [Ku].

Right here it's like Puu Keʻekeʻe, okay there's a road that goes right by Puʻu Keʻekeʻe, we went down that road down to here and the road is not too far from Puʻu Ka Pele and over here to the northwest corner of this we hooked to Kona Hwy to Puʻu Anahulu. And the second time we went to where those two roads come together and took the Bobcat Trail and this is the one that's all down here too. Naohulielua and like say about five miles past that. So I've been through most of Pōhakuloa including Puʻu Koliʻi, but this other place that I was telling you about Kipuka'alala which is down in this area so it would be on the southwest side [Ku].

Keʻāmuku Traditional Structures.

You know, when I was younger, when I used to go with my brothers back in 1960s, a lot of the land was still pretty much intact - they never cleared the land real good. In some areas there were small little *heiau*s [sic] - I didn't pay much attention to them back then, you know, but you can tell that our ancestors went crossed that land before. I don't know if any of them are still out there because like I said, they cleared a lot of that land and made pasture land out of that place [Lloyd].

There were some Hawaiian sites out there, like I said earlier. I don't know if they're still there because, like I said, they went clear plenty of the land. They were mostly like rocks - I would think was *heiau*. Same as up here Kawaihae *uka* on Queen Emma land - get plenty like that…. Not so much living quarters because that place no more rivers that run. They were just, you can tell people, who passed through [Lloyd].

Keʻāmuku Ash Scatter/Burials.

And that's where we have two friends their ashes are out there…actually they kept the bones there. So they gonna try and preserve that area too…we asked if Pohakuloa could preserve like where we have Andy Fong … the ashes scattered [Mark].

A lot of them [cowboys] just wanted their ashes spread out there because they loved the place. Just like Walter Stevens and Andy Fong. They worked there for many years; they loved the place so much that they wanted their ashes to be put back out there, which is how honorable the cowboys were - the people who worked the land [Lloyd].

I wasn't there for Uncle Walter's, but I did go out for the spreading of Uncle Andy's ashes so there are markers. I think there was a small broken down fence - a remnant of a small broken down fence…. Uncle Lucky [Puhi] was working at one point with some type of a 'Colonel' - I remember him telling Lehua that they were going to have it fenced. But I don't know if they actually did so Uncle Lucky would be able to tell you [Kuʻulei].

I got Colonel Richardson to commit to protecting where Walter and Andy's ashes are in Keʻāmuku. I don't know if they have followed through with that. They were supposed to…. It was scattered. My thing is that once the military took over the land, my thing was that the family would have access whenever - you know maybe a birthday or something would come up. And they have agreed to do that. So they are in contact [Lucky].

There's this old stone wall corral that we used to work cattle in, and there's a nice flat outcropping - it's not the highest point but the view is nice. And they scattered both ashes there. Walter died first, and then Andy died later and they took their ashes there. Now,

Keamuku wasn't purchased by the military yet so Parker Ranch authorized the scattering [Lucky].

They found, maybe a month ago, Bill e-mailed me a picture of a rock - looks like a gravesite with a cross on it and it was on top. Pu'u Nohonauhai [Nohonohonohai]- see I'm getting to pronounce my Hawaiian words right! Kepa was the one that said you know us guys, cowboys, we cut short, yeah (looking at map)…. This would be right off of Saddle Road when you come in, that Pu`u is right over here. I used to say 'Namuhai'. And Kepa would correct me – Nahonauhai…but when I looked at the picture I told Bill, 'I don't think that's a gravesite.' Maybe somebody built it at the time because I saw it before - we used to climb the hill with the horse…I don't think it's a grave. It could be a surveyor's landmark that somebody built [Lucky].

Gathering Practices and Native Plants.

I gathered down there [Ke`āmuku] a lot of *ko'oko'olau* - the mountain *ko'oko'olau* for tea. That place came up - real sweet sweet tea down there. I don't see much anymore. That place was ravished by fire many, many times. And the land was cleared - all the *a'ali'i* was cleared by the bulldozers and stuff like that - they drag chains and stuff like that to make better pasture land. At one time the thing was so thick with *a'ali'i* [Lloyd].

And then I forgot to mention that we used to pick the flowers from *a'ali'i* to make leis and stuff like that. I don't do too many stuff like that, I only pick for people when they ask. But basically that's about all we gathered from there [Lloyd].

Sometimes we'd bring home some *a'ali'i* - the wood - the dry ones. We'd use that for stands to mount our birds, and they make real good firewood for cooking - very hard wood [Lloyd].

Uncle Jiro said that whole Waiki'i/Ke`āmuku area was covered in *pili* grass in his childhood. He said from where West Hawaii Cement right up - that whole area of Ke`āmuku - that was all *pili* grass [Kuulei].

There's still some right at the top - Girl Scout Camp - there's still a little bit *pili* grass over there. It's more between the road and the fence, though [Kanaina]

Our pigs, and our sheep and our goat - that is what I went there for the most of [Lloyd].

Ke`āmuku Rock Walls and Cairns.

You can see a lot of the walls - you'll see small squares fenced off. I mean, rock wall squares - I'm not really sure what they could have been…over the years a lot of them just fell over, but basically you can still see the area where it was. There are some big ones. There are a lot of smaller ones - I would say 16 x 12 or 12 x 12. There are a few that are 8 x 8 - you just come across them while you're walking. That fountain grass is about 3' or 4' tall in some places so you don't actually see them until you bump into it. You can actually see it in the grass. As far as pointing them out on a map, that's really hard. Its just memory of where we were hunting. I mean, if I think far enough it will come back. If I'm walking in that area, I'll know where it is [Kanaina].

Because of the fountain grass **-** as I was saying about stone walls and stuff like that - those rocks, you get a pile of them, you know that somebody put them there [Lloyd].

There are some where you can see that people piled rocks - in little pillars and if you look far over you see another ridge, you see another little pile of rocks. I don't know if it was markers of some sort - if that was a boundary or marking a trial, but you can still see

areas that you can see those little piles of stones. Who put them there I have no idea [Kanaina].

There's lotta rock walls down the headquarters at Keamoku House, they call it -- the workmen used to stay out there…it should be way down, just about here -- Ke`āmuku House towards Kona - stay down there someplace. In fact you know the last trip when Lucky went out with PTA, they were gonna try and preserve all that those walls…that's the same one [at Ke`āmuku Village] [Mark].

Historic Structures, German Camp and German Ovens.

And as far as those other stories, Uncle Mark [Yamaguchi] was working up there for ten or more years, Uncle Jiro [Yamaguchi] working for thirty years - you'll have a lot of those stories of experiences they had. And the last thing that I wanted to say is if you cannot locate it, I can try, I think like '97 maybe - ask Uncle Mark tomorrow, but when his dad was still alive…(?), myself, Uncle Jiro, Uncle Mark - at that time we were going to do an oral interview with Uncle Jiro Yamaguchi who was Uncle Mark's dad…and we actually took him out in a truck and we started at PTA and we drove through all of the paddocks down…stopping at all of these places that Uncle Jiro remembered…but there's apparently a German Camp out there up by Ke`āmuku but in Waiki'i and he led us right to an oven and the oven was still intact…they're still there, still there intact - Uncle Jiro led us to that [Ku'ulei].

Photo 105. German Oven.

The German ovens are still there [Kanaina].

Ke`āmuku house given to Waimea Buddhist Church…right along church row. There's a yellow building and behind that there's the Ke`āmuku house. They wanted to tear it down and use the lumber to build it the way they wanted but in fact the whole building behind of the church is the Ke`āmuku house [Mark].

There's a corral yet up there [Ke`āmuku Village] [Mark].

View Plane and Landmarks.

There's a high point out there where you can see this whole paddock…Kalaumana…and when you turn back towards Mauna Kea like you can see all like Waimea [Mark].

We'd been doing it [exploring] all our lives - unless the fog rolls in; it's hard to get lost out there because you have a lot of big pu'u - there's landmarks, tree plots, certain fences, you follow a fence you can follow it right back. It was hard to get lost [Kanaina].

PTA/Ke`āmuku Trails.

It's my feeling there are roads and trails all over the place and then you had people running all over the place probably more people running all over the place than you have nowadays except for Saddle Road. And so you had bird catchers running around, you had adze makers going up there, you had others collecting rocks up there, you know adze material working up there bringing them down. It's like right now they're working on the so-called comprehensive management plan for Mauna Kea. And under trails the author of this thing has only two things, one is that the trails were used for gatherings and for hunting, which can't be more wrong what he just said because there were regular people on those mountains and on those trails all of the time, I believe, except during the middle of winter. For instance, one of the routes from Waimea to Hilo was to go up Mauna Kea to Lake Waiau and then come down to the other side. And so for some

reason or another, I haven't really figured it out yet, people in the old days chose to go all the way up there to the 11,000 level actually practically the 13,000 level of the mountain, withstand all the hardships of doing that to get to Hilo. I believe that even the people from Honokaa also did some of that too…. I'm guessing there's some religious connotations to doing that. They would have had to do it, some kind of religious cultural something or other that was a motivation for doing that. Of course the other thing, if you went down the Hamakua Coast there with all these rivers and gullies and everything else, it probably was not all that easy either although there were trails along there. Anyway, for whatever reason, people used to go to Lake Waiau to get to Hilo [Ku].

Photo 106. Pu'u Koli'i - one of many trails in PTA.

You know, in the PTA area had old trails inside there - trails that were used to go to Pu'u o 'Umi side too. I'm sure you have some documentation…. But there are trails and stuff like that out there [Lloyd].

There's an old trail - I don't believe the Judd Trail comes through PTA. Judd Trail is an ancient trail that Hawaiians built centuries ago and it started from Kailua Bay and it comes right over the mountain and it ends at 'Umi's temple, which was a gathering place for the Hawaiian people. I believe it did continue [Lucky].

I was talking about that one trail on the southwest side, interestingly the trail goes quite a ways, I think half mile, a mile, three miles; it's like a trail that goes nowhere. And so we have these things out there and they're hard to explain, hard to interpret but they're out there! Like this trail, it sort of parallels this side its right in this area. It parallels the boundary but if you extrapolate out, there's nothing here that it was sort of headed to. Whereas on the other side it's running into the vicinity of Ahu a 'Umi, but even then I think it misses it. Like one time on the map it shows this trail it's on the north side of Mauna Loa and yes, we went over there, it was hard to find the trail but we found the trail, this other guy and me. And it doesn't lead, it doesn't come from anywhere it doesn't go anywhere, it's just out there in the middle of everything. So you have these kinds of trail segments that are seemingly lost but they must have had a function in the old days, they must have gone somewhere. People used them. But they're still trails to nowhere. They're out there. Bottom line is Hawaiians went all over the place. I don't know if there are any places they never went and so for whatever reason they're out there running around the countryside. They left trails [Ku].

Dr. Bergen used to ride up - trail ride - used to come from one of the ranches from Kona and used to come right across [Lucky].

A major way to go from Waimea to Hilo was through Mauna Kea. And so it was also a thoroughfare [Ku].

They have that wagon trail but we don't know where that wagon trail leads [Mark].

As far as trails, it's hard to say - we didn't really know what we were looking for, but there's a lot of cattle trails. I'm sure if there was a trail, cattle liked to walk the easiest

place so they probably used it if there were any trails out there. If they find a road, they'll walk on the road rather than walk on the rocks. So even if there were trails out there, the cattle probably over the years wore them down to where it pretty much looks like a cattle trail now [Kanaina].

There's trails everywhere out there, but a lot of them are game trails…game trails - trails that pigs or cattle use. You can't really see anything. Not really. There's a lot of brush and stuff out there so it's hard to really notice any kind of trials. Like I said if there was a trial, I'm not sure that the cattle used it so many years that it just looks like a cattle trail now [Kanaina].

There's trails I never did see some that may have been made by the Hawaiians or stuff like that - I never did notice that kind of stuff [Kauka].

Photos 107-109. Trails signs on Waiki`i Ranch.

National Register Nominees.

One of the problems…is that a lot of our cultural and traditional history there's a lot that the old people did that left no marks, it's not in any particular site or *ahu* or physical thing that has been named. But there was a lot of associated what's the word but it has to do with stuff you cannot see – intangibles. Our culture is full of intangibles, in fact more intangibles than tangibles. So we talk about sacred sites and what to do with them. I don't know because like I'm trying to say, because so much of this is involved in intangibles, you cannot see it sometimes you can feel it, many times you can feel it. People have feelings they have special places that they have feelings for, there's no physical manifestation, but it's sacred to them. The other thing about Hawaiian style, people don't often tell you about all their secret places or sacred places and all the things they did there, and so if you're gonna go U.S. style and try to make a certain place special it's very difficult because the place doesn't necessary have boundaries like a specific sacred site. So it's very difficult to do that but of course from the haole standpoint well if you cannot describe it then it doesn't exist. So I don't know what to tell you [Ku].

I really acknowledge those places where the old people were, where they lived, where they traveled, etc. of course as they say we probably cannot preserve everything but somehow or other and by the way, it's not a U.S. historical place this is a Hawaiian historical place so I'm not really pushing for our places to become a U.S. heritage centers etc. it's Hawaiian, even though I've sponsored some things that are on the Hawaii State Register of Historic Places like Kaneakapupu [Ku]

All those places, there must have been lots of human interactions taking place over these places, there's very little that remains that we can go back and figure out and decide. The kinds of places that are there, on the ground, on the side that had these signs of human use or habitation, I think that we have to at least for the most part protect them if not all, protect the important ones and preserve them for whatevers (future historical enrichment) of how people lived, loved, and subsisted in places like that. Like Kipuka'alala, it's such a beautiful place that it's a shame that it's even connected with Pohakuloa and that there's a possibility that it will be ravaged in time like making gunner ranges out of it. Actually,

the place to me is so special that it should be taken out of Pōhakuloa [military hold] and given some other designation or status; but it should not be on Pōhakuloa. On the other hand, it's a forest kind of situation where I'm not sure how much signs of human use and habitation might be found there. Its such a - I've been using the word pristine but pristine is a relative word [Ku].

I don't even know if it should become a State Park. You might have to have some kind of Hawaiian designation and some kind of Hawaiian control but I don't have very much faith in the State of Hawaii either as the government for instance. Of any place on Pōhakuloa that could use some special study or possible conversion to something else, more protection, more special consideration, I would recommend this place. In fact there are a coupla old buildings there that could be used like dormitories; it's a great place to take Hawaiian kids like on a weekend and take em out on hikes and show em the flora etc. and top of that the place is peaceful, oh, quiet, anyway, really nice place [Ku].

You know, I would have to go out there and really take a good look. But that place where the [Ke`āmuku] camp was, I would definitely want to put that in because there are so many memories. When I was working for Parker Ranch we used to go out there and work too and the camp was still there. They had all the Filipinos out there and they had the manager's - the boss's house up there [Lloyd].

The [Ke`āmuku] camp, I think, would be the main one…. There's things just like that - there's old corrals - there's the Steven Holt corral; it's closer to the road on the bottom. That's in Ke`āmuku. That's how all the big corrals that the ranchers used to use. There's a lot of rock walls out there - there's small little areas that have like a small perimeter wall - there's a lot of rock wall fences that were made back when there was no other building material but rocks. As far as sites, they`re so degraded that it's hard to tell what they were actually [Kanaina].

Those rock walls, some of them, I'm pretty sure built by the ranch. I can't say all of them were built by the ranch, because I haven't been around that long to know. I'm sure some were built by the ranch. What else? Mainly that corral and where the [Ke`āmuku] camp …I would think were the most important sites for the ranching part [Kanaina].

So where the camp is and where the camp is like preserved [Kanaina].

The corrals too - especially the two corrals. Especially the cowboys they deserve that, touch that, don't touch the corrals [Kauka].

The ashes in Ke`āmuku [Lucky]

I've been to Ke`āmuku Village on one of my trips. I think so [that something that would be nominated for TCP] and I think the military would like that too. I mean they have to see these kinds of things because if they're gonna be credible at all they gotta watch that public relations after all public relations is so important to them so they gotta do these kinds of things or act like they want to [Ku]

I would think that Ke`āmuku House area. I think is maybe about five or six acres or more…that should be protected. That's rock walls - rock wall corrals. I believe it has a system where they used to dip the sheep - there's a trough - last time we went down with Bill guys - I took them there - there's a concrete area where they dipped the sheep. There are a couple of buildings that's there. Just like the foundations, like the old turkey pans**…**there's some water there, some wood - firewood…. But I would think that would be one of the places that I would agree on [Lucky].

If you look at Humu'ula, which is the adjoining property I would like to see that old sheep station, the remnants be protected too. And that right now belongs to Hawaiian Homes. There's an adze quarry up at Mauna Kea that should be protected [Lucky].

Other Practices

It's like the Hawaiian bow and arrow. The archaeologists say the Hawaiians had bows and arrows, probably shooting rats and maybe birds. And if they had bows and arrows to shoot rats and birds somehow they'd figure out how to shoot other people. What do you think of that?... Everybody knows they shot rats, but I've never seen a rat-shooting bow and arrow, have you? So if we haven't seen a rat-shooting bow and arrow, which we knew existed, then we haven't seen any man-shooting bows and arrows. That doesn't make any difference either [Ku]

Well one of the aspects of my cultural practice is to get to know the land intimately, and so walking the land is important to me. I like to think I am walking in the footsteps of my ancestors. I am very attracted to places where the ancient people lived, and work, and carried on their lives. And of course, this connects me with my *aumakua* and *akua*. Mauna Kea being such a special place where God seems to be close by; and some of my favorite god and goddesses are some of the Mauna Kea people – Poliahu, Lilinoe, Waiau, Koakane [Ku]

2.7 Project Concerns/Thoughts.

Change often meets with resistance, especially change of lifestyle brought about by outside entities. People who grew up on the lands often don't want to see it changed, especially if it provided resources, recreation and respite. They also understand that things don't stay the same, and change could occur with cultural sensitivity. The consultants shared their *mana'o* about the future of this area; some of their thoughts are stated below.

PTA Concerns.

Some of my biggest gripes are the trails and roads in Pōhakuloa being "public." However, I must say that at Pōhakuloa for instance they're trying to replant some of the plants that are rare and endangered and trying to protect some of the cultural sites or the cultural places, and so from this angle they're doing good, it's just that on the other side - the destructive side that one wonders [Ku].

I am very sensitive to the military use of our lands for instance that has been going on for a long time and the military uses this place for training and the duds will remain with us for a long time. For instance, starting a year or two ago, the Army has started cleaning up the area between Waimea and Pōhakuloa, not Pōhakuloa the village. Anyway, what are they cleaning up? Well, in the last five years there has been at least four hand grenades that were discovered at Waimea Middle School – and they were live. These were remnants of stuff leftover from WWII training in the area. Couple of years ago they had a budget of $10 million to do some clearing up work and anyway, somebody decided that it was gonna take so much money to clean this place up; and it seemed like the $10 million they had for that one year if they continued to get $10 million for every year thereafter it would take them 65 years to clean that place up. Well, there are 50 plus sites on this island for instance where military training has taken place, and there has been no cleanup. So at this very moment, they are doing the same thing at Pohakuloa including firing rockets from helicopters to striking by fighter planes, dropping 2000 lb inert bombs from these high-flying bombers; of course, they're saying these are inert things they're not gonna bother anybody later on. But you drop something that's 2000 lb on the earth here and you leave it there is residue. There are live things all over this island that can kill people. I'm surprised that we don't get people killed or injured more often, including

bombs along the shoreline or in the ocean that people find from time to time. So I'm not very happy with the irresponsibility of the military to keep on dirtying our place and not cleaning up. And they know that I feel this way. I let them know every chance I get [Ku]

The other big issue on Pōhakuloa is that of the depleted uranium [DU]. For instance there is very little or almost no record of their use of depleted uranium up there and of course in the beginning, which was about the last five years they've always denied every time somebody would ask about depleted uranium 'no we have no depleted uranium - as far as we know depleted uranium has never been used on Pōhakuloa.' The question was asked regularly, and that answer was given regularly. However, after DU was found at Schofield, they finally admitted they had used DU at Pōhakuloa. They still don't know where they used it or how much they used. And what they left is probably still there. Anyway, the State, the Health Dept hadn't been all that interested in the issue. It's been mostly a community driven kind of issue and of course we haven't come to the end of it. But I tried to point out to them that their continuity and recordkeeping is really atrocious, because a lot of times the kind of answer you get from whoever is speaking 'as far as I know there has been no use there,' but the guy has been there only five years. He doesn't know what happened six years ago. And there's no record to go back and look at. They have assured me that they are keeping better records up there [Ku].

Last year there was mostly just two of us - we hiked, we did our thing, we had a great time. Okay, two years ago, we also finished a hike from Waimea across Saddle Road to Hilo and my belief is that Saddle Road is the or was the present vestige of the old wagon road that went across there that is like a historical road? but one of my main concerns is that the old roads and trails on Pōhakuloa that are subject to the highways back in 1892 which means they are public roads and they are being closed by the military. I don't know that it's legal that what they're closing these roads to the public is legal, and I guess like I say, they're not permanently closed to the public but I suppose in the mind of the military they are open to the public but the public needs to get permission to use those roads and only when the military isn't using them. So in a way, I believe the military thinks it's their road; it's still public roads and the public still uses them, but it's under their conditions [Ku].

There's another thing that comes to mind, the Army believes that they own Pōhakuloa well they forget that parts of Pōhakuloa came to them by executive order and an executive order could very well undo the place. The thing is that some of the lands are leased – they're long term leases for a dollar a year or a dollar for the whole time or sometimes nothing at all. And so even the people up there don't know the history of how they got all this stuff. And I believe that some of this stuff also includes Hawaiian Home Lands or at least some of the negotiations were with DHHL like back around mid-80s, 85-86. In fact they were negotiating for 20,000 acres I believe at that time. I don't know if they got em, I think they got em. But if you were to ask them, what about all these parcels in Pōhakuloa and how you guys got them and for how long all that, they'll say they don't know. These specific people may not know because they haven't been there and they haven't asked nobody's asked nobody's talked about it, and they don't happen to have any good records about it [Ku].

I haven't read the documents on that Stryker Brigade - I know they have this vehicle they're using for warfare, which I really don't think they should have any training on that land. That's my feeling. That land, I think, could be used for other things. But I think the way the environmental groups are going about making the military fence off all the area, I don't think they are going to be able to do too much. I think the environmental groups got a little bit too much power - they want to protect habitat. Habitat for endangered species - plants and stuff like that. But what they're doing right now is fencing off large areas of land, it's only a matter of time that the vegetation is going to be so thick it's going to burn and they're going to lose them all. I mean it's okay to protect, but when you take out

animals from a particular area, somebody is going to have to take care of them. You cannot just let the thing go, because we've got so many invasive species of plants [Lucky].

And there's a lot of pig, which a lot of our families can be using for sustainability reasons. No hunting allowed since military took it over. They have some hunting on Pōhakuloa, I understand, on some of the areas that they fenced. That's it. Once they got the animals out, I don't think there's going to be anymore hunting up there [Lloyd].

I'd like to exercise that right and try and see because, you know, sometimes the military…they talk from one side and then the other side is something else. I went to many, many meetings and sat down with them when they first wanted to start fencing those areas. The environmental people are very educated because what they do is they hit the military because the military got the biggest budget - now the military is making fences and protecting plants. Which to a certain extent is okay, but they want every animal gone from the island .or they want killed. But you know the hard part that we have is that the pig is part of our culture - we still use this animal a lot. So I guess we're going to have to deal with that problem when it comes. And they've started to fence and they've started to kill…the outsiders don't understand how we are - that we live off the land and that we're part of the land [Lloyd].

The impact area they probably won't let you go in there. That is one piece where we wanted to see if the military can clean that up because it's a….. That's where all the game is because nobody can hunt in there. The impact area they don't let anybody in there, because they use that for training jet fighters and stuff. So get all kinds of stuff in that particular area - got a lot of unexploded ordinance still inside there. You know, we like that land back someday, so we like them clean that up. I mean, you know, I don't want to see them go someplace else and leave a dirty bathroom and a dirty toilet next door - clean up their mess because we want that land back - we want to use that land someday [Lloyd].

The thing about these people – they do not understand that that is how the world is made. Some things go out; something will take its place. Right now the weather patterns are so erratic - that is why a lot of your stuff dies off. And they keep bringing in more and more exotic plants and we get all kinds of different insects coming in because of all the people that come here. So I don't know - I don't think too highly of the Endangered Species Act because it ruined our life - its put a lot of hardship on some of us because it affects directly on what we do [Lloyd].

We still gather and a lot of other areas they've fenced off we cannot get in anymore. So it's a real feeling and only us can feel that because we're from the land - it's sad. I wish someday we could sit down and really talk and work out something. But I've tried for 28 years - their agendas keep going forward while ours don't - I guess they've been doing it a long time - they've got all the attorneys and everything working for them [Lloyd].

Ke`āmuku Concerns.

In fact the Army in Pōhakuloa supposed to let us know what we kinda asked for, if it's gonna go through etc. because we asked if Pōhakuloa could preserve like where we have Andy Fong -- the ashes scattered. One of the representatives said they'll do that for us, but there's gonna be a lot of work to be done. They planning to put up a stone wall, a wall right around where we scattered the ashes and they need to plant grass, and plant trees, but we didn't hear nothing yet [Mark].

I just want to say that that place has a special place in my heart - will always have a special place in my heart. To me when I go out there it's total peace with life, when you

go out there. You get to see things, be out with nature, be out with elements out there and you just get that feel from the land. I know what my ancestors felt way back then - it's a feeling that's just hard to describe. It makes your life complete when you just get to be out there. It really is a beautiful, beautiful place [Lloyd].

See actually, they had a little bit humbug from the military too see, about us going on the side of Waikii Ranch with the dust [Mark].

That is one place, before the military do **anything** to Ke`āmuku, I want them to clean up the impact area, because that is where got a lot of sheep and stuff for the future generations to hunt. I know they're cleaning up Kahoʻolawe, but up there we've got some of the worst ordinance up there sitting there. I would like to see that cleaned up…the way I look at it, the military is going to use Keamuku for a Stryker Brigade, but then they have this big section of land [Impact Area] I would like to see them clean up that land so we can use that land again [Lucky].

We cannot go inside there now. I think Parker Ranch still uses that area for grazing. I believe they still have cattle in there. We'd sure like to have an opportunity to go back up. Right now the place is overrun with goats; for one thing, you see them all along the highway now. So I'm sure they're going to be nibbling on whatever rare plants are out there [Lloyd].

Mauna Kea/Vicinity

All this, this Mauna Kea - you know with the Palila bird, the sheep up there, and the eradication - the federal court order. I've hunted Mauna Kea for ages; I have not seen a Palila bird yet. But it's caused a stir-up with the hunters and Sierra Club. Probably Lloyd gave you the life history of his side finding all of these - he's an activist [Lucky].

2.8 Anecdotal Stories.

Value of Stories

One of my favorite stories like they would - I don't know if it was associated with Umi or anyway, it was about the two birds and the guy was trying to get em and so he would shoot up there and couldn't get em, so he'd build a ladder and go up there, try again, oh, couldn't get em, oh, going back up there, but the expert archer from Kauai figured out how to do it and at a time when the birds were flying, they'd cross each other and boom, the arrow shoots both necks, won the contest, I forget what it was anyway that story. We had bows and arrows to shoot flying birds, if the story is anywhere near truth [Ku].

On the other hand like on Lanai well there was a battle in a gulch and where the water slide is that Kamehameha's forces were on one side and the island's forces were on the other and they were slinging stones and this was like 300 yards, well the question was can you really fling a stone that far? No? I saw it happen! And so the bottom line is, is the story true? Well it's probably true because it has been demonstrated. That's why stories are important, it's just unfortunate we don't have all the stories. Or some of them haven't been translated [Ku]

Turkey Hunting. Some of the stories - Henry Ah Sam, he's already passed, but we used to catch turkey at night. What they used to do was get a long pole, put grease on the pole - at night they would shine the flashlight underneath the turkey's foot and the turkey would slide all the way down and then he would grab them...turkey don't fly night time or what! I don't know, but he said that's what they used to do. I don't know where or who

brought the turkeys in or what year it was brought in. But they're not indigenous to the land, but they [became] part of the landscape, yeah. They're tough! [Lucky]

Ke`āmuku's Spooks. Well, you know Keamuku get some spooks down there. It's never happened to me. You know, I came not to believe those things, I'll tell you that, absolutely. But you don't think about it until it happens to you. I don't think about it. But, yeah, I hear stories from old timers. Before they didn't have cars so what they used to have to do was ride their horse from Keamuku all the way back to Waimea. And sometimes they would drink in Waimea, jump on the horse and come home in the morning. And things would happen to them and the horse wouldn't go. Horse gets spooked…they turn around and run the other way. At Keamuku House, I heard, in that era things happened at night. Like I said, it's never happened to me. I've hunted all that site before, at night - it doesn't bother me [Lucky].

I've heard of other stories. I can't tell you who they were or what they're experiences were. But I remember that if you bring up Keamuku, most anybody who hunted out there is either not going to hunt out there 'cause they're too spooked by everybody else's spooky stories, or they get a bad feeling so they just don't go. Not too many people go in that area at nighttime [Kanaina].

Nonohai Hill Mystery Lights. There was one thing that we were hunting up there and we had a few of my cousins from `Oahu and we were sitting down in the grass. There was a - we thought it was a spot like spotting lighting us, but it was actually a ball. it rolled up above the hill and sat there and it just fluttered for awhile. I woke my two cousins up because they were sleeping…and we were all sitting there watching…and it slowly went down behind the hill and it went out. It's the one by West Hawaii. After we seen that light my two cousins panicked - they're from Oahu and they've never seen - I mean if it was something that would have bothered us, it would have bothered us. We were sitting there and you watch. That big hill is almost as if someone had walked with a torch all the way to the top of that hill and stood there - it's almost like a candle burning. That's why I thought it was a good torch. And it stood there the whole time we were out there until we left, and only when we were driving away did that light go out. It's just something I figured I'd share with you. It's that first big hill when you go up Saddle Road - that first hill on the right-hand side. It's where my dad's quarry was - I'm not sure of the name - that big Nonohai hill. It was on that hill that we seen that light. The other people that hunted with me that night never hunted on that side again. I think they were too scared to go back. We've seen other little things, but that was the one night that actually stands out - we'd seen something that none of us could explain [Kanaina].

Mysterious Dog Attack. We've seen little shadows when you walk at night. My friends have had other experiences of their dog is barking in the grass…go over there and there's nothing …pull this dog away and when you get back to the car, it's all ripped up like somebody cut it up - the dog, but there was no pig in the grass when the dog was barking. And when they pulled the dog out, there was nothing wrong with the dog. Only when they got back to the car did they notice that the dog was cut head to toe. The dog lived, but at that time there was no cuts on the dog. Just little things like that that happen out there. You hear little stories - most people don't hunt out there because they think there's spooks out there [Kanaina].

Spirits and Rolling Stones. I have no problem when I go to those places. I always have a way of going … I've hunted in places where nobody hunts - they're very scared, you know. They say it's got spirits, but I don't bother nobody - I always go and only take what I need. So I never had problems like that. Wherever I go - some of the places nobody even like fish or camp - I camp; sometimes you can hear the stones rolling where the Hawaiian trails stay. You know somebody stay, but so far…always been lucky - never make humbug. I always remember take what you need, only what you need [Lloyd].

2.9 Ethnographic Survey Summary

Interestingly, with the recent acquisition of Parker Ranch lands such as Ke`āmuku Ranch by the Army adding to the land base of Pohakuloa Training Area, all of the interviewees have first-hand knowledge of PTA lands. At least two people interviewed do have first-hand knowledge of the "old" PTA land base; one by doing cultural hikes (*huaka`i*) through PTA and by going on fieldtrips with PTA staff; the second person used to hunt on PTA lands when the Army opened or allowed hunting in selected places.

Most of the interviewees were not clear about Traditional Cultural Property/Places studies or about the National Register of Historic Places nomination process. Yet they all want to see *wahi pana* (ancient significant and/or sacred places/properties) protected and preserved, but most of them were more concerned about protecting historic sites on Ke`āmuku Ranch. One person interviewed was concerned that some *wahi pana* are intangibles, places that are sacred, but do not have any physical attributes and would not be considered. And while he has previously participated in the State Register nomination process, he did feel that places, features or objects such as shrines, *ahu,* cairns, habitation caves and lava tubes, rockshelters and quarries are a part of the Hawaiian culture and should not become U.S. heritage centers.

2.9.1 PTA Background

PTA is located between Mauna Loa, Mauna Kea and the Hualalai Volcanic Mountains and extends up the lower slopes of Mauna Kea to approximately 6,800 feet in elevation and to about 9,000 feet on Mauna Loa. PTA is the largest DOD installation in Hawaii consisting of 108,863 acres, of which 24,048 are leased by the Army from the State of Hawaii - the leased sections include the northern maneuver areas and the support complex. The remaining land is "ceded" and includes the impact and range areas and a portion of the west maneuver area. Pōhakuloa and much of the land surrounding it is designated a conservation district and overlaps both State and privately-owned land and includes the three mountains and the central saddle area and with the exception of PTA lands, the rest of the conservation lands are not being used. Access to PTA is primarily via the Saddle Road, but a new access road is currently under construction; a tank trail parallels much of the Saddle Road.

PTA is level or gently sloping, uninhabited [with the exception of the installation], and having few trees or deep gullies to inhibit training, but a large percent of it is fairly unusable for maneuvers due to the rough lava flows that occur over much of the surface area. Two types of lava pahoehoe and aa, are found throughout PTA. Cinder cone hills or *pu`u*, are the result of the latest eruptive activity on Mauna Kea and are found in the northern section of the installation and surrounded by more recent lava flows from Mauna Loa. These recent flows (less than 200 years) are the most notable features of the central and southern landscape and surround and contrast with islands of vegetation call *kipuka*.

A critical habitat for the endangered Palila bird exists in the northeastern portion of PTA and another area to the northwest is presently being investigated for the possible presence of three endangered plant species. Several archaeological sites have been found throughout the training area, of which one large cave is considered suitable for nomination to the National Register. Vegetation throughout PTA varies from sparse grassland and low scrub growth to open *mamane* forests with small shrubs.

The PTA impact area, which is over 10 times the size of the one at Schofield Barracks, includes 51,000 acres. There are approximately 32,000 acres free of recent lava flows - more than twice the 14,000 acres of similar training land on all of O`ahu. The impact area is surrounded on the north by several ranges and designated firing points for artillery and a support area of 600 acres containing logistic and administrative facilities plus quarters for approximately 2,000 troops is located to the north at the base of Mauna Kea. The cantonment (barracks) area was constructed in April 1955 from World War II prefabricated Quonset huts and the Bradshaw Airfield was constructed in 1956 (MCBH 2002).

The region was used for live fire exercises in 1943 during World War II when Camp Tarawa temporarily held troops on Parker Ranch. About 91,000 acres were leased from Richard Smart, owner of the ranch. At that time it was called the Waikoloa Maneuver Area, located northwest of the current base and south of Waimea. In September 1946 the land used for the old maneuver area and camp was returned to the ranch and a smaller Lalamilo Firing Range was used until 1953. Since coastal areas were developed into tourist resorts, military areas were moved inland to more remote locations (Wiki-PTA 2010).

“Pōhakuloa” comes from the name of a cinder cone Puʻu Pōhakuloa (long rocky hill/cinder cone) in the Hamakua Volcanic Series at the 6,470 feet elevation and in the *ahupuaʻa* of Kaʻohe (Ulukau 2002).

2.9.2 Keamuku Ranch Background

The U.S. Army initiated the discussions and negotiated with Parker Ranch regarding the acquisition of approximately 24,000 acres of Parker Ranch lands know as Ke`āmuku Ranch starting at the junction of Saddle Road and Mamalahoa Highway (PRFT 2006). Keamuku [also known as Keamaku; Keamoku; and Ke`āmuku] is in the ahupua`a of Waikoloa at about 3,200 foot elevation between Wawaekea and Heewai on the Puʻu Anahulu/Waikoloa boundary and according to Lloyd Soehren “ke-`ā-muku” means ‘cut-off lava’ and also refers to and explains that “women, children, and the aged hid in caves here during wars; they had to stifle any burning (keʻā muku) fire if an enemy appeared" (Ulukau 2002). While the interviewees did mention there were lots of caves in Ke`āmuku, the majority did not explore them.

2.9.3 Waiki`i Ranch Background

Waikiʻi Ranch is approximately 3,000 acres, located between 3,500 and 5,000 feet elevation. The gentle sloping pasture lands have clusters or groves of eucalyptus (*Eucalyptus* spp.) and Monterey Cypress (*Cupressus macrocarpa*) trees (Neal 1965); potable water is provided by two deep wells. The ranch is currently a master planned community managed by the Waikiʻi Ranch Home Owner's Association (SSRC 2008)

2.9.4 Place Names Mentioned by Interviewees

Table 2 below provides are place names mentioned by the interviewees along with the context and/or explanation of the place.

Table 2. Place Names/Comments/Interviewee.

Place Name	Comment	Interviewee
Ahu-a-ʻUmi	We did a hike from where the Keʻekeʻe Road joins the old Kona Hwy, went down the new Bobcat Trail to the boundary of Pōhakuloa trail to Ahu-a-Umi… we made all these connections, but all the way to the ocean at Keauhou	Ku Ching
Auwai Akea Kua	One primary water source was called the Auwai Akea Kua. When you pass the Waikoloa intersection that you're going to drive over it - that's that one stream that again crosses under the road. We drive over it right past the Waikoloa intersection. That was the primary water source for that area. It was a running stream where the Germans, and the different people, obtained water from that stream - Auwai Akea Kua. So it should be shown on any one of your maps - it was a dominant water source	Ku`ulei Keakealani
Bobcat Trail	That was where we used to hunt a lot from there.	Lloyd Case
"	One part that comes out near the Bobcat Trail; we've been on the west side which has a really nice trail, I don't know what that area is called but it's quite a bit of work done there, fencing and firebreak and stuff within the last few years.	Ku Ching
"	We did a hike from where the Keʻekeʻe Road joins the old Kona Hwy, went down the new Bobcat Trail to the boundary of Pōhakuloa trail to Ahu-a-ʻUmi… we made all these connections, but all the way to the ocean at Keauhou	Ku Ching
Eddie Suzuki Ranch	right on the side of the main highway - that was Waikiʻi Ranch before	Mark Yamaguchi
German Camp Cont'd	When his dad was still alive…myself, Uncle Jiro, Uncle Mark - at that time we were going to do an oral interview with Uncle Jiro Yamaguchi who was Uncle Mark's dad…and we actually took him out in a truck and we started at PTA and we drove through all of the paddocks down…stopping at all of these places that Uncle Jiro remembered…but there's apparently a German Camp out there up by Ke`āmuku but in Waikiʻi and he led us right to an oven and the oven was still intact…they're still there, still there intact	Ku`ulei Keakealani Cont'd
Heiwai2	We did come across caves. I never did go inside; my brother did a couple of times; he had to go get the dogs out..there are a lot of caves out there though. Definitely, seems like every time we went out there we would find one other cave. A lot of them the opening is small - I've seen my brother going run where he had to get down and crawl inside and then he just stood up as soon as he got inside - it opens up into a big cave. Just the opening was small…just a small opening - hard to see because a lot of that fountain grass growing around it. We only found it because the dog went inside and found one pig…. We didn't have a flashlight that day either. I did have a video camera and actually videotaped him going into the cave…. I think it's Heiwai-2 …the ranchers name the paddocks - I know that cave he went into is in that section	Kauka Case

Table 2. Place Names/Comments/Interviewee.		
Place Name	**Comment**	**Interviewee**
"	The next paddock above that [Kalaumana] is where they call Hewai 2 makai… Heiwai 2 is just about the center…then you come to Puukeke.	Mark Yamaguchi
(Big) Heiwai	[The other cave] it's up in Big Heiwai makai…up here someplace…the beginning of Pu'ukeke…just a regular cave, we really didn't go in, the hole was small only like this big, but we didn't want to destroy it	Mark Yamaguchi
Holoholoku	They're still using cinders. They have a couple of quarries out here on Parker Ranch - place called Holoholoku	Lloyd Case
Hopou-o-Kane	Like Hopouokane - on the map it says Hopukane Springs, it is misspelled Hopukane - it should be Hopouokane I believe. It's described as the breast of Kane or the heart of Kane. Well, I don't know about heart but at least the breast of Kane. And if you wanna think about a little picturesque kind of way, it's like a breast with milk flowing down the mountain like a spring. There's a stream, a little ribbon of green that comes down the mountain that's about 12 inches wide goes down the mountain about 50 yards and then the rest is all brown	Ku Ching
Humu'ula	Sheep Station. Part of the ceded lands controlled by the State. Another interesting thing is when you look at the old map you see like they always talk about that one sheep station near the access road, but there were 1, 2-, sheep stations all around the mountain. Gotta be a lot of people raised sheep up there, of course this was like in the 1800s early 1900s	Ku Ching
"	I believe some of the concrete forms are still there…the dipping stations are still there. I think one of the shearing stations is still up in the back.	Lucky Puhi
Judd Trail	Judd Trail is an ancient trail that Hawaiians built centuries ago and it started from Kailua Bay and it comes right over the mountain and it ends at Umi's temple, which was a gathering place for the Hawaiian people. I believe it did continue.	Lucky Puhi
Kahuku	Parker Ranch was owner of Kahuku Ranch	Mark Yamaguchi
Kalaumana	Paddock. Ke'āmuku Ranch	
Ka'ua Trail	We went up in Umikoa Trail which is somewhere up the mountain, it remains the same or changes to the Ka'ua Trail which goes to the summit up Mauna Kea.	Ku Ching
Ke'āmuku	It goes all the way back - the first people who had Ke'āmuku was the Spencer family, they the ones who started the sheep out there. After that the ranch [Parker] bought the place…way back during those days, it was all sheep I think it was in the early 1900s and then they started running cattle out there.	Mark Yamaguchi
"	Ke'āmuku was one of the four divisions of Parker Ranch. Basically it's in the drier section. At that time, the years that I was there, we had a cow herd of 3,500 sometimes; averaged 2,500 - drier times would be 2,500 other than that we'll move up to 3,500.	Lucky Puhi
"	There's a site that we used to call Ke'āmuku House - there were homes there, way back - probably in the forties, fifties - where they used to house Filipinos that used to work. And I believe there was a sheep station there too.	Lucky Puhi
"	The first sheep station down this side…I know they had the shearing shed there where they used to shear all the sheep. And they had the trench where they used to dip the sheep after they shear to take off all the insects and stuff like that. The shearing house was still there when I was going down there	Lloyd Case
"	Ke'āmuku was one of our favorite hunting spots because you had your sheep, and your goat, and your pig. So sustainability - that was the place to go	Lloyd Case
	We used to go out a lot because my dad had his two quarries out there…so summertime we're out there all the time. So as he would	

Table 2. Place Names/Comments/Interviewee.		
Place Name	**Comment**	**Interviewee**
"	work he'd send us to go pick *ko'oko'olau* tea on those two big hills that he worked next to - was loaded with *ko'oko'olau* tea…so if anybody would ask for tea he would send us up the hills to go pick	Kanaina Case
"	Keamuku - when we were small kids we was out there. My dad was working out there in the quarries and he used to take us out there and we'd be out there all day with him until he done work. I remember from when we were small he used to make us go gather *ko'oko'olau* tea for him…his friends…every time we was out there he was like, 'Oh, go get *ko'oko'olau* tea!' He'd send us up the hill, go get. Bring 'em back down…dry 'em out there	Kauka Case
Ke'āmuku	You know, only now I recognize what was in front of me before that we knew nothing about. So all of the indigenous type of plants that's out there, I'm just finding about now. And it was probably right in front of us and as a cowboy, you don't care. But now it makes a lot of sense what I see people protecting. The military is doing that. They'll probably find areas on the Ke'āmuku parcel that they will fence and protect from cattle, sheep, goats	Lucky Puhi
"	But PTA is planning to build a road like on the boundary on the Kona side of the [Ke'āmuku] boundary. They planning to make a road out there from Pohakuloa come straight down	Mark Yamaguchi
"	A lot of them [cowboys] just wanted their ashes spread out there because they loved the place. Just like Walter Stevens and Andy Fong. They worked there for many years; they loved the place so much that they wanted their ashes to be put back out there, which is how honorable the cowboys were - the people who worked the land	Lloyd Case [see Mark Y. too]
"	I wasn't there for Uncle Walter's, but I did go out for the spreading of Uncle Andy's ashes so there are markers. I think there was a small broken down fence - a remnant of a small broken down fence	Ku`ulei Keakealani
"	I got Colonel R. to commit to protecting where Walter and Andy's ashes are [scattered] in Ke'āmuku. I don't know if they have followed through with that. My thing is once the military took over the land, that the family would have access whenever - maybe a birthday or something. And they have agreed to do that. So they are in contact	Lucky Puhi
Ke'āmuku	There's this old stone wall corral that we used to work cattle in, and there's a nice flat outcropping - it's not the highest point but the view is nice. And they scattered both ashes there. Walter died first, and then Andy died later and they took their ashes there. Now, Ke'āmuku wasn't purchased by the military yet so Parker Ranch authorized the scattering	Lucky Puhi
"	Uncle Jiro said that whole Waiki`i/Keamuku area was covered in pili grass in his childhood. He said from where West Hawaii Cement right up - that whole area of Ke'āmuku - that was all pili grass.	Ku`ulei Keakealani
Ke'āmuku	You can see a lot of the walls - you'll see small squares fenced off. I mean, rock wall squares - I'm not really sure what they could have been…over the years a lot of them just fell over, but basically you can still see the area where it was. There are some big ones. There are a lot of smaller ones - I would say 16 x 12 or 12 x 12. There are a few that are 8 x 8 - you just come across them while you're walking. That fountain grass is about 3' or 4' tall in some places so you don't actually see them until you bump into it.	Kanaina Case
"	There are some where you can see that people piled rocks - in little pillars and if you look far over you see another ridge, you see another little pile of rocks. I don't know if it was markers of some sort - if that was a boundary or marking a trial….	Kanaina Case
Ke'āmuku Village	There's lotta rock walls down the headquarters at Ke'āmuku House, they call it -- the workmen used to stay out there…it should be way down, just about here -- Ke'āmuku House towards Kona - stay down there someplace. In fact you know the last trip when Lucky went out	Mark Yamaguchi

Table 2. Place Names/Comments/Interviewee.		
Place Name	**Comment**	**Interviewee**
	with PTA, they were gonna try and preserve all that those walls.	
Keanakolu	Actually we drove cattle a little over 2000 from Keanakolu to I forgot the corral name, Sonny [Keakealani] knows, that's part of Sonny's section… it's all koa trees	Mark Yamaguchi
Ke'eke'e Road	We then walked down the Kona side of Mauna Kea, past La'au cabin to Saddle Road and a short ways along Saddle Road and down Ke'eke'e Road on Pohakuloa near the west side of Pohakuloa which was the boundary at that time to the so-called Kona Hwy then to you know that little village, Pu'u Anahulu and then down to the bay – Kiholo	Ku Ching
Kilohana	Kilohana, that's the check-in station by the ___ camp…that's where anybody going hunting, they check-in…in fact Kilohana is right above here. You know that road go up, there's a cabin too over there right by the puu that's Kilohana…that is all state land	Mark Yamaguchi
Kipuka'alala	In that area actually - to the east of that area the boundary along Pohakuloa there is a beautiful, beautiful very pure native forest in Kipuka'alala, and it's really a shame that the military has control up in that area because it's - so as far as I'm concerned pristine. There are very few exotic plants growing there… That place is there just waiting for somebody to rescue it… It just doesn't belong to Pohakuloa as far as I'm concerned. [There's] lots of *a'ali'i, 'ohia*, *ohelo*, pretty low stuff but like I said some trees – '*ohia*…. I guess there's probably some other rare plants.	Ku Ching
"	So I've been through most of Pohakuloa including Pu'u Koli'i, but this other place that I was telling you about Kipuka'alala which is down in this area so it would be on the southwest side.	Ku Ching
Lake Waiau Cont'd	They could have considered the waters of Lake Waiau to be sacred, as well as the snow. The water, the snow fall there and never touches the ground. Like the water that falls on the taro leaf and all that kind stuff…some people use it for medicine, for what I don't know. Maybe it's a tonic, a general medicinal health supplement thing	Ku Ching Cont'd
Lava Road	this one I believe is Lava Road	Lucky Puhi
Makahalau	Going up towards Waiki' Ranch on the side partly all in there too and right after the airport they [PR] have cattle in there too	Mark Yamaguchi
"	Those days mostly on the ranch we used to go [hunting] -- Parker Ranch… Ke'āmuku, Makahalau, all those ranches I used to go hunt [for] pig and sheep. They have the feral sheep. They have the mouflon - they are like furry but straight hair too…all kind colors	Mark Yamaguchi
Mauna Kea	Keanakolu was in the back of Mauna Kea	Mark Yamaguchi
"	Bird season, me and my younger brother, Kauka, would almost always be up there shooting birds on Mauna Kea. We mostly went after Chukars and Erkels	Kanaina Case
Naohulielua	One of my most favorite place at Pohakuloa is at the south end not too far from is it Naohulielua - the story goes the two bald-headed prophets or kahuna or hula masters or all kinds of different descriptions of these two guys. That's another story that probably should be gotten into; I'm not sure what they were doing there	Ku Ching
" "	On the second hike which was the one that went through Naohulielua, we started out at the boundary of Pohakuloa and we did a little ceremony that we usually do, very Hawaiian all that kind stuff, in fact we raised the Hawaiian flag and our…oli guy Kaho`ola and he did his chants all that kind of stuff	Ku Ching Cont'd
Nonohai	It's pronounced very differently; people here - the cowboys call it Nonohai. I think when you look at the old maps it is Nohonohonohai, but they just said 'Nonohai'	Ku`ulei Keakealani
Old Kona Road	What they called the 'Old Kona Road' - this was the road that people used to travel - the old-timers used to travel on before coming across	Lucky Puhi
	The trustees [run the ranch, but they] selling the land, everything. That	

Table 2. Place Names/Comments/Interviewee.		
Place Name	**Comment**	**Interviewee**
Parker Ranch	way they had full control, I guess they didn't want the old people to stay on and the old people you know would kind of buck them…the sons [of Richard Smart] got small pieces of land	Mark Yamaguchi
"	Parker Ranch would open different seasons like bird season. We were allowed to take guests. I was a guide for a couple of years - a friend of mine and I - we took people out.	Lucky Puhi
"	We did a lot of hunting on Parker Ranch	Lloyd Case
Pohakuloa	The adze quarries up on Pohakuloa…the quarries are still there. I haven't been over there in thirty-something years! There's a lot of - when we used to hunt sheep on that side of the mountain you come across adze and stuff like that	Lloyd Case
PTA	This is the impact area right here. 22 - you can hunt; I think 22 is the last area you can hunt. And then all of this from 1, 2, 5 and 6 - it is closed because that's right across the PTA…. I've been hunting up in PTA during the archery season. It depends on the military if it was open for four weekends - I think last weekend and then three weeks prior to that it was opened. And then once the military come up and train, then they close it up because they do live firing now up there	Lucky Puhi
"	I gotta say that there have probably been battles fought in or near Pohakuloa between different factions of this island. That goes back in history, that we know nothing about or if we do know something about it we know very little. I don't know that we can go out and find the places where these kinds of things took place	Ku Ching
PTA	At one point I was not going to mention it to the military. There's a burial cave. I did not go into. We knew it was - Mark was the one that showed me the cave when I was working there. When I left the ranch I figured that probably no one was going to know about it…. They [PTA staff] went into the cave…there were like three or four bodies wrapped. They don't know what, when, who, what type people they were. He said it looked like it was a family. I asked them if there were any artifacts in there. He said it looked like somebody had gone in before and taken stuff. So I asked him what were they going to do? He told me they were going to mark the site and put it on their map as an area that is off the grid - no traffic, no training goes through there. They're going to fence it off.	Lucky Puhi
"	The trails up there is not just to go gather stuff and for hunting but also to traverse the countryside. I would even go as far to say that some of these walks were like pilgrimages. And in a lot of ways when we do our hikes [*huaka'i*] we are doing a pilgrimage. There were certainly different areas where others or the ancients that used to do the same thing. At least we are doing what we think they did	Ku Ching
Pohakuloa Trail	We did a hike from where the Ke'eke'e Road joins the old Kona Hwy, went down the new Bobcat Trail to the boundary of Pohakuloa Trail to Ahu-a-Umi… we made all these connections….	Ku Ching
PTA Trails	And so we have these things out there and they're hard to explain, hard to interpret but they're out there! Like this trail, it sort of parallels this side its right in this area. It parallels the boundary but if you extrapolate out, there's nothing here that it was sort of headed to. Whereas on the other side it's running into the vicinity of Ahu-a-Umi, but even then I think it misses it. Like one time on the map it shows this trail it's on the north side of Mauna Loa and yes, we went over there, it was hard to find the trail but we found the trail, this other guy and me. And it doesn't lead, it doesn't come from anywhere it doesn't go anywhere, it's just out there in the middle of everything. So you have these kinds of trail segments that are seemingly lost but they must have had a function in the old days, they must have gone somewhere. People used them. But they're still trails to nowhere. They're out there. Bottom line is Hawaiians went all over the place. I	Ku Ching

Table 2. Place Names/Comments/Interviewee.		
Place Name	**Comment**	**Interviewee**
	don't know if there are any places they never went and so for whatever reason they're out there running around the countryside. They left trails	
PTA Impact Area	they have this big section of land [Impact Area] I would like to see them clean up that land so we can use that land again	Lucky Puhi
Punahou	But anyway we used to drive about 2000 head from Keanakolu I think was to Punahou corral…up at Makahalau	Mark Yamaguchi
Pu'u Anahulu	We then walked down the Kona side of Mauna Kea, past La'au cabin to Saddle Road and a short ways along Saddle Road and down Ke'eke'e Road on Pohakuloa near the west side of Pohakuloa which was the boundary at that time to the so-called Kona Hwy then to you know that little village, Pu'u Anahulu and then down to the bay – Kiholo	Ku Ching
Pu'u Ka Papa	You know, there were two quarries out there - the big cinder puus - one just as you're going up and one further up. I worked at two quarries. I was out there – beautiful…. Pu'u Kapapa and Nonohai, the biggest pu'u right there as you're going up.	Lloyd Puhi
"	I stopped the other one back in '98 – Pu'u Kapapa. If you take notice, what I did was I went landscape everything so you no can tell.	Lloyd Case
"	There's a lot of [caves] in fact there's two caves out there. We don't know [if big], we didn't go in, there's Pukapa 1 and 2, but it had the mouth open and when we used to go and repair fence we throw all the wire and stuff in there	Mark Yamaguchi
Pu'u Ka Pele	Pp here, not too far from Pu'ukapele there's another place another puu sort of a cave like thing but there's a place that the old cowboys would put their names and things like that so it's all historical stuff. But I haven't been to that side. And actually on the two hikes across those portions of Pohakuloa	Ku Ching
Pu'u Ke'eke'e	**T**hat was one of our favorite places for hunting	Lloyd Case
"	Hunting - you can access here - Pukeke and the back area - this is all the roads, you can probably go as far out as here…. 23, 22,	Lucky Puhi
"	I know the *mamane* forest came all the way down. Had a lot of *mamane* trees out there when I used to hunt out there - a lot of *mamane* - from Pu`u Keke down this way [Waiki`i].	Lucky Puhi
"	You know where the military bunks is, it's called Pu'ukeke.	Mark Yamaguchi
Pu'u Koli'i	I've seen sites that have taken me through places like Pu'ukoli'i like that one cave, that large cave complex.	Ku Ching
Pu'u Koli'i	we went to Pu'ukoli'i..we tromped around all those places, I saw that one area where sort of like an ahu line…course one of the mysteries about that place…like there are all these puka in the ground, and people did something with those, I don't know what…I believe however that there are places on the mountain where in such places they the old Hawaiians used to deposit leaves and vegetation and all that kind stuff and they would grow uala, but I don't know if that's what they were doing in all these places. There surely isn't anything leftover -- debris, planting material whatever from those times if indeed that's what they were doing, I don't know. Some people are talking about oh they were out there and were doing those kinds of things because they were trying to catch *'ua'u* - maybe, maybe not. I don't know. I mean, these are all possibilities. Of course I don't think the *'ua'u* [petrel] nest there anymore	Ku Ching
Pu'u O'Umi	In the PTA area had old trails inside there - trails that were used to go to Pu'u o 'Umi side too. I'm sure you have some documentation…. But there are trails and stuff like that out there	Lloyd Case
Saddle Road	Even from the Saddle Road area down to a certain elevation…more *mamane*	Lucky Puhi

Table 2. Place Names/Comments/Interviewee.		
Place Name	**Comment**	**Interviewee**
“	It [*mamane*] was along Saddle Road and all this top section, but it came down pretty far	Kanaina Case
Steven Holt Corral	There’s things just like that - there’s old corrals - there’s the Steven Holt corral; it’s closer to the road on the bottom. That’s in Ke‘āmuku.	Kanaina Case
Umikoa Trail	We went up in Umikoa Trail which is somewhere up the mountain, it remains the same or changes to the Ka’ua Trail which goes to the summit up Mauna Kea.	Ku Ching
Waiki‘i Ranch	The 3000 acres now of Waiki‘i, was a part of the [Ke‘āmuku] section that we used to bring cattle out from the [rocky] place. Slowly we would move them up, once we got them on Waiki‘i, we would work them easier.	Lucky Puhi
Waiki`i Village	The house that … before you hit the road to go down to the postal there’s another old house on the *makai* side right…from that house all the way down there used to be all homes before. Cool up there. I don’t know if you heard of that Waiki‘i Village. That was the name of that, Waiki‘i Village	Mark Yamaguchi
Waimea	I grew up in Waimea - everybody was always sharing. You know, we still practice that over here	Lloyd Case

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Wiki-Chukar

(2010) Chukkar/Partridge (*Alectoris chukar*) Photo 47. http://en.wikipedia.org/wiki/Chukkar

Wiki-PTA

(2010) Pohakuloa Training Area (PTA) http://en.wikipedia.org/wiki/Pohakuloa_Training_Area

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This Section has been removed as Controlled Unclassified Information (CUI).

The original contains sensitive information related to the nature and location of archaeological sites and historic properties which is protected under Section 304 of the National Historic Preservation Act and Section 9 of the Archaeological Resources Protection Act and is therefore excluded from this version for public disclosure. Justified requests submitted to Army Cultural Resources will be considered.

APPENDIX B

National Register of Historic Places Forms
Multiple Property Documentation Form for
Archaeological Resources of the Interior Uplands of Hawai`i Island
U.S. Army Pohakuloa Training Area

Final Report
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